



Final Environmental Impact Report

Samoa Peninsula Land-based Aquaculture Project

County of Humboldt, Planning and Building Department
June 30, 2022



Final Environmental Impact Report Samoa Peninsula Land-based Aquaculture Project

SCH#: 2021040532

This document has been prepared by:



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Appendix B	Letter from the Salmonid Restoration Federation
Appendix C	Pile and Cross Beam Removal Quantities Technical Memorandum

Acronym List

ADA	Americans with Disabilities Act
AES	Aesthetics
AG	Agriculture and Forest Resources
AOI	Area of Interest
APE	Area of Potential Effect
APF	Area of Production Foregone
APN	Assessor Parcel Numbers
AQ	Air Quality
ASC	Aquaculture Stewardship Council
ATCM	Air Resource Board's Air Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
BAP	Best Aquaculture Practices
BEUTI	Biologically Effective Upwelling Transport Index
BIA	Biologically Important Area
BIO	Biological Resources
BLM	Bureau of Land Management
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal-OSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CalCOFI	California Cooperative Oceanic Fisheries Investigations
CAP	Climate Action Plan
CARB	California Air Resources Board
CAT	Climate Action Team
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CENCOOS	Central and Northern California Ocean Observing System
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESA	California Endangered Species Act
CFCPA	California Farmland Conservancy Program Act
CFGF	California Department of Fish and Game Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHP	California Highway Patrol
CIP	Capital Improvement Plan
CNDDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act

COPC	Contaminants of Potential Concern
CPUC	California Public Utilities Commission
CR	Cultural Resources
CR	College of the Redwoods
CRHR	California Register of Historical Resources
CRTP	Coalition for Responsible Transportation Priorities
CSM	Conceptual Site Model
CSZ	Coastal Subduction Zone
CWA	Clean Water Act
CZ	Coastal Zone
dBA	Decibels
DDT	Dichlorodiphenyltrichloroethane
DEIR	Draft Environmental Impact Report
DHHS	Department of Health and Human Services
DOC	Department of Conservation
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EAP	Energy Action Plan
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
ELL	End of Lamp Life
ENG	Energy Resources
EPA	Environmental Protection Agency
EPIC	Environmental Protection Information Center
EQ Zapp	California Earthquake Hazard Zones
ESA	Endangered Species Act
ESHA	Environmentally Sensitive Habitat Area
ESL	Environmental Screening Level
ESU	Evolutionarily Significant Unit
FCR	Feed Conversion Ratio
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FESA	Federal endangered Species Act
FGC	California Fish and Game Code
FHWG	Fisheries Hydroacoustic Workgroup
FIFO	Fish-In-Fish-Out
FIP	Fisheries Improvements Projects
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
FRA	Federal Responsibility Area
GEO	Geology and Soils
GHG	Greenhouse Gas Emissions
GMP	Good Manufacturing Practices
GWP	Global Warming Power
GP	Georgia Pacific LLC
GPM	Gallons per Minute
HAB	Harmful Algal Blooms

HACCP	Hazard Analysis and Critical Control Point
HAT	Highest Astronomical Tide
HAZ	Hazards and Hazardous Materials
HBAP	Humboldt Bay Area Plan
HBDA	Humboldt Bay Development Association, Inc.
HBHRCD	Humboldt Bay Harbor, Recreation, and Conservation District
HBMWD	Humboldt Bay Municipal Water District
HBW	Home-based-work
HCAOG	Humboldt County Association of Governments
HCFC	Hydrochlorofluorocarbons
HFC	Hydrofluorocarbon
HMSPPCP	Hazardous Materials Spill Prevention Control and Countermeasure Plan
HWMA	Humboldt Waste Management Authority
HWQ	Hydrology and Water Quality
IEPR	Integrated Energy Policy Report
IFFORS	International Fishmeal and Fish Oil Responsible Supply
IGP	Industrial General Permit
INAD	Investigational New Animal Drug
IS/MND	Initial Study/Mitigated Negative Declaration
ITE	Institute of Transportation Engineers
ITP	Incidental Take Permit
IPCC	Intergovernmental Panel on Climate Change
IWTP	Intake Water Treatment Plant
KGD	Kilograms per day
kV	Kilovolt
LAT	Lower Astronomical Tide
LCFS	Low Carbon Fuel Standard
LCP	Local Coastal Program/Plan
LEA	Law Enforcement Agency
LEHD	Longitudinal Employer-Household Dynamics
Leq	Equivalent Continuous Sound Level
LFS	Longfin Smelt
LID	Low Impact Development
LOS	Level of Service
LRA	Local Responsibility Area
LU	Land Use and Planning
MBTA	Migratory Bird Treaty Act
MBR	Membrane Bioreactor
MC	Coastal Dependent Industrial
MC/A	Coastal Dependent Industrial with Archaeological Overlay Zoning Destination
MCT	Maximum Considered Tsunami
MG	Million-Gallon
MGD	Million Gallons per Day
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
MMRP	Mitigation Monitoring and Reporting Program
Mn	Manganese, dissolved
MOE	Measures of Effectiveness

MR	Mineral Resources
MSC	Marine Stewardship Council
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSL	Mean Sea Level
MTCO _{2e}	Metric Tons of Carbon Dioxide Equivalent
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NCEC	North Coast Environmental Center
NAFC	Nordic Aquafarms California, LLC.
NAHC	Native American Heritage Commission
NCRWQCB	North Coast Regional Water Quality Control Board
NCUAQMD	North Coast Unified Air Quality Management District
ND	non-detect
NESHAP	National Emissions Standard for Hazardous Air Pollutants
NGS	Next-generation Sequencing
NH ₄	Ammonium Nitrogen
NHPA	National Historic Preservation Act
Ni	Nickel, dissolved
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Noise
NOP	Notice of Preparation
NOX	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OCP	Organochlorine Pesticide
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OIE	World Organization of Animal Health
OPC	Ocean Protection Council
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Act
P	Phosphorus
PCB	Polychlorinated Biphenyl
PCFG	Pacific Coast Feeding Group
PCSD	Peninsula Community Services District
PFC	Perfluorocarbon
PFMC	Pacific Fishery Management Council
PG&E	Pacific Gas and Electric Company
PM	Particulate Matter
POP	Population and Housing
PPV	Peak Particle Velocity
PRC	Public Resources Code
PS	Public Services
PSB	Project Study Boundary
PSD	Prevention of Signification Deterioration
PSPS	Planned Safety Power Shutdowns

PST	Permanent threshold shift
psu	Practical Salinity Units
PTHA	Probabilistic Site-Specific Tsunami Hazard Analysis
RAP	Rammed Aggregate Piles
RAS	Recirculating Aquaculture System
RCEA	Redwood Coast Energy Authority
REC	Recreation
RMP	Restoration and Monitoring Plan
RMT II	Redwood Maine Terminal II
ROG	Reactive Organic Gases
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
RV	Recreational Vehicle
RWQCB	Regional Water Quality Control Boards
SARA	Superfund Amendments and Reauthorization Act
SEL	sound exposure level
SB	Senate Bill
SF6	Sulfur Hexafluoride
SL	Screening Level
SOP	Standard Operating Procedure
SPCC	Spill, Prevention, Control and Countermeasure
SPG	Samoa Pacific Group
SPI	Sierra Pacific Industries
SRKW	Southern Resident Killer Whale
SSC	Species of Special Concern
SWDS	Solid Waste Disposal Site
SWPPP	Stormwater Pollution Prevention Program
SWRCB	California State Water Resources Control Board
TAC	Toxic Air Contaminant
TAZ	Traffic Analysis Zone
TCR	Tribal Cultural Resources
TDS	Total dissolved Solids
THPO	Tribal Historic Preservation Officer
TISG	Transportation Impact Study Guide
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TR	Transportation
TSS	Total Suspended Solids
TTs	Temporary threshold shifts
TVERS	Tsunami Vertical Evacuation Refuge Structure
US	United States
USACE	United States Army Corp of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

UST	Underground Storage Tank
UTL	Utilities and Service Systems
UV	Ultraviolet
UW	Universal Waste
VDC	Vibro Displacement Columns
VHFHSZ	Very High Fire Hazard Severity Zones
VMT	Vehicle Miles Traveled
VROOM	Variety in Rural Options of Mobility
WDF	Wildfire
WMU	Waste Management Unit
WNP	Western North Pacific
WQO	Water Quality Objective
WUI	Wildland Urban Interface
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

1. Introduction

1.1. Purpose of the Final Environmental Impact Report

This Final Environmental Impact Report (FEIR) for the Samoa Peninsula Land-based Aquaculture Project (Project) consists of the Draft Environmental Impact Report (DEIR), comments received on the DEIR, the County of Humboldt's (County; Lead Agency) responses to comments, and revisions to the DEIR (Errata). The DEIR identified the likely environmental consequences associated with the Project, and recommended mitigation measures to reduce potentially significant impacts.

To certify the FEIR, the County must find that:

- The FEIR has been completed in compliance with the California Environmental Quality Act (CEQA).
- The FEIR was presented to the decision-making body of the Lead Agency and that the decision-making body reviewed and considered the information contained in the FEIR prior to approval of a project.
- The FEIR reflects the Lead Agency's independent judgment and analysis (CEQA Guidelines Section 15090).
- The findings of the EIR are consistent with Section 15091 of the CEQA Guidelines. The Project will not result in a significant unmitigated environment impact, findings are supported by substantial evidence, and the FEIR includes a Mitigation, Monitoring, and Reporting Program.
- Approval of the EIR is consistent with Section 15092 of the CEQA Guidelines. As the Lead Agency, the County has eliminated or substantially lessened all significant effects on the environment where feasible as shown in findings under Section 15091. The Project does not result in any remaining significant effects on the environment found to be unavoidable, and a statement of overriding conditions was not required.

1.2. Environmental Review Process

CEQA requires a lead agency to consult with public agencies having jurisdiction over a proposed project, and to provide the general public with an opportunity to comment on the DEIR. This FEIR has been prepared to respond to written comments received on the DEIR.

The Notice of Preparation (NOP) was made available for a 30-day public review period on June 3, 2021. CEQA Guidelines Section 15082 (b) requires a 30-day public review period for input on the scope and content of the EIR. The NOP review period ended on July 6, 2021. A public scoping meeting was held on July 1, 2021. An agency scoping meeting was held on June 10, 2021. The purpose of the two public scoping meetings was to inform agencies and interested parties about the Project, and to solicit input on environmental issues germane to the Project, as well as potential alternatives to the Project. Section 1.4 the DEIR summarizes the public scoping process, and lists areas of controversy based off the public scoping process.

The DEIR was made available for a 60-day public review on December 20, 2021. The review period ended at 5:00 pm on February 18, 2022. The document was made available for review at the Humboldt County Building and Planning Department, located at 3015 H Street, Eureka, California, 95501 and online at: <https://humboldt.gov.org/3218/Nordic-Aquafarms-Project>. The DEIR was sent to the State Clearinghouse and was published on December 20, 2021, for distribution to State agencies, and was distributed to local, State, and federal responsible and trustee agencies and tribal governments. The general public was

advised of the DEIR through a Notice of Availability posted at the County Clerk as required by law, and through a posting in the local newspaper, the Times Standard, on December 20, 2021.

This FEIR was prepared and posted publicly on July 1, 2022.

1.3. Document Organization of the FEIR

The FEIR is organized into the following chapters:

- **Chapter 1 – Introduction.** This chapter discusses the use and organization of this FEIR and the environmental review process.
- **Chapter 2 – Comments and Responses.** This chapter includes a list of persons, organizations, and public agencies who commented on the DEIR, reproductions of the letters received from the public on the DEIR, and responses of the Lead Agency to those comments.
- **Chapter 3- Comments Received Following the Close of Public Circulation.** This chapter summarized the comments received by the County pertaining to the Project following the close of public circulation.
- **Chapter 4 – Errata.** This chapter includes text modifications to the DEIR. Proposed text additions are signified with underlined bold text (**example**), and stricken text is signified with strike through (~~example~~).
- **Chapter 5 – References.** This chapter includes references utilized in this FEIR.
- **Chapter 6 – List of Preparers.** This chapter includes the list of individuals who contributed to this document.

2. Comments and Responses

During the public comment circulation period for the DEIR, the County received 12 public agency, 19 organizational, and 211 individual letters/emails. A list of the comment letters and comments provided is shown below in Table 2.1 through Table 2.3. The comment letters expressing support for the Project are listed below in Table 2.4.

The comment letters provided by Tribal, government, and other public agencies are listed below in Table 2.1.

Table 2.1 Agency Comments Received on the DEIR

Letter	Agency	Letter Date
District		
101	Humboldt Bay Municipal Water District	February 18, 2022
102	Manila Community Services District	February 15, 2022
Local		
201	Division of Environmental Health	February 16, 2022
202	Humboldt County Sheriff's Office	February 15, 2022
State		
301	California Coastal Commission	February 18, 2022
302	California Department of Fish and Wildlife	February 18, 2022
303	College of the Redwoods	January 20, 2022
304	Humboldt State University	February 17, 2022
Federal		
401	National Marine Fishers Service	February 17, 2022
402	Wiyot Tribe	February 18, 2022
403	Blue Lake Rancheria	February 17, 2022
404	Bear River Band of the Rohnerville Rancheria	February 18, 2022

The comment letters provided by non-governmental organizations are listed below in Table 2.2.

Table 2.2 Organizational Comments Received on the DEIR

Letter	Organization/Business	Letter Date
501	350 Humboldt	February 18, 2022
502	Coldwell Banker Commercial Pacific Partners	January 20, 2022
503	Humboldt Baykeeper Coalition for Responsible Transportation Priorities Surfrider Foundation Northcoast Environmental Center 350 Humboldt The Environmental Protection Information Center Friends of the Eel River Save California Salmon Sierra Club Redwood Chapter North Group	February 18, 2022

Letter	Organization/Business	Letter Date
504	California North Coast Chapter of the Wildlife Society	February 12, 2022
505	Fortuna Chamber of Commerce	January 26, 2022
506	Ali Freedlund	February 15, 2022
507	Humboldt Area Saltwater Anglers Inc.	February 17, 2022
508	Humboldt Fisherman's Marketing Association, Inc.	February 17, 2022
509	Ming Tree Realtors	January 20, 2022
510	Oceana	February 18, 2022
511	Ocean Protection Council	February 18, 2022
512	Pauli-Shaw Insurance Agency	February 15, 2022
513	Pacific Coast Federation of Fishermen's Associations	February 18, 2022
514	Pacific Fishery Management Council	February 18, 2022
515	Humboldt Prosperity Alliance	February 18, 2022
516	Redwood Region Audubon Society	February 15, 2022
517	Salmonid Restoration Federation	February 18, 2022
518	Salmonid Restoration Federation	February 17, 2022
519	Martha Walden, Editor of 350 Humboldt LookOut	February 13, 2022

The comment letters provided by individuals not representing specific organizations are listed below in Table 2.3.

Table 2.3 Individual Comments Received on the DEIR

Letter	Last Name	First Name	Letter Date
601	Allen	Tom and Katy	February 16, 2022
602	Anderson	Joy	February 17, 2022
603	Andre	Mark	February 18, 2022
604	Astrue	Elaine	February 18, 2022
605	Becker	Stacy	February 11, 2022
606	Becker	Thomas	February 18, 2022
607	Brown	Jennie	February 18, 2022
608	Campbell	Bruce	February 17, 2022
609	Carr	Patrick	February 18, 2022
610	Carro	Lina	February 18, 2022
611	Clifford	Colleen	February 11, 2022
612	Coleman	Daniel	February 14, 2022
613	Conaway	Carol	February 16, 2022
614	Cooksey	Steve	February 15, 2022
615	Coonen	Gail	February 18, 2022
616	Dedini	Lee	February 15, 2022

Letter	Last Name	First Name	Letter Date
617	Dickinson	Margaret	February 14, 2022
618	Draper	Margaret	February 16, 2022
619	Finen	Alice	February 18, 2022
620	Fennell	Michael	February 18, 2022
621	Frazer	Scott	February 15, 2022
622	Grantz	Daniel	February 12, 2022
623	Grover	Sallie	February 18, 2022
624	Hafner	Sharon	February 17, 2022
625	Higgins	Patrick	January 13, 2022
626	Hoggan	Kelly	February 17, 2022
627	Holifield	Rosemary	February 13, 2022
628	Hurley	Mary	February 15, 2022
629	Ihara	Nancy	February 14, 2022
630	James	Joe	February 13, 2022
631	Kamprath	Michele	February 17, 2022
632	Kelcey	Kathleen	February 16, 2022
633	Klass	Naomi	February 12, 2022
634	Klien	Randy	February 15, 2022
635	Knight	Jennifer	February 18, 2022
636	Luttig	Steve	February 18, 2022
637	Mayer	Karen	February 18, 2022
638	McCombs	Robert	February 14, 2022
639	McCneill	Kimiko	February 14, 2022
640	Mierzwa	Ken	February 3, 2022
641	Morgan	Dan	February 12, 2022
642	Keleher, (Morrison)	Nancy, (Sam)	February 12, 2022
643	Mossman	Archie	February 10, 2022
644	Movsesyan	Greg	February 15, 2022
645	Murphy	Andrew	December 21, 2021
646	Murphy	Ellen	February 17, 2022
647	Murphy	Peg	February 17, 2022
648	Nash	Nikki	February 12, 2022
649	Nys	Lorna	February 11, 2022
650	O'Barr	Juliet	February 14, 2022
651	Paltin	Sharon	February 12, 2022
652	Parker	Mara	February 8, 2022
653	Pelletier	Lisa	February 17, 2022

Letter	Last Name	First Name	Letter Date
654	Perricelli	Claire	February 12, 2022
655	Peters	Thomas	February 12, 2022
656	Peterson	Erik	February 16, 2022
657	Phoenix	Fhyre	February 10, 2022
658	Quinn	Leslie	February 18, 2022
659	Rand	Joanne	February 14, 2022
660	Ring	Wendy	February 14, 2022
661	Rizza	Francene	February 16, 2022
662	Rizza	Jim	February 16, 2022
663	Romo	Ted	February 18, 2022
664	Rose,	Patti	February 14, 2022
665	Rosenberg	Stephen	February 18, 2022
666	Rozhon	Genevieve	February 3, 2022
667	Ryan	Lynn	February 11, 2022
668	S.	Stella	February 15, 2022
669	Salzman	Steve	February 14, 2022
670	Schaefer	John	February 17, 2022
671	Sopjes	David	February 14, 2022
672	Stefanoff	Jeffrey	February 13, 2022
673	Steiner	A.L.	February 16, 2022
674	Stofsky	Margaret	February 14, 2022
675	Story	Darryle	February 14, 2022
676	Sunrana	-	February 16, 2022
677	Troxell	Shawn	February 12, 2022
678	Williams	Lawrence	February 16, 2022
679	Willy	Alison	February 17, 2022

The comment letters expressing support for the Project are listed below in Table 2.4.

Table 2.4 Supporting Comments Received on the DEIR

Letter	Last Name	First Name	Letter Date
701	Aguiar	Aaron	February 15, 2022
702	Aguiar	Caleb	February 15, 2022
703	Aguiar	Rachel	February 7, 2022
704	Ammon	James	February 18, 2022
705	Arrington	Janet	February 15, 2022
706	Arrington	Brian	February 7, 2022
707	Barff	Gilbert	February 17, 2022

Letter	Last Name	First Name	Letter Date
708	Barker	Malcom	February 15, 2022
709	Bascochea	Thomas	February 7, 2022
710	Baskette	Kade	February 15, 2022
711	Berti	Ryan	February 15, 2022
712	Brown	Kyle	February 15, 2022
713	Burns	Aaron	February 15, 2022
714	Burns	Adam	February 15, 2022
715	Burns	William	February 4, 2022
716	Burnside	Lars	February 15, 2022
717	Byrns	Joel	February 15, 2022
718	Carper	Colleen	February 18, 2022
719	Carper	Ken	February 18, 2022
720	Chapman	Peter	February 15, 2022
721	Charter	Les	February 15, 2022
722	Church	John	February 15, 2022
723	Clary	Justin	February 15, 2022
724	Combs	Hank	February 7, 2022
725	Cormier	Ryan	February 16, 2022
726	Craig	Angie	February 18, 2022
727	Crowley Jr.	Tim	February 15, 2022
728	Crowley	Paula	February 15, 2022
729	Crowley	Tim	February 15, 2022
730	Dougherty	Annie	February 15, 2022
731	Dougherty	Scott	February 15, 2022
732	Doyle	Jessica	February 15, 2022
733	Doyle	William	February 15, 2022
734	Drop	Christopher	February 18, 2022
735	Dupret	Norman	February 4, 2022
736	Earls	Tom	February 15, 2022
737	Erickson	Rob	February 15, 2022
738	Fisher	Reid	February 15, 2022
739	Flyer	Jon	February 18, 2022
740	Freitas	Brent	February 7, 2022
741	French	Alan	February 15, 2022
742	Gaser	Chad	February 15, 2022
743	Gildersleeve	Mitchell	February 18, 2022
744	Good	Sherril	February 18, 2022

Letter	Last Name	First Name	Letter Date
745	Gulley	Desiray	February 18, 2022
746	Harpin	Karlie	February 15, 2022
747	Hawkins	Gail	February 18, 2022
748	Heenan	Erica	February 17, 2022
749	Heenan	Rian	February 15, 2022
750	Herkert	Ashleigh	February 15, 2022
751	Herkert	Harry	February 15, 2022
752	Herkert	Jadin	February 15, 2022
753	Herkert	Kandice	February 15, 2022
754	Herkert	Kim	February 15, 2022
755	Herr	Paul	February 15, 2022
756	Hooper	Doug	February 15, 2022
757	Horner	Larry	February 18, 2022
758	Hughes	Rees	February 9, 2022
759	Jansen	Yeshi	February 16, 2022
760	Joiner	Jeff	February 15, 2022
761	Jones	Ronald	February 18, 2022
762	Kinder	Johnny	February 15, 2022
763	Kenneth	Kittleson	February 18, 2022
764	Koch Jr.	Eddie	February 18, 2022
765	Lazott	Brad	February 15, 2022
766	Lincoln	Michael	February 18, 2022
767	Lowe	Aaron	February 7, 2022
768	MacDonald	Chris	February 15, 2022
769	Mace	Gail	February 18, 2022
770	Machado	Paul	February 18, 2022
771	McBeth	Rob	February 11, 2022
772	McKay	Danny	February 7, 2022
773	McKay	Sandy	February 15, 2022
774	McKenzie	Jennifer	February 15, 2022
775	McKinney III	Stephen	February 15, 2022
776	Miller	Brandi	February 15, 2022
777	Minnick	Kayla	February 15, 2022
778	Minnick	Logan	February 15, 2022
779	Moore	Dejiana	February 15, 2022
780	Moorehead	Mike	February 15, 2022
781	Mora	Mark	February 7, 2022

Letter	Last Name	First Name	Letter Date
782	Moran	Jeff	February 15, 2022
783	Nahm	Josh	February 15, 2022
784	Ondracek	David	February 15, 2022
785	Page	Greg	February 4, 2022
786	Payne	Kristopher	February 11, 2022
787	Poletski	Travis	February 16, 2022
788	Powell	Jeremy	February 15, 2022
789	Powell	Tim	February 15, 2022
790	Pulver	Doug	February 15, 2022
791	Scott	Rayne	February 18, 2022
792	Redner	Kaden	February 15, 2022
793	Reynolds	Kevin	February 18, 2022
794	Reynolds	Tim	February 15, 2022
795	Rice	Judy	February 11, 2022
796	Richerdson	Jaben	February 15, 2022
797	Roach	Wyatt	February 4, 2022
798	Robinson	Aaron	February 15, 2022
799	Rojas	Frank	February 7, 2022
800	Romani	Kristen	February 15, 2022
801	Santche	Brian	February 15, 2022
802	Santche	Kim	February 15, 2022
803	Scales	Jesse	February 15, 2022
804	Schenkerberg	Jason	February 15, 2022
805	Schenkerberg	Sarah	February 15, 2022
806	Sears	John	February 18, 2022
807	Soderman	Jared	February 18, 2022
808	Sousa	Lawrence	February 4, 2022
809	Stivers	Jim	February 16, 2022
810	Stoner	Brendan	February 18, 2022
811	Tavasci	John	February 15, 2022
812	Toland	Doug	February 15, 2022
813	Toland	Julie	February 15, 2022
814	Torgersen	Todd	February 15, 2022
815	Trainor	Michael	February 18, 2022
816	Van Dyke	Kurt	February 15, 2022
817	Van Horn	Janet	February 15, 2022
818	Vieyra	Miguel	February 18, 2022

Letter	Last Name	First Name	Letter Date
819	Wade	Chris	February 15, 2022
820	Ward	Larry	February 16, 2022
821	Warnow	Steve	February 18, 2022
822	Webster	Tina	February 18, 2022
823	White	John	February 16, 2022
824	Wilkinson	Craig	February 18, 2022
825	Wilson	Ray	February 18, 2022
826	Zabel	Justin	February 17, 2022
827	Von Borstel	Annalise	January 27, 2022
828	Carrozzi	Gia	February 22, 2022
829	Davis	Jason	February 22, 2022
830	Warnow	Steve	February 22, 2022
831	Soriano	Kevin	February 22, 2022
832	Sanderson	Ruger	February 22, 2022

2.1. Master Responses

Review of comments provided on the DEIR indicated that some types of comments were made repeatedly by various commenters, demonstrating a common concern. To allow presentation of a response that adequately addresses all aspects of these related comments, a selection of 11 Master Responses have been prepared. The Master Responses are structured to allow a well-integrated response addressing all facets of a particular common concern and/or issue.

The Master Responses are referenced throughout this section where applicable, in lieu of piece-meal responses to each individual comment, in order to acknowledge the full complexity of the issues being raised. The use of a Master Response is in no way intended to minimize the importance of an individual comment; on the contrary, each Master Response is intended to provide a thorough response to each comment sharing a common concern.

The Master Responses and their respective topics are listed below in Table 2.5.

Table 2.5 Summary of Master Responses

Master Response Number	Response Topic
1	Truck Traffic & Road Safety
2	Greenhouse Gas and Energy
3	Fish Escape
4	Fish Health and Biosecurity
5	Marine Outfall
6	Statements Unrelated to Environmental Issues as Defined Under CEQA
7	Intake Biologic Productivity, Intake Salmonids
8	Substantial Evidence, Speculation, and Unsubstantiated Opinion
9	Level of Detail in EIR and Responses to Comments
10	Fish Feed
11	Waste Handling and Disposal

Master Response 1 – Truck Traffic & Road Safety

Multiple comments were provided expressing concern regarding the DEIR analysis of impacts related to Project traffic. Such comments suggest that a more thorough analysis of the truck traffic impact should be conducted and question whether the calculated truck trips outlined in the DEIR are correct.

Some comments state that the Project traffic and number of trucks that the Project will add to State Route 255 (SR 255) either north or east across the Samoa Bridge will have a significant impact on pedestrians and bicyclists by exacerbating existing dangers, and that the truck traffic will significantly increase or add additional hazards to local residents and visitors. Other comments received were specifically related to Project traffic on SR 255 through Manila and Arcata and suggested that Project traffic should be required to avoid this route to United States Highway 101 (US 101).

Comments state that additional traffic from Project employees and Project truck traffic will have an impact on the Manila community unless those vehicles are discouraged to travel on SR 255. Comments request that the Samoa Bridge should be used because it goes to the US 101 Safety Corridor. Comments state that

any increase in heavy truck traffic would result in a substantial increase in hazards to cyclists on the Samoa Bridge due to strong winds and existing narrow lane width and shoulders. Comments request collision analysis along SR 255 both north and east of New Navy Base Road. Comments also state that the Project would have a significant cumulative impact on non-motorized safety (Impact TR-e) given existing conditions along the Samoa Bridge. Comments state that the Project should provide mitigation measures including vanpools or shuttles for employees and to mitigate damage from truck traffic.

As noted in Section 4 (Errata), the Project Description has been updated to reference the alternative transportation strategies that NAFC has voluntarily committed to in association with the Project. Please also see Master Response 2 (Greenhouse Gas and Energy – On Road Truck Activity). As described in the DEIR, no new impacts have been raised that have not been adequately evaluated and found to be less than significant impacts

Truck Traffic & Safety

NAFC has provided additional clarifying data related to weekly truck traffic for the daily truck trips calculation in Section 3.12 (Transportation), which is included in the Errata for Section 2.2.4 (Facility Truck Traffic). An updated calculation for a total of 95 trucks per week, and 32 truck trips per day (in and out) of the Project Site is as follows:

- 40 product delivery trucks per week at 6 days/week = 13 truck trips per day (in and out)
 - 70 percent (%) going to/from east on SR 255 (via Eureka) (28 trucks/week)
 - 30% going to/from north on SR 255 (via Arcata) (12 trucks/week)
- 32 waste trucks per week at seven days/week = nine truck trips per day (in and out)
 - Assumes 100% on SR 255 going to/from north on SR 255 (via Arcata)
- 20 fish feed trucks per week at five days/week = eight truck trips per day (in and out)
 - Assumes 50/50 split on SR 255
- Three shipping materials and process chemicals trucks per week at three days/week = two truck trips per day (in and out)
 - Assumes 50/50 split on SR 255

Table 3.12-4 is modified in the Errata as follows:

DEIR Table 3.12-4 Project and Existing with Project Traffic and Heavy Vehicles

ID	Roadway	Location	Project-Added Daily Commute Trips	Project-Added Heavy Vehicles Truck Trips	Existing + Project ADT	Existing + Project Trucks Trips	Existing + Project Truck %
1	New Navy Base Road	n/o Cookhouse Rd	205	46 <u>32</u>	5,006 <u>5,022</u>	274 <u>290</u>	5.5 <u>5.8</u> %
2	New Navy Base Road	n/o LP Drive	205	46 <u>32</u>	3,394 <u>3,407</u>	238 <u>254</u>	7.0 <u>7.5</u> %
3	SR 255	e/o New Navy Base Rd	444 <u>103</u>	8 <u>15</u>	8,474 <u>8,478</u>	203 <u>210</u>	2.4 <u>2.5</u> %
4	SR 255/New Navy Base Rd	n/o SR 255	43 <u>102</u>	8 <u>17</u>	6,557 <u>6,616</u>	158 <u>167</u>	2.4 <u>2.5</u> %

The analysis of truck traffic in DEIR Section 3.12 (Transportation) and as further clarified in the Errata was conducted pursuant to CEQA guidelines and evaluates Project truck traffic and safety as it pertains to the existing environment, including consideration of whether the Project would substantially increase hazards due to a geometric design feature or incompatible uses.

First, the Project will not introduce any geometric design features, such as a sharp curve or a dangerous intersection, to public roadways. As such, the Project will not increase traffic safety hazards due to its design.

Second, the Project will not introduce an incompatible use, such as adding farm equipment to an urban road (see CEQA Appendix G, XVII[c]). SR 255 between US 101 in Eureka and the Samoa peninsula, and north through Manila and Arcata is a designated truck route, California Department of Transportation (Caltrans) 65-foot (65') Legal Route, per the Caltrans Truck Networks Map for District 1 (Caltrans 2019) with a posted speed limit of 55 mph. In Eureka, SR 255 has a posted speed limit of 30 mph from US 101 to the A.M. Bistrin Memorial Bridge. In Arcata, SR 255 has a posted speed limit of 35 mph. As described in Section 3.12 (Transportation), SR 255 (Samoa Boulevard) north and east of New Navy Base Road, is designed to safely accommodate heavy vehicles. The designated truck route and roadway information, as described above, has been added to Section 4.0 (Errata) of the FEIR. Because these roads were designed to accommodate trucks and serve the industrial uses within the Samoa peninsula, the addition of trucks as a result of the Project is not the introduction of an incompatible use that could substantially increase hazards.

Additionally, as summarized in DEIR Section 3.12.6 (Transportation Impacts and Mitigation Measures, Impact TR-C), starting on page 3.12-13, Project-related truck traffic does not present a significant intensification of use beyond what the road network currently experiences and accommodates. As summarized in the DEIR and updated in Section 4.0 (Errata), the Project will not burden its travel-shed with additional undue substantial risk because the Project does not significantly intensify truck traffic or substantially increase the risk to vulnerable road users. The updated analysis in the Errata is non-consequential and the findings of a Less than Significant Impact (Impact TR-C) remain.

As described in Section 3.12 (Transportation) and updated in the Errata, the Project anticipates 32 truck trips per day on New Navy Base Road, 17 truck trips per day on SR 255 north of New Navy Base Road towards Arcata, and 15 truck trips per day on SR 255 east towards Eureka. Comparing the Project truck trips to the existing 258, 150, and 195 truck trips per day on each of these roads, respectively, as presented in DEIR Table 3.12-3 and updated in FEIR Table 3.12-4, is not a significant increase in the amount of truck trips per day and would not result in a substantial increase in hazards because the daily truck percentage on these roadways increases by at most 0.5% with the Project.

Potential for Pedestrian and Bicycle Conflicts

Analysis of existing collision data and heavy vehicle data, in DEIR Section 3.12.6 (Transportation) and as updated in Section 4.0 (Errata), does not support the suggestion that the Project is likely to cause an increase in conflicts between trucks and pedestrians or bicycles. Collision history related to bicyclists and pedestrians along SR 255 has been added in Section 4.0 (Errata), and summarized, as follows. Collision analysis is typically evaluated by transportation planners and engineering professionals based on three to five years of historical data, due to changing travel or infrastructure conditions.

Historical collision data over a five-year period from 2015-2019 was reviewed along SR 255 east of and north of New Navy Base Road. The collision data was from the Transportation Injury Mapping System (TIMS), which provides access to the Statewide Integrated Traffic Records System (SWITRS). On SR 255,

between New Navy Base Road and US 101 (non-intersection collisions), there were zero pedestrian- or bicyclist-involved collisions during the five-year period along the roadway. On SR 255, north of New Navy Base Road, there was one pedestrian-involved collision in 2017 approximately 850 feet south of the intersection of SR 255/Vance Avenue, and one bicycle-involved collision in 2018 approximately 530 feet north of SR 255/Young Lane. Further investigation into the bicycle collision presented that it was a “non-collision”, and no motor-vehicle was involved.

Based on the roadway volumes and characteristics, one motor-vehicle vs. pedestrian collision over a five-year period does not present a significant concern related to safety on SR 255, and the very small increase in heavy vehicle percentage (0.2% increase on SR 255 and 0.5% increase on New Navy Base Road, as determined from DEIR Table 3.12-3 and DEIR Table 3.12-4 and updated Table 3.12-4 in Section 4, Errata) as a result of this Project will not significantly impact existing conditions.

There are currently traffic calming measures on SR 255 through Manila with speed reduction signs and pavement markings. SR 255 through Manila, Arcata, and across the Samoa Bridge also have sufficient shoulder width to safely accommodate pedestrians and bicyclist travel, where the majority of existing shoulder widths vary between approximately six feet and eight feet in Manila, approximately six to eight feet across the Samoa Bridge, and designated six-foot bike lanes in Arcata, which meet the Caltrans standard for a bicycle lane of six feet, per the Highway Design Manual (Caltrans 2020). There may be portions of SR 255 that lack sufficient shoulder width for pedestrians or bicyclists; however, the Project would not cause additional undue substantial risk to vulnerable road users because the Project does not significantly intensify truck traffic or private automobile traffic that would substantially increase the risk to vulnerable road users.

Cumulative Impacts

DEIR Section 3.12.7 (Cumulative Impacts) evaluates future development including the various cumulative projects as listed in Table 3.1 in the DEIR.

Transportation Mitigation

As presented in DEIR Section 3.12 (Transportation) and updated in Section 4.0 (Errata), the Project does not result in a significant impact on Transportation, and, therefore, no mitigation measures for Transportation are required upon the Project.

Revisions to the DEIR are documented in the Errata. Additionally, no mitigations are warranted, and the findings remain consistent with the DEIR.

Master Response 2 – Greenhouse Gas and Energy

Multiple comments were received raising issues regarding the greenhouse gas (GHG) impact analysis. Comments state that the quantitative and qualitative GHG thresholds were not appropriate, and that other thresholds should be utilized. Comments also state that the emissions quantification utilized incorrectly or improperly applied on-road truck trip generation and emission factors associated with energy consumption/offsite energy generation. Comments also indicate that GHG emissions from the lifecycle of fish food consumption, including offsite emissions from fish food production and transport, should be included in the emissions analysis. Comments included requests for clarification on the type of refrigerants anticipated and revisions to the GHG emissions inventory quantification for refrigerant use.

Greenhouse Gas Emissions Generation

Greenhouse gas emissions were estimated for Project construction and operation, as detailed within DEIR Section 3.7 (Greenhouse Gas Emissions) beginning on page 3.7-10. For Project operations, emissions were estimated for two years; the first year of operations (2025) and the first year of full operations (2029). Operational emissions estimates included testing of the proposed emergency backup generators, assumed maximum potential use of the generators (as would occur during a prolonged power outage), area emissions, energy consumption, off-road equipment use, waste disposal, water consumption and wastewater generation, worker trips, and product and waste hauling trips, both within the North Coast Unified Air Quality Management District (NCUAQMD) jurisdictional area and within all of California. Responses to comments for different components of the emissions inventory are provided below.

Operational Energy Consumption/Energy Intensity Factor

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to.

As described in the DEIR, the anticipated first year of operation could be 2025; however, the Project would not reach full operational production levels and energy use until 2030 (DEIR Section 2 [Project Description] starting on pages 2-20 and 2-26 and DEIR Section 3.5 [Energy Resources] pages 3.5-2, 3.5-3, and 3.5-10). NAFC has committed to achieving the RCEA's goals for non-carbon and renewable energy-based sources of electricity during operation. NAFC's commitment is described in DEIR Section 2 (Project Description), starting on page 2-31. Per the DEIR:

NAFC is committed to the same goals as RCEA and would follow their lead when it comes to use of non-carbon and renewable energy-based sources of electricity.

This commitment is reiterated in Section 3.7 (Greenhouse Gas) on pages 3.7-7, 3.7-13, and 3.7-14; Section 3.5 (Energy Resources) pages 3.5-7, 3.5-9, and 3.5-10 and Section 5.5 (Other CEQA Required Sections) on pages 5-5 and 5-6.

The RCEA's non-carbon and renewable energy goals include:

By 2025 100% of RCEA's power mix will be from a combination of state-designated renewable energy sources—solar, wind, biomass, small hydroelectric, and geothermal—and state-designated net-zero-carbon-emission from existing large hydroelectric facilities.

By 2030 Humboldt County will be a net exporter of renewable electricity and RCEA's power mix will consist of 100% net-zero-carbon-emission renewable sources.

The Project's anticipated first year of operation, year 2025, coincides with the RCEA's goal of having a 100% mix from a combination of state-renewable and state-designated net-zero-carbon emission sources. As such, NAFC has committed the Project to using energy that is 100% mix of renewable and/or non-carbon energy sources at its first year of operation and going forward over the operational life of facility. This commitment is not only described as part of the Project within the DEIR but is fully enforceable by the County through the County's Coastal Development Permit (CDP) Conditions of Approval.

In addition to being the CEQA Lead Agency, Humboldt County is the approving agency for the Terrestrial Development CDP. The Terrestrial Development CDP is part of the permitting package that will go before the Humboldt County Planning Commission. The Terrestrial Development's CDP Conditions of Approval will include a condition requiring fulfillment of this commitment. Furthermore, the DEIR identifies that the NAFC would be required to meet RCEA's non-carbon-based energy source goals through condition of the CDP (DEIR Sections 3.5 [Energy Resources] on page 3.5-10, and DEIR Section 3.7 [Greenhouse Gas Emissions] on page 3.7-13).

The Project would include emergency backup generators to be used in the event of power outages. Emergency backup generators are required to ensure critical functions for the fish and wastewater systems would remain active during power outages, as described in DEIR Section 2 (Project Description) starting on page 2-27. NAFC anticipates that dual fuel (natural gas and diesel) generators would be installed. The natural gas would be supplied by the existing 4" main on site. Diesel fuel will be used to provide backup power if both natural gas and electricity temporarily fail.

The emergency backup generators would only be used during required testing (as outlined in the NCUAQMD's permit requirements) and power outages. It is assumed that each generator would be tested on an alternating basis each week. Typical run time for testing would be approximately 10 hours per year and would be no more than 50 hours per year. In the event of a prolonged power outage, generators would be able to run to permitted maximum 500 hours in a given year. Therefore, operation of the generators would range from 10 hours per year (minimum testing) to 500 hours (prolonged power outages). Because the emergency backup generators are required to critical functions would remain active in a power outage, and use of the generators is restricted to required testing and power outages, the Project's inclusion of emergency backup generators is not considered contradictory to NAFC's commitment to use non-carbon and renewable energy-based sources of electricity.

As discussed in the DEIR, the Project's water intake components require a CDP from the California Coastal Commission (Section 2 [Project Description] page 2-10). Power for the intake pumps and compressors would be supplied from the NAFC facility to ensure operation during periods of grid power outage. Therefore, energy consumption for operation of the intake pumps is considered part of the Terrestrial Development's operational activity, is included within the energy consumption estimates and calculations for the Terrestrial Development and is subject to the NAFC's clean energy commitments and Humboldt County's Conditions of Approval for the Project.

The Project is committed to purchasing grid electricity that is 100% renewable and/or non-carbon energy at the first year of operations. As identified in the DEIR and enforced through the Terrestrial CDP Conditions of Approval, the appropriate carbon intensity factor for electricity use would be zero (0). As described in the DEIR, Humboldt County applied a non-zero carbon intensity factor for energy consumption for the purposes of a conservative analysis (DEIR Section 3.7 [Greenhouse Gas Emissions] pages 3.7-7 and 3.7-13). Therefore, the emissions estimate is overly conservative (i.e., shows emissions greater than would be anticipated).

The non-zero carbon intensity factor applied was the most current third party-verified carbon intensity factor for Pacific Gas & Electric Company (PG&E) available at the time of analysis – the 2019 PG&E carbon intensity factor of 2.68 pounds per megawatt hour (lbs./MWh). To date, that emission factor remains PG&E's most recent third party-verified emission rate. For 2019 emissions reporting, PG&E used the California Energy Commission's (CEC) Power Source Disclosure program methodology to calculate the carbon dioxide (CO₂) emission rate associated with the electricity delivered to retail customers. As required by AB 1110, the CEC modified the Power Source Disclosure (PSD) program methodology, effective starting with the 2019 reporting year. This methodology differed from prior reporting years and results in a carbon intensity factor of 2.68 pounds per megawatt hour (lbs./MWh).

As a result of AB 1110, Power Content Labels prepared under the CEC's PSD program identify carbon intensity factors for each energy provider's electricity portfolio starting with year 2020. CEC specifies that the regulatory updates are substantial and represent a significantly modified methodology. Consequently, program data for years prior to 2019 may not be comparable to data under the updated program. As shown in the PG&E's Power Content Labels starting in year 2020, PG&E provides the following two non-carbon, 100% renewable electricity portfolios:

- 100% Solar Choice portfolio
- Greensaver Portfolio

Therefore, not only is NAFC's commitment to 100% renewable and/or non-carbon energy described within the DEIR and enforceable through permitting conditions, but both potential energy providers have demonstrated ability to deliver 100% renewable and/or non-carbon energy.

Comments concerning PG&E as an 'over-procured' utility cite studies reviewing the CEC's PSD methodology, and the current and projected energy procurement versus delivery (sales) of utilities within California. Specifically, the study by Gregory Von Wald identifies Load Serving Entities (LSEs) as "under-procured" if its retail sales exceed total net specified purchases and "over-procured" if it has net specified purchases that exceed its retail sales. Essentially, if an energy provider such as PG&E has purchased more energy than it has sold, it is considered 'over-procured'. If an LSE is over-procured, the CEC's methodology allows the LSE to revise its calculations such that the purchases are reduced to equal the total retail sales and allows the LSE to deduct natural gas specified purchases first. Therefore, it is possible for an over-procured LSE to deduct natural gas from their carbon intensity calculation, while selling their surplus zero-carbon resources to other LSEs (Von Wald 2020).

As a result, there is a concern by the comment and study authors that the system-wide carbon intensity factors reported by over-procured LSE's may be artificially reduced, as the LSE is allowed to 'deduct' natural gas purchases to balance procurement with sales. The study found this effect would likely be transient and affect only near-term reporting. As concluded in the study:

We find that the PSD program's methods are likely to produce a clear and reasonable basis for evaluating the emissions associated with physical deliveries of retail power over the long run.

Although the County understands the concern related to over-procurement, PG&E's system-wide carbon intensity factor (i.e., the carbon intensity factor for their 'base' plan) is not relevant in determining the appropriate carbon intensity factor to apply to the Project based on the Project's commitment to 100% renewable and/or non-carbon energy. It would be inappropriate to apply an LSE's system-wide or 'base plan' carbon intensity to the Project. A more appropriate carbon intensity factor would be zero pounds of carbon dioxide equivalent per megawatt hour (0 lbs. CO₂e/MWh).

Additional Onsite Solar

Some comments recommended additional onsite solar electric generation including adding PV panels over parking areas. As detailed within the DEIR Section 3.5 (Energy Resources), the average annualized operational electricity demand of the Project facilities at full build out is anticipated to be approximately 22.3 MW. This represents the continuous electricity demand of the Project Site averaged over the year, including ocean discharge and water intake electrical loads. The annual electricity use based on the anticipated average demand is estimated to be 195 GWh per year at full build out.

The total potential solar PV system size for a roof mounted system at the Project Site on Buildings 1, 2, and 3 is 4.845 MW, with an estimated annual production of 5,553 MWh. This represents approximately 3% of the Project's total annual energy use. If onsite solar energy generation were increased from the current design of 4.8 MW to the estimated maximum size of 4.845, it would only support an estimated 3% of the Project's total annual energy use. Even if maximized, onsite solar production capacity would not be able to support the Project's full energy demand. Further, the areas of the Project Site that are not proposed for PV system installation are unsuitable due to location within ESHAs, are needed for roof penetrations or mechanical equipment, or are associated with roads and parking areas. The roads and parking areas are

generally located between the 50-foot buildings and would be either fully or partially shaded much of the time, making those locations poorly suited for PV panel installation.

Lifecycle Analysis/Fish Food

Comments suggested that assessment of the Project's emissions should include lifecycle analysis and emissions embedded in feed. Lifecycle analysis and emissions embedded in feed would fall outside of the approach commonly used to analyze GHG inventories of projects under CEQA, as detailed below.

The Project's GHG impacts were analyzed pursuant to the California Environmental Quality Act (CEQA), subject to CEQA Statute, CEQA Guidelines, and case law. There are multiple different approaches to developing an emissions inventory for projects, industries, products, or other sector of GHG generation; the different emissions methodology approaches have differing uses, applications, limitations, and benefits. The various emissions inventory approaches were thoroughly evaluated against the framework of CEQA in the Association of Environmental Professionals (AEP) California Chapter Climate Change Committee in the Production, Consumption and Lifecycle Greenhouse Gas Inventories: Implications for CEQA and Climate Action Plans Whitepaper (AEP 2017).

The emissions inventory approach utilized for the Project regarding lifecycle analysis (or "embedded emissions") is consistent with the methodology identified by AEP as the current, most commonly used, and most suitable CEQA approach for industrial projects which is to include the production emissions associated with the productions of goods and services, but not include embedded or lifecycle emissions in goods and services consumed by the project (AEP 2017).

Additionally, the California Natural Resources Agency (CNRA) has identified that requiring a lifecycle analysis may not be consistent with CEQA, stating:

As a general matter, the term could refer to emissions beyond those that could be considered "indirect effects" of a project as that term is defined in section 15358 of the State CEQA Guidelines. (CNRA 2009)

And

... a full "lifecycle" analysis that would account for energy used in building materials and consumer products will generally not be required. (CNRA 2018)

As identified in DEIR Section 3.7 (Greenhouse Gas Emissions) starting on page 3.7-1, the DEIR's regulatory context for GHG is the State of California. The quantitative numeric thresholds of significance, qualitative plan-consistency threshold of significance applied, and evaluation of the Project's potential to conflict with the State's adopted Scoping Plan are all derived from or relate to California's statewide emission reduction goals and planning activities. The inventory methodology for the Project's analysis should be consistent with the inventory methodology used by State emission reduction plans (Scoping Plan). As stated in the AEP Whitepaper (AEP 2017):

... in order to compare a project-level GHG inventory to a threshold derived from a statewide reduction target based on the statewide inventory, the GHG emissions included in the project inventory must be accounted for in a similar manner to the way the state accounts for GHG emissions.

If a project-level emissions inventory included emission sources or approaches that are not included in the state inventory, then the Project's inventory would no longer be comparable to thresholds derived from statewide reduction targets. The State inventory does not include lifecycle emission from goods and services from outside the state that are used or consumed within the state. Similarly, the State inventory does not include downstream emissions (emissions produced by processes associated with the use of products after they leave the facility) for goods and services that are transported outside of the state. The

production of feed would take place outside of California; therefore, emissions associated with feed production is not included in the State inventory. Therefore, it would be inappropriate to include lifecycle emissions and emissions embedded in feed.

Refrigerants

The GHGs normally associated with the Project are listed on DEIR page 3.7-2 through 3.7-3 and includes a list of potential refrigerants. DEIR Subsection 3.7.3 (Regulatory Framework) discusses in detail all applicable GHG regulations. The Project would utilize multiple systems, including refrigerators for ice-making and two different chiller systems. The Project will be subject to regulations and programs within the California Significant New Alternatives Policy (SNAP), founded on SB 1013 and the California Air Resources Board (CARB) Hydrofluorocarbon (HFC) regulations. Specifically, the chillers will be subject to CARB's HFC Regulation and refrigerators will be subject to CARB's Refrigerant Management Program (RMP). Under the RMP, leak detection and monitoring requirements are based on system sizing.

Regulations specific to refrigerants are specifically addressed on DEIR page 3.7-6, including the requirements for leak detection maintenance programs and maximum global warming potential of refrigerants:

Starting in 2022, the Refrigerant Management Program (RMP) requires facilities with refrigeration systems containing more than 50 pounds of high-GWP refrigerant to conduct and report periodic leak inspections, promptly repair leaks; and keep service records on site.

Additionally, newly adopted regulations by CARB require new stationary refrigeration installations to use refrigerants with a global warming potential of 150 or less.

The Project will be a new facility and will employ a full-time maintenance team as listed in DEIR Table 2-7 (NAFC Employment Overview) on page 2-29. Preventative maintenance checks, service, and inspections are effective means of preventing leaks from occurring in these systems and would be conducted as a component of regulatory compliance. As chillers are an essential part of the Project's daily operations, they will receive regular attention to ensure they are functioning optimally. Estimates of leakage rates for older systems in previous years (before 2022) are not accurate indications of potential leaks in the future. New requirements for leak inspection and prompt repair were implemented in 2022. These new requirements are aimed at preventing and quickly repairing future leaks.

The regular inspection for and immediate repair of leaks will ensure that any potential impacts associated with these systems would be minimized to the maximum extent feasible. Refrigerants leaks would be anomalies, not normal operating status. It would be inappropriate to assume that refrigeration and chilling systems would be operating outside of the parameters of regulatory requirements (i.e., assume 'leaky' or neglected systems).

As described on DEIR page 2-28:

NAFC would seek to find the most responsible use of refrigerants in its facility to include water to water chilling and to examine the use of recycled refrigerants.

Additionally, the DEIR describes how NAFC has committed "to seek the most responsible use of refrigerants in its facility" (see DEIR page 2-28).

The chiller systems have not been designed and, therefore, specifics regarding sizing, outgoing fluid temperatures, and other parameters are not currently known. In finalizing this design, NAFC will take measures to minimize the emission of GHG's associated with the refrigerants. Additionally, regulations and programs that may be implemented in the future to regulate equipment such as chillers would be applicable to the Project as they come into effect and NAFC would be required to adhere to them.

On-Road Truck Activity

The Project's emissions generated by on-road mobile activity were estimated using CalEEMod v. 2020.4.0, as described in DEIR Section 3.2 (Air Quality) on page 3.2-6 and Section 3.7 (Greenhouse Gas Emissions) on page 3.7-10. The criteria pollutant and GHG estimates for mobile activity are based on annual mobile activity and compared against annual thresholds of significance. For the purposes of modeling, inputs were adjusted in order to achieve the Project's estimated annual vehicle miles travelled (VMT) for each of the following mobile sources:

- Employee Activity
- Hauling within the NCUACMD's Jurisdiction (short-hauling)
- Hauling outside of the NCUAQMD's Jurisdiction (long-hauling)

Please note, emissions for mobile activity were estimated separately from other sources of operational GHG emissions (such as energy consumption or emergency backup generator use). For clarity, and because of how CalEEMod utilizes fleet mix, trip type, trip purpose, and other parameters of mobile activity, separate CalEEMod runs were prepared for each of the mobile sources listed above. As an example, the CalEEMod run for operational employee trips contains the parameters necessary to appropriately assess annual emissions from employee trips alone and includes parameters to estimate emissions from energy consumption, backup generator use, hauling, or other sources of operational GHGs. Emissions from non-mobile emissions sources were estimated in separate CalEEMod modeling scenarios, which are provided in DEIR Appendix B (CalEEMod Modeling Results).

For both GHG emissions and criteria pollutant emissions, annual emissions threshold of significance is applied to the Project; therefore, the purpose of the modeling inputs was solely to generate the correct annual activity for the purposes of annual emissions estimates. Assuming or applying the modeling inputs as a Project-specific daily activity, or as parameters for other operational emissions sources, would be a gross mischaracterization of the purposes and use of the inputs. Additional details on the inputs are discussed below.

CalEEMod contains assumptions for trip length based on the type of trip (trip type), distribution of trip types, and trip purpose. Each of these components is used in the VMT calculations, which then feed into the GHG emission calculations. The trip types, trip lengths, distribution and trip purpose distribution are detailed below and in the CalEEMod output, which is included in Appendix B of the DEIR.

Land use trip types used in the analysis consist of the following categories, each with its own trip length: home-work (H-W) / commercial-work (C-W), home-school (H-S) / commercial-commercial (C-C), and home-other (H-O) / commercial-nonwork (C-NW) such as delivery trips. The model then modifies the trip lengths according to trip purpose. Trip purposes are

- Primary: Primary trips are assumed to be dedicated to travel to the land use from the originating source or from the land use to the ultimate destination.
- Diverted: Diverted trips are trips that may occur as a result of travel to multiple land uses, such as would occur for running errands or other trip linking activity. Diverted trips are assumed to be 25 percent of the primary trip length.
- Pass-by trips: Pass-by trips are those that occur as minor jaunts off another trip, such as pulling into a gas station while on the way to work. Pass-by trips are assumed to be 0.1 mile in length and are a result of no diversion from the primary route.

The trip length per trip type assumptions is for primary trip purposes and serve as the ‘starting point’ for the VMT calculations. For all Project mobile source analyses, the trip purposes were set to 100 percent primary (no diverted or pass-by trips).

The CalEEMod default vehicle emission factors for year 2025 and year 2029 were used. The emissions analysis assumes that transportation activity (including employee, short-hauling, and long-hauling activity) would be at the level estimated for full-scale operation starting in the first year of operations. However, transportation activity will not reach this level until approximately year 8 of operations. Therefore, the emissions analysis overestimates emissions from vehicles.

The annual VMT for short-hauling and long-hauling were provided by the applicant and developed using the Humboldt County Travel Demand Model (the model adopted by the Humboldt County Association of Governments and Caltrans to forecast vehicle travel), and the data entry for daily trip rates and lengths were modified to support the Project-specific annual VMT.

The Project-specific annual VMT, and associated CalEEMod data entry values are provided in Table 2.6 below.

Table 2.6 Project Mobile Activity Modeling Parameters

Mobile Activity Type	CalEEMod Facility Size* (ksf)	Daily Activity Inputs*		Project-Specific Vehicle Miles Traveled	
		Trip Rate (trips/ksf)	Trip Length (miles)	Daily	Annual
Employee	1	205	7.71	1,577	575,839
Short-Hauling	1	100	18.5	1,850	673,314
Long-Hauling	1	100	28	2,800	1,019,754

Notes: ksf = 1,000 square feet

* Inputs for annual modeling purposes only. These inputs should not be misconstrued as actual Project footprint or daily mobile activity.

As noted above, the mobile emissions modeling runs do not include emissions estimates from non-mobile sources. A facility size of 1,000 sf was used for the purposes of calculating the Project-specific annual VMT. This input should not be construed to indicate that the facility building is only 1,000 sf. The input was utilized to simplify the remaining inputs utilized to generate the Project-specific annual VMT.

Similarly, the daily activity inputs were used for the purposes of calculating the Project-specific annual VMT. Annual VMT data was provided for short-hauling and long-hauling trips for GHG emissions analysis; detailed hauling data, such as specific destinations or trip routes was not provided. Specific trip lengths (such as minimum, maximum, average, or distribution) for short-hauling and long-hauling were not known. For the purposes of annual GHG emissions analysis, there is no substantive difference between a project that generates 10 daily trips of 10 miles each (100 daily VMT), or one that generates five daily trips of 20 miles each (100 daily VMT).

The driver of the emissions generation, and, therefore, critical Project-specific information, is the annual VMT. As provided above, the annual Project-specific VMT is the informative input, and the daily activity inputs in CalEEMod should not be construed to mean that the Project is generating 100 short-hauling trips per day of 18.5 miles, or 100 long-haul trips per day of 28 miles.

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the Project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The Project employee analysis assumes a passenger vehicle fleet mix. The Project hauling analyses assumes use of heavy-heavy duty trucks.

The Project-specific vehicle fleet mix used in the analysis is summarized below in Table 2.7 below.

Table 2.7 Fleet Mix

Type of Vehicle	Project Fleet (%)		
	Employee	Short-Hauling	Long-Hauling
Light-duty automobile (LDA)	50	0	0
Light-duty truck (LDT1)	50	0	0
Light-duty truck (LDT2)	0	0	0
Medium duty vehicle (MDV)	0	0	0
Light-heavy duty truck (LHDT1)	0	0	0
Light-heavy duty truck (LHDT2)	0	0	0
Medium-heavy duty truck (MHDT)	0	0	0
Heavy-heavy duty truck (HHDT)	0	100	100
Other bus (OBUS)	0	0	0
Urban bus (UBUS)	0	0	0
Motorcycle (MCY)	0	0	0
School bus (SBUS)	0	0	0
Motor home (MH)	0	0	0
Total	100	100	100

As described above, the on-road mobile activity, including truck activity, in the CalEEMod analysis were appropriately assessed and used within the framework of annual emissions estimation and annual activity. Therefore, the DEIR's air quality and GHG emissions analysis appropriately assesses the Project's estimated mobile activity.

Greenhouse Gas Thresholds

The Project's potential to generate GHG emission, either directly or indirectly, that may have a significant impact on the environment was evaluated in DEIR Section 3.7 (Greenhouse Gas Emissions), using thresholds of significance described in the DEIR beginning on page 3.7-7. CEQA Guidelines Section 15064.4 (Determining the Significance of Impacts from Greenhouse Gases) states that a lead agency shall have discretion to determine, in the context of a particular project, whether to:

1. Quantify GHG emissions resulting from a project; and/or
2. Rely on a qualitative analysis or performance-based standards.

The Governor's Office of Planning and Research (OPR) *CEQA and Climate Change Advisory Discussion Draft* provides the following guidance:

A lead agency has the discretion to select and develop appropriate thresholds of significance to analyze a project's environmental impacts, or rely on thresholds developed by other agencies that it deems applies to the project.

And

The lead agency has the discretion to select the appropriate significance threshold, which may differ among projects depending on the project design, location, and other circumstances. Each case must be analyzed in light of its own facts and circumstances.

(OPR 2018a)

The DEIR applied both quantitative/numeric thresholds of significance and a qualitative threshold to assess the Project's GHG emissions impact. Specifically, the DEIR included the following thresholds of significance:

1. Quantitative Threshold of Significance 1: 25,000 metric tons of carbon dioxide equivalent per year (MTCO₂e/year)
2. Quantitative Threshold of Significance 2: 10,000 MTCO₂e/year
3. Qualitative Threshold of Significance 1: Consistency with a proxy County-level Climate Action Plan that supports statewide GHG emissions reductions goals.

In addition to the thresholds of significance listed above, the DEIR included qualitative analysis of the Project's consistency with the Humboldt County General Plan policies that support statewide GHG emission reduction goals. As stated in the DEIR (page 3.7-12), consistency with the Humboldt County General Plan policies was included for informational purposes only. The DEIR concluded that impacts related to GHG emissions would be less-than-significant under all three thresholds. Responses for each type of threshold (quantitative or qualitative) are addressed individually in the following subsections.

Quantitative/Numeric Thresholds

The two numeric thresholds of significance used in the Project's DEIR were derived from thresholds issued by the California Air Resources Board (CARB), South Coast Air Quality Management District (SCAQMD), and Bay Area Air Quality Management District (BAAQMD), as detailed in Section 3.7 (Greenhouse Gas Emissions) starting on page 3.7-7. Preparation of the DEIR involved careful evaluation of the basis and justification for the draft and adopted thresholds, as published by the respective agencies, when determining the appropriate threshold to apply to the Project. The public record reviewed includes:

- SCAQMD's Agenda No. 31, Board Meeting December 5, 2008, Synopsis, and Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008)
- BAAQMD's California Environmental Quality Act Air Quality Guidelines (including Appendix D, Thresholds of Significance Justification) (BAAQMD 2022)
- CARB's Mandatory Reporting Program for Greenhouse Gases (MRR) and Cap-and-Trade Program Regulatory Documents (including Initial and Final Statements of Reasons)
- EPA's Council on Environmental Quality (CEQ) guidance on consideration of GHG emissions for federal actions under NEPA.

The agencies differentiate between industrial land uses and typical 'indirect' land uses such as commercial or residential development. These agencies describe and acknowledge the substantive difference between the emission inventory profiles of industrial development from commercial/residential development. The emissions inventories for commercial and residential development are dominated by emissions from mobile sources. As described in the DEIR Section 3.7 (Greenhouse Gas Emissions) starting on page 3.7-9, the GHG inventory of a typical retail/commercial project in year 2025 would consist of approximately 96 percent mobile sources, and only 2 percent from energy (zero percent from off-road and stationary equipment), and 2 percent from waste.

Unlike typical residential or commercial projects, on-road mobile sources are estimated to account for only 63 percent of the Project's GHG inventory at first year of operation, and those emissions would decline to an estimated 58 percent at full buildout and would continue to decline into future years (See DEIR Section 3.7, Subsection 3.7.5 Page 3.7-9). In contrast, energy consumption, off-road equipment, and stationary source emissions are estimated to be 13 percent of the Proposed Project's GHG inventory at first year of operation, would increase to approximately 18 percent by full buildout, and would continue at a steady rate (mass emissions) into future years. Similarly, area, waste, and water would contribute approximately 13 percent of the GHG inventory at first year of operation and at full buildout.

The Project's use of electricity (and, therefore, GHG emissions associated with electricity consumption) is fundamentally different than that used by typical commercial or residential land uses. Whereas electricity consumption constitutes approximately two percent of typical commercial or residential land uses GHG inventory (lighting, appliances, electronics, heating and cooling, etc.), electricity consumption for the Project would constitute an estimated 18 percent of the inventory (assuming a conservative non-zero carbon intensity factor) and be used for critical functions including wastewater treatment and operating the farm production units (manufacturing and industrial processes).

The inventory percentages identified for energy consumption, stationary sources, etc., are based on an emissions analysis that assumed a non-zero carbon intensity factor for energy, as discussed in the Energy Consumption/Energy Intensity Factory section above. If NAFC had not committed to a 100% energy mix of renewable and/or non-carbon at first year of operation, then the on-road mobile portion of the Project's GHG emissions inventory would be an even smaller fraction than 58 percent.

The DEIR describes how power use by the facility would be primarily for water treatment and production processes.

Overall power used by the Nordic water treatment systems and production processes would contribute to 94% of total energy use consumed by the facility, with the remaining 6% comprising offices and processing, as indicated in Image 3.5-4. Wastewater treatment is integral to operations not only for functionality and best practice for aquaculture activities, but environmental protection since effluent is treated prior to discharge into the Pacific Ocean. This use is considered essential... (DEIR Section 3.5 [Energy Resources] page 3.5-5)

The Project does not fit the activity, use, or emissions inventory profiles of typical commercial or residential land uses. The Project is an industrial development, which includes use of stationary equipment permitted by the local air district. Therefore, thresholds of significance for industrial development are more appropriate for the Project's analysis than thresholds developed for typical commercial or residential development. Furthermore, the DEIR details the multiple sources and parameters informing Humboldt County's selection of appropriate numeric thresholds for application in the Project's CEQA analysis.

CARB Background

The State has implemented a Cap-and-Trade program as a major climate program, effective 2012. As described in CARB's 2017 Scoping Plan:

The Cap-and-Trade Program includes GHG emissions from transportation, electricity, industrial, agricultural, waste, residential and commercial sources, and caps them while complementing the other measures needed to meet the 2030 GHG target. Altogether, the emissions covered by the Cap-and-Trade program total 80 percent of all GHG emissions in California.

AB 32 also requires CARB to adopt regulations for the mandatory reporting of GHG emissions (MRR) in order to monitor and enforce compliance with CARB's GHG emissions reduction actions. The MRR and Cap-and-Trade programs use two emissions thresholds for determining compliance requirements:

- 10,000 MTCO₂e Threshold for MRR reporting
- 25,000 MTCO₂e “Major Source” Threshold for Cap-And-Trade Compliance

The 10,000 MTCO₂e threshold is for entry into the MRR reporting system; the 25,000 MTCO₂e threshold defines a ‘major source’ under the Cap-and-Trade program.

South Coast Air Quality Management District Guidance

The current SCAQMD guidance on assessing GHG emissions from industrial developments is to apply a 10,000 MTCO₂e/year threshold of significance. SCAQMD recommends including construction emissions amortized over 30 years added to operational GHG emissions to assess the significance of industrial projects under CEQA (SCAQMD 2008). SCAQMD's guidance references the CARB's MRR reporting threshold as informing the recommended threshold of significance (SCAQMD 2008). The SCAQMD threshold of 10,000 MTCO₂e/year is industry standard for industrial developments and is regularly used by agencies such as the Port of Los Angeles for industrial projects in the State of California.

Although the Project is not within SCQAMD's jurisdiction, GHG emissions are inherently global, not local, in nature; accordingly, it is appropriate to utilize guidance from jurisdictions where large scale industrial developments are more common.

BAAQMD Guidance

BAAQMD has historically considered as appropriate a threshold of a 10,000 MTCO₂e/year for industrial sources. However, the BAAQMD's 2017 guidance document approaches GHG emissions differently than the SCAQMD's guidance; the BAAQMD's guidance recommends that permitted stationary sources should be calculated separately from a project's operational emissions. The methodology used for the Project followed the SCAQMD's guidance (above) and assessed stationary source emissions together with full operational emissions plus amortized construction emissions.

After development of the Project's DEIR, the BAAQMD adopted updated thresholds of significance for climate impacts and substantiated the thresholds in the *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* (Draft Justification Report) (BAAQMD 2022). The BAAQMD's Justification Report further differentiates between thresholds and treatment of commercial/residential development and other projects. Per the Draft Justification Report:

*The Air District has developed these thresholds of significance based on **typical residential and commercial land use projects** and typical long-term communitywide planning documents such as general plans and similar long-range development plans. As such, these thresholds may not be appropriate for other types of projects that do not fit into the mold of a typical residential or commercial project or general plan update.*

*Lead agencies should keep this point in mind when evaluating other types of projects. A lead agency does not necessarily need to use a threshold of significance if the analysis and justifications that were used to develop the threshold do not reflect the particular circumstances of the project under review. **Accordingly, a lead agency should not use these thresholds if it is faced with a unique or unusual project for which the analyses supporting the thresholds as described in this report do not squarely apply. In such cases, the lead agency should develop an alternative approach that would be more appropriate for the particular project before it, considering all of the facts and circumstances of the project on a case-by-case basis.*** (emphasis added)

This Project is, in fact, unique, and is not suitable for thresholds that would apply to a standard land use project or typical commercial/residential development. Accordingly, the DEIR appropriately measured significance of impacts related to GHG emissions using the industry standard for industrial development 10,000 MTCO₂e/year.

Qualitative Thresholds

Regulatory and Case-Law Context

The context for qualitatively evaluating a project's potential generation of GHGs using performance-based standards is provided in CEQA Guidelines Section 15064.4 and 15183.5(b). As specified within the CEQA Guidelines (Sections 15064.4, 15183.5(b), and 15064(h)(3)), a project may be analyzed against a plan for reducing GHG emissions if that plan is adopted following a public review process and provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.

The BAAQMD uses the term 'qualified climate action plan' when referring to climate action plans that meet the plan elements identified in CEQA Guidelines Section 15183.5(b), and succinctly states:

A qualified climate action plan will provide the evidentiary basis for making CEQA findings that development consistent with the plan will result in feasible, measurable, and verifiable GHG reductions consistent with broad State goals such that projects approved under the plan will achieve their "fair share" of GHG emission reductions.

Greenhouse gas reduction goals for public agencies in California are driven by the State-wide goals set forth in EO B-30-15 and SB 32, which set a statewide emissions reduction target of 40 percent below 1990 levels by 2030. The year 2030 emission reduction is an interim-year goal to provide substantial progress toward the ultimate goal of reducing emissions by 80 percent below 1990 levels by 2050 (EO B-30-15, EO S-3-05). As described in the CARB's 2017 Scoping Plan, the 2030 statewide emission reduction goal represents:

...benchmarks, consistent with prevailing climate science, charting an appropriate trajectory forward that is in-line with California's role in stabilizing global warming below dangerous thresholds.

Therefore, a climate action plan selected for analyzing the Project's potential GHG impacts should meet the criteria for a 'qualified climate action plan'. Additionally, the climate action plan should clearly demonstrate how the land uses and emission sources covered by the plan fit within the State's strategies and demonstrate that the covered sectors' incremental contribution to the cumulative effect is not cumulatively considerable.

Proxy Climate Action Plan Selection

As described in the DEIR (Section 3.7, page 3.7-7 to 3.7-18) there is not an adopted qualified climate action plan for the Project area. As such, a proxy climate action plan (CAP) was selected for consistency analysis (a proxy Climate Action Plan adopted for the purposes of reducing GHG emissions consistent with State-wide goals). The California Climate Action Portal identifies 27 of California's 58 counties as having either developed or adopted a CAP. However, many of those plans are either not adopted (such as in Humboldt County) or were determined to not meet the criteria for a 'qualified climate action plan' (such as Sonoma County). Additionally, the majority of developed or adopted county-level CAPs are for southern California counties, highly urban counties, or inland Sacramento Valley/Central Valley counties.

However, GHG emissions are inherently global in nature, as the impact of those emissions – climate change – is global and cannot be evaluated on a local level. This is in contrast to other types of emissions,

which have localized impacts and can be evaluated and regulated on a local or regional basis. Accordingly, it is appropriate and scientifically valid to apply the provisions of adopted CAPs to other jurisdictions in California. After reviewing the potential qualified CAPs, Yolo County's CAP was selected as the Project's proxy Climate Action Plan because of similarities between Humboldt and Yolo Counties.

The DEIR describes the similarities between Yolo County and Humboldt County such as the level of development, land uses, and projected development (growth) (see DEIR Section 3.7, pages 3.7-11). The Yolo County Climate Action Plan (CAP) demonstrates an ability to achieve a 27 percent reduction below 1990 emissions levels by 2030. As stated within the Yolo CAP:

The goals for 2030, 2040, and 2050 achieve the thresholds set by the Governor's Executive Order S-3-05, as well as the County's own commitment as detailed in the Cool Counties initiative.

The Yolo CAP demonstrates how the emissions inventory of the unincorporated county fits within the emission reductions necessary to comply with state requirements, including State's 2030 emission reduction goal. Therefore, the emissions reduction goals of the Yolo CAP appropriately address the covered emission inventory's relationship with statewide emission reduction goals. Additionally, Yolo County found that the CAP satisfies the requirements of CEQA Guidelines Section 15183.5(b).

In contrast, the Sonoma County's Climate Action Plan was rendered ineligible to be considered a 'qualified CAP', as its EIR was invalidated in a judicial proceeding. Additionally, the Sonoma Climate Mobilization Strategy referenced by the comments did not go through the CEQA review process and is not considered a climate action plan by Sonoma County. Instead, the Climate Mobilization Strategy is a high-level policy document that does not include the required plan components to be a 'qualified CAP'. Therefore, neither the Sonoma County Climate Action Plan nor the Sonoma County Climate Mobilization Strategy are appropriate for use as an appropriate Proxy CAP for the Project's analysis. Based on the information summarized above, the County appropriately exercised its discretion to qualitatively analyze GHG impacts by measuring consistency with the Yolo CAP.

Master Response 3 – Fish Escape

Some comments express concern related to the potential for fish escapes and the potential impacts from an escape including competition with native species, spread of disease or parasites, and hybridization.

Prevention of Fish Escape

The prevention of fish escape is one of the highest priorities for NAFC, and the facility is designed around escape prevention. The barriers and engineered controls to prevent escapes are first described in the DEIR on pages 2-40 through page 2-45. As illustrated in Image 2-13 *Screened Points for Water Exiting the Farm in the DEIR*, the proposed facility will feature multiple physical barriers both within and outside the tanks that will block the passage of fish and eggs; the redundant and sequential design of these barriers allows for continued system efficacy even in the event of a barrier failure. The proposed facility in Humboldt also includes structures designed to withstand a major seismic and tsunami event. Please see DEIR Appendix I for detailed Tsunami Hazard Analysis.

At NAFC's land-based facility, fish would be housed in secure, fully enclosed steel buildings from the egg stage until they are harvested. As described on page 2-35 of the Project Description of the DEIR, eggs are delivered to the Project in closed, sealed containers to prevent accidental release or spills, and will be transported to the site in an enclosed truck. Upon arrival, the eggs will be unloaded by an appropriately trained team, and immediately brought into the quarantine unit. Although the space of time, and physical distance from the truck to the building is small, there is still the risk of accidental egg spill through operator

or equipment error which will immediately instigate clean-up procedures. The eggs themselves are not fit to survive for long outside the incubation unit or their transport cases for several reasons:

High ambient light intensity would reduce egg viability

Atlantic salmon ova should be kept between two (2) and eight (8) degrees Celsius (°C), 35.6- and 46.4-degrees Fahrenheit (°F), for optimal survival

Atlantic salmon ova would be unviable if the shell is ruptured due to physical damage associated with impact

Atlantic salmon ova need to be kept moist to remain viable

These factors combined with prompt clean-up and the considerable distance to the nearest water body (greater than 300 feet) mean the risk of egg establishment and competition with native species is extremely low. The site itself will be surrounded by a security fence and gated, to ensure that no unauthorized persons are able to improperly transport materials into or out of the facility, without oversight.

The fish culture buildings are located at least 300 feet from the nearest body of water while the structures (tanks and buildings) are engineered to withstand a major seismic event with elevated concrete foundation walls and ground densification engineered to withstand a major tsunami event or potential land subsidence. Pipework from the fish tanks will include multiple physical barriers in series that prevent fish escape:

1. Water exiting the tank encounters a screen at the outlet that acts as the first physical barrier preventing fish from leaving the tank.

Enroute to the water treatment system, the water exiting the tank encounters its next barrier in the form of a mechanical filter that removes material down to 20-50um

The water then flows to a biological filter which has two more screens at the inlet and outlet to contain media that beneficial bacteria grow on – these act as two more barriers.

The water then travels to a pump sump where there is an overflow with a double membrane screen – another physical barrier.

It then goes to a central sump with another double membrane screen.

The water then heads to the Wastewater Treatment Plant where it encounters another biological filter with another two screens – two more barriers.

Finally, at the end of the line, all water leaving the facility is routed through a zero-escape probability barrier membrane bioreactor (Suez 2021). This is an ultrafiltration device that operates via vacuum to remove material as small as 0.04 µm.

Frequent inspection of these barriers as part of NAFC's maintenance program would mitigate against the failure of a barrier while the use of multiple barriers in series provides redundancy, such that if one barrier was to fail, multiple other barriers still exist downstream to prevent fish from escaping. There are no bypasses or alternative routes around these barriers and, as described in the DEIR on page 2-41 and Figure 2-12, NAFC's facility is not designed to release fish and so does not include any piping or infrastructure for the transfer of live fish out of the facility i.e., there is no opportunity for an operator to release fish accidentally or intentionally from a tank directly into the sea.

The design of the Samoa Project includes extensive redundant physical barriers (pages 2-40 - page 2-45), biosecurity programs (pages 2-33 - page 2-36), engineered controls (page 2-36), fail safe measures and safety margins that reduce the probability of fish escape to less than significant. Nordic Aquafarms has

never had any fish escapes from any of the existing land-based facilities in operation in Norway or Denmark which include some of the largest salmon OG plants in the world today.

Nordic Aquafarms Track Record Preventing Fish Escape

Nordic Aquafarms operates three commercial land-based facilities in Europe, Fredrikstad Seafoods (Norway), Sashimi Royal (Denmark) and Maximus (Denmark). No escapes have occurred at any of these facilities because barriers and engineered controls for preventing escapes similar to those described for NAFC's facility are present. Nordic Aquafarms' fish rearing facilities are all on land and contained within secure buildings where a primary focus has been on including many physical barriers and safeguards to prevent fish escape.

Study on Fish Escape from RAS Facilities in Norway

A research paper, Causal analysis of escape of Atlantic salmon and rainbow trout from Norwegian fish farms during 2010–2018 (Føre and Thorvaldsen 2021), has been cited by commenters with the assumption that since there have been documented escapes at other land-based facilities, there would be a potential for escapes from NAFC's proposed facility in Humboldt.

The information studied in this paper was gathered from Norway, the world's largest salmon producer, between 2010 and 2018. What this paper tells us is that 93% of all escapes are related to net pen operations (nets containing salmon suspended in the ocean) either directly from the cages or while being transported to the cages. The NAFC facility, however, would be completely different than a net pen operation as the NAFC facility operations would be on land for the entire production cycle (egg to harvest). The fish would never go to sea, nor would they ever be transported live off site. Since NAFC is not a net pen operation, the 93% of the scenarios in this study that caused fish to escape do not apply to NAFC.

Of the remaining 7% of fish escapes in this study that are attributed to land-based facilities, all involved structural defects or missing barriers. In addition, these facilities had fish tanks right adjacent to the sea as they are designed to grow the fish to a certain size (known as a smolt) at which stage it is transported out to nets in the sea i.e., unlike the NAFC project, these land-based facilities are not designed to contain the fish on land for the entire production cycle and have fish transport pipes routed directly towards the sea. NAFC does not have direct fish transport pipes leading directly to the sea.

In conclusion, due to the absence of secondary or tertiary containment barriers, in the land-based facilities in the study, fish were able to escape. In contrast, NAFC has incorporated several safeguards and redundant barriers in series so, should any barrier require maintenance, there are several other barriers downstream that would prevent an escape. The only pipe in NAFCs Project that will empty to the ocean will be the outfall. The effluent leaving the fish tanks must travel through many physical barriers before ending up in the outfall including an ultrafiltration device at the end of the line where water is pulled by vacuum through 0.04-micron filters. There are no bypasses or alternative routes around these barriers and since NAFC's facility is not designed to release fish and so does not include any piping or infrastructure for the transfer of live fish out of the facility, there is no opportunity for an operator to release fish accidentally or intentionally from a tank directly into the sea. The fish are all housed within secure, fully enclosed steel buildings engineered to withstand a major seismic event and located at least 300 feet from the nearest body of water.

Consequences of Potential Fish Escape

Some comments expressed concern regarding the consequences of a fish escape on native fish populations. An analysis of the potential to reduce such impacts by growing alternative species was

requested. Information and analysis of the consequences of an escape of Atlantic salmon, and an assessment of the potential for alternative species to reduce the potential impacts in the event of an escape can be found in Section 4 (Alternatives Description and Analysis) of the DEIR starting on page 4-14. As stated on page 4-16 of the DEIR, survivability of escaped Atlantic Salmon would be low as the species is not native and the fish are highly domesticated. While barriers and engineered controls would prevent fish escape at NAFC's facility, to answer questions about the potential impacts of a hypothetical escape, studies are referenced in the DEIR and here which assessed the effects of escapes in the context of net pen operations and intentional releases. NAFC would not operate net pens or release fish for stock enhancement efforts. The results of these studies are used only to infer the potential impacts on native populations in a hypothetical escape event.

Studies have examined the potential for Atlantic salmon to proliferate in the Pacific Northwest. Results of these studies suggest that the potential is low for Atlantic salmon to proliferate in the event that an escape did occur. Hybridization experiments of Atlantic Salmon with Pacific salmon strains resulted in non-viable offspring; historic intentional stocking programs in California did not produce viable, reproductive stocks (Amos and Appleby 1999, Salmon Fish Now 2021, CDFW 1997, Waknitz 2003); and as stated on page 2-35 of the Project Description, NAFC's use of an all-female stock would prevent reproduction in nature.

In addition, domesticated fish are unlikely to survive outside of the controlled environment where they receive regular feeding because domesticated fish have limited prey foraging skills. For example, Amos and Appleby 1999 found that "because of their highly domesticated nature, it is likely that many of the Atlantic salmon succumb soon after escape due to their failure to find food or to being eaten by a variety of marine predators. Of the escaped Atlantic salmon recaptured and analyzed in Washington, all had empty stomachs and swollen gall bladders (swollen gall bladders are indicative of not eating)."

The DEIR includes an Escape Response and Reporting Plan on pages 2-40 through page 2-45. Having this plan is a regulatory requirement and is not intended to reflect the risk of an escape from the facility, but to ensure that a quickly actionable and fully developed response plan is accessible if the event were to occur. These plans describe actions that must be completed by NAFC in the event of an escape, including mandatory reporting of all incidents.

The National Marine Fisheries Service (NMFS) Biological Opinion dated February 16, 2022, analyzes the potential impacts to wild stocks from net pen operations and potential consequences of fish escape in the Puget Sound (NMFS 2022). NMFS found that "considering all of the available information, we [NMFS] conclude that the overall consequence to the natural-origin salmon and steelhead populations from competition/predation in the marine environment is low" (NMFS 2022). However, their study was carried out on a conventional net pen operation, effectively a net containing fish suspended in the ocean, with limited escape prevention barriers due to the nature of the operation. As NMFS concluded that the potential impact of Atlantic Salmon escaping from the net-pen operation in Washington State pose a low risk to wild fisheries in the region, it is reasonable to state that risk should be significantly lower for the Project. As described in the DEIR, the Project is a land-based facility contained within secure buildings designed to withstand a major seismic event, with extensive wastewater treatment processes, redundant escape prevention barriers, and a track record of no escapes operating similar facilities.

The information presented in the DEIR and clarified in this response to comment leads to the reasonable conclusion that the likelihood of fish escape from the facility is extremely low, and it is reasonable for the EIR to assume fish escape will not occur. Additionally, the risk to wild fish populations from a fish escape is also extremely low.

All-female Quality Assurance/Quality Control

The egg supplier will carry out a test on each female post fertilization and provide a certificate that the ova sent are all female. Typically, females have two X chromosomes while males possess an XY chromosome pairing. The eggs are sampled at 250 degree-days at the source hatchery and all-female verification is done using genetic analysis to confirm that they contain the X chromosomes only and are, therefore, all-female. For every cohort of eggs shipped to the Project, the source hatchery will provide a certificate of analysis confirming gender. Certificate of analysis can be provided to CDFW.

Master Response 4 – Fish Health and Biosecurity

Some comments express concern related to biosecurity and fish health including the potential transmission of pathogens to the environment.

As stated on page 2-24 of the DEIR, NAF has never had a disease outbreak in any of its existing facilities. This is accredited to strict water treatment regimens, high biosecurity measures, and a comprehensive fish health management program. The information presented in the DEIR leads to the reasonable conclusion that the likelihood of adverse impacts from pathogens from the Project to the environment is extremely low.

Biosecurity Measures to Prevent the Transmission of Pathogens to the Environment

Biosecurity measures that prevent the transfer of pathogens to the environment are described in DEIR Section 2 (Project Description) and Section 3 (Hydrology and Water Quality) (see pages 2-18 through 2-37, 2-46, 3.9-10, and 3.9-23).

Farm biosecurity is controlled by ultrafiltration for intake water treatment to prevent bacteria, parasites, and most salmonid viruses of concern from entering the farm. Viruses that might pass the 0.02-micron ultrafiltration would be subject to high dose UV disinfection sufficient to neutralize the threat of any finfish viruses of concern. Biosecurity measures and pathogen screening of broodstock at the source hatchery along with disinfection of eggs both at the hatchery and at NAFC facility effectively mitigates the risk of pathogen transmission from the source hatchery.

The use of quarantine provides another layer of biosecurity to mitigate pathogen transfer from the source hatchery. Quarantine is a redundant precaution NAFC utilizes to protect against pathogen transfer by providing a highly controlled, isolated area for eggs to incubate, hatch and initially grow into feeding fry for an appropriate length of time to allow for disease (if present) to present itself, be identified and be mitigated for. The NAFC Quarantine is in the Smolt Building and consists of the following three autonomous biosecurity zones where cohorts can be held separately from each other:

1. Egg Receiving Room
2. Hatchery Unit
3. Fry Unit 1

The biosecurity program for the quarantine area includes ultrafiltration and UV disinfection for inflow and effluent water treatment, ventilation control, restrictions on staff and visitors, as well as strict control on intake of feed, other consumables, equipment, potential vectors, and disposal of fish mortalities. Third party audits for biosecurity in the quarantine would occur twice per year through veterinary visits to the farm. All personnel working in the quarantine area undergo specialized biosecurity training in addition to farm biosecurity orientation received at the start of their employment at NAFC. Staff wear area specific attire to include footwear that does not leave that unit unless it is being laundered.

Trucks delivering imported eggs to NAFC are sent to a dedicated receiving area. Eggs are unloaded and brought into quarantine through a biosecurity gate. After unpacking and disinfection inside the Egg Receiving Room, the eggs are transferred to the second-floor Hatchery Unit using a dedicated elevator. The cohorts hatch and are transferred to the Fry Unit 1 to establish first feeding while still inside the quarantine area. Fry remain in quarantine until they can be tested to fulfill the post-transfer health certification.

Before they can be released from quarantine, any cohort of fry must be declared free from evidence of disease and from specific pathogens of regulatory concern in accordance with CDFW. Samples of fry for post-transfer health inspection are taken for virology and PCR screening at five weeks post-hatch when the fry are in the Hatchery Unit, and again at nine weeks (post-hatch) for bacteriology when the cohort is in FF1. NAFC requires coordination with CDFW to create specific guidance for post-transfer fish health testing for quarantine release. In summary, each cohort of imported eggs spend 15 weeks inside quarantine before being integrated to the farm. If for any reason a cohort is deemed a disease risk to the farm or environment, it can be properly euthanized and disposed from the quarantine area.

NAFC also has a comprehensive fish health monitoring and pathogen surveillance program for the farm that would detect early the occurrence of disease-causing pathogens on the farm. The fish health monitoring program uses broad diagnostic screening methods to detect viable pathogens. This includes microscopy, histopathology, bacteriology, and virus isolation using cell culture. In some cases, molecular assays are used for surveillance of pathogens of concern that are not normally detected through culture techniques. Fish health assessments occur daily at the NAFC fish health laboratory located onsite. Additionally, the whole farm goes through biannual health inspections through a third-party veterinarian and aquatic diagnostic laboratory. Table below outlines methods used during fish health assessments. Because NAFC is taking specific organs and tissues in fish that are known to harbor and/or be targeted by pathogens, the health inspection becomes very effective for finding agents that may or may not be causing clinical symptoms of infection. When screening otherwise 'healthy' looking fish, these methods can be used to early detect pathogens in a sub-clinical state before amplification in the system can occur. Monitoring pathogens at the host is a more direct approach for pathogen detection rather than pathogen detection through effluent water surveillance.

Table 2.8 Project Mobile Activity Modeling Parameters

Pathogen	Method	Pathogen detection
Necropsy		
External and gastrointestinal parasite screening.	Microscopy: differential staining and wet mounts.	i.e., PKD, C. shasta, Trichodina, Gyrodactylus, Ichthyophonus, costia, etc.
Bacteriology		
Aerobic bacteria screening.	Culture on selective media. If growth observed, secondary isolation & ID	i.e., Vibrio, A. salmonicida, Y. ruckeri, other marine heterotrophs.
Molecular		
Pathogen surveillance.	PCR specific assays.	R. salmoninarum, M. cerebralis, ISAV/HPR0, PRV
Virology		
Broad screening for RNA and DNA viruses.	Virus Isolation on selected cell lines w/blind transfer. PCR/NGS if CPE observed.	i.e., VHS, IPN, IHN, ISA, and other viruses causing CPE.
Histopathology		
Tissue: kidney, spleen, liver, heart, skin/muscle/lateral line, gill, gut, pyloric caeca.	Histological processing and differential staining. Pathologist interpretation.	Cellular pathology, pathology caused by infectious agents.

The potential for local pathogens (i.e., endemic) to enter and amplify on the farm is addressed through continuous water treatment which employs both Ozone and UV at each recirculating aquaculture system (RAS) unit and through vaccination. The combination of ultrafiltration and UV in the wastewater treatment plant (WWTP) at the farm would eliminate bacteria, parasites, and viruses of regulatory concern should they break through any of the previously mentioned biosecurity barriers and disease monitoring program. Based on these measures, the DEIR concludes that there are no adverse impacts from pathogens to the environment.

Sensitivity of Pathogens to Ultraviolet (UV) Light Disinfection

Water treatment systems at water intake and discharge points will include equipment that physically removes or neutralizes pathogens to an extent that effectively mitigates the risk of introduction of pathogens to the surrounding environment. This equipment consists of ultrafiltration for physical removal of pathogens and ultraviolet (UV) light disinfection for neutralization of pathogens. Ultrafiltration works by forcing water through fine-pore membranes that remove solids above a certain size. UV disinfection works by generating UV radiation that penetrates cell walls of microorganisms and damages nucleic acids. Damaging these nucleic acids prevents the microorganisms from reproducing (Hijnen 2006). The effectiveness of UV radiation for disinfecting water has been demonstrated (Oguma 2001, Liltved 2000, Collivignarelli 2017).

A list of pathogens and parasites relevant to the species being considered and required UV doses to inactivate them was requested. This information is provided in Table 5 below. Table 5 lists pathogens relevant to the species being considered, UV doses required to achieve log-3 (99.9%) inactivation of these pathogens and sizes of the pathogens. The UV doses listed in Table 5 indicate the dosage required to destroy 99.9% of the respective pathogen. Table 5 also lists UV doses and ultrafiltration pore sizes that will be employed at NAFC's water intake and discharge points. Because the UV doses applied at NAFC's intake (300 mJ/cm²) and discharge points (250 mJ/cm²) are higher than the doses required to achieve log-3 (99.9%) inactivation of the pathogens, the water treatment systems will effectively mitigate the risk of pathogen introduction to the surrounding environment. In addition to UV disinfection, 0.02- and 0.04-micron pore sizes of the ultrafiltration systems employed at the Project's intake and wastewater treatment plants are small enough to remove the majority of the pathogens.

The level of ultrafiltration used by itself (without use of UV) is suitable biocontainment for bacteria, parasites, fungus, and most salmonid viruses of regulatory concern. For description and specifications of the ultrafiltration equipment see page 2-41 of the DEIR and Suez 2021. In addition, viruses that might pass filtration would be subject to high dose UV disinfection (300 mJ/cm²). This dose is sufficient to mitigate the threat of any salmonid viruses of concern. In aquaculture, UV disinfection is specified according to logarithmic reduction in viral titre. For example, a one-log reduction refers to a 90% reduction of viral titre, a two-log reduction to a 99% reduction, a three-log reduction to a 99.9% reduction, and a four-log reduction to a 99.99% reduction. The dose required for a log-3 reduction of most salmonid viruses is well below 100mJ/cm², and that of more tolerant viruses such as Infectious Pancreatic Necrosis Virus (IPNV), an endemic virus to California, is below 250 mJ/cm² (see Table 2.9 below).

The specified dose for UV equipment installed at the intakes and discharge of the Project is for a log-3 reduction of significant viral, bacterial, and parasitic pathogens associated with salmon farming. Section 4.4.1 of the National Pollutant Discharge Elimination System (NPDES) Draft Order (NCRWQCB 2021) requires the supplier of UV equipment to confirm acceptance of this design and specification. Upon initiating operation of the UV equipment, NAFC would be required to demonstrate compliance with the UV dose requirement to the NCRWCB. Further conditions of the NPDES permit require NAFC to maintain a program for routine inspection and maintenance of the UV equipment.

Table 2.9 Pathogen Filtration and UV Parameters

		Size (microns)	UV Dose mJ/cm ² (3 log reduction)
NAFC intake water treatment	Ozone	0.02	250
NAFC wastewater treatment		0.04	300
VIRUS			
Birnavirus	IPNV	0.065	246
Orthomyxoviruses	ISAV	0.1 - 0.13	8 - 51
Rhabdoviruses	IHN, VHSV	0.065 - 0.09	4 - 20
Aquareoviruses	PRV	0.07 - 0.08	50 - 100
Iridovirus	EHN, RSIV, LMBV, VEN	0.12 - 0.330	26
Herpesvirus	OMV, SalHV4	0.2 - 0.25	2 log @2
Hepevirus	CTV	0.03	22 (family reference UV dose)
Togavirus	SAV	0.06 - 0.07	
Totivirus	PMCV	0.05	
Poxvirus	SGPV	0.2 - 0.3	
Nodavirus	VNN	0.025	104 - 211
BACTERIA		0.1 - 10	
	BKD		60
	<i>F. psychrophilum</i>		126
	<i>A. hydrophilia</i>		5
	<i>A. punctata</i>		4
	<i>A. salmonicida</i>		2.7 - 5.9
	<i>Escherichia coli</i> O-26		4
	<i>P. fluorescens</i>		5
	<i>V. anguillarum</i>		2.7 - 4.5
	<i>V. salmonicida</i>		2.7
	<i>Y. ruckeri</i>		2.7
PROTOZOA		1 - 2000	
	Myxobolus cerebralis		40
	Ichthyophthirius multifiliis		100
	Costia necatrix		318
FUNGI		2 - 50	
	<i>Achlya flagellate</i>		220
	<i>Aphanomyces laevis</i>		210
	<i>Saprolegnia sp.</i>		150 - 250

Inspection and Maintenance of Water Treatment Systems

Regular maintenance and inspection procedures would be developed by NAFC in coordination with suppliers of systems and equipment. Inspection for defects in water treatment equipment at the intake, RAS units, and WWTP would be part of NAFC's regular facility maintenance program. The design of these systems includes redundancy on essential mechanical equipment such that the intake and effluent continue to be treated in the event of a mechanical breakdown or if equipment is offline for maintenance. NAFC

would maintain an inventory of spare components on site that are critical to ensure filtration and disinfection is not disrupted and is maintained according to specifications of the respective equipment.

Operating parameters such as water clarity and flow rates ensure system effectiveness. Sensors would be embedded throughout the system to monitor water quality, UV transmission (UV-T), and flow rate. Maintenance and inspection procedures would define methods and frequency for cleaning quarts sleeves and changing bulbs in the UV unit. Training is provided to relevant maintenance personnel on the procedures both at the time of hire and on an on-going basis. Redundancy and maintenance of water treatment systems is discussed in the DEIR, Section 3.9 Hydrology and Water Quality, page 3.9-17.

Release of Fish Hormones and Impact on Homing Response of Pacific Salmon Stocks

Some comments expressed concern that hormones would be released from the facility that would affect the homing response of native salmon. NAFC proposes to raise all female Atlantic salmon as stated under the Performance Criteria for egg source of the Project Description (page 2-35). The utilization of all female stock would prevent the occurrence of precocious parr (early maturing male salmon). Additionally, while sex is determined within the first year, female Atlantic salmon do not reach sexual maturity until much later and at a larger adult size. The delay of female maturation is a naturally selected trait for hatcheries and allows for farms like NAFC to harvest fish prior to reaching reproductive, sexual maturation. Thus, pheromones or hormones that are present when fish are reproductively mature and active would not be present in effluent water to potentially impact on homing response of wild Pacific salmon.

To further address the concern from comments regarding release of fish hormones in effluent and comment's reference to the study, "Whole-river manipulation of olfactory cues affects upstream migration of sockeye salmon" (Drenner 2018), NAFC contacted Dr. Heather Hamlin, an associate professor at the University of Maine Aquaculture Research Institute, and the interim director of the School of Marine Sciences. Dr. Hamlin is a well published reproductive endocrinologist whose current research centers around three main areas: (1) the influence of endocrine disrupting contaminants in reproductive and developmental dysfunction, (2) reproductive and developmental challenges in commercial aquaculture, and (3) methods to reduce contaminant burdens in aquaculture species.

Dr. Hamlin responded that the cited paper (Drenner 2018) does not support the claim that outflow from a land-based fish farm would cause significant straying (not returning to spawn). In the cited study, the flow into a river was massively manipulated (the flow was normally 2 m³/s and they increased it to 10 m³/s), which delayed (but didn't prevent) the salmon's entry into the river, but this may have had nothing to do with olfactory cues." Dr Hamlin also confirmed that there is no evidence that a salmon farm would cause straying or prevents migrations according to the literature she has reviewed on the topic. (Hamlin personal communication 2022).

Fish Health Management Plan

NAFC has developed a draft Fish Health Management Plan (FHMP) that would be submitted to CDFW for further collaboration and regulatory guidance. The FHMP has been developed by the NAFC Fish Health Team and in cooperation with external partners that include Aquatic Animal Health Services at UC Davis, a private sector aquatic veterinarian, an American Fisheries Society (AFS) aquatic animal health inspector, and an aquatic disease diagnostics laboratory. Components of the FHMP include a designated Fish Health Team, personnel training, quarantine program, fish welfare monitoring, standard operating procedures (SOP) for fish health monitoring, biannual fish health inspections, description of the NAFC fish health laboratory, vaccination program, disease management, CDFW/USFWS regulatory requirements, farm biosecurity, and escape prevention.

Transmission of Pathogens Originating from the Source Hatchery

The source hatchery to supply eggs to the Project has not been determined yet. The egg performance criteria listed on page 2-35 of the DEIR would be used to select an egg supplier for the Project. Approval of a source hatchery by CDFW requires that a risk assessment be conducted within a 2-year window of eggs being transferred into California. NAFC is currently working with breeding facilities that could potentially supply the Project. NAFC would advise candidate source hatcheries on CDFW and USFWS regulatory requirements or pathogen surveillance and disease freedom.

Regulations that control the importation of salmon eggs are established by the United States Fish and Wildlife Service (USFW) under 50 CFR Section 16.13 as well as the CDFW under California Fish and Game Code (Cal Fish & Game Code §§ 15600-15605-Div. 12/ Ch. 7) and Barclays Official California Code of Regulations (14 CCR § 236-Title 14/Div. 1/Sub Div. 1/Ch. 9/Sec. 236).

The Fish and Game Commission through consultation with CDFW and the California Aquaculture Disease Committee maintains a list of known pathogens of concern, and classifies the list based on periodic review and analysis of epidemiological data (Title 14. Ch 9. Sec 245). The diseases/pathogens of concern are categorized as “Significant,” “Serious” and “Catastrophic” based on their seriousness and the specific action to be taken when diagnosed. CDFW also utilize other pathogen lists in their risk assessments, including those pathogens listed by the World Organization for Animal Health, and lists created by competent authorities of other states or countries.

Before any eggs can be transferred into NAFC’s hatchery, a detailed risk assessment of the source hatchery needs to be conducted by CDFW and the California Aquaculture Disease Committee. This includes a close examination of records detailing the disease history (2 years), fish sampling regime, the assigned competent authority, and the biosecurity of the breeding facility. In addition to these qualifications, the facility must be certified free of the diseases/pathogens of concern listed in Title 14/Ch 9/Sec 245 and free of any other exotic pathogens that are not endemic to California but considered significant in other countries.

Any sampling for fish health certification at the source hatchery is conducted by a competent veterinary authority approved by CDFW. Broodstock and reproductive materials are taken for diagnostic screening. Diagnostic samples are processed through a fish health laboratory that is certified by CDFW and who performs diagnostic tests in accordance with the most recent edition of “Procedures for Detection and Identification of Certain Fish Pathogens” published by the Fish Health Section of the American Fisheries Society (AFS Blue Book), or the World Organization of Animal Health (OIE) Manual of Diagnostic Tests for Aquatic Animals. A certified negative result for any pathogen tested means the broodstock are free for that specific pathogen and therefore, eggs are highly unlikely to carry that pathogen. CDFW certifies the tests results, meaning the broodstock contributing to the egg lot being transferred to NAFC is specific pathogen free for the selected pathogens. A transfer permit is then provided to NAFC to import eggs into California under certain conditions. Similarly, US Fish and Wildlife have health certification requirements for salmonid pathogens at a national level and will not issue an importation permit unless USFWS Title 50 requirements are fulfilled.

Import controls like these coupled with the use of a quarantine program as previously described in this document would significantly reduce the risk of pathogen transmission from a source hatchery.

Plan for Reporting and Mitigating for Pathogen Outbreaks

Regulations on specific response related to disease outbreak on the farm involves notification to CDFW and following containment and mitigation steps. California Fish and Game Code (Cal Fish & G Code §§ 15500-

15516-Div.12, Ch. 6) and Barclays Official California Code of Regulations (14 CCR § 245-Title 14/Div. 1/SubDiv. 1/Ch. 9/Sect. 245) outline the regulations concerning disease control for aquaculture activity in the State. The Fish and Game Commission through consultation with CDFW and the California Aquaculture Disease Committee maintains a list of known pathogens of concern, and classifies the list based on periodic review and analysis of epidemiological data (14 CCR § 245). The diseases/pathogens of concern are grouped in four categories as to their seriousness and the specific action to be taken when diagnosed:

1. **‘Significant’** pathogens require immediate holding action until confirmation and after consultation with the Aquaculture Disease Committee, the Director may require further holding action or no restriction as deemed necessary.
2. **‘Serious’** diseases require an immediate hold until confirmation and after consultation with the Aquaculture Disease Committee, the Director may require further holding action or disposal of the stock.
3. **‘Catastrophic’** diseases require immediate hold until confirmation and after consultation with the Aquaculture Disease Committee, the Director may require further holding action, disposal of the stock, or eradication of the farm biomass as deemed necessary.
4. **‘Q’** diseases are caused by those pathogens with insufficient information to be given a permanent classification. Detection of ‘Q’ diseases requires immediate holding action, and after consultation with the Aquaculture Disease Committee, the Director may require further holding action until a final course of action is determined.

The production team is required to keep a daily record of mortalities from every tank unit to establish the baseline mortality rate for each RAS system and for the facility. Having a baseline for each production phase on the farm enables early detection of a disease outbreak based on threshold triggers. If a significant mortality threshold is attained, the NAFC Fish Health Team Leader and the production management team are notified immediately, and the on-call veterinarian would be contacted to initiate diagnosis and determine quickly whether the event is being caused by infectious or non-infectious disease. The NAFC Fish Health Team Leader, Production Director, and the veterinarian will determine the course of action to manage the disease and make appropriate notifications to regulatory agencies if needed.

The immediate action when suspecting an infectious disease is containment and pathogen treatment. Steps need to be taken to isolate the affected tank(s) and system from other units by eliminating shared water and putting in place any physical barriers for isolation. Once the pathogen has been identified and efficacy of treatment determined, approved medicines may be applied to the feed or to the tank water under veterinarian prescription and oversight. NAFC might decide not to treat the pathogen if mortality rate is declining, and fish welfare is not compromised.

NAFC would be required to report to CDFW the occurrence of infectious disease outbreak at the farm and provide information pertaining to fish size, number and age of the fish affected along with diagnostic and veterinarian reports. The NAFC Fish Health Team would propose actions to restore the facility to an appropriate health status. Once contained, the final mitigation response for reported disease outbreaks comes from the Director of the Fish and Game Commission.

An effective disease response plan implemented by NAFC and CDFW mitigates the risks associated with pathogen outbreak at the farm.

Pathogen Screening, Sampling Frequency and Diagnostic Methods

Fish health and welfare assessments occur daily on the farm by NAFC staff. These are done by recognizing changes in fish behavior and appearance from normal to abnormal indications. Any concerns are referred to the production management team.

Following a notification of concern, the production management team consults with the NAFC Fish Health Laboratory Manager to determine if a targeted sample is taken for further investigation using diagnostic methods available in the onsite laboratory. The case is opened and based on the outcome of the initial investigation, the Fish Health Laboratory Manager determines if further support is needed from outside diagnostics laboratory and/or consulting veterinarian, both of whom are part of the NAFC Fish Health Team. The case is closed after a final report is written and disseminated to the production management team.

On a biannual basis, NAFC will be required to undergo a certified fish health inspection for the farm. Certified fish health sampling is conducted by an approved veterinarian and in accordance with the regulatory requirements of CDFW. Standard sampling procedures and validated diagnostic methods for conducting a facility wide fish health inspection are found in the most recent editions of “Procedures for Detection and Identification of Certain Fish Pathogens” published by the Fish Health Section (AFS Blue Book), and the OIE Guide for Aquatic Animal Health Surveillance.

At NAFC there are three types of health monitoring that requires diagnostics:

1. Routine fish health assessments occurring on the farm
2. Advanced diagnostics for veterinarian led investigations
3. Regulatory fish health diagnostics to support certified fish health inspections

A fish health laboratory would be maintained onsite by NAFC for routine fish health assessments. NAFC personnel working in the fish health lab would be trained in Standard Operating Procedures (SOPs) for necropsy, microscopy, and bacteriology as primary diagnostic tools. Samples can also be prepared at the fish health lab and sent for external analysis. Diagnostic testing to support fish health certification needs to be approved by CDFW and would be carried out at the UC Davis – Aquatic Animal Health Services Laboratory (Davis, CA) in accordance with methods in the AFS Blue Book or the OIE Manual of Diagnostic Tests for Aquatic Animals. These reference manuals provide SOPs for specific, validated assays and pathogen screening methodology. Diagnostic labs that support certified fish health testing are also part of the National Animal Health Laboratory Network (NAHLN).

UC Davis Veterinary Medicine Department (VMD) is available for veterinarian led investigation of fish health. This includes the Veterinary Medicine Teaching Hospital (VMTH) Health Diagnostic Laboratory, the California Animal Health and Food Safety Lab System (CAHFS), and the Comparative Pathology Laboratory. Collectively the UC Davis VMD includes an inventory of the latest instruments for molecular and other clinical diagnostics, a pathology core, and represents the only USDA-approved laboratory of Foreign Animal Disease testing in California.

The information presented in the DEIR supports the conclusion that the likelihood of adverse impacts from pathogens from the Project to the environment is extremely low.

Sea Lice Control

Some comments expressed concerns related to sea lice. The size of the smallest life stage of sea lice (nauplii) is approximately 0.3-0.5mm (300-500µm). The intake seawater treatment at NAFC utilizes particle filtration of 0.02µm which is 10,000 times smaller than the smallest life stage of sea lice. Thus, sea lice would be prevented from entering NAFC's facility. For further description, see pages 2-24 in the DEIR.

Impacts Associated with Antibiotic Use

Due to a high standard of intake treatment (0.02-micron ultrafiltration followed by ozonation and high dose UV), NAFC has neutralized the risk of bacteria coming onto the farm through the seawater and freshwater intakes. In addition to the intake water treatment, NAFC's holistic approach for fish health and welfare includes a vaccination strategy, an early pathogen detection program, and the use of fish handling equipment that minimizes stress to fish. Such mitigation factors at the NAFC facility would make it very difficult for bacterial pathogens to enter and cause fish disease that would require treatment with antibiotics.

NAFC takes a responsible approach to the care of fish using professional veterinary health management. In rare cases where medicines are required through proper diagnosis of an infection, they are added to the feed per the veterinarian's prescription. The DEIR addresses the use of medicines such as antibiotics in the Project Description (page 2-37) and in the Hydrology section (page 3.9-23) of the DEIR. Only medicines approved by FDA-CVM could be used by the Project. Under the National Environmental Policy Act of 1969 (NEPA), the FDA-CVM is required to assess the environmental impact of a new drug during the registration and approval process.

Monitoring of Effluent for Pathogens

Biosecurity measures that prevent the transfer of pathogens to the environment are described in DEIR Section 2 (Project Description) and Section 3 (Hydrology and Water Quality) (see pages 2-18 through 2-37, 2-46, 3.9-10, and 3.9-23). The information presented in the DEIR supports the conclusion that the likelihood of adverse impacts from the release of pathogens from the Project to the environment is extremely low.

NAFC's discharge would be regulated by the National Pollution Discharge Elimination System (NPDES) order No. R1-2021-0026 administered by the NCRWCB. Accordingly, NAFC is not required to monitor for pathogens in the effluent. For effluent monitoring requirements see DEIR Section 2.3.1 (Summary of NPDES Requirements), Section 2.3.2 (Additional Monitoring to be Completed by the Applicant). See Master Response 5 (Marine Outfall) for additional information on the Project discharge.

Master Response 5 – Marine Outfall

There were a number of comments expressing concern with the modeling done for the ocean outfall. Within the DEIR, impact analysis specific to the ocean discharge is based, in part, on the Numerical Modeling Report (DEIR Appendix E). In this Master Response 5, a greater explanation of the results of the numeric modeling is provided.

Ambient (Background) Water Quality

Multiple comments were received regarding the appropriateness of using temperature, salinity and nutrient data from Entrance Bay in Humboldt Bay for the assessment of the effluent impacts/effects of the proposed NAFC discharge in the nearshore coastal waters.

Estimates of Ambient Water Quality for Environmental Impact Assessment

No data was available at the RMT II multi-port diffuser location to characterize the ambient (background) concentrations of temperature, salinity and nutrients. However, the October 2012-February 2015 biweekly temperature, salinity and nutrient measurements of Entrance Bay as reported in Swanson (2015) were considered appropriate and were adopted as the ambient (background) water quality on the following basis as reported in Section 3.1 of DEIR Appendix E:

These were the best available and sufficient data on nutrients, which is the key property of the NAFC effluent discharge of concern, in particular nitrate (NO₃).

Other reliable data from the Central and Northern California Ocean Observing System (CENCOOS) and the California Cooperative Oceanic Fisheries Investigations (CalCOFI) were considered; however, the CENCOOS data are not indicative of the nearshore conditions at the diffuser location and no CalCOFI data was available. Data considered but not utilized are detailed in Section 3.9 of the DEIR (Hydrology and Water Quality) on pages 3.9-8 and 3.9-9. A justification for not utilizing other considered data sources is also provided on pages 3.9-8 and 3.9-9 of the DEIR.

High simulated flushing of Entrance Bay with the adjacent nearshore coastal waters (Anderson 2010) provides justification that measurements of temperature, salinity and nutrients of Entrance Bay are representative of the water quality of the nearshore coastal waters (and thereby the diffuser site).

Temperature and salinity measurements by NOAA (via the National Buoy Data Center) were considered (but not reported in DEIR Appendix E). In part, there was sufficient data reported in Swanson (2015) for these two parameters to warrant not including these datasets and to utilize a consistent dataset that also included nutrient measurements. To support the use of the Entrance Bay dataset reported in Swanson 2015, comparisons of the following temperature and salinity datasets are provided:

- a) Statistics of the 2014 Wiyot Tribe Natural Resources Department monitoring dataset (approximately bi-weekly sampling interval) reported in Swanson (2015) from Entrance Bay were compared to the 2014 data from an offshore station approximately 10 miles west of Arcata Bay (station 42444 with a 30 minute measurement interval that is maintained by the Scripps Institute of Oceanography) to evaluate whether water temperatures (only parameter of interest measured at station 42444) are similar between Entrance Bay data and offshore waters.
- b) Statistics of the October 2012-September 2014 Wiyot Tribe Natural Resources Department monitoring dataset (approximately bi-weekly sampling interval) reported (Swanson 2015) from Entrance Bay are compared to the following two CeNCOOS maintained stations (hourly measurement intervals):
 - 2016-2020 Trinidad Pier (station TDPC1).
 - 2016-2020 Humboldt Bay (station HBXC1) to the north of Entrance Bay and to the west of Bayshore Mall.
- c) The purpose of this comparison is to evaluate whether temperature and salinity are similar between Humboldt Bay and Trinidad Pier, and their similarity to Entrance Bay dataset utilized in DEIR Appendix E.
- d) Table 2.10 provides comparison comments of the 20th, 50th and 80th percentiles of the temperature and salinity measurements of the various datasets. The key conclusions from this comparison of the Entrance Bay, CeNCOOS and Scripps datasets include:
 - This comparison assumes that CeNCOOS and Scripps measurements have undergone appropriate QA/QC¹ and are an accurate depiction of the water temperature and salinity climate at each of the stations.
 - Only the Wiyot Tribe Natural Resources Department measurements reported in Swanson (Swanson 2015) were utilized in this comparison as they are comprised of a relatively regular bi-weekly

¹ Quality assurance / quality control.

sampling interval, which would be statistically biased with inclusion of the additional monthly measurements from January 2014 to February 2015 by Swanson (2015).

- The only direct comparison possible of the Entrance Bay dataset was for water temperature measurements during 2014 relative to offshore station 46244. Though measurements were approximately 1 °C cooler in the bay, the DT, which is defined as the difference between the 80th and 50th percentiles, were nearly equivalent (2.2 to 2.3 °C). In other words, the variations in water temperatures above the median value that marine flora and fauna experience in Entrance Bay and the offshore waters are nearly the same.
- A comparison of the percentiles of water temperatures over 5 years of continuous hourly² data (2016-2020) indicated that Humboldt Bay was 0.5-1 °C warmer than Trinidad Pier. Further the DT of Humboldt Bay (1.8 °C) was 0.5 °C greater than Trinidad Pier (1.3 °C) over this five-year period. The percentiles of water temperatures from the 2012-2014 bi-weekly Entrance Bay dataset were approximately 0.5 to 2 °C lower than the 2016-2020 hourly measurements from the Trinidad Pier and Humboldt Bay sites. However, the DT of the bi-weekly Entrance Bay dataset was the same as the hourly Trinidad Pier. In other words, the variations in water temperatures that marine flora and fauna experience in Humboldt Bay are somewhat greater than Trinidad Pier by 0.5 °C based on hourly measurements. However, the DT of the 2012-2014 bi-weekly Entrance Bay dataset is the same as the 2016-2020 hourly Trinidad Pier dataset.
- These comparisons of water temperatures demonstrate that variations in the thermal climate above the median experienced by marine flora and fauna in the offshore, Humboldt Bay, Entrance Bay and Trinidad Pier sites are all similar.
- The comparison of the percentiles of the 2016-2020 hourly salinity measurements at Trinidad Pier and Humboldt Bay indicate that the salinity climate experienced by marine flora and fauna at these two locations are nearly equivalent in terms of the absolute salinity and the DS, which is defined as the difference between the 50th and 20th percentiles of measurements. In other words, the variations in salinity below the median value that marine flora and fauna experience in Humboldt Bay are nearly the same as those at Trinidad Pier based on the hourly measurements. Further, the DS of the 2012-2014 bi-weekly Entrance Bay dataset is approximately one third (0.7 psu) of those from the hourly Trinidad Pier (2.1 psu) and hourly Humboldt Bay (1.8) datasets from 2016-2020.
- These comparisons of salinity measurements demonstrate that variations in the salinity climate below the median experienced by marine flora and fauna at the Humboldt Bay and Trinidad Pier sites are similar. Additionally, the use of the Swanson (2015) data to derive an acceptable numeric water quality objective for salinity in DEIR Appendix E Section 3.4 is conservative in terms of impact prediction of the discharge from the RMT II diffuser in that the DS is much smaller than would have been derived from use of the hourly datasets.

Increases to temperature are limited to the immediate vicinity of the RMT II diffuser. The potential impacts/effects from temperature and salinity on the marine organisms in the vicinity of the RMT II diffuser are negligible, as dilution targets are predicted to occur within five feet of the RMT II diffuser, as concluded on page 36 of DEIR Appendix E and discussed in the DEIR in Section 3.9 (Hydrology and Water Quality) on pages 3.9-19 and 3.9-20. The comparative analysis presented here of the three hourly dataset with the bi-weekly dataset demonstrates that the Entrance Bay data used in DEIR Appendix E characterizes the temperature and salinity climates similar to offshore waters, nearshore waters in proximity to Trinidad Pier, and Humboldt Bay waters to the north of Entrance Bay.

² Note 2020 data had a 15-minute sampling frequency, which was subsampled to an hourly to match the prior frequency of the 2016-2019 data.

Table 2.10 Summary of Comparative Water Quality Analysis by Location

	Temperature				Salinity			
Year	2014		2012-2014	2016-2020	2012-2014		2016-2020	
Station	Entrance Bay	Offshore (Station 46244)	Entrance Bay	Offshore (Station 46244)	Entrance Bay	Trinidad Pier (Station TDPC1)	Humboldt Bay (Station HBXC1)	Entrance Bay
80 th Percentile	13.7	14.8	11.5	12.5	13.7	33.8	33.9	33.7
Median	11.5	12.5	10.2	11.2	11.9	33.4	33.0	32.8
20 th Percentile	10.0	10.8	9.4	10.0	10.6	32.7	30.9	31.0
No. Measurements	23	15613	49	35733	37180	49	35733	37180
DT (80 th -50 th Percentiles) DS (50 th -20 th Percentiles)	2.2	2.3	1.3	1.3	1.8	0.7	2.1	1.8
Comparison Comments	Generally, temperature measurements area approximately 1 °C greater at offshore station than within Entrance Bay. However, DT (80 th -50 th percentiles) are nearly equivalent between the two sites.		CeNCOOS measurements at Humboldt Bay approximately 0.5-1 °C greater than Trinidad Pier from 2016-2020. The 2012-2014 Entrance Bay measurements were approximately 0.5-1 °C and approximately 1-2 °C lower than the 2016-2020 CeNCOOS measurements at Trinidad Pier and Humboldt Bay, respectively. However, DT (80 th -50 th percentiles) at Entrance Bay same as Trinidad Pier and 0.5 °C lower than Humboldt Bay CeNCOOS measurements.		CeNCOOS measurements at Humboldt Bay nearly equivalent to those at Trinidad Pier from 2016-2020. The 2012-2014 Entrance Bay measurements were approximately 0-1.6 psu greater than the 2016-2020 CeNCOOS measurements at Trinidad Pier and Humboldt Bay. However, DS (50 th -20 th percentiles) at Entrance Bay (0.7 psu) substantially lower than Trinidad Pier (2.1 psu) and Humboldt Bay (1.8 psu) CeNCOOS measurements.			

³ DT is representative of the natural variation of temperature above the median as the NAFC discharge will be warmer than the ambient marine waters.

⁴ DS is representative of the natural variation of salinity below the median as the NAFC discharge will be of lower salinity than the ambient marine waters.

Temperature and Salinity Impacts from the Outfall

Multiple comments were received regarding the impacts/effects of temperature and/or salinity on the receiving environment. Comments state that the predictions of temperature and salinity of the effluent discharge from the diffusers inadequately characterize the risk to marine organisms. Many of these comments state that inappropriate temperature and/or salinity data was used to characterize the background baseline conditions.

Ambient Background Conditions

The temperature and salinity of the Entrance Bay dataset is representative of offshore and nearshore (Trinidad Pier) waters as discussed above. The dilution target to achieve the water quality objectives for temperature and salinity are five-fold and seven-fold, respectively (DEIR Appendix E Section 3.4). The calculation of the dilution target for the temperature water quality objective was as follows:

- The comingled outlet temperature (C_O) of the effluent from the NAFC facility, power plant, and sewage treatment plant is 71.3 °F to 71.5 °F (see DEIR Appendix E, Table 3)
- The ambient background temperature (C_A) is 11 °C (51.8 °F) (see DEIR Appendix E, Table 3)
- The allowable temperature increase in the California State Water Resources Control Board California Ocean Plan and California Thermal Plan is 4 °F (see DEIR Appendix E, Table 4). In other words, the allowable increase is 4 °F above the median. Thus, the target temperature at the edge of the mixing zone (C_T) to comply with a 4 °F temperature increase (the water quality objective) is 56 °F (the median of 52 °F plus the regulatory allowable temperature increase of 4 °F).
- The dilution target (DT) at the edge of the mixing zone represents the amount of mixing and dispersion of the effluent with the ambient background marine waters to reduce the temperature below 4 °F (the water quality objective that defines the edge of the mixing zone). This is calculated with the equation $DT = (C_O - C_A) / (C_T - C_A)$ (see DEIR Appendix E, Section 3, page 6).
- Therefore, $DT = (71.4 - 52) / (56 - 52) = 4.9$, which is a dilution target of approximately 5.

Calculation of dilution targets (see DEIR Appendix E, Table 5) to meet the water quality objective thresholds for salinity, ammonia, reduced inorganic nitrogen, oxidized inorganic nitrogen and orthophosphate (see DEIR Appendix E, Table 4) are all calculated in the same manner as the above example for calculating the dilution target for temperature.

Near-Field Modeling

Near-field modeling predicts the dilution the NAFC effluent undergoes with ambient marine waters in the immediate vicinity of the RMT II diffuser. There are two physical mixing (dilution) processes that are simulated with the near-field modeling (Frick 2003):

- The near-field model simulates the mixing (dilution) due to the velocity of the discharge upon exiting each of the diffuser nozzles into the receiving marine waters. Once the plume is no longer moving relative to the background currents (i.e., the exit velocity from the nozzle has dissipated), velocity-based near-field mixing ceases.
- The near-field model also simulates the mixing of the plume with the receiving marine waters if its density differs. As the salinity of the NAFC effluent is lower (approximately 27 psu) than the receiving marine waters (approximately 33.5 psu), the plume rises through the water column until it reaches the surface or sufficient mixing has occurred during its ascent that it reaches the same density as the receiving waters.

- The near-field model in this application only simulates the mixing (dilution) that occurs from these two processes. Thereafter, mixing (dilution) occurs at the natural rates of the ambient receiving marine waters, which is simulated with the three-dimensional hydrodynamic model.
- The near-field mixing (dilution) from these two processes (velocity in excess of the background marine currents and the rise of the plume due to its lower density) is generally much greater than the ambient background mixing.

The near-field modeling demonstrates two key aspects of potential impacts/effects in terms of temperature and salinity:

- First, because of the lower salinity of the effluent relative to the marine waters, upon discharge from the diffuser nozzles that are aimed at 45 degrees upwards relative to the horizontal (see DEIR Appendix E, Section 5.2), the plumes will rise through the water column and thereby will not impact organisms living in or near the seafloor.
- The relatively low target dilutions for salinity (seven-fold) and temperature (five-fold) are readily met within five feet of each of the RMT II diffuser nozzles (see DEIR Appendix E, Section 5.3). Hence, the near-field model predicts that the distance from the RMT II diffuser in which salinity and temperature impacts/effects on the marine environment will occur is limited to within five feet of the diffuser ports.

Use of Ambient Monitoring Data to Interpret Three-Dimensional Hydrodynamic Modeling

Multiple comments were received regarding the use of the ambient data from Entrance Bay for modeling. Comments state that the model predictions of impact/effect that utilize these data are problematic. Comments expressed concern that the Entrance Bay water quality characteristics are too different from those at the diffuser array to be applicable to the Project.

Near field-mixing dilutes the existing plume and water quality objectives are readily met within five feet of the ocean discharge site, as described in DEIR Appendix E, Section 5.3 (Near-Field Dilution Results), starting on page 14. The three-dimensional hydrodynamic models that define the spatial extent of the zone of water quality degradation show how quickly and vastly effluent is dispersed, thus confirming that the risk of deleterious water quality impacts is 'very low.' Surface water (0-2 m) and mid-water (2-16 m) water quality degradation in summer and winter are considered 'very low risk' because plume water is rapidly dispersed and transported, preventing increases in phytoplankton abundance from occurring. Near seabed waters (>16 m) are similarly 'very low' risk for water quality degradation across seasons.

A description of these models and simulated dilutions are found in Section 6.8.1 (Defining the Zone of Potential Water Quality Degradation) of Appendix E, starting on page 26. They are visualized using statistical spatial contours: The summer plume dilution scenario is found in Appendix E, Section 6.9.2 (Summer Scenario - Zone of Potential Water Quality Degradation), Figure 13, starting on page 29 and the winter scenario in DEIR Appendix E, Section 6.10.2 (Winter High River Flow Scenario - Zone of Potential Water Quality Degradation), Figure 15, starting on page 33.

Ambient Data Define Target Dilution

The ambient data sourced from the Entrance Bay data set did not directly serve as model inputs. Rather, these data were used to determine the target dilution to meet the water quality objectives as described in DEIR Appendix E, Section 3. It is these dilution targets that are used to interrogate the three-dimensional hydrodynamic model output to determine the zones of potential impact/effect. Please refer to the discussion above on Temperature and Salinity Impacts of the Outfalls / Ambient Background Conditions for an example calculation of the dilution target for temperature.

Three-Dimensional Hydrodynamic Modeling

The Danish Hydraulic Institute's (DHI) MIKE 3 three-dimensional hydrodynamic model is one of the most widely applied industry-standard models throughout the globe that has been developed over many years (DHI 2022).

The three-dimensional hydrodynamic model inputs are clearly described in DEIR Appendix E, Sections 6.1-6.5 with the following summary overview:

- The boundaries for the modeling area are the open ocean boundaries to the north of Mad River, the south of the Eel River and extends west into the deeper waters of the Pacific Ocean. Model inputs of temperatures, salinity, currents, and water levels are from relevant hindcast simulations of global ocean models.
- The bathymetry of the seabed includes all the coastal and open ocean waters as well as Humboldt Bay.
- Meteorological forcing (e.g., winds, air temperature, solar insolation) over the surface of the model are from relevant hindcast simulations of global atmospheric models.
- Further inputs include the measurements of discharge of the two major rivers (Eel, Mad) to understand the effect of large freshwater inputs during winter on the behavior of the effluent plume, as well as during low river flow periods in summer.

To reiterate, Entrance Bay data did not serve as model inputs. Water level measurements in Humboldt Bay and water current measurements near the entrance of Humboldt Bay did not serve as inputs, but rather to demonstrate acceptable three-dimensional hydrodynamic modeling performance (see DEIR Appendix E, Section 6.7). The Entrance Bay data was used to come up with dilution targets for a number of water quality parameters and the highest dilution target was used to cross-examine the model output to evaluate the area of material effect from the effluent. Specifically, the model underwent the following performance evaluation (model verification, simulation accuracy assessment) through comparisons with measured water levels at the North Spit and measured currents near the entrance to Humboldt Bay.

The verified three-dimensional hydrodynamic model simulates and tracks the proportion of the NAFC effluent in each model grid cell throughout the modeling domain (i.e., the volume of marine waters that are simulated) at each 30-minute time step. Thus, dilution of effluent water is the key output from the model. Statistical contours of the 200-fold dilution target described in DEIR Appendix E, Section 6.9.2 and 6.10.2 are calculated from this simulated data set. As noted above, the 200-fold dilution target in which the simulation output is interrogated is derived from the Entrance Bay dataset.

To summarize, the determination of the 200-fold dilution target used to cross-examine simulation output presented in DEIR Appendix E was as follows:

- The discharge concentrations of water temperature (thermal stressor), salinity (salinity stressor), ammonia (toxicity stressor) and nutrients (NH_x, NO_x, PO₄; eutrophication stressors) from the RMT II diffuser were estimated.
- The natural background levels (ambient) of these parameters in the marine waters were estimated from the bi-weekly Entrance Bay dataset reported in Swanson (2015). In lieu of site-specific baseline data at the RMT II diffuser site, these measurements serve as a reasonable indication of likely ambient levels at the proposed discharge site. The 'median' of these measurements represent the background (ambient) levels in the marine waters for the purposes of environmental impact assessment.
- Table 4 on page 11 of Appendix E define Water Quality objectives. The California Temperature Plan defines temperature increases (4 °F increase in California Temperature Plan), These define acceptable increases in the potential contaminants/nutrients of concern from the proposed discharge. One common

approach is to select the 80th percentile of a baseline dataset (i.e., the Entrance Bay dataset) to define the allowable increase above the median value. In other words, the allowable increase in a parameter to define the zone of water quality degradation is defined as the difference between the 80th and 50th percentiles of the baseline dataset. The California Ocean Plan does not provide any numeric thresholds for water quality degradation (the plan only provides a narrative), so this approach was used to allow quantitative impact assessment of the area of impact (effect).

These three concentrations were used to define the dilution targets (DT defined above) for each of the parameters where:

- Dilution factors of 4 for salinity and 4 to 7 for temperature are readily met in close proximity to the diffuser (5-10 feet of diffuser nozzles) and do not pose a material risk in terms of thermal or salinity stress to marine flora and fauna.
- Oxidized inorganic nitrogen ($\text{NO}_x = \text{NO}_3 + \text{NO}_2$) and reduced inorganic nitrogen ($\text{NH}_x = \text{NH}_3 + \text{NH}_4$), which are potential eutrophication (or phytoplankton growth) stressors, require dilution factors of approximately 80 and approximately 200, respectively. Hence a dilution factor of 200 was adopted to define the area in which stimulation of phytoplankton growth by nutrients is no longer a material risk (i.e., the boundary of water quality degradation).

Facility Treatment Performance and Marine Monitoring

Multiple comments were received regarding the evaluation of the facility's treatment performance and marine monitoring. Comments sought additional and/or revised modeling, additional monitoring, and additional adaptive management requirements.

The Project's discharge, and monitoring thereof, would be fully compliant with the Porter-Cologne Water Quality Control Act, US Clean Water Act, Ocean Plan, and Thermal Plan requirements. However, NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond any regulatory requirement. This monitoring is described in the Project Description and DEIR Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant, page 3.9-12).

The additional voluntary monitoring to be completed by NAFC would be consistent with and complimentary to the biological monitoring required by the North Coast Regional Water Quality Control Board (NCRWQCB) under the NPDES order (permit), albeit more frequent and designed to confirm the Project's discharge is not resulting in a detrimental effect on biota and water quality with proximity of the diffusers. The NPDES order requirements are summarized in Section 3.9 (Hydrology and Water Quality), starting on page 3.9-9.

Additionally, NAFC is required to re-apply for a new NPDES order every five years. Each re-application will be reflective of all monitoring results (both what enters the pipe and the marine environment at the diffusers), actual discharge characterization, and other contemporary parameters. Thus, the initial NPDES order does not allow NAFC permission to discharge in perpetuity.

As noted on DEIR page 3.9-12, results of the monitoring would be readily shared with Project stakeholders. Reporting would be completed following each post-discharge monitoring event by a qualified consultant and shared with stakeholders thereafter once each year.

The DEIR has conservatively accounted for adaptive management specific to unanticipated water quality detrimental effects (i.e., water quality degradation at spatial scales greater than predicted in the DEIR). On page 3.9-23 (Contingency Protocols for Water Quality Protection), the DEIR describes NAFC management actions that would be taken to address any unanticipated detrimental effects to marine water quality,

including an event related to toxic algae or a Harmful Algae Bloom (HAB) attributable to the discharge from the facility. These management actions are to be implemented in addition to any regulatory action taken by the NCRWQCB. In the event of a water quality impact related to the Project's discharge, NPDES-required monitoring shall continue throughout these operational adjustments. Operational constraints shall continue until the water quality exceedance(s) attributable to the Project have been resolved to the satisfaction of the NCRWQCB.

Additionally, the draft NPDES order includes reopener provisions which are triggered at any point if there is a Reasonable Potential for the discharge to cause or contribute to an excursion above a water quality criterion in the permit or objective applicable to a receiving water (DEIR page 3.9-10). If sampling results show non-compliance, NCRWQCB would issue a Cease and Desist or a Time Schedule Order under the NPDES program. NAFC would then coordinate with the NCRWQCB to obtain compliance. As a standard provision in the draft order, failure to comply with provisions or requirements of the order, of violation of other applicable laws or regulations governing the NAFC discharge may subject NAFC to administrative or civil penalties, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject NAFC to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities (Section 6.1.2.1 of the draft NPDES order for the Project).

Regional Importance of the Facility's Nitrate Inputs

Multiple comments were received regarding the evaluation of the nutrient inputs by the facility on a regional scale. In particular, comments suggested the use of BEUTI to determine the relative magnitude of deep-water nitrate supply to the upper layers of the ocean relative to those from the NAFC discharge.

BEUTI is an estimate (index) of the nitrate flux into (or out of) the surface mixed layer of the ocean calculated on the basis of CUTI (index of vertical transport into/out of the mixed layer primarily based on ocean models) and an empirical relation of nitrate at the base of the mixed layer with latitude (over 1 degree latitude bins) and temperature. This is not an appropriate tool to directly incorporate the NAFC discharge into coastal waters but can be used to determine the relative magnitude of nitrate inputs from upwelling relative to those from NAFC discharge.

Calculations with BEUTI undertaken by California Sea Grant advisor Joe Tyburczy as summarized in a June 4, 2021, letter to the NCRWQCB suggest that the nitrate discharged from the facility (less than 673 kg/day) may be substantial relative to the natural, ambient nutrient supply from deeper marine waters that are transported to the mixed layer, especially during winter when upwelling is lower and alongshore current and resultant dilution is reduced.

Winter river inflow events are an additional major source of nitrate in the Pacific Northwest. The relative importance of river nitrate loading relative to deep ocean water transport of nutrients to the mixed layer is illustrated over six days of elevated Eel River flows from 8-13 January 2017 (see DEIR Appendix E Section 6.5 for river inflows), where the following nitrate fluxes are estimated:

- An average discharge of 42,746 ft³/s (3,579 m³/s) which yields a total discharge of approximately 2.22x10¹⁰ ft³ (1.86x10⁹ m³) over six days.
- Supposing an average nitrate concentration of 0.05 mg N/L (USGS 1976)⁵, this equates to a total nitrate load of approximately 93,000 kg over the six days, which is equivalent to approximately 133 days of the daily loads from the Nordic facility (approximately 700 kg/day).

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The daily nitrate inputs from the NAFC discharge are substantially lower than those during substantive Eel River winter flow events. Further, dispersion of nitrate inputs from the Nordic facility occurs rapidly and over a relatively limited area, as it is likely that nitrate will undergo biological uptake. For the impact assessment, nitrate was evaluated as a conservative substance (defined as a material dissolved in water that only undergoes changes in concentration due to transport and dispersion with no changes from any other mechanisms such as biological uptake or settling) that does not undergo any biological uptake (see DEIR Appendix E, Section 6.9.2 and 6.9.10). Thus, the zone of potential water quality degradation is likely an overestimate of the spatial extent of a 200-fold dilution of nitrate released from the facility as biological uptake is not considered in the impact assessment.

Harmful Algae Blooms

Several comments were received expressing concern over effluent from NAFC's Ocean Discharge Site contributing to local and regional HAB development, particularly associated with *Pseudo-nitzschia* spp. and the production of domoic acid (DA), and the potential for prompting fisheries closures.

The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the coastal waters potentially affected by the Project. There is minimal risk of nutrients entering Humboldt Bay because the effluent 1) enters the Pacific Ocean at the location of the diffuser array, and 2) is dispersed at fast enough rates that regardless of oceanographic forces, effluent would not recirculate nor reenter into Humboldt Bay. The Project's potential contribution to a HAB is unfounded. The location of the diffuser array is approximately 1.55 miles offshore of the peninsula and approximately 3.5 miles north of the entrance to Humboldt Bay, as shown in Figures 2-1 and 2-2 referenced in DEIR Section 2.0 (Project Description).

Additionally, NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond regulatory requirements. This monitoring is described in DEIR Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant, page 3.9-12) and includes water quality monitoring as requested by commentors.

Toxic HAB events in the California Current System are commonly associated with *Pseudo-nitzschia* spp. and the production of domoic acid (Horner 1997; Lewitus 2012). *Pseudo-nitzschia* spp. blooms are generally prompted by large-scale events that create a unique combination of temperature, salinity, nutrients (specifically nitrogen and silicate), including marine heat waves and changes in upwelling and wind (McCabe 2016; Trainer 2012). This is referenced in DEIR Section 3.3.6 (Biological Resources) starting on page 3.3-27 and 3.3-29 and Section 3.9.6 (Hydrology and Water Quality) starting on page 3.9-23. Locations that support *Pseudo-nitzschia* blooms, which may become toxic and produce domoic acid when phytoplankton cells remain stressed, are typically found in regions with highly retentive oceanographic features that harbor the previously described conditions, including Monterey Bay, Point Conception, and the Southern California Bight (Trainer 2012). The north coast of California is vastly different.

The environmental (and oceanographic) conditions at the Ocean Discharge site are not suitable for localized HABs. Compared to more southern regions, Northern California has significantly more wind and wave energy, and higher upwelling indices (Jacox 2018). As described in DEIR Section 3.3.6 (Biological Resources) starting on page 3.3-27 and 3.3-29 and Section 3.9 (Hydrology and Water Quality) starting on page 3.9-23, the highly energetic climate yields strong currents in waters nearby the Project. Quantitative predictions and numerical models describing the fast dispersal rate and degree to which effluent is diluted (throughout space and time) in the surrounding waters are provided in DEIR Appendix E. Since the effluent

is dispersed and diluted at such high rates, the capacity for an algal bloom (including, but not limited to *Pseudo-nitzschia* spp.) to develop at the Ocean Discharge site because of the Project's effluent is drastically reduced, if not eliminated, and therefore, there also is no temporal window and environmental conditions (e.g., retentive features) to produce toxins (such as domoic acid).

Regional HABs (including that of *Pseudo-nitzschia*) in Northern California are also unlikely to develop as a result of the effluent discharge because they require significantly larger scale changes in the oceanographic environment (McCabe 2016). Compared to changes in nutrients driven by changes in wind and upwelling, Project effluent will not result in significant changes in water quality, as the high-level wastewater treatment removes a large portion of nitrogen prior to discharge. This holds true, regardless of the dispersal and dilution rates described in DEIR Appendix E. There is also minimal evidence suggesting that human activities (such as agricultural runoff, submarine groundwater discharge etc.) contribute to toxic HABs (Anderson 2008).

Lastly, NAFC is using the best available wastewater treatment technology and voluntarily agreed to additional baseline and project monitoring specified in the DEIR Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant), starting on page 3.9-12. As a result, there is a negligible risk for localized and regional HAB events that would impact fisheries and marine resources to occur.

Master Response 6 – Statements Unrelated to Environmental Issues as Defined Under CEQA

Numerous comments were submitted that expressed concerns about topics unrelated to environmental issues as defined by the CEQA Appendix G environmental checklist. In other instances, statements of opposition or support for the Project were submitted. This Master Response addresses comments submitted that are outside the scope of environmental issues that are required to be addressed by the CEQA Guidelines.

In several cases, comments include an opinion on the Project, questions about the Project's planning process, and requests that the Project be eliminated from consideration. Such comments provide valuable input to the County's decision makers when considering action on a project, and the comment letters will be part of the public record for the decision makers to consider. However, opinions regarding the merits of the Project are outside the scope of the CEQA process. Accordingly, where the comments address concerns not related to environmental issues, no further response to comments is appropriate and no response will be provided. These comments will be retained in the FEIR as part of the administrative record for consideration by the decision makers. Per CEQA Guidelines Section 15204(a), in reviewing draft EIRs, persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the potential impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR. For comments unrelated to the CEQA Environmental Checklist, the Lead Agency need not apply the threshold of significance as defined in Section 15064.7 of the CEQA Guidelines. Furthermore, CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by comments, as discussed further in Master Response 8.

Master Response 7 – Intake Biologic Productivity, Intake Salmonids

Master Response 7 provides explanation for a range of topics associated with the bay water intake systems.

Impingement

Multiple comments were received associated with the “impingement” of marine organisms onto the intake screens. The DEIR Appendix P (Tenera Final Report) includes an analysis of the potential effects due to entrainment at the proposed intakes for the Project (Tenera 2021). That report provided information on the intake design specifications. The proposed intake screen slot size openings for both of the two screens are 1.0 mm (0.04 inch). This slot size is designed to result in low approach velocities of 0.2 feet per second (fps) (6 cm per second) or less.

The National Marine Fisheries Service (NMFS) requires 1.75mm (0.07 in.) or less slot opening for screening water intakes to prevent impingement or entrainment of juvenile salmonids (NMFS 1997). The specifications in the 1997 NMFS document are also consistent with updated criteria provided by NMFS for the design of anadromous salmonid passage facilities (NMFS 2011). Thus, the proposed water intake screens go beyond the minimum requirements established by NMFS.

The design criteria in the NMFS guidance exceed the requirements in federal regulations for minimizing impingement under the Federal Clean Water Act (CWA) Section 316(b) for cooling water intake structures and California requirements in policies for the regulation of power plant cooling water intake systems (California Once Through Cooling [OTC] Policy), and intakes for desalination plant intakes (Ocean Plan Desalination Amendment). Both federal and state regulations require a maximum through-screen velocity of 0.5 fps to meet compliance standards for minimizing impacts due to impingement. The Project water intakes are designed to operate at 0.2 fps or less through-screen velocity.

Figure 2.1 is a video frame grab of a 2 mm operating screened water intake with 0.5 fps intake velocity. The image shows a fish larvae (circled in white) swimming close by the intake screen. The image shown in Figure 2.1 was taken in January 2012 during an intake screen efficiency study associated with the West Basin Municipal Water District pilot desalination facility (Tenera 2014). Figure 2.1 demonstrates that fish larvae may avoid impingement at properly designed, low-velocity water intakes.



Source: West Basin Municipal Water District Desalination Demonstration Facility Intake Effects Assessment Report (Tenera 2014)

Figure 2.1 Picture of fish larvae swimming near a wedge-wire intake screen with the pump operating

The proposed intake system will minimize or eliminate impingement of marine organisms under normal operating conditions. As a result, the Tenera Environmental report (DEIR Appendix P) only considered effects of entrainment on small marine organisms such as fish larvae (ichthyoplankton).

Entrainment of Planktonic Organisms

Multiple comments were received associated with the “entrainment” of planktonic organisms into the intake screens. As described in the DEIR, potential impacts to fish and invertebrate larvae from the two intakes, were studied through an empirical transport model (ETM) of potential effects on ichthyoplankton due to entrainment at the proposed Humboldt Bay Water Intakes was conducted by Tenera Environmental (Tenera Environmental 2021a). The DEIR concluded operation of the proposed seawater intake system would not cause populations of target species, including larval stages of Coastal Pelagic Species, to fall below self-sustaining levels or otherwise eliminate such species. Entrainment from the proposed project’s intake would not result in a substantial decrease in marine populations that could be detected over natural variability. For CEQA purposes the impact is less than significant. The Harbor District will be required to obtain a Coastal Development Permit from the Coastal Commission for the Seawater intakes. A component of this will be to evaluate any loss in biological productivity within the bay and provide compensation for this. Sampling is ongoing to precisely define the extent to which productivity will be affected.

The sampling targets larval fishes and invertebrates that could be subject to entrainment into the two intakes. The potential impacts due to entrainment at the proposed intake locations will be refined using the Empirical Transport Model (ETM) (Steinbeck 2007), a modeling approach that has been used on larger intake systems throughout California and is the required approach in California for assessing impacts due to power plant and desalination plant ocean intakes.

The impact assessment uses sampling and analysis methods consistent with other studies at coastal power plants and desalination plants in California completed over the past several years. The sampling for this and all previous studies is designed to focus on planktonic larval stages of fishes and invertebrates.

Comments received on the DEIR correctly state that there are numerous planktonic organisms that will not be sampled during the study. Unlike the planktonic larval stages being sampled these plankton groups include numerous types of phytoplankton (e.g., diatoms) and zooplankton (e.g., copepods, krill, etc.) that remain in the plankton for their entire life cycle. Although almost all planktonic forms (phyto-, zoo-, and planktonic fish and invertebrate larvae) are affected by entrainment, this study and most other intake assessments have focused on a few organism groups, typically larval fishes and invertebrates.

The effects on smaller phytoplankton and zooplankton are typically not studied because their large abundances, wide distributions, and short generation times make them less susceptible to the effects of entrainment, especially at an intake with a volume that represents only 0.0304% of the Bay volume at mean sea level.

The smaller phytoplankton and zooplankton also require additional sampling using smaller mesh nets than the 335-micron-mesh (0.0013 in.) being used in the sampling as mandated by the Ocean Plan Desalination policy and Power Plant Intake Policy of the State Water Resources Control Board.

The sampling focuses on larval fishes and invertebrates for several reasons. Part of the reasoning is based on historical guidance from the United States Environmental Protection Agency (USEPA) in its original Section 316(b) guidance (USEPA 1977). The USEPA guidance document listed criteria for selecting appropriate organisms for assessment, including the following:

1. Representative, in terms of their biological requirements, of a balanced, indigenous community of fish, shellfish, and wildlife
2. Commercially or recreationally valuable (e.g., among the top ten species landed—by dollar value)
3. Threatened or endangered
4. Critical to the structure and function of the ecological system
5. Potentially capable of becoming localized nuisance species
6. Necessary, in the food chain, for the well-being of species determined in 1–4
7. Meeting criteria 1–6 with potential susceptibility to entrapment/impingement and/or entrainment

In addition to the above USEPA criteria, there are certain practical considerations that limit the selection of organisms such as the following:

1. Identifiable to the species level
2. Collected in sufficient abundance to allow for impact assessment (i.e., allowing the model(s) constraints to be met and confidence intervals to be calculated)
3. Having local adult and larval populations (i.e., source, not sink species). For example, certain species that may be relatively abundant as entrained larvae may actually occur offshore or in deep water as adults

Most of the studies in California have benefited from the input of agency and academic scientists that have collaborated in selecting the final list of fish and invertebrates analyzed in each of the studies after the samples had been processed and data from the entrainment samples summarized. The assessments generally included taxa from the organism groups that were in highest abundance in the entrainment

samples (generally those comprising up to 90% of the total abundance) and commercially or recreationally important fishes and invertebrates that were in high enough abundances to allow for their assessment. Onshore currents can transport offshore, deep-water species larvae from their primary habitat to coastal waters in tidal transfer and/or storm events. The transfer of offshore, deep-water species into the bay where the intakes are located is less likely. These offshore species were generally not included in these assessments.

Finally, concerns regarding the absence of any sampling of other planktonic organisms in the study can be addressed during the analysis. For example, fish eggs are also part of the plankton and would be subject to entrainment. It is very difficult to identify most fish eggs to the same taxonomic level that the larvae can be identified. However, as part of the ETM analysis, the estimated planktonic duration of the egg stage for species with planktonic eggs is included in the calculations so that the potential entrainment of eggs is accounted for in the final assessment for each organism with planktonic eggs.

On May 6, 2015, the California State Water Resources Control Board adopted Desalination Facility Intake Amendments to the Ocean Plan. The 1,303-page report includes detailed references to the scientific basis that was utilized to draft the standards for intake systems as well as an analysis of alternative approaches and justification as to why the Water Board ultimately determined that the ETM is the best methodology. This project builds on that analysis, updates scientific research/literature from 2015 to present, and relies on the Water Board's adopted standards (California State Water Resources Control Board, Final Staff Report, Adopted May 6, 2015).

The results of the ETM analyses of the organisms selected for study are used to calculate an estimate of the habitat area necessary to compensate for the entrainment losses or the Area of Production Foregone (APF). The estimates of APF for the various organisms are typically averaged to provide an integrated estimate of the habitat area required to compensate for the losses to both the organisms analyzed and other organisms potentially subject to entrainment. Therefore, one of the goals of the final estimate of APF is to determine appropriate compensation for impacts to organisms such as phytoplankton and zooplankton potentially subject to entrainment even though they may not have been included in the sampling.

The only species listed under the California or federal ESA expected to be potentially impacted by the water intakes is Longfin Smelt. Longfin Smelt are listed under the California ESA and are not federally listed. Mitigation Measure BIO-6a would reduce effects on Longfin Smelt to less than significant (see Section 4 – Errata). DEIR Section 3.3.6 describes why other fish species listed under the California and federal ESA would not be affected by the water intakes. Other species, such as salmonids and sturgeon, would not be affected due to the timing and life stage when individuals from such species would be in proximity to the water intakes. When individuals of such species would be near the water intakes, they would be larger than the openings in the fish screens, and as a result, would be protected from entrainment. Due to the screen design and the very low flow rate, individuals of such species would not be subject to impingement.

Entrainment of Dungeness Crab Larvae

Multiple comments were received related to the entrainment of Dungeness Crab larvae into the intake screens. Several comments point out that megalops stage larvae from Dungeness crab (*Metacarcinus magister*) are unlikely to be entrained by the intake since the larvae are larger than the 1 mm (0.04 in.) openings on the screen, but that earlier stage larvae may be subject to entrainment. Although some earlier zoeal stages may occur in the bay, they are more likely to be in greater abundance offshore where the adults occur.

Adult Dungeness crabs usually occur offshore in depths to 90 meters (295 feet) but may occasionally occur as deep as 230 meters (750 feet) (Jensen 1995). They usually occur on sandy bottoms but can also occur

in shallower areas in eelgrass beds, especially as juveniles. Estuaries are important to their life cycle because the megalopae stage larvae and early adult stages are thought to migrate into estuaries until moving back offshore as adults (Armstrong 1989). Following spawning in offshore waters, the females will carry an egg mass under the carapace that upon hatching release pre-zoeal stage larvae that within 10-15 minutes develop into stage 1 zoeae larvae (Reilly 1983). There are five zoeal stages before development into the megalopae stage. All of the stages are planktonic until the megalopae settles to the bottom and molts into a post-larval instar stage juvenile (Reilly 1983). Development through all of the planktonic larval stages until juvenile settlement at the first instar stage takes approximately four to five months to complete and typically occurs from December or January through April or May (Lough 1976, Reilly 1983).

During extensive sampling in the Gulf of the Farallones, Reilly never found females with eggs at locations inside of the Golden Gate Bridge (Reilly 1983). Consistent with the location of spawning, most of the stage 1 zoeae were collected in the Gulf waters offshore of the Bay; although, a few stage 1 larvae were collected inside the Bay where they were likely transported on incoming tides. Their continued sampling of these areas showed decreasing abundances of stage 2 to 5 larvae in Gulf samples as the larvae were presumably moved offshore. By April, megalopae larvae became abundant in the Gulf and were also found inside San Francisco Bay and nearby in Bodega Bay and Drakes Bay.

Similar patterns in the distribution of Dungeness crab larval stages were found in studies offshore of Gray's Harbor, Washington (Armstrong 1989). Studies that involved extensive daily sampling for Dungeness crab megalopae larvae at the mouth of Coos Bay, Oregon by Johnson and Shanks (2002) showed that increased catches of larvae were correlated with large tidal changes, and they hypothesized that the period of reduced upwelling and tidally generated internal waves transported the megalopae larvae shoreward.

As a result of this complex larvae life history, it is unlikely that large numbers of early zoeal stage Dungeness crab larvae would be subject to entrainment. As correctly stated in these comments, the megalopae larvae that may occur in the vicinity of the intake are too large to be entrained by the 1 mm (0.04 in.) openings on the screen. It is also likely that only early stage zoeal larvae could be entrained as the later zoeal stages are also too large for the intake screen, but these early-stage larvae are unlikely to occur in large abundance inside the Bay since the females are most likely to spawn offshore.

Longfin Smelt Impacts and Mitigation

There were several comments on the proposed mitigation for impacts to Longfin Smelt. The comments questioned the mitigation calculations, whether the mitigation is for the estimated project impacts and the proposed phasing of the mitigation.

A CDFW comment recommended that the mitigation for LFS should provide a benefit to the life stage of the LFS being impacted (in this case larvae). Appropriate mitigation for this life stage would be creation of spawning or rearing habitat. In response to this comment, the mitigation for impacts to LFS is being modified from pile removal to the creation of spawning, rearing, or nursery habitat. Per Mitigation Measure BIO-6a, the area of mitigation is based upon the number of larvae which are modeled to be lost due to entrainment (see Section 4 – Errata).

The following discussion is based on the sampling and modeling which has been conducted to date. The impact assessment may be refined once the sampling is complete and final modeling is done, but for purposes of disclosure and mitigation feasibility the numbers provided are sufficient to demonstrate that the potentially significant impact can be mitigated to a less than significant impact. Mitigation Measure BIO-6a

consist of creation or enhancement of habitat within tributaries of Humboldt Bay in areas of fresh and/or brackish water suitable for Longfin Smelt spawning, rearing, or nursery habitat (see Section 4 – Errata).

During the first three monthly surveys of the entrainment study (January to March 2022), a total of seven LFS larvae were collected at the two intake locations. Using the maximum intake volumes for the two intakes, these seven sampled LFS larvae would result in a modeled total annual entrainment estimate of 24,000 larvae (dead and living) if no additional LFS larvae are collected during the study. However, the sampled water salinities at the intakes for the majority of an average year exceed the known tolerances of Longfin Smelt larvae (Grimaldo 2017, Hobbs 2010, Lewis 2019a, Lewis 2019b). In addition, the entrainment estimate does not currently consider any hydraulic efficiencies designed into the intake system that could reduce entrainment. The final modeled impacts are likely to be reduced once the hydraulic design efficiencies are incorporated into the entrainment estimates. The spawning period for LFS begins in early winter so there is also a chance that additional LFS larvae may be collected in the November or December surveys, which could increase the model's estimated impacts.

Based on the information available it is highly unlikely that a significant proportion of the larvae will be living when entrained. This is supported by study on the historic salinities over seven years from 2014–2020 in Humboldt Bay in the vicinity of the intakes provided in Appendix Q of the DEIR indicating that salinities of less than 10 psu occurred in only 0.005% of the data and salinities less than 15 psu occurred in only 0.051% of the data. These salinity levels were assessed because, as reported in DEIR Appendix Q, newly hatched larvae have salinity tolerances of only 2 to 6 psu and after a few weeks can tolerate salinities around 8 psu (Baxter et al. 2011 cited in Federal Register Vol. 77, No. 63). This is consistent with sampling in the San Francisco Bay estuary that showed the density of LFS larvae was negatively affected in areas with salinities less than 2 psu and greater than 12 psu (Grimaldo 2017).

More recent laboratory studies on salinity tolerances of early LFS larvae showed highest survival and growth at salinities of 5 and 10 psu, while salinities of 20 psu presented osmoregulatory problems for the larvae and levels of 32 psu resulted in almost 100% mortality (Yuzo 2021). The findings of Yuzo (2021) support the findings by Grimaldo (2017) and more recent work by Lewis (2019a) show that while larger larvae may be collected in some studies, otolith studies indicate that most of the larvae of surviving adults were reared in waters with salinities from 2 to 6 psu (Hobbs 2010, Lewis 2019b). Therefore, it is likely that LFS larvae would not be able to tolerate the salinity levels at the two intake locations that occur over 99.9% of the time based on data from 2014 to 2020.

There were also comments that the salinity tolerance of LFS larvae in Humboldt Bay may differ from the LFS that occur in the San Francisco Bay Delta region where most of the studies cited above have been conducted. However, a recent study on the genetics of LFS along the Pacific Coast from Washington to British Columbia by Saglam found very little genetic difference in the populations of LFS from California (Saglam 2020). This was contrasted with the differences in the populations found further north in Oregon, Washington, and British Columbia. The authors remark that the lack of any differentiation in the genetic structure of the populations in the San Francisco Bay Delta region is surprising due to the variety of habitats in the region. If there is very little genetic differentiation in the populations from the San Francisco Bay Delta region it is not surprising that there is such a strong similarity with the population in Humboldt Bay which likely resulted from adult fishes transported north to Humboldt Bay. Due to the genetic similarity with the LFS populations in the San Francisco Bay Delta region it is likely that the salinity tolerances of the larvae from Humboldt Bay are similar to the larvae from that region.

Current sampling and modeling estimates entrainment of up to approximately 24,000 Longfin Smelt larvae (dead and living). However, as described above, the sampled water salinities at the intakes for the majority of an average year exceeds the known tolerances of Longfin Smelt larvae (Grimaldo 2017, Hobbs 2010, Lewis 2019a, Lewis 2019b) and entrainment of live Longfin Smelt is expected to be considerably lower. In addition, this estimate does not currently consider any hydraulic design efficiencies designed into the intake system that could reduce entrainment (see DEIR Section 2 – Project Description). The final modeled impacts are likely to be further reduced once the hydraulic design efficiencies are incorporated into the entrainment estimates.

The total mitigation area will be calculated on a 1:1 basis. The equation to determine mitigation area will be $([\text{larvae entrained}]/[1,000 \text{ larvae per female}]) \times 43 \text{ square feet}$. Based on current sampling and calculations the mitigation area would be $(24,000/1,000) \times 43 = 1,032 \text{ square feet}$ of habitat replacement area (mitigation). This area of mitigation is feasible within Humboldt Bay, including within the Freshwater/Eureka Slough watershed.

Master Response 8 – Substantial Evidence, Speculation, and Unsubstantiated Opinion

Numerous comments expressed concern regarding environmental impacts that could result from the Project. However, comments did not provide any evidence upon which to base their concern or conclusions that differed from impact analysis within the DEIR and appended technical evaluations. This Master Response discusses standards of evidence, speculation, and unsubstantiated opinion from the CEQA Guidelines.

Pursuant to CEQA Guidelines Section 15064, the decision as to whether a project may have one or more significant effects shall be based on substantial evidence in the record of the lead agency. Substantial evidence is defined as enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the Project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency. An effect on the environment shall not be considered significant in the absence of substantial evidence. (CEQA Statute Section 21082.2(c), Guidelines Section 15384(b) and 15604 (f)(5)). Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(a) and 15604 (f)(5)).

Master Response 9 – Level of Detail in EIR and Responses to Comments

Various comments requested additional analysis on specific environmental issues that were assessed through detailed technical evaluations appended to the DEIR with impact analysis contained within the DEIR. This Master Response addresses Section 15151 of the CEQA Guidelines, which addresses the degree of analysis required for decision

Section 15151 of the CEQA Guidelines states:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at disclosure.

Furthermore, CEQA Guidelines Section 15088 (Evaluation of and Response to Comments) states,

“The level of detail contained in the response, however, may correspond to the level of detail provided in the comment (i.e., responses to general comments may be general). A general response may be appropriate when a comment does not contain or specifically refer to readily available information or does not explain the relevance of evidence submitted with the comment.”

The DEIR incorporated considerable analyses that include detailed technical evaluation of environmental resources. These technical evaluations were designed to be sufficient to support decision makers in evaluating the environmental consequences of the Project. While additional investigation is always possible, the technical evaluations assessed the Project as a whole and were comprehensive in scope and scale sufficient to support decision makers absent continued evaluation in greater detail. Where necessary and appropriate, the DEIR relied on Project-specific technical evaluations. Technical evaluations were independently peer reviewed by qualified, independent third party-consultants. Technical evaluations prepared for the Project were appended to the DEIR and are listed below. As an exception, the confidential cultural resources investigation was not appended to the DEIR but was completed for the Project.

The full list of all technical studies completed for the Project as part of the DEIR includes:

Appendix A Visual Simulations

Provided pre- and post-Project visual renderings, including renderings of off-site views

Appendix B CalEEMod Modeling Results

Modeling outputs from the CalEEMod air quality model used to assess potential impacts to air quality and inform impact assessment for energy and GHGs

Appendix C1 Terrestrial Biological Resources Report

Technical evaluation to identify biological resources potentially affected by terrestrial development and provided recommended measures to avoid and minimize impacts

Appendix C2 Bat Habitat Assessment

Technical evaluation by a bat expert to assess potential bat habitat in the remaining industrial buildings and provide recommendations for demolishing the buildings without significantly impacting bats protected under CEQA

Appendix C3 Building Bat Roost Survey

Summary of survey results from the bat expert following field investigations in the remaining industrial buildings

Appendix C4 Maternity Season Bat Roost Survey

Summary of survey results from the bat expert following field investigations in the remaining industrial buildings

Appendix C5 Updated Natural Diversity Database Searches

Updated database searches for special status species appended to the Terrestrial Biological Resources Report, as database searches are only valid for 180 days

Appendix D Marine Resources Biological Evaluation Report

Technical evaluation to identify marine biological resources potentially affected by the treated effluent discharge through the RMT II outfall

Appendix E Numeric Modeling Report (Dilution Study)

Technical evaluation to evaluate the consistency of the treated effluent discharge through the RMT II outfall with the applicable regulations that protect water quality

- Appendix F Special Status Plant Survey and Vegetation Community Mapping/ESHA/Wetland Baseline Evaluation Technical Memorandum**
Technical evaluation of protected botanical and wetland resources within the study area for the terrestrial development
- Appendix G Interim Measures Work Plan**
Technical evaluation identifying recommended measures to protect workers and the environment from potential remaining contaminants encountered during construction of the terrestrial development
- Appendix H Preliminary Hydrologic and Stormwater Analysis**
Technical evaluation to assess hydrologic conditions and stormwater capture and treatment related to the terrestrial development
- Appendix I Probabilistic Site-Specific Tsunami Hazard Analysis (PTHA)**
Technical evaluation of tsunami exposure at the terrestrial development, including design recommendations to minimize tsunami-related risk
- Appendix J Construction Noise, Vibration, and Hydroacoustic Assessment**
Technical evaluation to assess potential noise and vibration related impacts from construction of terrestrial development to both humans, biological resources, and the surrounding built environment
- Appendix K Restoration and Monitoring Plan**
Restoration and monitoring plan for impacts to protected botanical resources resulting from the terrestrial development
- Appendix L Supplemental Soils and Anthropogenic Disturbance Investigation of Potential ESHA Technical Memorandum**
Technical evaluation of potential ESHA located within the terrestrial development study area
- Appendix N Tanager Piling Removal Mitigation**
Analysis to determine the number of piles required to be removed to offset biological productivity foregone resulting from operation of the Humboldt Bay water intakes
- Appendix O Conceptual Solar PV Layout Technical Memorandum**
Conceptual design of the rooftop solar array
- Appendix P Tanager Final Report**
Evaluation of marine species and biological productivity potentially impacted by the operation of the Humboldt Bay water intakes
- Appendix Q Tanager Addendum**
Additional analysis related to the evaluation of marine species and biological productivity potentially impacted by the operation of the Humboldt Bay water intakes
- Appendix R Sea Chest Screen Conceptual Design**
Conceptual screen design for the Humboldt Bay water intakes consistent with design criteria developed by the National Marine Fisheries Service

As a result of these technical evaluations and associated impact analyses, the County has provided substantive analysis to both disclose potential environmental effects resulting from the whole of the Project to the public and to inform the Planning Commission as to the potential environmental consequences of the Project.

Master Response 10 – Fish Feed

Some comments express concern related to fish feed including feed source and composition, potential feed contaminants and pathogens in the feed and their impact on the environment, use of marine derived ingredients in the feed, the amount of feed used, and potential GHG impacts from feed production.

Feed Composition

As stated on page 2-38 of the DEIR, NAFC has not yet made a final decision on a feed supplier for the Project. It is too early in the process to do so because the sources of ingredients making up these diets are changing as the aquaculture industry continuously strives for improvement in the sustainability ranking of those ingredients. A feed formulation that may be the best available today may not be the best 4-5 years in the future when operations are planned to commence. For instance, there is increasing production of new raw materials such as microalgae, single cell proteins and insect meal as alternatives to traditional marine sourced ingredients. As an example, Nordic Aquafarms facilities in Fredrikstad, Norway, have now started using micro algae as a supplement in the diet fed to the fish.

Fundamentally, the diet will be composed of marine ingredients derived from sustainable fisheries, trimmings from seafood processing, sustainably sourced vegetable constituents, vitamins, and minerals. These are formulated into a conventional pelleted fish diet such that they are well balanced and contain only the correct proportion of nutrients needed for the normal growth and development of the fish -- ensuring good uptake, high conversion rates, and minimal waste as a result.

As well as following the feed guidance listed as items 1-7 on page 2-38 of the DEIR, NAFC will choose a feed supplier that will support responsible Supply Certification Programs or similar initiatives that ensure that the raw materials making up the diet, and ingredient suppliers, are evaluated and approved prior to supply. These raw materials are purchased according to strict specifications and the ingredients are analyzed regularly to ensure consistency in quality as well as compliance with feed regulations governed by FDA under the Federal Food, Drug, and Cosmetic Act and administered by FDA – Center of Veterinary Medicine (page 2-37 of the DEIR). A practical example of this can again be seen at Nordic Aquafarms facilities at Fredrikstad in Norway where a key determining factor in selecting the preferred supplier of feed was the fact that the supplier was the first company in the aquaculture industry certified under the ProSustain™ sustainability standard. ProSustain™ is an independent system for certifying continual improvement in product sustainability including market perception analysis, Eco-Efficiency Analysis, and a whole-chain traceability program designed to assess and steer its product portfolio based on defined sustainability and quality criteria. NAFC will look for similar high standards when assessing potential suppliers for the proposed project to ensure the feed mill meets strict environmental and social requirements, source ingredients from socially responsible suppliers, and use environmentally responsible raw materials.

Detailed feed specifications can be provided along with FDA approved labels once NAFC has chosen the supplier that best fits the company's vision of achieving some of the highest environmental stewardship standards of any aquaculture facility in the world today. This information will be provided to the County no later than 90 days prior to stocking the site with feed.

Feed Supplier(s)

Skretting and Cargill/EWOS are two major feed suppliers in the region. BioMar is a third multi-national aquaculture feed producer and currently supplies feed to NAFC's fish farms in Europe (Fredrikstad Seafoods and Sashimi Royal). NAFC will work with one or more of these feed companies as a supplier for

the farm in California, in part due to the quality of their feed, but also because they align with the sustainability ambitions of the NAFC.

Contamination from Pesticides, Fertilizers, and Other Environmental Contaminants

Feed ingredients and finished feed are subject to strict regulations under the Federal Food, Drug and Cosmetic Act to ensure they are not dangerous to feedstocks, pose a threat to human health, or cause damage to the environment. As indicated on page 2-38 in the DEIR, NAFC would require its feed suppliers to have a Quality Assurance / Quality Control (QA/QC) program that monitors raw materials and finished feeds for environmental contaminants including but not limited to PCBs, heavy metals, and pesticides to ensure these contaminants are well below the legal safe limits according to US (FDA) and European standards (EFSA).

As part of NAFC's Feed Quality Management Plan and Product Quality Management Plan, an in-house quality assurance program would monitor feed and product for undesirable substances as part of both in the house QA/QC program and Hazard Analysis Critical Control Point (HACCP). Accordingly, there will be no environmental impacts related to secondary ingredients in the food, and the issue is therefore fully disclosed and analyzed in the EIR.

Antibiotic-Resistant Bacteria from Poultry Byproducts

While NAFC has not included the use of animal byproduct such as poultry in our feed guidance criteria (page 2-38 in the DEIR), poultry byproduct could be a viable ingredient used in some salmon feed to reduce dependency on marine derived proteins and oils for a more sustainable feed.

The rendering of animal byproducts is regulated by the USDA and requires specific cooking temperatures and time (approximately 115-145 °C [239-293 °F] for 40-90 minutes) to kill foodborne pathogenic microorganisms. Feed manufacturers sourcing materials from rendering facilities require traceability, USDA and HACCP certification, and a quality assurance program to monitor for cross-contamination post-rendering.

When integrated into aquaculture feed, these byproduct raw materials are again extruded at high temperature and pressure to kill microorganisms. Thus, pathogenic antibiotic resistant bacteria would not transfer from the poultry farm to the natural marine environment via aquaculture feed.

NAFC's Water Treatment, described on pages 2-23 of the DEIR, would prevent bacterial and viral egress to receiving waters. The DEIR concludes, based on substantial evidence, that there will be no significant impact to the environment, because the Project will not result in the discharge or proliferation of antibiotic-resistant bacteria.

Marine Ingredients

NAFC does not and would not be harvesting wild fish or manufacturing fish feed at any of its facilities including this Project. Pages 2-38 of the DEIR list feed guidance that favors ingredients that are viable alternatives to harvest fisheries and includes the use of by-product trimmings, algae oils, insect meals, etc.

As described on pages 2-38 of the DEIR, NAFC recognizes the importance of the Fish-In-Fish-Out (FIFO) score as a measure of ecological efficiency of feed and the Project will include target limits that are among the best in the industry. In fact, Nordic Aquafarms' Fredrikstad Seafoods land-based facility growing Atlantic salmon in Norway, regularly achieves a FIFO score of 0.8 meaning more fish protein would be produced by the farm than whole fish included in the feed. NAFC will target, at least, the same high standard for the

Project in California with the ultimate aim of exceeding this target as the salmon diet continues to evolve and reduce its dependence on traditional marine ingredients.

The sources and species make up of wild harvested fish used in making fish meal and fish oil are reported annually by each of the feed suppliers previously mentioned and can be found in their Sustainability Reports (Skretting Sustainability Report 2020, p. 48-53; BioMar Sustainability Report 2020, p. 72-73; Cargill Aqua Nutrition Sustainability Report 2020, p36-37). All three feed suppliers have high standards for marine derived materials and ensure their suppliers are compliant with third party certifications for responsible harvesting, processing, and sourcing from fisheries under direct and effective management.

Feed Conversion Ratio

Aquaculture is among the most feed efficient production models in farming. A common measure of efficiency is feed conversion ratio (FCR), which is calculated as the ratio of feed intake to weight gain with lower FCR values indicating higher efficiency. Typical FCRs for animals raised using commercial feeds and intensive production methods are as follows (Fry 2018):

- Beef cattle: 6.0–10.0 pounds of feed intake to produce one pound of live weight
- Pigs: 2.7–5.0 pounds of feed intake to produce one pound of live weight
- Chickens: 1.7–2.0 pounds of feed intake to produce one pound of live weight
- Farmed fish and shrimp: 1.0–2.4 pounds of feed intake to produce one pound of live weight.

Farm raised Atlantic salmon have a higher protein retention and calorie retention than pig and cattle as well as a higher edible meat per unit of feed than poultry (Fry 2018). For salmon, a typical FCR in net pen farming is approximately 1.3. In modern land-based RAS facilities FCR for Atlantic salmon is often between 1.05 -1.1 (DEIR page 4-16; Table 4-2). Thus, NAFC's land-based farm is among the most efficient ways of producing protein-rich food

Greenhouse Gas Emissions from Fish Feed

Emissions resulting in feed production would occur whether or not this facility is constructed, as the feed would be provided to other facilities. Furthermore, given the uncertainties in the location of feed sources, it would be entirely speculative to attempt to evaluate the environmental impacts of feed production. Accordingly, environmental impacts of feed production are neither direct nor reasonably foreseeable indirect impacts of the Project and therefore are beyond the scope of impacts required to be analyzed under CEQA. Furthermore, production of feed would take place outside of California, and if produced in California, the environmental impacts of that production would have been separately analyzed in connection with that facility. Thus, emissions embedded in feed were not included in the GHG analysis of the Project. See Master Response 2 for a detailed discussion of the Project's GHG emissions analysis.

Amount of Fish Feed

The DEIR makes reasonable data-based assumptions regarding the quantity of food expected to be utilized by the facility, and fully analyses, discloses, and mitigates the environmental impacts associated with the Project. Feed amounts have been calculated to properly define the amount of truck trips required to bring feed to the facility and is described in the Project Description on page 2-27 as 20 trucks per week.

Master Response 11 – Waste Handling and Disposal

Multiple comments raised concern regarding waste handling, reuse, transport, and disposal of waste. Topics included additional information on location on waste disposal, GHG concerns, local reuse opportunities, and demolition and construction waste handling.

Organic Waste

Recology has provided the Project with a capacity to serve letter indicating their capacity to accommodate fish waste at the Recology Ostrom Organics (ROO) facility located at 5900 Ostrom Road in Wheatland, California (Recology 2020). See DEIR Utilities and Service Systems Section page 3.13-8. As stated in the capacity to serve letter provided by Recology, “ROO is a fully permitted facility and has already completed the environmental impact review for the organic material it accepts and has over 15 years of experience managing and processing fish byproducts, biosolids, and other high moisture feedstocks similar to the organic byproducts that will be generated at Nordic Aquafarms’ facility” (Recology 2020).

When material arrives at ROO, it is load checked and pre-processed. After pre-processing, material is loaded into a mass bed aerated static pile system. The material is first loaded into a primary aeration zone and undergoes primary aeration for approximately 15 days. After 15 days, the material is moved to a secondary aeration zone and undergoes secondary aeration for approximately 15 days. The Process for Reducing Pathogens (PFRP) would be achieved and documented during the secondary aeration process. The primary and secondary mass bed aeration steps provide ideal conditions for the aerobic microorganisms responsible for driving the compost process. Following completion of secondary aeration, the material would be removed from the aeration area and placed in the curing area for approximately 30 days.

Once curing is complete, the material would be moved to the finish screening area. Finished material is run through a trommel screen. The unders from the trommel screen make up the majority of the finished compost material that is then sold to vineyards, orchards, nurseries, and other compost end users. ROO incorporates a Process for Reducing Pathogens (PFRP) into its composting process. All compost must go through the PFRP process, whereby the compost is maintained at a high temperature for a prolonged period. Following the PFRP process, a representative sample is collected for every 5,000 cubic yards of compost produced. The sample is analyzed for several constituents, including pathogens, metals, physical contaminants, and nutrients. All sampled compost must meet regulatory limits before it can be sold.

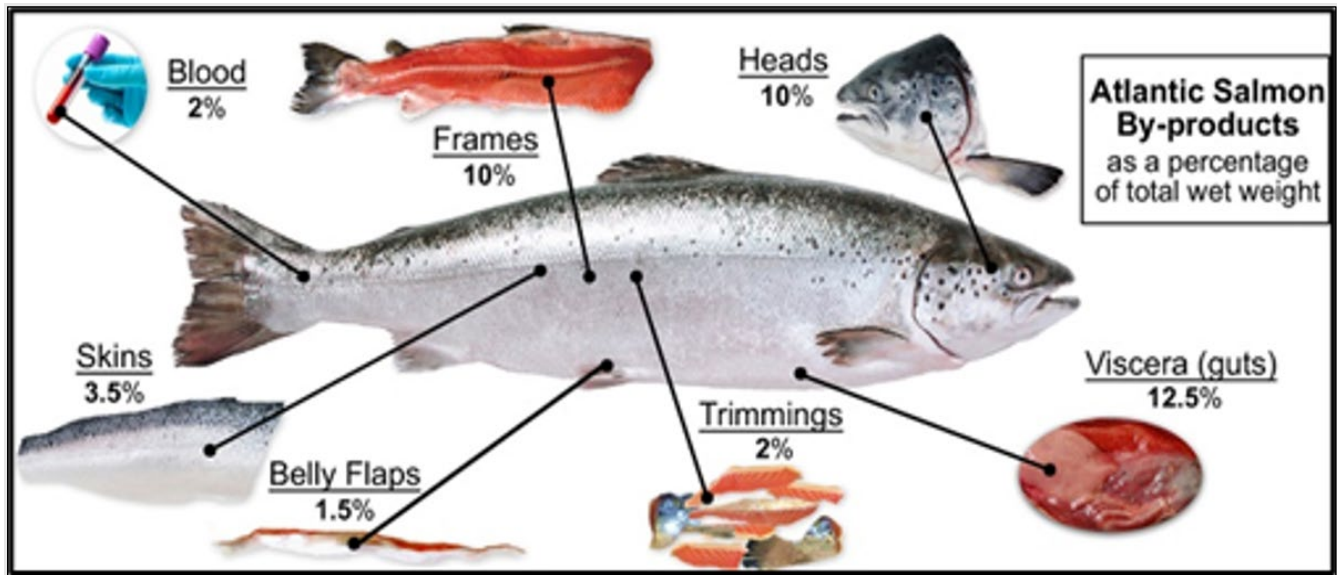
The organic waste disposal facility to be used by NAFC would have methane capture capabilities. The composting process used at ROO virtually eliminates methane production, when compared to landfilling material. According to the California Air Resources Board, composting one ton of organics saves ½ ton MTCO₂e of GHG compared to landfilling (CARB 2018). In addition, ROO uses landfill gas from the adjacent Ostrom Road Landfill to power all electrical equipment and lighting on the site – part of Recology’s companywide commitment to identify synergies between operations to create a more sustainable system.

Fish Waste

Processing and disposal of aquaculture byproducts (fish wastes) is discussed on page 3.13-8 in the DEIR. These materials would be managed, stored, handled, transported, reused, and/or disposed of in a manner that is consistent with best management practices and fully compliant with all applicable local, state and federal regulations.

As discussed in the DEIR Project Description on pages 2-26, 2-31, 2-33, the processing co-products will be recycled for uses such as pet food, biotechnology, and nutritional supplements. They can also be used in in

the production of fertilizer, compost, and biogas. Figure 2 below shows the approximate ratios of co-products available when harvesting and processing Atlantic Salmon.



Source: Stevens 2018

Figure 2.2 Co-products generated from processing Atlantic salmon

Processing co-products will be sorted during processing and stored in chilled sealed containers. These materials would be maintained as food grade products and shipped on an ongoing basis from the facility by truck. Chilled storage in sealed containers and regular removal mitigates environmental impacts by preventing spoilage/decomposition, odors as well as growth and transfer of pathogens. The Project will be operated under a Fish Health Monitoring Plan. As part of the Fish Health Monitoring Plan, fish will be screened for pathogens regularly. If these screenings indicate the fish are free of pathogens waste associated with these fish are of low risk for harboring pathogens.

NAFC would partner with transportation and recovery/disposal service providers that have demonstrated experience managing similar materials and successfully mitigating environmental impacts associated with them. The potential impacts associated with storing, handling, processing, transporting, and disposing of different waste materials that would be produced by NAFC's operations are discussed in DEIR Section 3.13 (Utilities) and have been found to be less than significant.

Sludge / Filtrate

Sludge/filtrate will be recycled as compost and/or for other uses such as fertilizer and biogas. Processing and handling of filtrate at NAFC's facility will take place in completely enclosed buildings. This allows odors or incidental spills to be contained and managed without significant environmental impact. Filtrate can be dewatered to different dry matter levels. These materials are being transported by truck via primary truck routes on land, and in trucks with covers over cargo loads to prevent bird activity or spills. The waste from the facility will be solid (not flowable) and easily cleaned up in the unlikely event of a spill from a roadway accident. Sludge will be shipped offsite by truck regularly, preventing impacts associated with long term storage of the material, such as odors. This is discussed on page 2-33 in the DEIR.

Handling of Dead Fish

As described in the DEIR Project Description on page 2-33, dead fish are ground and stored in storage tanks with a weak acidic solution to maintain a pH of four to stabilize the material. The process prevents odors from developing, kills pathogens and liquefies the material making it easier to store and handle. This process is called ensiling. Ensiling is a standard way for managing mortalities at large scale salmon farms. The ensilage material produced would have a variety of secondary use opportunities including biogas, compost, and fertilizer. Ensilage will be removed from the site regularly. Liquefaction of the material enables transportation in fully enclosed tanker trucks. This reduces the risks of spillage. Biological neutralization of the material with acid prevents the transfer of pathogens during transportation and at the disposal/reuse site. As described in the DEIR, there will be a less than significant environmental impact from the handling of dead fish.

GHG Impact Associated with Sludge Disposal

Greenhouse gas emissions associated with sludge disposal trips were reported in the DEIR. Facility Truck Traffic on page 2-27 of the Project Description states that it is expected at full production there would be 32 outgoing trucks weekly carrying waste streams. These waste stream trucks are further identified in Table 3.12-4 on page 3.12-14 of the Transportation section. The Project's emissions generated by on-road mobile activity was estimated using CalEEMod v. 2020.4.0, as described in DEIR Section 3.2 (Air Quality) on page 3.2-6 and Section 3.7 (Greenhouse Gas Emissions) on page 3.7-10. The criteria pollutant and GHG estimates for mobile activity are based on annual mobile activity and compared against annual thresholds of significance. The GHG impacts associated with waste disposal trucks have been incorporated into the GHG section and in DEIR Appendix B. See Master Response 2 (Greenhouse Gas and Energy) for additional information.

The Project would be consistent with a proxy county-level Climate Action Plan. The Project would be consistent with the CARB's adopted Scoping Plan and would not impede the state in meeting Assembly Bill 32 (AB 32) GHG reduction goals. The Project's contribution to cumulative GHG impacts will not be cumulatively considerable and, therefore, will be less than significant.

Capacity to Dispose of Organic Waste

Some comments question whether the ROO will be a long-term operational guarantee. ROO began accepting 250 tons per day in 2020 and will be expanded in a phased approach, similar to NAFC's phased construction timeline. At full buildout ROO will be capable of accepting 2,000 tons per day of organic materials (Recology 2020). ROO is a newly opened facility designed to serve as a long-term solution for organics recovery.

Local Solutions to Disposal of Organic Waste

The implementation of SB1383 will likely result in the opening of new facilities across California to divert organics from landfills to more beneficial uses. Having an anchor customer such as NAFC can help justify the creation of a local organics facility that would benefit not only the Project but the broader area as a whole. Nordic Aquafarms is supportive of local organic waste solutions that fit the needs of the area and are effective at reducing transportation costs and impacts for all users. NAFC is open to working collaboratively with the Humboldt Waste Management Authority, the community, and other local stakeholders to seek out viable local solutions such as the potential for a local compost facility as several commentors suggested. This is described in the DEIR Project Description on page 2-2.

Some comments suggest that agricultural land in Humboldt County would benefit from the application of compost. Recology and its transport partners have experience with backhauling material in and out of Humboldt County. Backhaul opportunities often present opportunities to reduce cost and mitigate GHG emissions associated with transporting material.

Construction Waste

Based on the presence of a limited number of facilities in Humboldt County capable of processing construction and demolition debris, it is warranted that NAFC conduct advance planning to assess the capacity of local facilities to accommodate debris to be removed from the site. Advance planning will be coordinated between NAFC and its construction partners to assess the feasibility and efficiency of these facilities for accepting debris.

Some comments state that the Demolition Plan which the DEIR indicates would be submitted to the Planning and Building Department should also be submitted to the DHHS Division of Environmental Health Solid Waste LEA Program. NAFC will be submitting the Demolition Plan to the DHHS Division of Environmental Health Solid Waste LEA Program in addition to the Planning and Building Department.

2.2. Agency Comments Received During Circulation

This section includes copies of the comment letters and e-mails received during the 60-day public review period for the DEIR from public agencies. Responses to each comment are provided after each letter.

McNamara, Cade

From: John Friedenbach <friedenbach@hbmwd.com>
Sent: Friday, February 18, 2022 3:55 PM
To: CEQAResponses
Cc: 'David Noyes'; scott.thompson@nordicaquafarms.com; lynette.mullen@gmail.com
Subject: Nordic Aquafarms Project draft EIR comments
Attachments: Nordic CEQA response HBMWD.pdf

Kindly include our attached comments on the draft EIR for the Nordic Aquafarms project.
Thank you,

John Friedenbach
General Manager
Humboldt Bay Municipal Water District
www.hbmwd.com
707-443-5018 work
707-362-7509 cell





HUMBOLDT BAY MUNICIPAL WATER DISTRICT

828 SEVENTH STREET, PO BOX 95 • EUREKA, CALIFORNIA 95502-0095

OFFICE 707-443-5018 ESSEX 707-822-2918

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BOARD OF DIRECTORS

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JOHN FRIEDENBACH

February 18, 2022

Cade McNamara
County of Humboldt
Planning and Building Dept., Planning Division
3015 H Street, Eureka, CA 95501

Via email: CEQAResponses@co.humboldt.ca.us



RE: Draft EIR for Nordic Aquafarms

Dear Mr. McNamara,

I am writing to express our support for the Nordic Aquafarms project. As you may be aware, the Humboldt Bay Municipal Water District was formed in the 1950's to attract industry and supply water (untreated surface water) from the Mad River to two pulp mills which were located on the Samoa Peninsula. Our District entered into contracts with the two pulp mills to provide up to 65 MGD (million gallons per day) of untreated water from the Mad River. Both pulp mills constructed and maintained on-site clarifiers to remove/reduce the turbidity from the industrial water prior to utilizing it in their pulp making process. As you also know, the first pulp mill ceased operation in the mid 1990's and the second in 2009.

Since that time, our District, through its public engagement process which we call our Water Resource Planning effort, has been seeking alternate beneficial uses of our excess water. The three focus areas as determined by that public process are: 1) Local Sales; 2) Instream Flow; and 3) Transport. Our Board has allocated 20 MGD to Local Sales; 20 MGD to Instream Flow; and 35 MGD to Transport. Nordic Aquafarms would be considered local sales and the District has the ability to provide the required water needs, both industrial and domestic.

The Nordic Aquafarms project would revitalize not only our industrial water system but our community as well by providing jobs and aquaculture.

Respectfully,

A handwritten signature in blue ink that reads "John Friedenbach".

John Friedenbach
General Manager

cc: David Noyes, Scott Thompson: Nordic Aquafarms

Letter 101 – Response to Comments

Response to Comment 101-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Manila CSD <manilacsd1@sbcglobal.net>
Sent: Wednesday, February 16, 2022 11:34 AM
To: CEQAResponses
Subject: NAF comment letter
Attachments: NAF Letter Manila CSD 2022r3.pdf

Greetings,

Our board wishes to submit the attached letter related to the NAF project.

If you have any questions or comments, please feel free to contact me.

Christopher Drop, General Manager
Manila Community Services District
1901 Park Street Manila, CA 95521
707-444-3803



Manila Community Services District

1901 Park Street • Arcata, CA 95521 • 707-444-3803 • Fax 707-444-0231

Board of Directors

Meghan Ryan, President
John Broderick, Vice President
Danielle Muniz, Finance Officer
Dave Jannetta, Secretary
Sequoyah Faulk-Kellogg, Safety Officer



February 15th, 2022

Humboldt County Planning and Building Dept.

3015 H Street, Eureka, CA 95501

RE: Comments on Nordic Aquafarms DEIR via: CEQAResponses@co.humboldt.ca.us

To Whom It May Concern,

The Manila Community Services District Board of Directors wishes to express concern about the negative impacts the Nordic Aquafarms Samoa Project will have on our community. These concerns are based on increased traffic on Highway 255 caused by the construction and operational use of the facilities by employees and commercial vehicles in the ongoing service of the project.

We respectfully request Nordic Aquafarms designate and promulgate to the maximum extent possible, use of the Samoa Bridges and Highway 101 as the primary route for users. This route was designed and constructed *specifically to facilitate access to industrial users on the Samoa Peninsula*. We encourage the proponents of the project designate and enforce official ingress/egress routes to and through the project so as to avoid using Highway 255 through Manila.

102-1

The tiny community of Manila is thoroughly bisected by Highway 255 which contains no traffic control, no stop signs, minimal lighting and no crosswalks between the one side of the town, with an elementary school and beach access, and the community Park and market on the other. The highway also suffers from a lack of sufficient monitoring by law enforcement and added traffic from the project is sure to exacerbate existing dangers for residents and visitors alike. Highway 255 traffic through Manila also increase the dangers to cyclists and pedestrians north of the community as the road width narrows through the Arcata Bottoms placing non-motorized travelers within inches of traffic.

Additional traffic loads from employees commuting to and from work, along with the estimated 95 additional truck runs per week will have a tremendously disruptive impact on our community unless these users are discouraged from travelling through Manila. The main, preferred route to Highway 101 via Samoa Bridges takes users directly to the 101 Safety Corridor which is free of residential zoning, pedestrians, devoid of foot and bicycle traffic and is essentially faster than traversing through the rural town.

102-2

Lastly, we encourage the project proponents consider the pending improvement to the Safety Corridor as well as the pending trail segment currently underway in our community. The last thing community members of Manila want is to dismiss the momentum Caltrans and Humboldt County are establishing for long-awaited traffic calming measures for our community.

102-3

Thank you sincerely for your consideration.
The MCSD Board of Directors

Letter 102 – Response to Comments

Response to Comment 102-1 – Increase in Traffic

This comment requests that NAFC designate SR 255 east of New Navy Base Road and Samoa Bridges as the official ingress/egress route for Project traffic to avoid SR 255 through Manila. The comment expresses concern of increased traffic and concern of increased dangers to cyclists and pedestrians along SR 255 north of Manila due to narrow roadway width.

As summarized in DEIR Section 3.12.6 (Transportation Impacts and Mitigation Measures, Impact TR-C), starting on page 3.12-13, Project-related truck traffic does not present a significant intensification of use beyond what the road network currently experiences and accommodates. Please see Master Response 1 and Section 4.0 (Errata) for detailed information regarding Project traffic and road safety.

Response to Comment 102-2 – Increase in Traffic

This comment states that Project traffic will have a disruptive impact on the Manila community. This comment requests that the Samoa Bridges be used by Project traffic because it connects to the US 101 Safety Corridor and avoids residential zoning and is devoid of pedestrian and cyclists. As summarized in the DEIR and updated in Section 4.0 (Errata), the Project will not burden its travel-shed with additional undue substantial risk because the Project does not significantly intensify truck traffic or substantially increase the risk to vulnerable road users. Please see Master Response 1 and Section 4.0 (Errata) for detailed information regarding traffic and road safety.

Response to Comment 102-3 – Dismissal of Traffic Calming Measures

This comment encourages the Project consider the US 101 Safety Corridor project as well as the future trail segment in Manila. The DEIR considers a proposed trail in Section 3.12 (Transportation), the Humboldt Bay Trail – West Bay alignment. The West Bay alignment is identified in the Humboldt Regional Bike Plan and goes through the community of Manila. Reference to the additional Class I trail that is proposed along SR 255 through Manila has been added in Section 4.0 (Errata). As stated in Section 3.12 of the DEIR (Transportation, Impact TR-a) on page 3.12-8, the Project would not involve any modification to existing roads in the vicinity of the proposed facility and does not conflict with the Regional Bicycle Plan's proposed bikeways. The current and pending US 101 Safety Corridor projects are unrelated to this Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Whittlesey, Joseph
Sent: Wednesday, February 16, 2022 4:58 PM
To: CEQAResponses
Subject: DEH Comments on Nordic Aquafarms Land-Based Aquaculture Project DEIR (#16698)

Hello,

Humboldt County Division of Environmental Health (DEH) has concluded review of the subject DEIR. In response, DEH has prepared the following comments:

While DEH's Solid Waste LEA program has no objection to the determination of No Significant Impact with respect to Impact UTL-d (**Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**), our comments below clarify some erroneous and incomplete information noted in Chapter 3.13 and in Chapter 3.8.

Chapter 3.13 pages 8 and 9: "Active permitted in-County transfer stations include the Humboldt Waste Management Authority facilities in Eureka or Samoa, California and the Recology Eel River Transfer Station in Fortuna, California"

Humboldt Waste Management Authority owns and operates only the Hawthorne Street Transfer Station in Eureka. The Samoa facility referenced in the document, owned and operated by Recology Humboldt County, accepts only recyclable material; it does not intentionally receive municipal solid waste.

The following comments are offered to broaden the scope of the available solid waste handling capacity presented in Chapter 3.13 with the intention to lessen any solid waste impacts that the proposed project may present:

As most of the solid waste generated by the proposed project is anticipated to occur during construction phase, and as construction and demolition will generate a large amount of debris, it is important to note that of the 8 authorized solid waste transfer/processing sites that exist in Humboldt County, 2 of them are specifically designed to accept construction and demolition debris generated by commercial-scale construction or demolition projects. Additionally, there are 5 recognized Inert Debris Recycling Facilities operating in Humboldt County which can efficiently process concrete, asphalt, brick and other inert materials into reusable products. Advance planning by the applicant to assess the capacity of local facilities to handle the type and amount of debris to be hauled off-site for processing (in lieu of disposal) is warranted. The Solid Waste LEA program regulates all aspects of solid waste handling throughout the County, including the handling of construction, demolition and inert debris, is available at 707-445-6215 or envh@co.humboldt.ca.us, and can provide further information upon request.

201-1

Chapter 3.13 page 9: "Implementation of the Compensatory Off-Site Restoration component would result in a temporary increase in solid waste disposal needs associated with the disposal of the creosote piles. The waste would be legally disposed of at local transfer station and then routed to the Anderson Landfill in accordance with all local, state, and Federal laws and regulations"

Creosote piles are considered treated wood waste. Only 2 local transfer stations are currently authorized to accept such waste prior to transport to the Anderson Landfill. The Solid Waste LEA team, available at 707-445-6215 or envh@co.humboldt.ca.us, can provide further information upon request.

Chapter 3.8 page 13 "Soil Gas Monitoring Program: The planned project development will occur within 1,000 feet of the Samoa Solid Waste Disposal Site (SWDS). An evaluation of soil pore gas from the SWDS will be required, per Title 27 California Code of Regulations Section 20925. A work plan to address soil gas conditions shall be submitted to the

201-2

Humboldt County Department of Environmental Health and CalRecycle for approval and implementation. The workplan shall contain installation of soil gas probes and a monitoring program to evaluate subsurface conditions and potential impacts to site development. One year of site monitoring for soil gas is anticipated to be completed as part of this assessment program.”

An approved work plan to assess the potential for generation and migration of Landfill Gas is on file with Humboldt County Department of Environmental Health in accordance with Title 27 California Code of Regulations section 20921. Soil gas probes have been installed in accordance with T27 CCR 20925 and initial monitoring results do not exceed regulatory thresholds.

201-2
Cont.

Chapter 3.8 page 13 “Non-hazardous debris will be transported offsite for disposal as municipal solid waste (MSW) and metals shall be recycled. Much of the concrete, brick, and tile is considered usable material and machines will sort and downsize the material for preparation as onsite reuse or recycling. A Demolition Plan shall be submitted to the Planning and Building Department prior to issuance of a demolition permit.”

Non-hazardous demolition debris not reused on site will be most efficiently managed at a construction and demolition debris operation or facility, a specialized kind of solid waste facility, rather than at a MSW facility as noted above. The Demolition Plan noted above shall be submitted to the DHHS Division of Environmental Health Solid Waste LEA Program as well as to the Planning and Building Department.

201-3

DEH’s Land Use Program offers the following comments to extrapolate on the requirements for discontinuing the use of the existing sanitary sewer leach field beyond the language provided in the “Sanitary Sewer” section of the Project Description (Chapter 2, Page 30): Proposed abandonment of the existing Onsite Wastewater Treatment System (OWTS) requires submittal of an OWTS Destruction Permit Application to DEH for review prior to commencement of any work on the system. DEH’s Land Use team is available to provide further information on OWTS demolition permitting requirements and procedures (707-445-6215, envh@co.humboldt.ca.us).

201-4

Please be advised, under California Health and Safety Code, Section 25404 et seq., any business that contains on site more than 55 gallons, 500 pounds, or 200 cubic feet of a hazardous material, or generates hazardous waste as part of their business activity, must report these activities to DEH’s Hazardous Materials Program and the California Environmental Reporting System.

201-5

Thank you,

Joey Whittlesey
Senior Environmental Health Specialist
[Land Use Program](#)
[Division of Environmental Health](#)
100 H Street, Suite 100, Eureka, CA 95501
Phone: (707) 268-2240 – Fax: (707) 441-5699

Letter 201 – Response to Comments

Response to Comment 201-1 – Material Disposal

This comment is related to the number and capacity of waste transfer stations in Humboldt County with respect to demolition and pile removal waste. Please see Master Response 11 (Waste Handling and Disposal).

Response to Comment 201-2 – Soil Gas

This comment is a related assessment of the potential for the migration of landfill gas from the adjacent landfill onto the Project site. An approved work plan to assess the potential for generation and migration of Landfill Gas is on file with Humboldt County Department of Environmental Health in accordance with Title 27 California Code of Regulations section 20921. Soil gas probes have been installed in accordance with 27 CCR § 20925 and initial monitoring results do not exceed regulatory thresholds.

Response to Comment 201-3 – Material Disposal

This comment is related to the disposal of non-hazardous demolition debris. Modern construction practices include significant efforts for reduction of waste from onsite work, as well as diversion from landfills for the waste that is created. NAFC's contracting partners have a long record of leading the industry in these efforts. Specific measures will be put in place including prefabrication of materials to reduce waste, separation of waste streams for recycling, and ordering materials that reduce packaging materials. Typical modern construction projects can reduce material sent to landfills by over 80% from even several years ago. Advance planning would be coordinated between NAFC and its construction partners to assess the feasibility and efficiency of waste shipment and disposal options including most appropriate recycling options. The Demolition Plan and landfill avoidance goals would be submitted to the Department of Health and Human Services (DHHS), Division of Environmental Health (DEH), Solid Waste Law Enforcement Agency (LEA) Program in addition to the Planning and Building Department. In order to clarify this, Chapter 3.8 page 13 shall be modified in the Errata as follows:

"A Demolition Plan shall be submitted to the DHHS Division of Environmental Health Solid Waste LEA Program as well as to the Planning and Building Department prior to issuance of a demolition permit."

Response to Comment 201-4 – Permitting

This comment is on future permitting requirements related to leach field removal. The removal of the leach field will happen at an unknown future date after removal is fully permitted and the offsite sanitary sewer collection system installed and operational. NAFC would submit an Onsite Wastewater Treatment System Destruction Permit Application to DEH Land Use team for review and approval prior to commencement of any work. This is required by County Code.

Response to Comment 201-5 – Hazardous Materials

This comment is related to California Code Sections related to hazardous materials. NAFC would report the generation and storage of hazardous materials to DEH's Hazardous Materials Program, and the California Environmental Reporting System as required by California Public Health and Safety Code Chapter 6.95.

McNamara, Cade

From: Honsal, William
Sent: Tuesday, February 15, 2022 5:05 PM
To: CEQAResponses
Cc: McNamara, Cade
Subject: Support for Aquafarms project
Attachments: no_reply_20220215_165412.pdf

Please see the attached letter of support. Thank you.

William F. Honsal, Sheriff

County of Humboldt
826 4th Street
Eureka, CA 95501
Main: 707.445.7251
Office: 707.268.3618



HUMBOLDT COUNTY SHERIFF'S OFFICE

WILLIAM F. HONSAL, SHERIFF/CORONER

CIVIL/COURTS
(707) 445-7335

MAIN STATION
826 FOURTH STREET • EUREKA CA 95501-0516
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CUSTODY SERVICES
(707) 441-5159

February 15, 2022

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501



Dear County of Humboldt Planning and Building Department,

It is my pleasure to write this letter in support of Nordic Aquafarms' project planned for the Samoa Peninsula. Nordic Aquafarms focuses on fish welfare and environmental sustainability. The end-results are modules ready for truly large-scale fish farming – and a key solution in contributing to increasing seafood supply without leaving a material environmental footprint.

I had the opportunity to visit the proposed site in Samoa. I was able to see first-hand the deplorable condition of the old pulp mill site. I was able to see the proposed plans to clean up the environment and build an eco-friendly facility that will provide a vital food source to people along west coast. The Aquafarms' project will be providing many community benefits, including clean-up of a long-abandoned site containing hazardous materials, abandoned buildings and industrial debris. The project will also stimulate economic activity and provide a wide range of employment opportunities. In addition to what Nordic will directly contribute to our local economy, the Nordic project will be a draw for other aquaculture businesses on the peninsula, thereby increasing economic prosperity and employment opportunities for our region.

Nordic Aquafarms has been actively engaging in our community through public meetings, site tours and targeted outreach to stakeholders. Nordic is working closely with College of the Redwoods to revitalize their aquaculture program and with HSU to ensure a steady pipeline of local qualified professionals. Nordic is also working with the Humboldt County Office of Education to introduce information to students about careers in aquaculture and to offer support in classroom educational programs.

The time is right for the county to approve this project. The personnel from Nordic Aquafarms have spent numerous hours addressing the public's concerns. They have made themselves available to provide valuable feedback on their project while being entirely transparent. I believe they have proven themselves to be invested in becoming a valued member of our community. Humboldt county should welcome them with open arms and this project should move forward.

Sincerely,

William F. Honsal

Sheriff

202-1

MCKINLEYVILLE STATION
(707) 839-6600

GARBerville STATION
(707) 923-2761

CORONER'S OFFICE
(707) 445-7242

ANIMAL CONTROL
(707) 840-9132

TRINITY RIVER STATION
(530) 629-1025

Letter 202 – Response to Comments

Response to Comment 202-1 – Support

The comment is an expression of support for the Nordic Aquafarms Project which does not address concerns or items evaluated in the DEIR and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Kraemer, Melissa@Coastal <Melissa.Kraemer@coastal.ca.gov>
Sent: Friday, February 18, 2022 1:49 PM
To: CEQAResponses
Cc: McNamara, Cade; loetker@humboldtby.org; Teufel, Cassidy@Coastal
Subject: Comments on Nordic Aquafarms Land-Based Aquaculture Project DEIR
Attachments: CCC-NordicDEIRComments2-18-2022.pdf

Hello Cade
Attached please find Coastal staff's comment letter on the DEIR.
Thank you

Melissa B. Kraemer (she/her)
North Coast District Manager
California Coastal Commission
1385 Eighth Street, Suite 130
Arcata CA 95521
(707) 826-8950 ext. 9
www.coastal.ca.gov

Please note that public counter hours for all Commission offices are currently suspended indefinitely in light of the coronavirus. However, in order to provide the public with continuity of service while protecting both you and our employees, the Commission remains open for business, and you can contact staff by phone, email, and regular mail (email communication likely will result in the fastest response). In addition, more information on the Commission's response to the COVID-19 virus can be found on our website. Thank you for your patience and understanding as we all work through this public health crisis.

CALIFORNIA COASTAL COMMISSION

NORTH COAST DISTRICT OFFICE
1385 EIGHTH STREET, SUITE 130
ARCATA, CA 95521
VOICE (707) 826-8950
FAX (707) 826-8960



February 18, 2022



Cade McNamara, Planner II
Humboldt County Planning & Building Dept.
3015 H Street
Eureka, CA 95501

RE: Comments on Nordic Aquafarms Land-Based Aquaculture Project DEIR

Dear Mr. McNamara,

The California Coastal Commission (Commission) appreciates the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the above-referenced Project. As noted in Table 2.2, implementation of the Project will require approval of coastal development permits (CDPs) by the Commission (for the seawater intake and ocean discharge aspects of the project) and the County (for the construction and operation of the onshore fish cultivation facility). The County's approval of its CDP for the project would be appealable to the Commission pursuant to section 30603(a) of the Coastal Act and section 312-13.12 of the County Coastal Zoning Regulations, because the Project would be located between the sea and the first public road and/or within 300 feet of the inland extent of a beach or of the mean high tide line and/or within 100 feet of a wetland or estuary.

To fulfill its regulatory responsibility, the Commission will rely on information contained in the final EIR in assessing the Project's environmental effects and conformance with applicable policies and standards within County's local coastal program (LCP) and/or the Coastal Act. The final EIR would be used in the consideration of any appeal of the County's CDP (should any such appeal be filed) and/or in the review of the portions of the development within the Commission's primary permitting jurisdiction.

301-1

At this time, the focus of our comments is limited to just some the coastal resource issues raised in the CDP evaluation and Project conformance with the applicable policies and standards within County's LCP and the Coastal Act. Commission staff has separately, through its CDP review process, provided detailed comments and requests for additional information to Nordic and the Harbor District in response to their respective CDP applications submitted for the ocean discharge and seawater intake components of the Project, and we will continue to share our application comments with the County and collaborate with the County on CDP application review.

1. Rare Plant and Dune Mat Impacts, Buffers, and Alternatives

Sec. 3.3.6, pg. 3.3-13 states that approximately 0.87 acres of dark-eyed gilia and/or dark-eyed gilia habitat, including an estimated 100,000 individual dark-eyed gilia plants,

301-2



would be significantly impacted during construction and operation of the Project. Dark-eyed gilia is recognized by the California Natural Diversity Database and California Native Plant Society's California Rare Plant Ranks as a species with the rarity ranking of 1B.2: "plants rare, threatened or endangered in California and elsewhere, fairly threatened in California." Most of the rare plant area is near the southern portion of the property in the Phase 2 project footprint (pg. 2-15; Appendix F, Figure 3). This impact is proposed to be mitigated offsite at a 3:1 ratio in an area "where natural dune ecosystems are established and where gilia would be better protected by restoring contiguous dune habitat with intact dune systems and long-term protection within natural resource conservation areas off-site..." (pg. 3.3-13). Impacts to dune mat (characterized in the DEIR as either high or low quality) are discussed on pgs. 3.3-54-55. The project proposes to use the offsite rare plant mitigation site(s) as a combined mitigation area to also provide mitigation for impacts to low quality dune mat and to avoid areas of high-quality dune mat plant communities.

The Alternatives chapter of the DEIR (sec. 4) evaluates a limited range of alternatives and excludes discussion of an alternative that includes only Phases 0 and 1 or another smaller-scale alternative. Please expand the range of alternatives evaluated in section 4 to consider feasible smaller scale alternatives for the terrestrial footprint of the proposed development that may reduce the effects of the Project on dark eyed gilia and dune mat plants and habitat areas.

In addition, although areas deemed high-quality dune mat in the DEIR would be protected with a 35-ft buffer from the nearest building, a 20-ft-wide pervious fire road would be constructed within the 35-ft setback area. While this proposed buffer width and use within the buffer may be appropriate, there is no rationale included in the impact analysis explaining the conclusion that 35 feet is sufficient to protect the resources of the high-quality dune mat, including with a 20-ft-wide fire road in the setback area. Please add this discussion on buffer width adequacy and explain how proposed future uses within the buffer will not degrade the adjacent high-quality dune mat habitat area.

2. Impacts to Biological Productivity and Proposed Mitigation for Seawater Use

Section 2.4.7 (Project Description, pg. 2-56) discusses offsite restoration activities to compensate for the reduction in biological productivity anticipated from the proposed phased water withdraw at the RMT II and Red Tank docks. The offsite restoration activities, involving removal of derelict piles from the Fields Landing area and removal of invasive *Spartina* from unidentified site(s) in Humboldt Bay, are proposed to mitigate for impacts associated with water withdraw amounts above 694 gallons per minute (gpm). No compensatory habitat restoration would be provided for cumulative water withdrawal by the intakes below 695 gpm, because "effects of this small amount of water withdrawal are considered de minimis and habitat restoration to offset impacts to bio-productivity are not necessary." Please clarify and elaborate on why it is believed that water withdrawals less than the 695 gpm threshold do not impact biological productivity, including sensitive species or habitats. If the Project would result in adverse impacts to

301-2
Cont.

301-3

sensitive species and biological productivity at extraction levels lower than the proposed 695 gpm threshold, such impacts should be fully mitigated.

In addition, please further elaborate on how the proposed mitigation involving removal of derelict piles from the Fields Landing area and removal of invasive *Spartina* from unspecified sites in Humboldt Bay is appropriate mitigation to offset and compensate for impacts to biological productivity from bay water withdraw amounts above 694 gpm, since site-specific surveys to understand and quantify such impacts have not yet been conducted, and the specific *Spartina* mitigation sites have not been identified.

Furthermore, while eelgrass protection measures are included for eelgrass known to grow near the Red Tank dock intake site, the DEIR does not address potential impacts to eelgrass that may occur through proposed pile removal activities within and adjacent to eelgrass beds at the Fields Landing mitigation site (stating only (on pg. 3.3-58) "Pile removal would benefit eelgrass in Humboldt Bay by creating additional eelgrass habitat and would thus self-mitigate temporary impacts to eelgrass"). The Project should include provisions for preparing and implementing an eelgrass mitigation and monitoring plan for proposed restoration/mitigation work within and adjacent to eelgrass habitat in conformance with the California Eelgrass Mitigation Policy to understand any direct and indirect impacts to eelgrass that may occur through the proposed activities.

301-3
Cont.

Finally, please note that the mitigation approach for impacts to sensitive species and biological productivity presented in the DEIR may not be adequate to ensure consistency with the Coastal Act policies on the protection and enhancement of biological productivity of coastal and estuarine waters. The Commission's consideration of mitigation is typically based on an understanding of a project's calculated impacts, developed through data collection and analysis efforts to ensure the constituent species and life-stages present in the intake source water are fully understood. In this case, sampling and analysis of data to affirm the impact assumptions in the DEIR has not yet been completed or provided.

301-4

Thank you again for the opportunity to comment on the DEIR. As mentioned, we will continue to collaborate with the County on the review process for the three CDP applications necessary for the Project. If you have questions concerning these comments, please contact either Cassidy Teufel (Cassidy.Teufel@coastal.ca.gov) or me (Melissa.Kraemer@coastal.ca.gov).

Sincerely,



Melissa B. Kraemer
North Coast District Manager

Letter 301 – Response to Comments

Response to Comment 301-1 – Introduction

This comment is introductory in nature. Specific concerns are not presented. No response is required.

Response to Comment 301-2 – Buffer for Sensitive Species and Habitat

The first part of this comments discusses impacts to dark-eyed gilia, proposed 3:1 mitigation and mitigation for low quality dune mat and avoid high quality dune mat areas. The DEIR does consider impacts to dark-eyed gilia potentially significant and proposes Mitigation Measure BIO-1 to compensate for loss of dark-eyed gilia. In addition, a Restoration and Monitoring Plan has been prepared, which can be found in Appendix K of the DEIR, with a mitigation ratio of 3:1 for dark-eyed gilia. With implementation of BIO-1 impacts to dark-eyed gilia are considered less than significant. With regard to low quality dune mat, Mitigation Measure BIO-7 address and mitigates for impacts to Sensitive Plant Communities, including low quality dune mat and includes Annual Success Criteria as shown in Table 3.3-3. With implementation of BIO-7, impacts to Sensitive Plan Communities are determined to be less than significant. The high-quality dune mat on site was deemed to qualify as Environmentally Sensitive Habitat and will be avoided. The original footprint of the facility (per initial application submittal by NAFC) did impact high quality dune mat. After discussions with the Coastal Commission staff, the lead agency, and the applicant, the facility footprint was moved to the north and impacts to high quality dune mat (ESHA) have been avoided and development setbacks applied. Other areas where dune mat habitat was identified was anthropogenically modified or contained a high percentage of non-native species that it did not qualify as ESHA. In those areas loss of dark eyed gilia will be mitigated for.

The second part of this comment discusses alternatives, phases of the Project and effects on dark-eyed gilia. As discussed above, the original Project footprint did impact high quality dune mat and did result in more impacts to dark-eyed gilia than the currently proposed footprint. The footprint was moved to the north and the campus was compressed to the maximum extent possible with regard to building separation for fire safety, ingress/egress and truck movements, which resulted in less impacts to dark-eyed gilia and complete avoidance of high-quality dune mat.

The purpose of an alternatives analysis under CEQA in the DEIR is to analyze a range of alternatives that attain the Project's basic objectives and attempt to avoid or reduce significant environmental impacts. In this project there are not significant impacts which cannot be mitigated to a less than significant level so the range of alternatives was limited to focus on No Project, an alternative site and an alternative that could be useful for the Department of Fish and Wildlife in consideration of the species permit. A reduced size alternative was rejected because a reduced Project is neither feasible and does not meet the Project objectives if only Phases 0 and 1 are constructed.

The third part of this comment discussed high quality dune mat and setbacks proposed to protect this resource. Through discussion with Coastal Commission staff and the applicant, the Project footprint was redesigned and moved to the north, avoiding high quality dune mat and reducing impacts on dark-eyed gilia. The minimum of 35 feet setback between the south building edge and the high-quality dune mat was determined adequate due to the type of habitat involved (dune mat consisting of smaller plants) the relative lack of grading, the ability to control grading and the location in the back of the building with limited access. The 15-foot setback from the required fire access road was deemed acceptable with the provision that the pavement is permeable, and is at grade and thus not disturbing the dune mat habitat

Response to Comment 301-3 – Water Intakes, Off-Site Mitigation, and Eelgrass

The comment requests clarification on why mitigation is not required when water withdrawal is less than 695 gallons per minute. As described in the DEIR (Section 3.3.6, Page 3.3-52), it is important to note that the DEIR finds that the impact to Essential Fish Habitat to be a less than significant impact at all levels of water withdrawal and no mitigation is required. From a CEQA perspective this is adequately addressed. The comment is referring to off-site compensatory restoration (DEIR Section 2.4.7) that is anticipated to be a condition of the Coastal Development Permit issued to the Harbor District for the proposed water intake's impacts to biological productivity. The proposed habitat restoration related to biological productivity impacts is not a CEQA mitigation measure proposed to reduce any environmental effect to less than significant. Impacts to biological productivity are discussed in various sections of the DEIR, including in relation to EFH (Section 3.3.6, Pages 3.3-50 to 3.3-53) with a finding of less than significant without mitigation.

The comment expresses concern regarding potential impacts to eelgrass associated with the proposed pile removal at the Kramer Dock site. The DEIR recognizes that there could be temporary impacts to eelgrass during habitat restoration (pile removal) at the Fields Landing site (Section 3.3.6, Page 3.3-58) and that these temporary impacts will be mitigated due to the long-term benefits that the restoration will have for eelgrass. Specifically, removal of the piles will expose substrate at a tidal elevation suitable for eelgrass growth and it is expected that eelgrass will grow in the exposed substrate. There is currently eelgrass growing adjacent to the piles. Development and implementation of an eelgrass mitigation and monitoring plan is not necessary to reduce impacts to less than significant.

Response to Comment 301-4 – Water Intakes

The comment notes the mitigation approach for impacts to sensitive species and biological productivity may conflict with Coastal Act policies. Further discussion and analysis of the proposed intake design and potential impacts can be found in Master Response 7 (Intake Biological Productivity, Intake Salmonids). Mitigation to reduce Longfin Smelt impacts to a less than significant level is to be implemented per Mitigation Measure BIO-6a (see Section 4 – Errata). This FEIR has addressed these concerns with responses to comments 301-2 and 301-3 above. The Project Description was written, and the FEIR was prepared to anticipate the Coastal Commission would require mitigation for impacts not found to be significant under CEQA. The FEIR does evaluate the impacts of implementing the mitigation for these impacts.



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Governor's Office of Planning & Research

Feb 18 2022

February 18, 2022

STATE CLEARINGHOUSE

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**SUBJECT: NORDIC AQUAFARMS CALIFORNIA, LLC LAND-BASED
AQUACULTURE PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT
SCH# 2021040532**

Dear Mr. McNamara,

The California Department of Fish and Wildlife (CDFW) received the Draft Environmental Impact Report (EIR) from the Humboldt County Planning & Building Department (County) for the Nordic Aquafarms California, LLC Land-based Aquaculture Project (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ CDFW previously submitted comments in response to the Draft Mitigated Negative Declaration and Notice of Preparation for the Draft EIR on May 24, 2021, and July 6, 2021.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife resources. Likewise, we appreciate the opportunity to provide comments regarding aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code (FGC). The Department recognizes the proposed project has been planned with sustainability as a key component including producing fish onshore within the footprint of an existing facility, removing hazardous waste and materials from the site, and producing fish close to the consumer market. The Department also recognizes the project may enhance economic development and create jobs.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state (FGC §711.7, subd. (a) and §1802; Pub. Resources Code §21070; CEQA Guidelines §15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of

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¹ CEQA is codified in the California Public Resources Code in §21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with §15000.

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those species (*Id.*, §1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. CDFW is also responsible for marine biodiversity protection under the Marine Life Protection Act in coastal marine waters of California and ensuring fisheries are sustainably managed under the Marine Life Management Act.

CDFW is also submitting comments as a Responsible Agency under CEQA (Pub. Resources Code, §21069; CEQA Guidelines, §15381) and may need to exercise regulatory authority as provided by the FGC. As proposed, the Project may result in “take” as defined by State law of species protected under the California Endangered Species Act (CESA) (FGC, §2050 et seq.), and related authorization as provided by the FGC will be required.

Additionally, CDFW oversees and manages aquaculture activities in the State under the authority provided by the FGC (§§15000-15703) and Title 14 of the California Code of Regulations (CCR). All facilities devoted to the propagation, cultivation, maintenance, and harvesting of fish, shellfish, and plants in marine, brackish, and freshwater are required to register annually with CDFW (CCR §235). CDFW may prohibit an aquaculture operation or the culturing of any species at any location where it is determined it would be detrimental to adjacent native wildlife (FGC §15102). Similarly, the Department is authorized to review information and “ensure” that the operation will not be detrimental to native wildlife (FGC Section 15101(b)). State law also requires an Importation Permit from CDFW to import most live aquatic plants and animals, in all forms (CCR §236). Statutory authorities for aquaculture disease and aquatic animal health management are embodied in FGC (§15500 et seq.). Regulations regarding aquaculture disease controls and responses, including a list of diseases and parasites and the aquatic plants and animals they are known to infect or parasitize, are outlined in FGC (§§15500-15516) and CCR (§245).

302-1
Cont.

PROJECT DESCRIPTION SUMMARY

Proponents: Humboldt County Planning & Building Department (County) and Humboldt Bay Harbor, Recreation and Conservation District (Harbor District)

Objective: Nordic Aquafarms California, LLC (Nordic) proposes to develop a land-based finfish recirculating aquaculture facility on the Samoa Peninsula and intends to cultivate all-female Atlantic salmon (*Salmo salar*) subject to CDFW approval. The Draft EIR also includes an analysis of farming alternative species, including Steelhead (*Oncorhynchus mykiss*) in seawater, Rainbow Trout (*O. mykiss*) in freshwater, and Yellowtail Kingfish (*Seriola lalandi*). The proposed aquaculture facility will include operations to grow-out fish from egg to harvestable size. The fish will be contained indoors in separate buildings connected by underground pipes for fish transfer. At full capacity, the facility will have an annual production of approximately 25,000-27,000 metric tons of head-on-gutted fish. The Project will require approximately 2.5 million gallons per day (MGD) of freshwater sourced from the Mad River and 10 MGD of seawater sourced from Humboldt Bay. Treated wastewater (12.5 MGD) will be discharged into the Pacific Ocean utilizing the existing

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Redwood Marine Terminal (RMT) II ocean outfall pipe located 1.55 miles offshore of the Samoa Peninsula. A total of five buildings (intake water treatment, grow out modules, hatchery, fish processing, and wastewater treatment) will be constructed with a combined footprint of 766,530 square feet. The Project will also include ancillary support features such as paved parking, fire access roads, security fencing, stormwater management features, and a fire suppression water line. To remediate existing environmental contamination at the Project site associated with the former pulp mill (brownfield site), Project activities will include demolition of existing pulp mill infrastructure, asbestos abatement, soil remediation, and waste stream characterization, transportation, and disposal.

Location: The Project site is situated on the Samoa Peninsula, bounded on the west by dunes and the Pacific Ocean and on the east by Humboldt Bay, and located at the site of the former Samoa Pulp Mill in the unincorporated community of Samoa in Humboldt County (APN 401-112-021).

Timeline: Demolition and construction is anticipated to begin in 2022 or 2023, following final permit approvals.

302-1
Cont.

PROJECT IMPACTS

Escape Risk of Atlantic Salmon

Comments: Cultivation of Atlantic salmon is unprecedented in California and carries a risk of significantly impacting the state's fish and wildlife resources, primarily via fish escape and introduction of pathogens. To avoid potential impacts associated with cultured salmon, the California legislature made it unlawful to spawn, incubate, or cultivate any transgenic or exotic species of finfish belonging to the family Salmonidae in the waters of the Pacific Ocean regulated by the state (FGC §15007). While land-based facilities are generally regarded as posing substantially fewer risks to the local environment than marine net pens, the proximity of the Project site to Humboldt Bay and the Pacific Ocean, coupled with the proposed seawater intakes and discharge of effluent into the Pacific Ocean, is concerning.

The Project is also being proposed in a region that is home to some of the State's most commercially and culturally significant runs of wild Pacific salmon, some of which are also at risk of extinction. This includes State- and/or federally protected (threatened) runs that return to the Project's immediate vicinity, like Southern Oregon/Northern California Coastal (SONCC) coho salmon that spawn in tributaries to Humboldt Bay or California Coastal Chinook (CCC) salmon and Northern California (NC) summer steelhead that spawn in the Eel and Mad Rivers. Central California Coast (CCC) coho are also potentially at risk as they spawn in rivers of Mendocino County directly to the south. The State's largest wild run of fall Chinook salmon spawns in the nearby Klamath Basin, approximately 45 miles to the north, and their progeny rear in coastal waters immediately adjacent to the Project. The Klamath Basin is also home to one of the largest riverine restoration projects in the world, which is focused primarily on helping dwindling runs of wild Pacific salmon. Steelhead and Longfin Smelt are also important and vulnerable components of the region's anadromous fish fauna. This setting is one in which any increase in risk to native fish – regardless of

302-2

magnitude – or any addition of novel stressors – imperceptible, uncertain, or otherwise – must be weighed carefully and may ultimately be unacceptable.

The Draft EIR concludes that the risk of cultured Atlantic salmon escaping from Project facilities is eliminated by multiple physical barriers and water treatment barriers (e.g., jump screens on tanks, grates in the drainage system, 0.04µm membrane filter screens, and ultraviolet light in the wastewater treatment plant) and by using underground pipes to move fish between buildings (pg. 3.3-25). CDFW appreciates the additional measures that have been included to minimize the risk of escape, including designing the facility to meet tsunami design standards, biosecurity measures, and the development of an Escape Response and Reporting Plan. The Project has also reduced the risk of escaped fish from reproducing and establishing in the wild by committing to cultivating all-female fish.

CDFW understands that the potential for cultured Atlantic salmon to escape from the facility into local marine, estuarine, and freshwater environments is low, but does not consider the risk to be eliminated, and is concerned with the potential consequences of an escape event to vulnerable, native species. As noted in CDFW's previous comments responding to the Draft MND, the Project's proposed location is subject to seismic and tsunami hazards and may hold millions of Atlantic salmon as close as 300 feet from Humboldt Bay at any one time. Even well-designed land-based facilities outside of tsunami hazard areas have had unintended releases due to structural or operational failures (Føre and Thorvaldsen 2021). Additionally, biosecurity measures are fallible; the risk of intentional or unintentional release of fish cannot be completely eliminated. Cultivating all-female fish would effectively eliminate the potential for fish to reproduce and establish in the wild, but any escaped individuals may still prey upon or compete with native fauna until they themselves perish (Waknitz et al. 2003; Naylor et al. 2005; Morton & Volpe 2002; ADFG 2002). The Draft EIR does not analyze the potential for escaped Atlantic salmon (or the alternative species) to compete with native species for food or habitat resources or consume them as prey. Additionally, the Draft EIR does not analyze the potential for escape to occur during transportation of eggs to the facility. Escapes have been documented during transportation from other land-based facilities (Føre and Thorvaldsen 2021).

302-2
Cont.

Fish Olfaction and Homing

Comments: Beyond concerns surrounding the physical escape of Atlantic salmon from the facility, it is unclear whether these fish will have a 'biochemical presence' in adjacent marine waters, via the release of 12 MGD of effluent from the facility. This is a critical uncertainty that must be addressed because the artificial manipulation of olfactory cues in the environment can disrupt salmon migrations (e.g., Drenner et al. 2018), and local streams are home to runs of native salmon or steelhead that are of conservation concern (e.g., state and federally listed coho salmon in Freshwater Creek, a tributary to Humboldt Bay) or that support important fisheries (e.g., Chinook Salmon in the Klamath Basin to the north).

302-3

Recommendations:

- The Final EIR should analyze the potential consequences of an escape event, including escaped fish competing with native species for food and habitat resources or consuming them as prey. The analysis should assess impacts as it relates to the preferred species (Atlantic salmon) and alternative species to determine if impacts can be reduced based on species selection. Additional measures to reduce impacts to native species should be considered, such as cultivating triploid Steelhead, Rainbow Trout, and Yellowtail Kingfish to eliminate the risk of hybridization and establishment.
- The Final EIR should analyze the potential for escapes to occur during transportation of eggs to the facility.
- To ensure any escaped fish from the facility are unable to reproduce in the wild, CDFW recommends the Final EIR include the development of a QA/QC program to verify that all fish from each cohort are female.
- The Final EIR should address the potential for olfactory disruption to native salmonids resulting from the facility's discharge of pheromones or other chemical cues that influence homing or migration, including consideration of how the facility's wastewater treatment system may or may not eliminate these compounds.

302-4

302-5

Introduction of Pathogens to Native Fish

Comments: Pathogens associated with cultured Atlantic salmon from the Project may be transmitted to wild salmonid populations, an impact that could persist within native populations even if Atlantic salmon are unsuccessful at establishing reproductively viable populations (Mordecai et al. 2021; Morton & Volpe 2017). Pathogens may be introduced through egg importation, wastewater discharge at the ocean outfall (if not effectively treated or due to accidental spills/leaks), catastrophic flooding events, improper disposal of carcasses, and pathogens carried outside the facility on equipment or personnel. Existing regulations require that applications to import eggs of fishes of the family salmonidae shall be accompanied by a health certificate signed by a person competent in the diagnosis of fish diseases stating that the hatchery or other sources of the eggs to be imported and the eggs themselves are free of the following diseases for a minimum of two consecutive years: infectious pancreatic necrosis; bacterial kidney disease; infectious hematopoietic necrosis; and viral hemorrhagic septicemia. In questionable cases, CDFW shall determine whether the person making the certification is technically qualified to do so (CCR § 236(7)). In addition to the above list of pathogens, CDFW will also require the hatchery or other sources of eggs to be imported and the eggs themselves to be free of other diseases of concern specific to the species being farmed for a minimum of two consecutive years, such as piscine orthoreovirus and infectious salmon anemia virus.

302-6

The Draft EIR includes measures to minimize the risk of pathogens entering and exiting the facility. The Project intends to import Atlantic salmon eggs from a source hatchery that is shown to be free of significant pathogens of concern for a minimum of two years; however, a source hatchery that meets the above criteria has not been identified. Nordic also proposes a procedure to disinfect imported eggs, including twice at the source hatchery and a third time at the Nordic facility while in quarantine. The Draft EIR proposes that any cohort of fry must be declared free from evidence of all diseases of regulatory



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concern and approved by CDFW before being transferred out of the quarantine area. CDFW acknowledges that this is a proposed approach and recommends coordination with CDFW in developing a Fish Health Monitoring Plan that specifies at least the necessary implementation details shown in the Recommendations below.

Before being discharged into the Pacific Ocean, effluent from the facility will go through a wastewater treatment system which includes UV disinfection to neutralize pathogens. The effective dose of UV light to sterilize pathogens varies. Effective dose is determined by the intensity of the UV lamp, cleanliness of the quartz sleeve separating water from the UV lamp, the contact time and flow rate of the water flowing through the UV system, water clarity, as well as the size and biological characteristics of target pathogens (Yanong and Erlacher-Reid 2012). Design specifications and permit conditions relying on UV treatment should include minimum dosages as well as minimum operating standards reflecting the above concerns to ensure that effective UV treatment occurs. The Project proposes to use a 300 millijoule (mJ) end of lamp life UV dose before water is discharged to sterilize pathogens but does not specify the minimum operating standards mentioned above to ensure effectiveness. The Draft EIR also does not disclose the effective UV dose to neutralize potential pathogens of concern specific to Atlantic salmon or the alternative species.

302-6
Cont.

Recommendations:

- CDFW recommends the Final EIR include a list of pathogens and parasites of concern specific to the preferred and alternative species being considered, and the required UV dose to inactivate them. Also included should be further details on the operation and maintenance plans to ensure effectiveness of the UV system, including minimum requirements for water clarity, contact time, flow rate, and quartz sleeve cleanliness, and confirmation that design specifications address the size/biological characteristics of target pathogens.
- CDFW recommends the Final EIR include the development of a Fish Health Monitoring Plan in cooperation with CDFW that specifies the frequency and number of fish at various life stages that are tested for listed pathogens and parasites, approved parties and methods used for testing, and identifies which pathogens and parasites are being tested for. The Plan should include specific responses such as immediate reporting (within 24 hours) of detections to CDFW as well as those measures directed by existing regulations (CCR §245). The Plan should also include an annual Fish Health Monitoring Report that summarizes measures taken to screen for and minimize the risk of pathogens and parasites, fish health issues experienced in the facility, and measures taken to treat/address those issues. The annual report should be provided to CDFW.

Transportation & Disposal of Fish Waste

Comments: Nordic's facility will produce a significant amount of fish waste, requiring 32 truckloads per week to dispose of waste to "various secondary processing sites within 150 miles of the facility" (pg. 2-27). The Final EIR should include further details about the location and safe disposition of fish waste and assess the environmental impacts associated with storage, handling, processing, transportation, and disposal of fish waste. CDFW is especially concerned with the potential transfer of pathogens or other

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environmental impacts that could occur during transportation (e.g., spill from trucks) and disposal of fish waste at undisclosed location(s).

Recommendations:

- As recommended in previous comments, the Final EIR should include the location(s) of waste disposal and an analysis of environmental impacts from storing, handling, processing, transporting and disposing of fish waste. Impacts may include but not be limited to onsite impacts, disposal site(s), potential for spills during transportation, and transfer of pathogens during transportation and disposal.

302-7
Cont.

Entrainment from the Seawater Intakes & Compensatory Mitigation

Comments: The Harbor District proposes to upgrade and permit two seawater intakes in Humboldt Bay, with a combined maximum withdrawal capacity of 12 MGD. As mentioned in previous comment letters and during interagency meetings, CDFW is concerned with entrainment of CESA-listed Longfin Smelt (LFS; *Spirinchus thaleichthys*) and other larval organisms. The Draft EIR assumes LFS larvae are only susceptible to entrainment when salinity levels at the intakes are below 12 practical salinity units (psu), which is estimated to occur 0.014% of the time (pg.7, Appendix Q). However, LFS larvae have been observed in salinities higher than 12 psu in Humboldt Bay, including near the proposed intakes. During a CDFW-led study in 2017, a total of 25 LFS larvae (6.05-8.81 mm in body length) were collected at three different sampling locations in Arcata Bay (Ray & Bjorkstedt unpublished data). Salinity, measured at the surface and bottom, ranged from 11.36-30.24 psu during collections. During this study, four of the LFS larvae (6.98-7.25 mm in body length) were caught at a sampling location just south of the proposed intake locations (40.792254°N, -124.193258°W) on two different sampling events (January 26, 2017 & February 23, 2017) when salinity conditions ranged from 26.35-30.24 psu. Additionally, sampling conducted by Inner City Fund in 2020 collected LFS larvae (~7-8 mm) at salinities greater than 22 psu in the Eel River Estuary (ICF 2020). These observations suggest that the salinity tolerance of LFS larvae in Humboldt Bay and the Eel River Estuary could exceed the tolerance limits of other populations, such as LFS in the San Francisco Estuary.

302-8

The Harbor District anticipates obtaining an Incidental Take Permit from CDFW for take coverage of LFS and proposes off-site habitat restoration to mitigate for entrainment impacts. Compensatory mitigation will also be required by the California Coastal Commission (CCC) for impacts to biological productivity from the intakes, including entrainment of Pacific herring, northern anchovy, Dungeness crab, and other larvae. The total area of habitat restoration required to mitigate for impacts to LFS and biological productivity will be based on the results from the Intake Assessment Study that will be completed in 2023, but the Draft EIR includes a proposed mitigation approach. The Harbor District's habitat restoration proposal includes pile removal in the South Bay (at the former Kramer Dock site) and Spartina removal at an undisclosed location in Humboldt Bay. The Harbor District proposes to implement the mitigation using a phased approach: 1) For cumulative water withdrawal between 0-694 gallons per minute (gpm), no compensatory mitigation is proposed; 2) For cumulative water withdrawal between 695-1,250 gpm, impacts to biological productivity will be mitigated by restoring up to one acre of tidal wetlands in Humboldt Bay through the eradication of *Spartina densiflora* or removal of an

equivalent number of piles; and 3) For cumulative water withdrawal between 1,251 to 8,250 gpm, additional piles will be removed at the Kramer Dock site. CDFW is concerned that the Draft EIR does not analyze the potential entrainment of LFS during the initial water withdrawal phase (0-694 gpm) or propose any mitigation to offset entrainment impacts. To mitigate for impacts to LFS, the Harbor District proposes to restore one square meter of habitat per ~295 larvae impacted by removing four pilings at the Kramer Dock site. This mitigation approach assumes the annual production of one female is 295 surviving larvae and each spawning female requires less than one square meter of habitat to spawn (the latter statement is not cited, Appendix N). However, pile removal at the Kramer Dock site will not provide additional spawning habitat since LFS do not spawn in this region of the Bay. While removing contaminated pilings will provide water quality benefits to Humboldt Bay, CDFW is concerned this approach is not sufficient to mitigate for impacts to LFS. The Draft EIR states it is unlikely that spawning habitat for LFS is limited in Humboldt Bay and contaminants are a greater concern (pg. 6, Appendix N). However, this statement is not supported by citations. Population declines of LFS are likely due to loss of tidal wetland habitats and changes in freshwater flows (Garwood 2017; CDFG 2009; California Department of Water Resources et al. 2020). A habitat restoration approach that benefits the life history stage being impacted will be necessary to ensure impacts to the species are fully mitigated.

To mitigate for impacts to biological productivity, the Harbor District proposes to receive four acres of mitigation credit for every one acre of habitat restored at the Kramer Dock site. This mitigation approach includes credit for the surface area of the pile removed, rather than the benthic footprint of the pile. For example, if the Area of Production Forgone to biological productivity from the intakes is calculated to be 10.4 acres, the Harbor District proposes an area of piling removal equivalent to 2.6 acres (Appendix N). CDFW is concerned this mitigation approach is not sufficient to offset impacts to biological productivity.

Recommendations:

- The LFS entrainment impact analysis should not assume larvae are only susceptible to entrainment when salinity is <12 psu. In the absence of understanding the physiological limits of LFS larvae in Humboldt Bay and given there have been multiple observations of LFS larvae in high salinity waters, CDFW recommends that LFS larvae are assumed to be viable in all of Humboldt Bay, regardless of salinity conditions.
- The Final EIR should analyze the potential take of LFS at each phase of water withdrawal. If take of LFS could occur during the initial phase of up to 694 gpm, then mitigation to offset impacts will be required.
- CDFW recommends mitigation for impacts to LFS, and biological productivity be provided in full and upfront, rather than the proposed phased mitigation approach.
- To fully mitigate for entrainment impacts to LFS, CDFW recommends additional or alternative mitigation that directly benefits the life history stage of LFS being impacted, such as protection or creation of spawning and/or rearing habitat. CDFW also recommends additional mitigation to compensate for loss of biological productivity. CDFW recommends that the Harbor District continue to engage with CDFW, CCC, National Marine Fisheries Service (NMFS) and other regulatory

302-8
Cont.

agencies in the development of an effective habitat restoration and mitigation plan prior to finalizing the EIR.

- Specific information on where Spartina removal will occur needs to be disclosed to determine the benefits of this mitigation approach to species impacted by entrainment.
- CDFW recommends a work window of July 1 – October 15 during pile removal activities to minimize impacts to listed salmonids.
- To avoid potential impacts to nesting birds on or near the pilings, CDFW recommends an avoidance mitigation measure, such as pile removal during the non-nesting season or pre-demolition nest surveys with specified no-disturbance buffers for active nests.

302-8
Cont.

Seawater Intakes Screen Design, Operations & Maintenance

Comments: The intake screens have been designed to meet NMFS and CDFW's fish screening criteria. However, other than the mention of using an air burst or brush system self-cleaning technology while operating, the Draft EIR does not include details on how the screens will be cleaned and maintained to avoid changes in approach velocity and risk of impingement. CDFW has provided the Harbor District with concerns related to air burst cleaning systems, which in some circumstances may not be as effective as brush cleaning and can cause problems with meeting the fish screen hydraulic criteria of low approach velocities with hydraulic uniformity. Reliance on a 0.1-ft hydraulic head differential in the intake structures, additive to an estimated 0.44-ft minimum hydraulic head differential, to activate the screen cleaning system is not likely to indicate concentrated areas of biofouling on the screen surface that can then lead to areas of higher approach velocity and hydraulic non-uniformity. CDFW is concerned with the risk of impingement if the screens are not properly maintained. Frequent, regularly scheduled activation of the cleaning system and detailed visual inspection, including the inside of the screen, may be needed to ensure that this requirement is met for the life of the Project.

302-9

Recommendations:

- The Final EIR should include the development of an Operations & Maintenance Plan for both intakes that will provide details of the proposed self-cleaning technology, including how often the screens will be self-cleaned, manually checked for debris buildup and biofouling, and how the Harbor District will ensure the cleaning technology is always functioning properly. Additionally, the Operations & Maintenance Plan should provide sufficient detail on how the screens will be evaluated for effectiveness to verify hydraulic design objectives are achieved. A phased evaluation period of the screen cleaning system can be used to determine the program for frequency of visual inspections and cleaning cycles that help to ensure adherence to the hydraulic criteria. The Operations & Maintenance Plan should be provided to regulatory agencies for review and approval prior to final design and permitting of the intakes. CDFW recommends the Harbor District analyze the effectiveness of alternative cleaning systems, including self-cleaning brush technology, to ensure consistency of providing lower approach velocity and hydraulic uniformity near the fish screen which minimizes the chance for fish/larvae impingement and entrainment.

- The Draft EIR and Appendix R describes that the existing RMT II dock intake structure is constructed of wood that has become deteriorated and will likely need repairs to seal cracks that would allow flow into the intake structure other than through the intake screen. CDFW recommends the Harbor District provide a final design of how this intake structure will be completely sealed to ensure all pumped flow will go through the screen. The Draft EIR also describes that the existing Red Tank dock intake concrete structure appears to be in functional condition and minor repair, or cleaning may be necessary to bring this structure back into service. CDFW recommends the Harbor District provide information on how this intake structure will be completely sealed to ensure all pumped flow will go through the screen.

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Cont.

Ocean Outfall Wastewater Discharge

Comments: At full capacity, the facility will discharge 12.5 MGD of treated effluent 1.55 miles offshore via the existing RMT II ocean outfall diffuser. The outfall diffuser is located approximately 82 feet below the surface in sandy habitat. The temperature of the discharge effluent will range between 68 to 72°F, approximately 20°F above the average ambient temperature of 51.8°F, with a salinity of 27 psu (compared to an ambient salinity of 33.5 psu). Based on the results from the Project's dilution modeling study, the dilution targets for temperature and salinity are expected to be met within five feet of the diffuser. However, the modeling study relies on oceanographic data that was collected near the entrance of Humboldt Bay, over three miles from the discharge location. The wastewater treatment facility is expected to remove 99% of biological oxygen demand, total suspended solids, and phosphorus, and 90% of nitrogen prior to discharge, but the Draft EIR does not describe how these water quality parameters will be measured to ensure the treatment design specifications are met.

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Nordic proposes to conduct baseline water quality and biological monitoring at the ocean outfall location one to two years prior to discharge to characterize pre-discharge conditions. Post-discharge monitoring will be conducted over three to five years once the facility is discharging at full capacity using the same methods as baseline monitoring. The monitoring program will include collection of oceanographic data using an acoustic doppler current profiler to measure current velocities, and the use of a conductivity, temperature, and depth profiler to characterize spatial patterns of temperature and salinity. Surface and benthic water quality monitoring of nutrients, suspended solids, turbidity, and chlorophyll will be conducted at half of the profiling stations. Benthic biological transect surveys will occur concurrently with water quality monitoring, using either a remotely operated vehicle and/or a drop camera with laser lights for scale. Surveys will be conducted along the discharge pipe, within the zone of influence, and at reference sites. Baseline and post-discharge monitoring will include two annual survey events, separated by at least two weeks, during the summer/fall. The Draft EIR does not include implementation of a mitigation plan in the event that impacts to water quality or biological communities are observed.

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Recommendations:

- CDFW recommends collecting a minimum of two years of baseline data to capture interannual variability in ocean conditions.
- Before the facility can begin discharging, CDFW recommends the discharge modeling study (dilution study; Appendix E) be updated and reanalyzed using the baseline oceanographic data collected at the discharge location. The results from the updated dilution study should be provided to CDFW and other regulatory agencies for review prior to the facility using the ocean outfall.
- CDFW recommends post-discharge monitoring commence once the facility begins using the ocean outfall, rather than after the facility is discharging at full capacity. Continuous monitoring (at least twice per year) will provide necessary data on potential impacts of the discharge to receiving water quality and biological communities as the quantity of the facilities discharge increases over time.
- CDFW recommends sediment samples be collected at the discharge location, within the zone of influence, and at reference locations pre- and post-discharge to assess the accumulation of contaminants, including harmful algae bloom-associated toxins, in the benthic environment.
- CDFW recommends water quality and biological monitoring occur at least twice per year to capture annual variability in oceanic conditions and biological community structure (e.g., during both the upwelling and relaxation seasons), rather than the proposed two sampling events during the summer/fall.
- CDFW recommends the Final EIR include a wastewater discharge mitigation plan developed in consultation with CDFW, North Coast Regional Water Quality Control Board, CCC, NMFS and other relevant regulatory agencies. The plan should include a description of mitigation measures that will be immediately implemented if impacts to water quality (e.g., Ocean Plan water quality objectives are not met) or biological communities associated with the wastewater discharge are observed.
- CDFW recommends the Final EIR include a table of all pre- and post-discharge water quality and biological monitoring. The table should include the monitoring location (approximate GPS and distance from the diffuser), method, parameters measured, and number of replicate samples/surveys. Additionally, CDFW recommends the Final EIR include a map of the Ocean Discharge Study Area that includes water quality and biological monitoring locations in relation to the ocean outfall diffuser.

302-10
Cont.

Eelgrass Habitat

Comments: Native eelgrass beds (*Zostera marina*) are an important part of the Humboldt Bay ecosystem and are recognized by state and federal statutes as both highly valuable and sensitive habitats. Humboldt Bay holds approximately 31% of the known mapped eelgrass in the state (Merkel & Associates 2017). Eelgrass provides primary production and nutrients to the ecosystem along with spawning, foraging, and nursery habitat for fish and other species. Pursuant to the federal Magnuson-Stevens Fishery Conservation and Management Act, eelgrass is designated as Essential Fish Habitat for various federally managed fish species within the Pacific Coast Groundfish and Pacific Coast Salmon Fisheries Management Plans (FMP). Eelgrass is also considered a habitat area of particular concern for various species within the Pacific Coast Groundfish FMP. Eelgrass habitats are further protected under state

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and federal “no-net-loss” policies for wetland habitats. Additionally, the importance of eelgrass protection and restoration, as well as the ecological benefits of eelgrass, is identified in the California Public Resources Code (PRC §35630).

Eelgrass habitat occurs within the Kramer Dock pile removal mitigation site. CDFW is concerned with potential direct and indirect effects to eelgrass during proposed pile removal activities. The only mitigation measure included in the Draft EIR is to remove piles during a tide of sufficient elevation to float the barge and tugboat without scarring mudflats or injuring eelgrass (pg. 3.9-29). The Draft EIR does not include an eelgrass monitoring or mitigation plan.

Recommendations:

- CDFW recommends the Final EIR analyze the potential impact to eelgrass habitat from pile removal activities. Impacts to eelgrass should be avoided and minimized to the fullest extent possible. To ensure no net loss, CDFW recommends the Final EIR include the development of an eelgrass monitoring and mitigation plan, as defined in the California Eelgrass Mitigation Policy (CEMP; NMFS 2014). The plan should include pre- and post-construction surveys to map eelgrass habitat at the Kramer Dock pile removal site. Surveys should be conducted by a qualified biologist during the high growth season (May-September) and follow the standards of the CEMP. This plan should include mitigation for any impacts to eelgrass. Additionally, the Final EIR should include additional eelgrass avoidance measures, such as avoiding anchoring in eelgrass habitat during pile removal activities.

Use of Explosives and Nesting Birds

Comments: Native birds, particularly their nesting stages, are protected pursuant to FGC sections 2000, 3503, and 3503.5. Effects of structure demolition, including use of explosives, to nesting birds is discussed in the Draft EIR (pg. 3.3-17), stating, “*noise generated by demolition activities would attenuate below 140 dBA (the threshold to avoid hearing damage in birds; Dooling and Popper 2007) at 130 feet from the blast*”. However, the Draft EIR Construction Noise, Vibration, and Hydroacoustic Assessment (Appendix J) also discusses a worst-case scenario where air-overpressure levels ranged from 142 to 150 dB(L) at distances of approximately 800 to 1,100 feet, and 141 to 142 dB(L) at distances of 1,300 to 1,500 feet. Given the range of building demolition noise scenarios presented in the Draft EIR and appendices, building demolition timing outside the nesting bird season would provide the greatest certainty in avoiding harm to nesting birds.

Recommendations:

- CDFW recommends Mitigation Measure BIO-5 (Protect Special Status, Migratory, and Nesting Birds) be revised to avoid use of explosives during the nesting bird season. Alternatively, if explosives will be used during the nesting season, the Final EIR should provide further analysis or clarification of explosion sound pressure distances that may result in bird hearing damage or nest failure.

Osprey Nest Management

Comments: Native birds, particularly their nesting stages, are protected pursuant to FGC sections 2000, 3503, and 3503.5. CDFW observations in recent years indicate two osprey

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(*Pandion haliaetus*) pairs each have a nesting territory on the Project site. To avoid potential impacts to osprey, the Draft EIR (pg. 3.3-20) states, “*The Harbor District is actively working with CDFW to relocate Osprey nests from the Project Site*”. Current and future osprey nest management to avoid impacts due to Project-related changes to the physical environment should be analyzed in the Final EIR.

Recommendations:

- The Final EIR should revise Mitigation Measure Bio-5 (Protection of Osprey) to include an Osprey Management Plan for current and potential future nests. The Osprey Management Plan should include performance criteria such as no-net-loss of osprey breeding territories with sufficient alternative nest sites within the Project area, and that any created nest sites are of equal or higher quality than nests removed.

Alternatives Analysis

Comments: The Draft EIR includes an analysis of alternatives for the facility location, species farmed, and seawater sources. The only alternative facility locations that are briefly analyzed in the Draft EIR include other locations within the Humboldt Bay area. The Draft EIR mentions that twelve other west coast communities were considered in the initial search for a site but does not disclose the location of those sites or an explanation for why those sites are not considered further. Additionally, there are no alternatives related to a reduced size facility.

The alternative species analyzed include Steelhead in seawater, Rainbow Trout in freshwater, and Yellowtail Kingfish, in addition to the preferred species of Atlantic salmon. There are several sections of the species comparison table (Table 4-2) that lack citations, such as the feed conversion ratios, biological risks, and survivability and hybridization with local species in the event of escapement. The Draft EIR does not include an analysis of pathogens and parasites associated with the alternative species or discuss the volume of seawater and freshwater that would be used for alternative species and the environmental impacts associated with that water use. It is mentioned that the alternative species would result in higher production of nutrients and feces, but there is no analysis of impacts to receiving water quality or marine resources from the discharge. Local concerns regarding Steelhead are included, but Table 4-2 does not include local concerns regarding Atlantic salmon or the other alternative species. Additionally, the analysis does not include measures to minimize risks associated with the alternative species, such as cultivating triploid fish to avoid hybridization and reproduction.

The alternative seawater sources include slant wells, an oceanic seawater intake, and Humboldt Bay seawater wells. The analysis suggests that impacts from any of these alternatives would be less than significant with the incorporation of mitigation measures. However, the Draft EIR does not discuss the potential impacts to marine and terrestrial resources from constructing and operating the alternative seawater sources or the mitigation measures that would be implemented to offset potential impacts, such as entrainment and impingement.



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Cont.

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Recommendations:

- CDFW recommends the Final EIR analyze additional alternative Project locations that have less potential risk for fish and pathogens to escape into marine, estuarine, or freshwater habitats used by native salmonids. CDFW also recommends the Final EIR include a reduced facility size alternative.
- CDFW recommends Table 4-2 be revised to include citations and incorporate local concerns regarding cultivation of Atlantic salmon that have been provided during the public review.
- CDFW recommends the Final EIR include a comparative analysis of potential pathogens and parasites specific to Atlantic salmon and the alternative species.
- CDFW recommends the Final EIR include measures to reduce risks associated with the alternative species, such as cultivating triploid fish to minimize risk of hybridization and reproduction.
- CDFW recommends the Final EIR include a comparative analysis of entrainment and impingement impacts associated with each of the alternative seawater sources.

302-14
Cont.

Mandatory Findings of Significance & Mitigation Monitoring and Reporting Program (MMRP)

Comments: The Draft EIR does not include a Mandatory Findings of Significance or MMRP table.

302-15

Recommendations:

- CDFW recommends the Final EIR include a Mandatory Findings of Significance and MMRP table.

CONCLUSION

We appreciate the opportunity to comment on the Nordic Aquafarms California, LLC Land-based Aquaculture Project Draft EIR to assist the County, Harbor District, and Nordic in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Corianna Flannery, Environmental Scientist at 707-499-0354 or Corianna.Flannery@wildlife.ca.gov.

Sincerely,

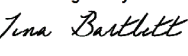
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Jay Rowan
Fisheries Branch Chief

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Letter 302 – Response to Comments

Response to Comment 302-1 – Introduction

This is an introductory comment, summarizing the role that the California Department of Fish and Wildlife (CDFW) has in reviewing the Project under CEQA. Specific concerns are not raised in this comment. No response is required.

Response to Comment 302-2 – Escape Risk

The comment expresses concern around the potential risk escaped salmon may pose to native salmon. Fish escape prevention can be found on page 2-40 of the DEIR and is further addressed in Master Response 3. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 302-3 – Olfaction Migration

This comment expresses concern regarding olfactory cues being released in effluent from the Project and possibly disrupting wild salmon migrations. Please see Master Response 4 (Fish Health and Biosecurity) regarding concerns around potential for the Projects effluent to disrupt salmon migrations. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 302-4 – Fish Escape

The comment expresses concern about fish escape and escapement of eggs during transport to the Project site. The fish are all housed within secure, fully enclosed steel buildings engineered to withstand a major seismic event and located at least 300 feet from the nearest body of water while the Project design includes extensive redundant physical barriers (pages 2-40 - page 2-45), biosecurity programs (pages 2-33 - page 2-36), engineered controls (page 2-36), fail safe measures and safety margins that prevent fish escapes. Please see Master Response 3 (Fish Escape) for more information on the escape prevention measures incorporated into the Project.

Eggs are delivered to the Project in closed, sealed containers to prevent accidental release or spills, and will be transported to the site in an enclosed truck. Please see page 2-35 of the Project Description for more information on egg handling procedures. Upon arrival, an appropriately trained team will unload the eggs, and immediately brought into the quarantine unit. Although the space of time, and physical distance from the truck to the building is small, there is still the risk of accidental egg spill through operator or equipment error which will immediately instigate clean-up procedures. Prompt clean-up combined with the fact that the eggs themselves are not fit to survive for long outside the incubation unit or their transport cases, and the considerable distance to the nearest water body (greater than 300 feet), mean the risk of egg establishment and competition with native species is extremely low. The site itself will be surrounded by a security fence and gated, to ensure that no unauthorized persons are able to improperly transport materials into or out of the facility, without oversight.

The comment requests that the FEIR include a Quality Assurance/Quality Control (QA/QC) program to verify each cohort of eggs brought onto the farm are all females. The egg supplier will carry out a test on each female post fertilization and provide a certificate that the ova sent are all female. For further details on this process please see Master Response 3.

Response to Comment 302-5 – Chemical Cues, Migration

This comment expresses concern regarding chemical/olfactory cues being released in effluent from the Project potentially disrupting wild salmon migrations. Please see Master Response 4 (Fish Health and Biosecurity) for information addressing the potential for the Project's effluent to disrupt salmon migrations.

Response to Comment 302-6 – Introduction of Pathogens to Native Fish

The comment expresses concern regarding the potential for introduction of pathogens to native fish. Water treatment systems at water intake and discharge points will include equipment that physically removes or neutralizes pathogens. This equipment consists of ultrafiltration for physical removal of pathogens and ultraviolet (UV) light disinfection for neutralization of pathogens. The comment also requests a list of pathogens and parasites relevant to preferred and alternative species being considered and required UV dose to inactivate them. Table 5 in Master Response 4 lists pathogens relevant to the species being considered, sizes of the pathogens and UV doses required to achieve log-3 inactivation of these pathogens. In addition to UV disinfection, the 0.02- and 0.04-micron pore size of the Ultrafiltration MBR systems employed at the Project's intake and wastewater treatment plants will serve as a barrier for any pathogen large enough to be excluded by it. Those would include virtually all Bacteria, Fungi, and protozoa as well as many viruses. Please see the subsection titled "Sensitivity of Pathogens to Ultraviolet (UV) Light Disinfection" in Master Response 4.

Response to Comment 302-7 – Waste Transportation and Disposal

This comment expresses concerns with risks associated with the transportation of fish waste off the site to disposal locations. Please see Master Response 11 for additional clarity regarding waste handling and disposal.

Response to Comment 302-8 – Entrainment from the Seawater Intakes & Compensatory Mitigation

The comment expresses concern regarding entrainment of LFS and other larvae organisms in the Humboldt Bay seawater intakes. The comment recommends that LFS larvae should be assumed to be viable throughout Humboldt Bay in a range of salinity conditions. The suggestion that LFS salinity tolerances are different in Humboldt Bay than elsewhere is speculative. The DEIR summarizes the best available information regarding salinity tolerance of LFS larvae (Section 3.3.6, Pages 3.3.46 to 3.3.48).

The comment recommends that the FEIR analyze the potential take of LFS at each phase of water withdrawal. The comment suggests that if take of LFS could occur during the initial phase of water withdrawal (up to 694 gpm), then mitigation should occur to offset potential impacts. The DEIR proposes mitigation for impacts to LFS (Mitigation Measure BIO-6a (see Section 4 – Errata) prior to any water withdrawal.

The comment recommends that impacts to LFS and bioproductivity should be provided "in full and upfront," rather than in a phased mitigation approach as proposed in the DEIR. Mitigation for potential impacts to LFS is incorporated into the Project under Mitigation Measure BIO-6a: Protection of Longfin Smelt. Such mitigation would be implemented prior to any Project water withdrawal. As described in DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53, mitigation is not necessary to account for potential impacts to bioproductivity.

The comment posits that additional or alternative mitigation should be implemented that directly benefits the life stage of LFS potentially impacted, such as protection or creation of spawning and/or rearing habitat. The proposed mitigation measure for impacts to LFS (Mitigation Measure BIO-6a) has been modified such

that mitigation will occur in areas of fresh and/or brackish water and shall create habitat suitable for LFS spawning, rearing, or nursery habitat (see Section 4 – Errata).

The comment recommends that the Harbor District continue to engage with CDFW, California Coastal Commission (CCC), NMFS, and other regulatory agencies. This is noted. Please see Master Response 6, statements unrelated to environmental issues as defined under CEQA.

No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 302-9 – Water Intake Screen Operations and Maintenance Plan

The comment expresses concern that the air burst cleaning system may not be effective and could cause problems meeting the fish screen hydraulic criteria of low approach velocities with hydraulic uniformity. The comment recommends the Harbor District develop a seawater intake screen operations and maintenance plan. The Harbor District will maintain the intake screens in accordance with the design criteria described in DEIR Appendix R (Sea Chest Screen Conceptual Design). An operations and maintenance plan will be developed once the system is designed. More detail regarding the final design of the system is required before further operational and maintenance details can be specified.

The comment requests that the Harbor District analyze the effectiveness of self-cleaning systems other than air-burst self-cleaning. Other than air burst systems, brush systems are also commonly used for screen cleaning. We are not aware of screen installations with environmental conditions similar to the Project site that use both air burst and mechanical brush cleaning systems and that would provide an accurate comparison of the two different technologies. Humboldt Bay has significant amounts of eelgrass. Eelgrass blades seasonally break off and form large floating rafts that move through the bay with tidal currents.

The proposed screens will be installed in the open water of the bay, exposed to eel grass rafts. A mechanical brush system could easily be compromised by eelgrass (e.g., eelgrass may become caught on a brush, reducing its effectiveness or eelgrass may be “ground into” the screen by the brushes). Mechanical brush systems physically remove material from the screen and articulating components of this system have the potential to make contact with species within the brush system’s path of movement. Unlike brush systems, air burst systems do not have external moving components that may physically impact species during the cleaning process. Additionally, the air burst system may provide a better mechanism for preventing plugging of the screens due to eelgrass rafts. The air burst system will be maintained in accordance with design specifications and the Harbor District’s forthcoming operations and maintenance plan.

The comments request further details regarding how the existing sea chest structures at RMT-II and Red Tank Dock will be sealed to ensure that all pumped flow will go through the screen. The process will generally consist of replacing wooden planks and/or placing sheets of plastic or rubber over the outside of the structures to seal gaps.

Response to Comment 302-10 – Ocean Outfall Wastewater Discharge and Monitoring Requirements

The comment expresses concern that the DEIR does not include implementation of a mitigation plan in the event that impacts to water quality or biological communities are observed and provides a series of recommendations for additional studies and sampling. CDFW also notes concerns about utilization of

modeling data from the mouth of Humboldt Bay. These concerns are addressed in Master Response 5. Additional concerns are addressed directly below.

- CDFW comments that the DEIR does not describe how water quality parameters will be measured to ensure treatment specifications are met.
- Within the DEIR, Table 3.9-13 on page 3.9-11 (Section 3.9, Hydrology and Water Quality) lists all parameters to be monitored, as required under the draft NPDES order. The Minimum Sampling Frequency specifies how often each parameter is to be monitored (e.g., continuous, daily, weekly, etc.). For convenience, the draft NPDES order has been appended to this FEIR as Appendix A.
- CDFW includes several recommendations for additional monitoring and mitigation.
 1. CDFW recommends a minimum of two years of baseline monitoring to capture interannual variability in ocean conditions.
 - a. The final NPDES order will detail the frequency and duration of baseline monitoring required for the Project. Under the draft NPDES order, no baseline monitoring is required. However, NAFC has volunteered to undertake baseline monitoring, above and beyond any regulatory requirement (see Section 3.9 of the DEIR (Hydrology and Water Quality / Additional Monitoring to be Completed by the Applicant), starting on page 3.9-12). Continued discussion between the NCRWQCB (the jurisdictionally permitting agency) and CDFW on this specific detail is recommended.
 2. CDFW recommends post-discharge monitoring commences once the facility begins to use the outfall, not at full discharge capacity.
 - a. Under the NPDES order, post-discharge monitoring is required to commence as soon as the facility begins to use the outfall, not at full discharge capacity.
 3. CDFW recommends sediment sampling occurring specific to HAB detection.
 - a. Please see Master Response 5 (Marine Outfall) regarding HABs. The Project's potential contribution to a HAB is unfounded. As such, additional sediment sampling specific to HABs is above and beyond what is required for the Project's permitting compliance. Master Response 5 also addresses measures to ensure unanticipated impacts to water quality remain less than significant, including additional voluntary monitoring to be completed by the applicant, contingency measures, NPDES re-opener provisions, and NPDES order cease and desist requirements. Additionally, NAFC is required to renew its NPDES order every five years, which will require updated analysis and permitting conditions as appropriate.
 4. CDFW recommends a waste discharge mitigation plan.
 - a. Please see Master Response 5 (Marine Outfall) which addresses measures to ensure unanticipated impacts to water quality remain less than significant, including additional voluntary monitoring to be completed by the applicant, contingency measures, NPDES re-opener provisions, and NPDES order cease and desist requirements. Additionally, NAFC is required to renew their NPDES order every five years, which will require updated analysis and permitting conditions as appropriate. The initial NPDES order will not grant NAFC permission to discharge in perpetuity absent of accountability to applicable laws, such as California Ocean Plan and Thermal Plan. Given the information discussed above, sufficient measures are in place to ensure water quality impacts remain less than significant, thus no additional mitigations are warranted.
 5. CDFW recommends the FEIR include a table of all pre- and post-discharge water quality and biological monitoring and other details.

- a. NAFC and the other two permitted dischargers (Peninsula Community Services District and DG Fairhaven) have jointly submitted a draft Biological Sampling Plan to the NCRWQCB. The Biological Sampling Plan is required of all three dischargers, and the three dischargers have been approaching the requirement cooperatively, as encouraged by the NCRWQCB. The draft Biological Sampling Plan remains under review by the NCRWQCB. Once approved by the NCRWQCB, this plan will serve as the platform upon which the additional applicant volunteered monitoring will be developed thereafter. Thus, it remains premature to outline pre-and post-discharge monitoring until NCRWQCB has completed its review, as required. All NPDES-related monitoring is summarized in DEIR, Table 3.9-13 on page 3.9-11 (Section 3.9, Hydrology and Water Quality). Additional monitoring to be completed above and beyond regulatory requirements by NAFC is summarized starting on page 3.9-12 of the DEIR (Section 3.9, Hydrology and Water Quality / Additional Monitoring to be Completed by the Applicant). For convenience, the draft NPDES order has been appended to this FEIR as Appendix A.

Response to Comment 302-11 – Eelgrass

This comment expresses concern about potential direct and indirect effects to eelgrass during proposed pile removal activities. Information and analysis regarding potential impacts to eelgrass resulting from pile removal can be found in Section 3.3 (Biological Resources) of the DEIR on page 3.3-58. The DEIR recognizes that there could be temporary impacts to eelgrass during habitat restoration (pile removal) at the Fields Landing site (Section 3.3.6, Page 3.3-58) and that these temporary impacts will be mitigated due to the long-term benefits that the restoration will have for eelgrass. As stated on page 3.3-58. of the DEIR, potential impacts to eelgrass from pile removal would be offset by the benefits of the restoration action. The purpose of the pile removal is to enhance and create eelgrass habitat. Eelgrass is an annual species and does not grow in the same place from year to year. If present at the time of pile removal, some unavoidable temporary impacts to eelgrass may occur. However, removal of up to 988 piles and 151 cross beams would result in up to 2.69 acres of improved eelgrass habitat. As documented in the *Humboldt Bay Eelgrass Comprehensive Management Plan*, creosote pile removal has been a common out-of-kind mitigation strategy to address eelgrass losses.

“Within Humboldt Bay’s developed working waterfront, removal of debris including piling fields, wharves, derelict floats, and other legacy shoreline infrastructure represents the principal opportunity to restore eelgrass habitat that has either been displaced physically or by shading. Generally, debris removal has a high likelihood of success and is a good strategy for pursuing mitigation...” (Merkel & Associates 2017)

The Kramer Dock site is specifically included as an eelgrass mitigation/restoration site in the *Humboldt Bay Eelgrass Comprehensive Management Plan*. Thus, removal of the piles and cross beams is consistent with the eelgrass mitigation and restoration recommendations in the *Humboldt Bay Eelgrass Comprehensive Management Plan*. Removal of piles would reduce shading and water contamination, which are key stressors to eelgrass in Humboldt Bay (Merkel & Associates 2017). In Humboldt Bay’s South Bay, eelgrass grows between approximately -6.9 to +1.3 feet (-2.1 to +0.4 meters) relative to Mean Lower Low Water (MLLW) (Merkel & Associates 2017). The piles are located in this depth range, and the area is thus suitable habitat for eelgrass. Following pile removal, habitat conditions along the Kramer Dock shoreline would be more suitable for eelgrass beds and generally consistent with the depth and lighting preferences for the species. Given pile removal is proposed specifically to create eelgrass habitat and would be self-mitigating, a habitat mitigation and monitoring plan is not warranted.

Response to Comment 302-12 – Explosives and Nesting Birds

The comment expresses concern with demolition and noise scenarios within the bird nesting season. Page 16 of DEIR Appendix J (Construction Noise, Vibration and Hydroacoustic Assessment) of the DEIR provides details with regard to anticipated noise levels that would be generated from the use of explosives. Use of explosives will be limited and is anticipated to have likely two occurrences (boiler building and stack) and noise generation will be of very short duration from use of explosives.

Noise impacts on special status and protected birds is discussed in Section 3.3 of the DEIR on pages 3.3-17. Mitigation Measure BIO-5 on page 3.3-21 of the DEIR outlines measures to protect special status, migratory, and nesting bird species. Mitigation Measure BIO-5 is a multi-tiered mitigation measures, with the initial portions of the mitigation measure discussing work outside of the nesting season. If use of explosives is conducted outside the bird nesting season, there would be no impact on nesting birds. If explosives are used during the bird nesting season, then Mitigation Measure BIO-5 outlines procedures to conduct nesting bird surveys, including surveying for nesting birds 500 feet from construction activities, developing buffers for nesting birds and “on a case-by-case basis consult with CDFW....” Based on the facts that use of explosives will be very limited, noise generation will be of short duration and with implementation of Mitigation Measure BIO-5, impacts to nesting birds are judged to be less than significant with mitigation.

Response to Comment 302-13 – Osprey

This comment expresses concern from CDFW about impacts to osprey and requests that Mitigation Measure BIO-5a be updated to include an Osprey Management Plan for current and potential future nests. CDFW further requests the Osprey Management Plan should include performance criteria such as no-net-loss of osprey breeding territories with sufficient alternative nest sites within the Project area, and that any created nest sites are of equal or higher quality than nests removed. To satisfy this comment, Mitigation Measure BIO-5a has been updated using **bold text** in the Section 4 Errata to include the requested language as follows:

Mitigation Measure BIO-5a: Protection of Osprey

Any new Osprey nests established within the Project Site that require relocation will be removed (after nesting has occurred) and replaced at a 1:1 ratio in consultation with CDFW. **The Harbor District shall develop an Osprey Management Plan for current and future osprey nests. The Osprey Management Plan shall include performance criteria to ensure no-net-loss of osprey breeding territories with sufficient alternative nest sites within the Project area, and that any created nest sites are of equal or higher quality than nests removed.**

Response to Comment 302-14 – Alternatives

This comment includes six recommendations from CDFW specific to the alternatives analysis included in the DEIR. The six recommendations are each addressed separately.

1. CDFW recommends the FEIR analyze additional alternative Project locations that have less potential risk for fish and pathogens to escape into marine, estuarine, or freshwater habitats used by native salmonids.
 - a. DEIR Section 4 (Alternatives Description and Analysis) describes the alternatives evaluated for the Project, including additional information on alternatives considered but not carried forward. Alternatives that were not carried forward included NAFC’s pre-siting west coast search and other locations surrounding Humboldt Bay, including the Samoa Peninsula.

These alternative locations were excluded from further analysis under CEQA Guidelines Section 15126.6 (f)(1), which requires only feasible alternatives to be evaluated. All of the sites considered in proximity to Humboldt Bay (both those considered infeasible as evaluated in Section 4.2.2 and Section 4.2.3 and Alternative 2: Off-Site Location) would result in equivalent risk related to fish and pathogen escape, as the facility design would be the same independent of the location. Thus, under CEQA Guidelines Section 15126.6 (f) (2) (A), the Key Question test is not met as significant effects related to pathogen and fish escape do not vary based on the precise location of the facility along the Humboldt Bay shoreline. CDFW notes the DEIR references twelve other west coast communities that were initially considered by NAFC in the early phases of project siting but does not evaluate these out-of-area communities in detail as an alternative in the DEIR. The other eleven communities considered during early phases of project site are located exclusively in Oregon and Washington. There was not another community considered by NAFC in California. Thus, there was not another in-state project location to evaluate as a project alternative under CEQA Guidelines Section 15126.6. The DEIR has sufficiently described a range of alternatives as required under CEQA Guidelines Section 15126.6 (a), and no further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

2. CDFW also recommends the FEIR include a reduced facility size alternative.
 - a. A smaller facility is financially infeasible for NAFC and would not yield the required return on the investment to justify development of the Project Site at a smaller scale. The proposed Project footprint has been designed considerate of financial returns per square foot. Because a smaller facility is financially infeasible for NAFC, CEQA Guidelines Section 15126.6 (f) (1), which addresses the feasibility of alternatives, is not met. Per the CEQA Guidelines in 15126.6 (f) (1), the DEIR needs only evaluate feasible alternatives that attain most of the basic objectives of the Project. A financially infeasible alternative would not attain the fundamental objective of the Project. Under Section 15126.6 (f) (1) a smaller facility is infeasible and thus not evaluated in the DEIR.
3. CDFW recommends Table 4-2 be revised to include citations and incorporate local concerns regarding cultivation of Atlantic salmon that have been provided during the public review.
 - a. As requested by CDFW, the bottom row of Table 4-2 has been updated in the Section 4 Errata to note local concerns expressed regarding cultivation of Atlantic salmon. However, the selection of the Environmentally Superior Alternative in Section 4.4 of the DEIR is unaffected by this notation.
4. CDFW recommends the FEIR include a comparative analysis of potential pathogens and parasites specific to Atlantic salmon and the alternative species.
 - a. DEIR Section 4 (Alternatives Description and Analysis) describes the alternatives evaluated for the Project. This alternatives analysis included an evaluation of alternative fish species, including Rainbow Trout, Steelhead, and Yellowtail Kingfish (see subsection 4.3.3 Alternative 3: Fish Species and Water Source). Rainbow Trout and Yellow Trail Kingfish were dismissed as the preferred species due to higher feed conversion ratio, which would decrease the volume of fish produced to stay within the nutrient thresholds for the discharge. Steelhead was considered an inferior alternative based on less market demands and also input from local stakeholders. For each analyzed factor, Atlantic Salmon was the least environmentally impactful species. As a result of these considerations, Rainbow Trout, Steelhead, and Yellowtail Kingfish were not considered desirable alternatives. As discussed

in the DEIR on page 4-21, an alternative species would not result in a substantive environmental benefit.

- b. Table 2.11 below lists pathogens that are relevant to the species considered. The table includes susceptible species in California, designations assigned to these pathogens by relevant agencies (CDFW, USFW, OIE) and an indication as to whether the pathogen has been reported in California.
5. CDFW recommends the FEIR include measures to reduce risks associated with the alternative species, such as cultivating triploid fish to minimize risk of hybridization and reproduction.
 - a. Rainbow Trout, Steelhead, and Yellowtail Kingfish were dismissed for multiple reasons, not just their potential to hybridize and reproduce upon a hypothetical escape. These reasons are summarized above and include higher volumes of nutrients in the treated effluent discharge, input from local stakeholders, egg supply considerations, and freshwater to seawater ratios needed for each species. The use of triploid fish is discussed in greater detail below.
6. CDFW expressed concern about fish hybridization.
 - a. Although triploid fish reduce hybridization and reproduction risks associated with alternative local species, there is no hybridization and reproduction risks associated with Atlantic salmon. There exists no genetic compatibility for hybridization between Atlantic salmon (genus *Salmo*) and West Coast strains of salmon (genus *Oncorhynchus*). This is supported by direct attempts to cross Atlantic salmon with several species of Pacific salmon under controlled and protected laboratory conditions where survival of offspring would be optimized (Devlin 2021).
 Creating triploid fish has the benefit of producing fish that are functionally sterile and, therefore, mitigating problems associated with genetic interactions with wild fish populations should they escape. The use of triploid fish at scale on commercial aquaculture operations is rare for a number of reasons related to fish welfare and performance. For example, Simon associated triploidy with reduced survival (Simon 1993). Other research associated triploidy with physiological effects that can reduce growth, welfare and productivity including reduced mass of pyloric caeca, lower fillet coloration, increased occurrence of gill deformities, and risk of vertebral deformities (Peruzzi 2014; Smedley 2016; Sadler 2001; Fjellidal and Hansen 2010). Fraser (2012) concluded triploidy results in numerous physiological differences when compared to diploids and this can lead to inconsistent farm performance, reduced welfare, and reduced harvest quality (Fraser 2012). While the majority of published research on the performance of triploid salmonids is focused on Atlantic salmon, similarities in the biology of rainbow trout and Atlantic salmon suggest the negative effects of triploidy reported for Atlantic salmon are likely to be manifested in rainbow trout. Moreover, limited peer reviewed literature on the performance of triploid rainbow trout in aquaculture settings presents a risk in itself.

Table 2.11 Current status in California for pathogens/diseases of concern reported for Atlantic salmon and listed by CDFW, USFW, and OIE

Pathogen	Listed	Susceptible Species California	California
Infectious Hematopoietic Necrosis Virus (IHNV)	CDFW - Catastrophic	Salmon - Chinook, Chum, Coho, Sockeye; Trout - Rainbow, Cutthroat	Reported
Infectious Pancreatic Necrosis Virus (IPNV)	CDFW - Catastrophic	Salmonids	Reported
Infectious Salmon Anemia Virus (ISAV) HPR-deleted	CDFW - Catastrophic	Rainbow Trout; Coho Salmon (PCR only).	No report
Infectious Salmon Anemia Virus (ISAV) HPR0	Not listed	Rainbow Trout; Coho Salmon (PCR only).	No report
Viral Hemorrhagic Septicemia Virus (VHSV)	CDFW - Catastrophic	Many species of salmonids, including marine and freshwater	Reported
<i>Piscirickettsia salmonis</i> (SRS) Salmon Rickettsiosis	CDFW - Catastrophic	White Seabass, Pink Salmon, Coho Salmon, Chinook Salmon, Rainbow Trout	Reported
<i>Renibacterium salmoninarum</i> (BKD) Bacterial Kidney Disease	CDFW - Serious	All members of the Salmonidae family. Particularly susceptible are Pink, Sockeye, Chinook Salmon. Coho Salmon. Rainbow Trout are also susceptible. Non salmonids: Ayu (<i>Plecoglossus altivelis</i>), sea lampreys (<i>Petromyzon marinus</i>)	Reported
<i>Ceratomyxa shasta</i> Ceratomyxosis	CDFW - Serious	Chinook Salmon, Coho Salmon, steelhead/Rainbow Trout, Cutthroat Trout, Pink Salmon, Chum Salmon, Sockeye Salmon, Dolly Varden Trout (<i>Salvelinus malma</i>)	Reported
<i>Tetracapsuloides bryosalmonae</i> (PKD) Proliferative Kidney Disease	CDFW - Serious	Rainbow Trout/steelhead, Cutthroat Trout, Chinook Salmon, Coho Salmon, Kokanee Salmon, Chum Salmon, grayling, (<i>Thymallus</i>)	Reported
<i>Myxobolus cerebralis</i> Whirling Disease	CDFW - Serious	Rainbow Trout, Cutthroat Trout, Sockeye Salmon, Mountain Whitefish (<i>Prosopium williamsoni</i>)	Reported
<i>Yersinia ruckeri</i> (ERM) Enteric Redmouth	CDFW - Significant	Rainbow Trout/steelhead, Cutthroat Trout, Lake Trout, Chinook Salmon, Coho Salmon, Sockeye Salmon	Reported
<i>Aeromonas salmonicida</i> Furunculosis	CDFW - Significant	Freshwater and marine fish species	Reported
Vibriosis - freshwater	CDFW - Significant	Freshwater and brackish water fish species	Reported
Copepod <i>Lernaea</i> spp., <i>Salmincola</i> spp., and <i>Ergasilus</i> spp.	CDFW - Significant	<i>Cyprinidae</i> (<i>Lernaea</i>), Salmonidae (<i>Salminicola</i>), fresh, brackish and marine fish (<i>Ergasilus</i>)	Reported
<i>Ichthyophonus hoferi</i>	CDFW - Significant	Freshwater and marine fish species	Reported
Viral Erythrocytic Necrosis Virus (VENV)	CDFW - Q Disease	Mainly herrings and salmonids, but reported also in hagfish, lampreys, sharks, skates and rays, and other bony fish	No report
Herpesvirus salmonis (HPV)	CDFW - Q Disease	Rainbow Trout/Steelhead, Chinook Salmon, Coho Salmon, Kokanee, Chum Salmon	Reported
Cutthroat trout virus (CTV)	Not listed	Cutthroat Trout, Rainbow Trout	Reported
Viral encephalopathy and retinopathy (VNN)	Not listed	White Seabass, marine fish, sturgeon	Reported
<i>Lactococcus garviae</i>	Not listed	Freshwater, brackish and marine fish.	Reported
Piscine orthoreovirus I (PRV)	Not listed	Coho Salmon, Chum Salmon, Chinook Salmon, Cutthroat and Rainbow trout/steelhead	Inconclusive*
Piscine myocarditis virus (PMCV) Cardio Myopathy syndrome (CMS)	Not listed	Only found in Atlantic salmon - not applicable	No report
Salmon Gill Pox virus (SGPV)	Not listed	Only found in Atlantic salmon - not applicable	No report
Salmonid alphavirus (SAV) <i>Pancreas disease</i>	OIE - reportable	Rainbow Trout	No report
<i>Gyrodactylus salaris</i>	OIE - reportable	Rainbow Trout	No report
Epizootic haematopoietic necrosis virus (EHNV)	OIE - reportable	Rainbow Trout	No report
Oncorhynchus masou virus (OMV)	USFW	Kokanee Salmon, Cherry Salmon, Coho Salmon, Sockeye Salmon, Coho Salmon, Chum Salmon, Rainbow Trout	No report

Sources:

US Fish and Wildlife 50 CFR Ch. 1 Sub B Section 16.13. Importation of live or dead fish, mollusks, and crustaceans, or their eggs
California CR Title 14 Section 245. Aquaculture Disease Control Regulations.
OIE Aquatic Animal Health Code. Listed diseases of fish
Dr. Esteban Soto. Aquatic Animal Health – UCDAVIS. Reported diseases of California. *Personnel communication*
Note: *PRV has been reported in British Columbia and Washington state. EBIS which closely resembles PRV has been reported in California

These studies highlight the need for further research on how to consistently improve the welfare and performance of triploid fish before they can be adopted for widespread use in commercial aquaculture operations. The most effective way to minimize the environmental risk associated with escaped fish is to prevent them from escaping in the first place by doing as intended i.e., growing the fish on land in well-designed closed-containment systems housed within secure buildings where numerous safeguards and physical barriers exist between the water in which the fish live and the external environment and including redundancy, fail-safe design and safety margins appropriate for the site-specific environment on the Project Site.

This view is supported by the fact that there have been no fish escapes from any of NAF's land-based facilities in Norway or Denmark when using this strategy. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

CDFW recommends the FEIR include a comparative analysis of entrainment and impingement impacts associated with each of the alternative seawater sources. As discussed in DEIR Section 4.3.3, Alternative 3 considered three water source alternatives:

- Terrestrial slant wells (groundwater wells)
- Humboldt Bay seawater wells (also groundwater wells)
- Oceanic seawater intake (surface waters)

As the terrestrial and Humboldt Bay slant wells would withdraw groundwater, no entrainment or impingement of fish would occur. However, terrestrial slant wells were determined infeasible, as the limited yield of each slant well was insufficient to meet the water supply needs of the Project (page 4-16 and 4-17). The DEIR found that construction of Humboldt Bay seawater wells would require substantial in-water work and could result in biological and water quality impacts (page 4-18) and would therefore be more biologically impactful than the proposed water source. An oceanic seawater intake would presumably also be designed to comply with the NMFS 1997 fish screen design criteria and would thus result in an equivalent level of impingement and/or entrainment of marine life as the Project's proposed Humboldt Bay screened water intake, albeit species composition may vary. Thus, there is not a water source alternative that results in less impingement and/or entrainment that is also (a) feasible and (b) less biologically impactful to construct and operate. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 302-15 – Mitigation

The Comment expresses concern that the DEIR does not include a Mandatory Findings of Significance or MMRP Table. Findings are not required to be included in a DEIR. The DEIR's "Contents" shows a section "3.15 Mandatory Finding of Significant," but this was not included in the DEIR and was an administrative oversight to include in the Contents. See Section 4.0, Errata, where a change to the DEIR "Contents" is documented. Findings will be prepared by the Lead Agency as part of the Resolution considering certification of the EIR. A MRRP was not included in the DEIR and is not required to be included as part of a DEIR but will be prepared by the Lead Agency as part of the Resolution considering certification of the FEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: CEQAResponses
Sent: Thursday, January 27, 2022 11:06 AM
To: McNamara, Cade
Subject: FW: Letter of Support for Nordic Aquafarms Project
Attachments: Nordic Aquafarms Letter of Support.pdf



Laura McClenagan

Executive Secretary
Humboldt County Planning and Building Department
3015 H Street | Eureka, CA 95501
Phone: 707-268-3702 | Fax: 707-268-3792
Email: lmcclenagan2@co.humboldt.ca.us

From: Flamer, Keith <Keith-Flamer@Redwoods.edu>
Sent: Thursday, January 20, 2022 1:33 PM
To: CEQAResponses <CEQAResponses@co.humboldt.ca.us>
Cc: 'satkinssalazar@gmail.com' <satkinssalazar@gmail.com>
Subject: Letter of Support for Nordic Aquafarms Project

Dear Mr. McNamara,

Please see the attached letter supporting the Nordic Aquafarms project.

Keith

Dr. Keith Flamer
President/Superintendent
College of the Redwoods
7351 Tompkins Hill Road
Eureka, CA 95501-9300
707.476.4170

“Let me never fall into the vulgar mistake of dreaming that I am persecuted whenever I am contradicted.” - Emerson

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January 20, 2022

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501

Dear Mr. McNamara,

On behalf of College of the Redwoods, I am pleased to write this letter in support of Nordic Aquafarms' project planned for the Samoa Peninsula. Representatives of College of the Redwoods and Nordic Aquafarms have long discussed the benefits that the Nordic Aquafarms' project will provide our community, including clean-up of a long-abandoned site containing hazardous materials and the remains of abandoned buildings. We also know that the project will stimulate economic and education activity and provide a wide range of employment opportunities. In addition to what Nordic will directly contribute to our local economy, the Nordic project will be a draw for other aquaculture businesses on the peninsula, thereby increasing economic prosperity and employment opportunities for our region.

303-1

Nordic Aquafarms has actively engaged our business and education communities as well as community stakeholders in discussions about the project. Nordic is working closely with College of the Redwoods to revitalize their aquaculture program and with HSU to ensure a steady pipeline of local qualified professionals.

The Nordic team has gone to great lengths to be transparent, inclusive, and comprehensive in their research and sharing results throughout the public process and we are confident that they will be a benefit to our local economy as well as to our community. College of the Redwoods is pleased to support this project.

Sincerely,



Dr. Keith Flamer
President/Superintendent

Letter 303 – Response to Comments

Response to Comment 303-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Rafael Cuevas Uribe <Rafael.CuevasUribe@humboldt.edu>
Sent: Thursday, February 17, 2022 11:36 PM
To: CEQAResponses
Subject: Letter of support for Nordic
Attachments: Letter of Support Cal Poly Humboldt .Aquaculture.pdf

Dear Cade

Please find attached my letter of support for Nordic Aquaframs.

If you have any questions please contact me

Rafael Cuevas Uribe, Ph.D.
Associate Professor
Department of Fisheries Biology
Cal Poly Humboldt
aquaculture@humboldt.edu



HUMBOLDT STATE UNIVERSITY

Department of Fisheries Biology

RECEIVED

FEB 17 2022

Humboldt County
Planning Division

February 17, 2022

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501

Dear County of Humboldt Planning and Building Department,

It is with great pleasure to write this letter of support for Nordic Aquafarms' project planned for the Samoa Peninsula.

My qualifications are: MS in aquaculture and aquatic science from Kentucky State University, PhD in Fisheries and Wildlife from Louisiana State University. I have more than 20 years of experience in aquaculture. I have extensive experience in recirculating aquaculture systems. I took short courses and workshops to update myself, including the recirculating aquaculture technology workshop taught by UC Davis and Pentair, the aquaponics and tilapia course at the University of the Virgin Islands, and the recirculating aquaculture systems course by Cornell University. I have been working at Cal Poly Humboldt since 2014. It is important to mention that Cal Poly Humboldt has a long tradition of aquaculture dating back to 1939 by establishing a fish hatchery on campus and teaching a fish hatchery biology class in 1940. The fish hatchery on campus was one of the first hatcheries that adopted a recirculating aquaculture technology. Cal Poly Humboldt is the only university in California that offers a fisheries biology career with a concentration in aquaculture. This means that there is no other place where a student can get a career in aquaculture in California. Our students that graduated from our institutions have made substantial contributions to aquaculture. For example, Craig Tucker, known as the father of the catfish industry for his contribution to the farming of the catfish. Jim Parsons - previous general manager of Cooke Aquaculture Pacific, Eric Pedersen previous co-owner of Pacifico aquaculture, and the list goes on.

I have been in contact with Nordic since December 2018. Since the beginning, they have been clear, easy to approach, honest, and willing to answer any question or inquiry. During this time, I met and talked to their engineers and experts in aquaculture, including scientists from Europe. I have carefully evaluated their recirculating aquaculture system (RAS) and can testify that the RAS they are proposing to build is a state-of-the-art facility. Some of the technologies they are implementing are new here in the United States. We are falling behind when we talk about aquaculture production in the United States. We import more than 85% of the seafood we consume and are placed in #18 in aquaculture production in the World. We are behind countries such as Iran, Ecuador, and Myanmar. Compare this with the production of beef or poultry, where we are #1 and #2 in hogs and pigs production. There is an urgent need for the United States to start sustainably producing seafood. What a best place that here in California. California is the #1 agricultural producing state but #7 in acres used for freshwater aquaculture. Our largest crop is oysters, with more than 31.5 million pounds annually, most of them produced in Humboldt Bay. Humboldt is emerging as the leading County in California for aquaculture from oysters, clams, and the new seaweed industry, Humboldt hosts an excellent future for an aquaculture industry. With the proposed installation of a RAS to produce 27,000 metric tons of all-female Atlantic Salmon per year, Humboldt will strengthen their

304-1

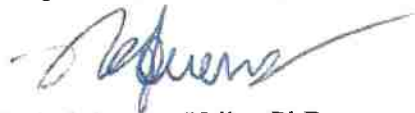
blue economy. Atlantic Salmon is a domesticated species with an excellent conversion ratio of 1 lb of meat per 1 lb of feed fed. Unfortunately, Pacific Salmon has not been domesticated partially because most of them died after spawning. I am not concerned about any escapes due to the robust and redundant system that Nordic wants to install.

As an aquaculture professor from Cal Poly Humboldt, I see great opportunities to collaborate with Nordic. Our students could do internships at Nordic and been employed by them. We can do research of any need that they could have. One example could be incorporating kelp in the diets of salmonids. Nordic has been receptive to starting a collaboration with us. I have invited to my classes, and they have been transparent in what they want to do. In fact, in my aquaculture class, Nordic connected Cathal Dinneen, Senior Vice President Operations at Nordic Aquafarms Inc. My students enjoyed seeing a real RAS farm and meeting a renowned scientist.

I appreciate all the public meetings that Nordic has been doing. They are not secretive about anything. I had the opportunity to tour the site last year, and I was impressed that they are willing to spend \$100 million on clean-up, remediation, and demolition. They were conscious about wildlife and decided to postpone their work due to the nesting of some local birds. This talks about their ethics and welfare for animals.

Nordic is doing things right, and they will be installing a cutting-edge RAS facility that will attract the attention of the World. They will generate employment opportunities and stimulate our local economy. They are committed to environmental sustainability and fish welfare. I enthusiastically recommend Nordic for the installation of their RAS facility in Humboldt. Please do let me know if I can provide any more information.

Respectfully submitted,



Rafael Cuevas-Urbe, PhD
Associate Professor
aquaculture@humboldt.edu

304-1
Cont.

Letter 304 – Response to Comments

Response to Comment 304-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1655 Heindon Road
Arcata, California 95521-4573

February 17, 2022 Refer to NMFS#: 10012WCR2022AR00021

Mr. Cade McNamara
County of Humboldt
Planning and Building Department, Planning Division
3015 H Street, Eureka, California 95501



Dear Mr. McNamara,

This letter constitutes NOAA's National Marine Fisheries Service's (NMFS) comments on the Humboldt County's (County) Draft Environmental Impact Report (DEIR) for the proposed Nordic Aquafarms California facility on the Samoa Peninsula in Humboldt County, California.

The Project is located within the jurisdiction of the NMFS West Coast Region California Coastal Office, and requires a U.S. Army Corps of Engineers (Corps) permit. As the lead federal action agency, the Corps must conduct an Endangered Species Act (ESA) Section 7 consultation and a Magnuson-Stevens Fishery Conservation and Management Act (MSA) - Essential Fish Habitat (EFH) consultation with NMFS. For each of these consultations, we will analyze the effects of the water intakes and all of the interrelated activities, including the final consequences of the water withdrawn from Humboldt Bay when it is treated and discharged into the Pacific Ocean. The DEIR and subsequent final EIR are sources of information we will consider when completing consultation with the Corps.

NMFS is the lead federal agency responsible for the stewardship of the nation's offshore living marine resources and their habitats, and implements the ESA, the MSA, and the Marine Mammal Protection Act (MMPA) to fulfill its mission of promoting healthy ecosystems. Federally-managed living marine resources provide an important source of food and recreation for the nation, as well as thousands of jobs and a traditional way of life for many coastal communities, healthy ocean populations and ecosystems. NMFS also plays a central role in developing and implementing policies that enable marine aquaculture and works to ensure that aquaculture complies with existing federal laws and regulations that NOAA implements under its marine stewardship mission.

NOAA's aquaculture goals and objectives as outlined in both the Department of Commerce and NOAA's National Marine Aquaculture policies issued in June 2011, encourage and foster development of sustainable marine aquaculture in the context of NOAA's multiple stewardship missions, and social and economic goals. NOAA recognizes the broad suite of economic, social, and environmental benefits potentially provided by aquaculture, including jobs and business opportunities; meeting the growing demand for seafood; habitat for important commercial, recreational, and endangered and threatened species; species recovery; and cleaner water.

401-1



We reviewed the sections of the DEIR that pertain to our trust resources and identified several fundamental issues that require further explanation and revision before we can support the County's conclusions.

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Effects to Federally Listed Species

The DEIR does not adequately address effects to federally listed species (Chinook salmon, coho salmon, steelhead, and green sturgeon) and their designated critical habitat. The DEIR suggests that the effects to these federally listed species would be "less than significant" and would not require any further conservation or mitigation measures. More thorough analyses would likely reveal the need for further conservation and mitigation measures to reduce or offset the negative effects of the Project to listed species and designated critical habitats.

Salmonids

The water intakes are proposed to be screened to avoid the entrainment of federally listed species, but as reported in the DEIR, the proposed screens would not be protective of ichthyoplankton, zooplankton, or other small species. The DEIR reports that a number of species will be entrained and killed in the water intakes. The DEIR reports that the species expected to have the highest exposures to entrainment (for example, northern anchovies) are the same species that the DEIR lists as essential prey items for the federally listed salmonid species. The DEIR reports that essential prey species will be entrained, which is an indication that the effects to these species are likely not 'less than significant'. Further evaluation is needed in order to properly offset and mitigate for the reductions in prey and corresponding value of designated critical habitat within Humboldt Bay.

401-2

Green Sturgeon

The existing discharge facility is located with designated critical habitat for the Southern Distinct Population Segment (SDPS) of the North American green sturgeon. The DEIR describes some of the Primary Biological Features (PBFs) of SDPS green sturgeon critical habitat (in particular, the Water Quality PBF) but fails to properly evaluate how changes to water quality would affect the quality of the critical habitat. The DEIR states that individual fish move quickly and would avoid the area adjacent to the discharge facility, which the DEIR describes as being the area of toxicity. If individuals are expected to avoid the area of toxicity into the future, those effects and shifts in habitat usage need to be evaluated and further described. Avoidance of habitat in the future likely suggests the changes in water quality are significant.

Effects to Essential Fish Habitat

EFH has been designated in the project area by the Pacific Fishery Management Council (PFMC) for four Federal Fishery Management Plans or FMP's: Pacific Coast Salmon FMP (PFMC 2016); Coastal Pelagic Species FMP (PFMC 2019a), Pacific Coast Groundfish FMP (PFMC 2019b); and Highly Migratory Species FMP (PFMC 2018). As previously discussed, the water intakes and corresponding reduction in productivity within the bay will have significant adverse effects to the prey resources of essential fish habitat (EFH) within Humboldt Bay. Humboldt Bay is also a Habitat Area of Particular Concern (HAPC) for the Pacific Coast Salmon FMP and the Pacific Coast Groundfish FMP (PFMC 2016, PFMC 2019b). HAPC are described in the regulations as subsets of EFH that are identified based on one or more of the following considerations: the importance of the ecological function provided by the habitat; the extent to which the habitat is sensitive to human-induced environmental degradation; whether, and to what extent, development activities are, or will be stressing the habitat type; and the rarity of the habitat type (50 CFR 600.815(a)(8)). Designated

401-3

HAPC are not afforded any additional regulatory protection under MSA; however, federal projects with potential adverse impacts to HAPC are more carefully scrutinized during the consultation process.

NMFS provided EFH Conservation Recommendations to the North Coast Regional Water Quality Control Board on June 2, 2021, in response to their draft National Pollutant Discharge Elimination System permit regarding the proposed discharges into the Pacific Ocean. The concerns and EFH Conservation Recommendations (EFH CR's) expressed in our June 2, 2021 letter (enclosed) have not been fully addressed. We understand that the additional denitrification elements we suggested in our EFH CR -1 are not feasible, but we remain concerned and continue to suggest the EFH CR's we have previously provided should be incorporated.

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Offsetting Measures

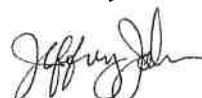
The reduction in productivity expected to occur, as reported in the DEIR, will likely require the restoration of larger scale processes, or areas of habitat that are not currently available to the species exposed in order to offset the anticipated losses. NMFS recommends that the mitigation proposed be refocused to tidelands restoration actions. Levees, tide gates, and other structures around the bay currently restrict and impede both tidal inundation, and habitat area available to those species that would be most impacted by entrainment into the water intakes. Restoring tidal inundation and access for all species in the bay is likely the most efficient approach to increase productivity by restoring tidal processes and increasing the amount of habitat available. This approach would also help offset some of the potential effects of the outfall.

The proposed mitigation for the water intakes relies on a phased approach that corresponds to the volume of water being diverted. The DEIR suggests that for Phase I (0 - 694 gallons per minute, or gpm), there would be no mitigation proposed. For Phase II (695 - 1,250 gpm) there would be one acre of Spartina removal proposed as mitigation. For Phase III (1,251 – 8,250 gpm), there would be 1,004 wooden creosote pilings removed. NMFS recommends that the phased approach be abandoned, and proceed to the removal of 1,004 pilings (as proposed in Phase III). The removal of these pilings should be planned, permitted, and implemented before any of the water use begins to ensure that there are no temporal delays in accruing benefits as the effects to begin to occur. As previously suggested, refocusing on tidelands restoration work would be most efficient to reconcile both the intake and discharge effects.

401-4

Thank you for the opportunity to comment on the DEIR and for your collaboration thus far. Please contact Mr. Matt Goldsworthy at Matt.Goldsworthy@noaa.gov if you have any questions concerning these comments.

Sincerely,



Jeffrey Jahn
South Coast Branch Chief
California Coastal Office

cc: Corianna Flannery, California Department of Fish and Wildlife, Eureka
Cassidy Teufel, California Coastal Commission, San Francisco
L. Kasey Sirkin, U.S. Army Corps of Engineers, Eureka

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PFMC. 2019a. Coastal Pelagic Species Fishery Management Plan. Portland, OR. As Amended through Amendment 17, June 2019.

PFMC. 2019b. Pacific Coast Ground Fish Fishery Management Plan For California, Oregon, and Washington Groundfish Fishery. Portland, OR. As Amended through Amendment 28, December 2019.

Enclosure: NMFS' June 2, 2021 EFH Conservation Recommendations to the North Coast Regional Water Quality Control Board re: draft NPDES permit for Nordic Aquafarms California.

ENCLOSURE



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1655 Heindon Road
Arcata, California 95521-4573

June 2, 2021

Refer to NMFS #: 10012WCR2021AR00040

Mr. Matthias St. John
North Coast Regional Water Quality Control Board
5550 Skylane Blvd. Suite A
Santa Rosa, California 95403

Re: Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat
Recommendations for the North Coast Regional Water Quality Control Board regarding
NPDES Permit for Nordic Aquafarms California, LLC

Dear Mr. St. John,

This letter communicates the National Marine Fisheries Service's (NMFS) essential fish habitat (EFH) conservation recommendations regarding the North Coast Regional Water Quality Control Board's (NCRWQCB) approval and permitting of the discharge of effluents into the Pacific Ocean associated with Nordic Aquafarms California, LLC's land-based aquaculture facility in Samoa, California. NMFS is the lead federal agency responsible for the stewardship of the nation's offshore living marine resources and their habitats, and implements the Endangered Species Act and the Magnuson Stevens Fishery Conservation and Management Act (MSA) to fulfill its mission of promoting healthy ecosystems. Federally-managed living marine resources provide an important source of food and recreation for the nation, as well as thousands of jobs and a traditional way of life for many coastal communities. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). EFH has been designated in the area by the Pacific Fishery Management Council (PFMC) for four Federal Fishery Management Plans or FMP's: Pacific Coast Salmon FMP (PFMC 2016); Pacific Coast Groundfish FMP (PFMC 2019b); Coastal Pelagic Species FMP (PFMC 2019a); and Highly Migratory Species FMP (PFMC 2018).

NMFS is concerned that the discharge of 12.5 million gallons per day (MGD) into the Pacific Ocean will cause significant adverse effects to EFH, that include the following: the increase in temperatures of up to 4 degrees Celsius represents a significant change in local water temperatures that would likely disrupt the natural species composition in the area, favoring warmer water species; the NCRWQCB assumes in the National Pollutant Discharge Elimination System (NPDES) permitting that Humboldt Bay is enclosed and receives no ocean water, which is largely incorrect and the effluent would likely enter and affect water quality within Humboldt Bay during certain conditions; the perennial discharges of nutrients will support increases in the local population of algae species and likely contribute to increased frequency of future harmful algal blooms and corresponding toxins and depressed dissolved oxygen conditions. Per Section

401-5



305(b) of the (MSA), NMFS is required to provide conservation recommendations to avoid, minimize, mitigate or otherwise offset adverse effects to EFH.

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Harmful Algal Blooms

NMFS is concerned that the draft permit does not require receiving water monitoring, particularly for nutrient related impacts to algal populations and to establish the distribution patterns of the effluent plume (e.g. does it consistently move in one direction and dilute or do local currents cause it to be retained in the area where concentrations can build up and potentially cause harmful algal blooms (HABs) to develop for prolonged periods, does it enter Humboldt Bay where it could affect wildlife and other aquaculture operations, etc.). NMFS looked for this information in the California Environmental Quality Act (CEQA) related documents available on-line for the project and for information generated for the outfall's historic use for a large sawmill discharge, but could not readily locate useful information.

The lack of receiving water monitoring in the proposed permit seems to be based on an antiquated notion that the discharge of nutrients, particularly nitrogen, do not have potentially negative consequences to ocean waters even at localized scales and that only large scale events such as upwelling can cause related impacts such as HABs. This is the conclusion of the accessible CEQA related documentation available that you have likely reviewed (GHD 2021). However, the potential impacts, explained below, have been recognized and are being addressed by the other Regional Water Quality Control Boards that regulate facilities with ocean discharges in California. The North Coast Board should do the same.

Nitrogen is the primary nutrient limiting phytoplankton production in coastal waters (Booth 2015, Howard et al. 2014) and additions of nitrogen cause phytoplankton production to increase, potentially reaching levels so high that they become HABs. HABs off the California coast are most commonly composed of diatoms or dinoflagellates, or a combination of several of these species and the zooplankton which graze upon them (Smith et al., 2018, Trainer et al. 2010). There are many known species in the California Current which may develop into HAB levels, but the most prevalent seem to be two diatoms, *Pseudo-nitzschia australis* and *P. multiseriata*, and dinoflagellates of the *Alexandrium tamarense* complex (*A. catenella* being most prominent), *Akashiwo sanguinea* and/or *Lingulodinium polyedrum*. *Pseudo-nitzschia australis* and *P. multiseriata* (P. spp. when referenced together) produce domoic acid which is responsible for well documented toxic events to marine mammals and birds and amnesiac shellfish poisoning in humans. *L. polyedrum* produces a yessotoxin, a large family of toxins whose presence have been linked to impacts on various invertebrate species (De Wit et. al 2014). The *A. tamarense* complex can produce saxitoxin, which is responsible for paralytic shellfish poisoning and fish kill determinations (Backer and Miller 2016, Gosselin et al. 1989, Kudela et al. 2010, Lefebvre et al. 2004, Trainer et al. 2010). Domoic acid and saxitoxins are responsible for the shellfish consumption warnings frequently posted in coastal counties including Humboldt county.

401-6

HAB occurrences appear to be increasing in frequency, duration, size, and severity throughout the California Current system and the world in the last 10-15 years (Booth 2015, Howard et al. 2012, Nezlin et al. 2012). Anderson et. al. (2012) notes that there are multiple reasons for this increasing bloom trend – natural dispersion of algal species, dispersal via human activities such

as ballast water, improved detection of HABs and their toxins, increased aquaculture operations, stimulation due to cultural eutrophication and climate change.

The impacts of nutrient inputs from outfalls have been noted and subject to increased study for some time in the Southern California Bight (SCB). There is a compelling weight of evidence that nutrients are affecting algal dynamics in the SCB with chronic HAB outbreaks in areas that receive anthropogenic nutrient inputs (Booth 2015, Howard et al. 2014, 2012). Nitrogen inputs from anthropogenic sources can be significant compared to nitrogen inputs from upwelling at the spatial scales relevant to the formation of HABs (Booth 2015, Pondella et al. 2016, Howard et al. 2017).

Nezlin et al. (2012) found that all four examined wastewater treatment plants (WWTPs) in the SCB had “hot spots” of high offshore chlorophyll- α (CHL- α), which is indicative of high phytoplankton production, and that these conditions occurred throughout most of the year (i.e. outside of the upwelling season). In the SCB, where the WWTPs discharge at deeper depths and generally further offshore, these subsurface populations of *P. spp.* can then be uplifted into the surface waters and are a probable explanation for the occurrence of “instant” domoic acid events immediately following upwelling rather than a typical delayed bloom development (Smith et al. 2018, Seegers et al. 2015).

The proposed discharge will supply nutrients year round into the photic zone outside of Humboldt Bay. The discharge may have the effect of fertilizing or kick-starting HABs by sustaining or even increasing the duration or population size of HAB species at the surface or in subsurface water “lenses” associated with the effluent plume during periods of stratification (Cochlan et al. 2008, Kudela et al. 2010, Nezlin et al. 2012, Seeyave et al. 2009, Seegers et al. 2015, Trainer et al. 2007) and by providing nitrogen to the upper water column. In the shallow receiving waters of this project, which are always in the photic zone, populations of HABs brought into the near shore area by upwelling or from Humboldt Bay could become entrenched by the year round availability of nitrogen and establish a year round presence. Monitoring of the receiving water is necessary to determine if this happens and to inform corrective actions that result from it.

There are several sources which summarize numerous studies and conclude that reduced forms of nitrogen (ammonium, urea) significantly shift the phytoplankton community toward the development of HABs (Booth 2015, Howard et al. 2012, Reifel et al. 2013, Seegers et al. 2015). Schnetzer et al. (2007) cites several studies that examined *P-spp.* and noted that their effective toxicity can be highly variable. These diatom species seem to produce higher levels of domoic acid when under silica or phosphate stress (i.e. the N:P and/or N:Si ratios are higher than or altered from natural conditions) (Schnetzer et al. 2013, Anderson et al. 2006). The discharge of large amounts of nitrogen could have the effect of unbalancing these ratios at the local level. Urea has been found to produce especially high domoic acid concentrations in *P. australis* (Howard et al. 2007).

Due to a lack of monitoring in the discharge area, we do not know the algal species composition in the project area although the California Department of Public Health (CDPH) has frequently prohibited shellfish harvesting due to the presence of domoic acid and saxitoxins (see their Toxic

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Phytoplankton Observations Map website for access to data layers). As noted previously, *P. spp.* are domoic acid producing diatoms, with *P. australis* being the most frequently noted HAB species in the SCB and Monterey areas. Domoic acid is a water soluble neurotoxin that accumulates in shellfish and planktivorous fish such as anchovy and sardine (Smith et al. 2018, Lefebvre et al. 2012).

As mentioned previously, *L. polyedrum* is another dinoflagellate that is frequently associated with red tide events in the California Current (Trainer et al. 2010) and blooms can occur outside of the upwelling season (Kudela et al. 2010). It can produce yessotoxins and this large family of toxins has been identified as the major causative agent in the largest invertebrate mass mortality event recorded in coastal Northern California, in Sonoma County in 2001, which impacted red abalone, sea urchins and crab species from Bodega Bay to Anchor Bay (De Wit et al. 2014). Similar to all dense HABs, its effect to EFH likely comes from impacts to dissolved oxygen levels at the scale of the algal bloom resulting in fish kills (Anderson et al. 2012, Backer and Miller 2016, Trainer et al. 2010) and presumably impacts to other species which cannot escape the HAB area. Algal masses are known to rapidly deplete available dissolved oxygen in the water column due to high respiration by the algae or increased respiration by bacteria during algal decay and this decrease can potentially be to hypoxic levels for periods of time (Backer and Miller 2016, Booth et al. 2015). HAB biomass is believed to be contributing to the overall decline of dissolved oxygen levels in coastal waters (Booth et al. 2015, Capone et al. 2013, McLaughlin et al. 2017).

The *P. spp.* are also known to flocculate and form masses large enough to sink to the ocean floor, carrying domoic acid with them which may be ingested by benthic species spreading the toxin within the benthic food web (Smith et al. 2021, 2018, Schnetzer et al. 2013, Trainer et al. 2010). Rapid transport is likely due to subduction by eddies (Kessouri et al. 2020) and can lead to benthic hot spots. The SCB 2018 Regional Marine Monitoring Program found widespread domoic acid contamination in the sediments of the SCB (Smith et al. 2021). In all, the toxin was detected in 54% of the SCB shelf habitats sampled and was more prevalent in coastal areas with nutrient enriched discharges such as those proposed as part of the permitted project. Domoic acid concentrations in the sediments ranged from 0.57 to 168.0 ng/g sediment over two years of sampling. Marine worms were found to have high levels of contamination compared to other benthic infauna, indicating that this reservoir of domoic acid poses a risk for transfer into the food web including fish species managed under the MSA and marine mammals listed under the ESA.

In addition to requiring receiving water monitoring for nutrient related impacts such as phytoplankton concentrations and typing, NMFS also requests that the discharger use the intervening time before operation to establish baseline information for the discharge area by monitoring plankton populations and HAB related toxins in the receiving water and sediments in the discharge area, conducting the baseline biological survey required in the draft NPDES permit, and establish seasonal current information in the discharge area so that seasonal patterns of plume distribution are established to inform future study needs and decision making. If information exists for any of these items associated with the previous facility's use of the outfall, the Water Board should make this information available for consideration in the permitting and study design process.

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Essential Fish Habitat Conservation Recommendations

NMFS believes that the proposed discharge will cause significant adverse effects to EFH for all FMP's occurring off the coast of California (Pacific Coast Salmon, Pacific Coast Groundfish, Coastal Pelagic Species, and Highly Migratory Species). Implementing these conservation recommendations would protect EFH and fulfill the obligations of Section 305(b) of the MSA.

1. The NCRWQCB should require the Applicant to explore the feasibility of incorporating additional denitrification steps into the effluent treatment process in order to convert remaining ammonia into nitrogen gas, rather than the current proposal of converting much of the ammonia in the near final effluent into nitrate, which is then discharged into the Pacific Ocean.
2. The NCRWQCB should direct the Applicant to monitor oceanic conditions to establish baseline information about the receiving water that includes algal species population information and seasonal patterns of currents that will affect the behavior of the discharge plume. This is in addition to the biological monitoring already called for in the draft permit
3. The draft permit should include receiving water monitoring in order to ensure that the discharge is not causing or contributing to HAB's, and if so, provide the NCRWQCB information to revisit the requirements related to the treatment and disposal of effluent.
4. The NCRWQCB should require the Applicant to offset and compensate for the unavoidable effects caused to the local nearshore areas during HAB's, and for the disruption of native fish communities caused by artificially increasing temperature regimes in the nearshore environment. The NCRWQCB should require the Applicant to provide compensatory funding to a tidelands restoration project in Humboldt Bay, such as the City of Eureka's Elk River Estuary Restoration Project, in order to compensate for impacts associated with the effects caused by the discharges.

401-7

Please let us know how we can assist the NCRWQCB, as well as fulfill our obligations to provide EFH conservation recommendations to the State as required by the MSA. Please contact Matt Goldsworthy at Matt.Goldsworthy@noaa.gov and Joe Dillon at Joseph.Dillon@noaa.gov.

Sincerely,



Jeffrey Jahn
South Coast Branch Chief
Northern California Office

Ccs: Elizabeth Sablad, Manager. NPDES Section. U.S. Environmental Protection Agency.

Heaven Moore, NPDES Supervisor. North Coast Regional Water Quality Control Board

Corianna Flannery, Environmental Scientist. California Department of Fish and Wildlife

Cassidy Teufel, Senior Environmental Specialist. California Coastal Commission

Jennifer Gilden, Staff Officer. Pacific Fishery Management Council

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Letter 401 – Response to Comments

Response to Comment 401-1 – Introduction

This comment is introductory in nature. Specific concerns are not presented. No response is required.

Response to Comment 401-2 – ESA Listed Fish

The comment states the DEIR does not adequately address effects to federally listed species (Salmonids and Green Sturgeon) and their designated critical habitat. Further the comment indicates a more thorough analysis would likely reveal the need for further conservation and mitigation measures to reduce or offset the negative effects of the Project. Relative to Salmonids the comment reports that the DEIR indicates the species expected to have the highest exposures to entrainment are the same species that the DEIR lists as essential prey for federally listed salmonid species. The comment asks for further evaluation to properly offset and mitigate the effects. As described in DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53, larvae entrainment would not result in a substantial decrease in marine populations that could be detected over natural variability. This includes for prey species. The DEIR evaluates impacts to federal Endangered Species Act listed species, including from the proposed water intakes (see Section 3.3.6.).

The comment expresses concern over impacts to Green Sturgeon from effluent discharge. Impacts to Green Sturgeon and other fish species from the proposed effluent discharge are discussed on Section 3.3 of the DEIR and specifically Green Sturgeon is discussed on page 3.3-33 and additional discussion on fish species can be found in DEIR Appendix D (Marine Resources Biological Evaluation Report) and analysis on mixing of the proposed effluent discharge can be found in DEIR Appendix E (Numerical Modelling Report). In addition, please see Master Response 5 (Marine Outfall).

Response to Comment 401-3 – Impacts to Essential Fish Habitat

The comment states that “water intakes and corresponding reduction in productivity within the bay will have significant adverse effects to the prey resources of EFH in Humboldt Bay” and expresses concern over water intake impacts to the Habitat Area of Particular Concern (HAPC).

Effects to EFH are addressed in DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53. Larvae entrainment would not result in a substantial decrease in marine populations that could be detected over natural variability; this includes prey resources. As described in the DEIR, “...the effects of the intakes on Essential Fish Habitat for Pacific Coast Groundfish, Coastal Pelagic Species, and Pacific Coast Salmonids is less than significant. Effects to eelgrass and the estuary HAPC would also be less than significant, as no direct or indirect impacts to eelgrass would occur as a result of the water intakes.”

The comment also indicates that recommendations in a June 2, 2021, letter from NMFS to the NCRWQCB have not been fully addressed. The NMFS recommendations are addressed below in Response to Comments 401-4, -5, and -6.

Response to Comment 401-4 – Off setting Measures

The comment expresses concern that the proposed mitigation for loss of productivity is not adequate and recommends implementation of the proposed pile removal mitigation project prior to water withdrawal. The comment also states that mitigation efforts should be refocused on tideland restoration.

The DEIR evaluates effects to NMFS managed species in Section 3.3 (Biological Resources). Under CEQA, mitigation is not necessary to reduce the effect to less than significant. However, the DEIR anticipates that mitigation will be required under the Coastal Act. Hence, the DEIR evaluates the

environmental effects of mitigation anticipated to be required for obtainment of a Coastal Development Permit. As described in the DEIR, the proposed Coastal Act mitigation (pile removal/Spartina control) would benefit NMFS managed species by removing a source of toxic material (creosote) and restoring habitat.

Response to Comment 401-5 – Biological Resources/ Discharge / HAB

This comment was originally directed to the North Coast Regional Water Quality Board and included by reference in comments submitted by NMFS on the DEIR. This comment expresses concern that the Ocean Discharge would result in significant adverse effects to EFH associated with changes to water quality. The DEIR evaluated effects of the ocean discharge on EFH in Section 3.3 (Biological Resources), starting on page 3.3-35. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale and thus unlikely to threaten EFH in the highly dynamic coastal waters potentially affected by the Project or in Humboldt Bay. Additionally, NAFC has voluntarily committed to additional baseline and monitoring, above and beyond any regulatory requirement. This monitoring is described in Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be completed by the Applicant), starting on page 3.9-12. Please see Master Response 5 (Marine Outfall) for additional information regarding nitrogen in the discharge.

Response to Comment 401-6 – Biological Resources, Discharge, HAB

This comment was originally directed to the North Coast Regional Water Quality Board and included by reference in comments submitted by NMFS on the DEIR. This comment expresses concern regarding anthropogenic discharge of wastewater and nutrients, specifically nitrogen, from the Ocean Discharge entering Humboldt Bay. The comment posits that effluent discharge may increase the risk of a HAB inside Humboldt Bay and along the California coastline because of increases in nutrient input. Please see Master Response 5 (Marine Outfall) for additional information regarding nitrogen in the discharge.

The target dilution to meet water quality objects and avoid water quality degradation in the Numeric Modelling Report (Dilution Study) was reached, as described in DEIR Appendix E. Near field-mixing dilutes the existing plume and water quality objectives are readily met within five feet of the Ocean Discharge site, as described in DEIR Appendix E, Section 5.3 (Near-Field Dilution Results), starting on page 14. The three-dimensional hydrodynamic models that define the spatial extent of the zone of water quality degradation show how quickly and vastly effluent is dispersed, thus confirming that the risk of deleterious water quality impacts is ‘very low.’ Surface water (0-2 m) and mid-water (2-16 m) water quality degradation in summer and winter are considered ‘very low risk’ because plume water is rapidly dispersed and transported, preventing increases in phytoplankton abundance from occurring. Near seabed waters (>16 m) are similarly ‘very low’ risk for water quality degradation across seasons. A description of these models and simulated dilutions are found in Section 6.8.1 (Defining the Zone of Potential Water Quality Degradation) of DEIR Appendix E, starting on page 26. They are visualized using statistical spatial contours: The summer plume dilution scenario is found in DEIR Appendix E, Section 6.9.2 (Summer Scenario - Zone of Potential Water Quality Degradation), Figure 13, starting on page 29 and the winter scenario in DEIR Appendix E, Section 6.10.2 (Winter High River Flow Scenario - Zone of Potential Water Quality Degradation), Figure 15, starting on page 33.

There is minimal risk of nutrients entering Humboldt Bay because the effluent 1) enters the Pacific Ocean at the location of the diffuser array, and 2) is dispersed at fast enough rates that regardless of oceanographic forces, effluent would not recirculate nor reenter into Humboldt Bay. The Project’s potential contribution to a HAB is unfounded. The location of the diffuser array is approximately 1.55 miles offshore of the peninsula and approximately 3.5 miles north of the entrance to Humboldt Bay, as shown in Figures 2-1 and 2-2 referenced in DEIR Section 2.0 (Project Description).

Response to Comment 401-7 – Adverse Effects to Essential Fish Habitat

This comment addressing conservation measure recommendations was originally directed to the NCRWQCB and included by reference in comments submitted by NMFS on the DEIR. In this comment, NMFS includes four recommendations to address concerns regarding potential impacts to EFH.

The DEIR evaluated effects of the Ocean Discharge on EFH in Section 3.3 (Biological Resources), starting on page 3.3-35. Numerical modeling (DEIR Appendix E) objectively demonstrated that elevated levels of temperature and nutrients are limited in spatial scale and thus unlikely to contribute to EFH in the highly dynamic coastal waters potentially affected by the Project or in EFH Conservation Areas. Additionally, NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond any regulatory requirement. This monitoring is described in Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant) starting on page 3.9-12.

Modifications to the Project's waste discharge processes and operations are not required for consistency with the California Ocean Plan, California Thermal Plan, or to protect EFH from adverse or significant impacts. As proposed, evaluation of the Project's waste discharge processes and operations were found sufficient to meet applicable regulatory standards, as evidenced by the NCRWQCB draft NPDES order (Appendix A). Requirements for compensatory funding for an impact found to be less than significant, as requested by NMFS, is not required under CEQA guidelines. Please see Master Response 5 (Marine Outfall) for additional information regarding the discharge and associated monitoring.

McNamara, Cade

From: Adam Canter <adam@wiyot.us>
Sent: Friday, February 18, 2022 2:41 PM
To: CEQAResponses
Cc: Ford, John; William Matsubu; ted@wiyot.us; michelle@wiyot.us
Subject: Nordic Aquafarms DEIR Comments, Wiyot NRD
Attachments: Nordic_Aquafarms_DEIR_comments_WiyotNRD.pdf

Ha'wa'lou Cade and John, please find our attached comments on the Nordic Aquafarms DEIR. Thank you for your time and consideration. Rra'dutwas (with kindness), Adam

Adam N. Canter
Natural Resources Director
Wiyot Tribe Natural Resources Department
Humboldt State University Sea Level Rise Initiative Co-Chair
Table Bluff Reservation
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February 18, 2022

Planning Director, John Ford
Humboldt County Planning and Building Department
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CEQAResponses@co.humboldt.ca.us



Re: Nordic Aquafarms Land-Based Aquaculture Project Draft EIR Comments

Ha'wa'lou (Greetings)

The Wiyot Tribe Natural Resources Department (WNRD) hope this comment letter reaches you in good health and appreciates Nordic Aquafarms (NAF) for their accessibility and willingness to address concerns of Tribal citizens and the general public, who have the potential of being impacted by this large development project. The WNRD note that there will be community and environmental costs and benefits from a food production project of this scale and that as part of the CEQA process NAF is required to fully address potential impacts and plan for their appropriate and scaled mitigations where needed. As stewards of the Wigi (Humboldt Bay) environment since time immemorial it is paramount that the Wiyot continue to protect the water and life that depend upon these exceptional resources that we are willing to share with NAF in their good faith to also protect these waters and resources and it is through efforts such as this that we help to vet and improve the project through our opportunity to comment on the Draft Environmental Impact Report (DEIR). As with many small Native American Tribes, it is difficult to have the capacity take a deep dive into every aspect of the project that has the potential to impact ancestral waters, lands, and species, and we appreciate the information provided by our friends and colleagues from various local environmental organizations, including Humboldt Baykeeper, and encourage NAF to address the environmental coalitions concerns, which mirror many of the Tribe's major concerns in general.

402-1

Ambient water quality data more proximate to the discharge point than was employed in the Numeric Modeling Report should be obtained and used to better assess potential impacts of nutrients proposed to be discharged in the project's effluent. The dataset used in the modeling study was collected approximately 3.5 miles south-southeast of the Redwood Marine Terminal II diffuser, rather than in the area that will be affected by the discharge.

The Central & Northern California Ocean Observing System (CeNCOOS), partnered with Humboldt State University and the WNRD, measures hydrographic parameters at Trinidad Pier and several locations within Humboldt Bay and serves these data through the CeNCOOS Data Portal. Comparing CeNCOOS data provides evidence that there are significant differences in water quality conditions in Humboldt Bay (measured at the Humboldt Bay Shoreline Station) compared to open ocean conditions (measured at the Trinidad Pier Station).

402-2

Ambient water quality conditions such as temperature, salinity, dissolved oxygen, and chlorophyll levels are considerably different during different seasons in Humboldt Bay compared to the open ocean. These data do not support the assumption in the DEIR that ambient water conditions taken inside Humboldt Bay (Swanson, 2015) are adequate for modeling ambient conditions 1.55 miles offshore at the point of discharge.

Higher temperatures and lower salinity levels can be an attractant, can exacerbate Harmful Algal Blooms, and can encourage the growth of invasive species. For example, *Diplosoma listerianum*, a

402-3



colonial tunicate that can outcompete indigenous colonial tunicates and benthic invertebrates for space, was one of several invasive fouling species which showed increased growth (% coverage) at temperatures 3.5 and 4.5°C above the ambient temperature in Bodega Harbor (13.5°C), while a native tunicate, *Distaplia occidentalis*, showed reduced survival.

There is concern over further elevating the water temperature in the region as our oceans are already warming. In 2014 a large Marine Heat Wave (MHW) known as “the blob” was identified as it began dominating the northeast Pacific Ocean. Researchers documented many ecological effects associated with the blob, including unprecedented harmful algal blooms, shifting distributions of marine life, and changes in the marine food web. We expect NAF to monitor how elevated ocean temperatures will affect the surrounding environment and mitigate any harmful effects.

The WNRD would like for NAF to continue to use the best available science and data when modeling the impacts for the outfall discharge but should seek input/validation from local experts, including academics at Cal Poly Humboldt, and local NOAA Oceanographers regarding the local complexities of hydrodynamics. The WNRD also want NAF to ensure transparency regarding the conditions of the discharge water quality.

The estimated discharge of 1484 lbs. of nitrogen per day reinforces the need for baseline ambient water quality assessment at the point of discharge and regular monitoring to accurately assess the impact of increased nutrients, including monitoring for Harmful Algal Blooms (HAB). The coast of Humboldt County has already experienced high levels of *Pseudo-nitzschia australis*, which causes domoic acid and has led to fisheries closures in Humboldt County in 2016 through 2021. *Pseudo-nitzschia* growth and domoic acid production benefit from nitrogen loading in the environment. Given the potential risk to ecosystems and the local economy, it is important that NAF collect appropriate data to accurately conclude that the impacts of increased nitrogen are indeed “less than significant” and that regular monitoring of discharged nitrogen be conducted throughout all phases of production to ensure that it does not contribute to increased HABs. As is previously stated, ambient water quality data from closer to the discharge point than was used in the Numeric Modeling Report should be obtained and used to better assess potential impacts of nutrients proposed to be discharged in the project’s effluent. The potential for the effluent to exacerbate Harmful Algal Blooms, particularly in winter, should be assessed using an upwelling model as suggested by California Sea Grant Advisor Joe Tyburczy: “Simple calculations undertaken using a published model for ocean productivity (BEUTI, Biologically Effective Upwelling Transport Index) suggest that nitrate released by the Nordic facility (roughly 700 kg/day) may be substantial relative to natural, ambient nutrient supply – especially during the winter when upwelling is lower and when alongshore currents and resultant dilution is reduced.”

Baseline and post-project monitoring for toxic algae near the discharge point should be conducted and a threshold that would trigger adaptive management should be established as a condition of the project. Ongoing monitoring should include early detection of toxic algae such as *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid, which caused devastating impacts to the marine ecosystem in 2014-15, including the Dungeness crab fishery, marine mammals, and seabirds from Alaska to Southern California. We cannot let this project increase conditions that make these toxins more prolific.

One primary concern is the impact of pumping 11.9 million gallons of water from the Wigi (Humboldt Bay) to culturally important species, including the endangered longfin smelt (*Spirinchus thaleichthys*). Although the screen size (1mm) and maximum approach velocity (0.2 feet per second) are designed to have minimal impacts, recent studies (Tenera 2022 unpublished) indicated the presence of vulnerable larval longfin smelt. With entrainment and impingement of culturally important and endangered fishes likely unavoidable, the WNRD suggests that Nordic Aquafarms and the Humboldt Bay Harbor District explore other methods to minimize any negative impacts. In addition to more complete studies to understand finer scale spatiotemporal distributions of larval fishes, we suggest continued sampling proximate to the intakes when water diversion volumes are above certain thresholds. WNRD suggests that other options to minimize entrainment could include seasonal or diurnal decreases in water diversions coinciding with the presence of vulnerable larval fishes. The piling removal project proposed as off-site compensation for impacts to spawning longfin smelt is not appropriate, since the subject area is not known to be

402-3
Cont.

402-4

402-5

402-6

402-7

spawning habitat for the species. The DEIR states that the potential for entrainment of Longfin Smelt larvae can be mitigated on a 1:1 basis to ensure there would be no loss in number of individual larvae; therefore, the impact is less than significant. However, the DEIR also states that "the removal of pilings does not directly recreate habitat for the life stage of the larvae, but improving habitat will increase the number of Longfin Smelt resulting in an increased number of larvae." It is not clear if or how improving non-spawning habitat will improve spawning. A mitigation measure that directly recreates or restores Longfin Smelt spawning habitat should be developed and incorporated, once the site-specific surveys quantify the extent of impacts on this species.

↑
402-7
Cont.

An adaptive management plan should be adopted that sets thresholds that would trigger action to avert a toxic algae bloom once it is detected. The adoption of appropriate thresholds and implementation plan for adaptive management should include experts in detecting and managing HABS, as well as scientific experts from trustee agencies focused on protecting marine resources, including the California Coastal Commission, California Dept. of Fish & Wildlife's Marine Region, and National Marine Fisheries Service. We also expect plans and control protocols that address the possibility of fish or pathogen escape from NAF facilities.

402-8

The substantial energy demands of this proposed facility cannot be overlooked and we stress to NAF that they should increase the size of the on-site solar electricity system, including solarizing parking areas and including an energy storage system, commit to purchasing 100% renewable energy, and have a commitment to purchasing local, carbon free, renewable electricity, whenever it is available and feasible to purchase.

402-9

The Wiyot recognize and support the clean-up of the toxic former pulp mill property that is a major benefit from this proposed project. In addition to cleaning up the pulp mill site, other beneficial mitigation is noted, including the removal of creosote-soaked pilings and removal of invasive spartina. We look forward to more thorough assessment of the potential impacts from the outfall discharge and bay water in-takes and the other important considerations to ensure our environment is protected. Thank you for taking the time to consider these concerns and please continue to reach out to us at any time.

402-10

Rra'dutwas (with kindness),



Adam N. Canter, Natural Resources Director
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Letter 402 – Response to Comments

Response to Comment 402-1 – Introductory Remarks

This comment is introductory in nature. Specific concerns are not presented. No response is required.

Response to Comment 402-2 – Data Used for Numeric Modeling

Master Response 5 (Marine outfall). The comment requests changes to the data used for discharge modeling. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 402-3 – Discharge-related Water Quality Impacts and HABs

This comment raises concerns that NAFC's discharge may result in changes to the temperature and salinity of marine waters and increase HAB risk. Increases to temperature are specifically limited to the immediate vicinity of the RMT II diffuser. Please see Master Response 5 (Marine Outfall) for a detailed analysis of the marine outfall discharge water quality impacts.

Response to Comment 402-4 – Incorporation of Local Expertise to Discharge Modeling

This comment addresses concerns regarding the use of local expertise and information to ensure project transparency. NAFC has approached local experts in oceanography and modeling from Cal Poly Humboldt for data on numerous occurrences since 2019. The DEIR Appendix E Numerical Modelling report was prepared by qualified experts in the field and independently peer-reviewed by a third-party qualified consultant by the County. Unfortunately, suitable data was not available from these local sources to include in the DEIR Appendix E Numeric Modeling, as summarized on page 3.9-8 of the DEIR (Section 3.9, Hydrology and Water Quality / Methodology). Annual results of monitoring will be available to stakeholders, including the Wiyot Tribe, as stated on page 3.9-13 of the DEIR. stakeholders, including the Wiyot Tribe, as stated on page 3.9-13 of the DEIR.

Response to Comment 402-5 – HABs and BEUTI

This comment addresses concerns regarding nitrogen-related water quality concerns and the Biologically Effective Upwelling Transport Index (BEUTI). Please also see Master Response 5 (Marine Outfall)

Response to Comment 402-6 – Toxic Algae Monitoring

The comment requests baseline and post-project monitoring for toxic algae near the discharge point. As detailed in Master Response 5, the DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the coastal waters potentially affected by the Project. Additionally, NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond regulatory requirements. This monitoring is described in Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant, page 3.9-12) and includes water quality monitoring as requested by the Wiyot Tribe. Please see Master Response 5 (Marine Outfall) for further discussion about the discharge.

Response to Comment 402-7 – Alternative Water Sources

The Wiyot Tribe recommends consideration of other methods of obtaining salt water in order to minimize negative impacts to culturally important and endangered fishes. Alternative water sources, including use of a slant well, oceanic seawater intake and Humboldt Bay seawater well are analyzed in DEIR Chapter 4. These alternatives would not have less environmental impact than the proposed water intakes construction and operations, as discussed in Section 4 of the DEIR (pages 4-16 and 4-17). Water Source Alternative 2 (Oceanic Seawater Intake) and Water Source Alternative 3 (Humboldt Bay Seawater Wells) would both require more in-water construction compared to the Project. In-water construction and underwater drilling could potentially impact sensitive biological resources and water quality. Noise related to in-water construction and drilling could be impactful to aquatic species, including marine mammals. The DEIR also found that alternative terrestrial water sources (Water Source Alternative 1 – Slant Wells) were infeasible, as more than 40 slant wells (terrestrial groundwater wells) would be required but would not physically fit in the Project footprint.

The Wiyot Tribe also recommends continued sampling for Longfin Smelt proximal to the water intakes. The Harbor District is currently conducting larvae sampling at the proposed water intake sites and other sites in the bay in cooperation with the Wiyot Tribe and jurisdictional permitting agencies such as CDFW and would continue to work with these parties through the required permitting processes for the Humboldt Bay water intake upgrades, which remain ongoing.

The Wiyot Tribe also expresses concern that the off-Site compensatory restoration to remove piles is not appropriate, since the subject area is not known to be spawning habitat for the species and removing piles may not directly improve spawning. Removal of piles at the Kramer Dock is a recommended action in the Humboldt Bay Eelgrass Management Plan (Merkel & Associates 2017). While the Kramer Dock may be poor habitat for Longfin Smelt and other aquatic species in its current condition as a dilapidated post-industrial shoreline, the purpose of the Off-Site Compensatory Restoration is to help restore the area to a more natural condition, including restoration of eelgrass habitat. Removal of the creosote piles would also enhance water quality in Humboldt Bay. Increasing the quality and complexity of marine habitat at the Kramer Dock site is a key opportunity for restoring the Humboldt Bay shoreline and tidal habitats in that area. The proposed mitigation measure for impacts to LFS (Mitigation Measure BIO-6a) has been modified such that mitigation will occur in areas of fresh and/or brackish water and shall create habitat suitable for LFS spawning, (see Section 4 – Errata).

Response to Comment 402-8 – Adaptive Management Plan for Toxic Algae and Fish Escape

This comment is a request for an adaptive management plan specific to toxic algae bloom once detected and fish or pathogen escape. The DEIR has accounted for adaptive management specific to unanticipated water quality detrimental effects. On page 3.9-23 (Contingency Protocols for Water Quality Protection), the DEIR describes NAFC management actions that would be taken to address any unanticipated detrimental effects to marine water quality, including an event related to toxic algae or a HAB. These management actions are to be implemented in addition to any regulatory action taken by the NCRWQB. In the event of a water quality impact related to the Project's discharge, NPDES-required monitoring shall continue throughout these operational adjustments. Operational constraints shall continue until the water quality exceedance(s) attributable to the Project have been resolved to the satisfaction of the NCRWQCB. Please see Master Response 3 regarding fish escape and Master Response 4 regarding fish health and biosecurity (pathogens).

Response to Comment 402-9 – Renewable Energy Commitment

This comment is requesting increasing the size of onsite solar energy generation, purchasing 100% renewable and/or non-carbon energy, and commitment to purchasing local, carbon-free, renewable energy, when available and feasible. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. As detailed in the DEIR Section 2 (Project Description) on pages 2-1 and 2-19, the Project includes a 4.8 MW solar array, which would be located on approximately 657,000 square feet of facility roofs. Energy impacts were evaluated in DEIR Section 3.5 (Energy) and were found to be less than significant even without this additional commitment to renewable energy. Please see Master Response 2 for information on the potential for including additional onsite solar in the Project.

As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project.

Response to Comment 402-10 – Project Benefits

This comment notes benefits resulting from the Project as a result of cleaning up the former pulp mill site. The comment is a conclusion to the submitted letter, and no additional concerns are raised. No response is required.

McNamara, Cade

From: Michelle Fuller <MFuller@bluelakerancheria-nsn.gov>
Sent: Thursday, February 17, 2022 6:13 PM
To: CEQAResponses
Subject: Nordic Aquafarms Land-Based Aquaculture Project Comments
Attachments: Nordic Aquafarm DEIR BLR comment letter.pdf

Hello,

Please accept the attached letter as public comment on the Nordic DEIR from the Blue Lake Rancheria.

Thank you,

Michelle Fuller
Environmental Director
Blue Lake Rancheria
PO Box 428
Blue Lake, CA 95525
(707)668-5101 x1036

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February 15, 2022

Cade McNamara
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RE: Comments on Nordic Aquafarms' Samoa Peninsula Land-based Aquaculture Project

Mr. McNamara:

The Blue Lake Rancheria Tribe has reviewed the Draft Environmental Impact Report of the Nordic Aquaculture project and submits the following comments:

We are supportive of the project's remediation of the former pulp mill site, contribution to port development, and the investment this project will be in our community. The full draft Environmental Impact Report (DEIR) is an important tool for ensuring environmental impacts are mitigated to the extent possible. Upon review of the DEIR, we request additional information be included with the water quality monitoring of the pipeline outfall discharge.

403-1

The monitoring described in the DEIR should align with an adaptive management plan, with specific thresholds that would trigger additional protective measures. Having a plan to protect water quality in the case of non-compliance or any kind of effluent system failure will be necessary to minimize harm to the surrounding ecosystem.

403-2

If there are questions on these comments, please contact Michelle Fuller, Director of Environmental Programs at mfuller@bluelakerancheria-nsn.gov.

Sincerely,

Claudia Brundin
Chairperson

Letter 403 – Response to Comments

Response to Comment 403-1 – Request for Additional Water Quality Monitoring

This comment requests additional information about water quality monitoring of the pipeline outfall discharge. Please see Master Response 5 (Marine Outfall) which addresses water quality monitoring associated with the Project.

Response to Comment 403-2 – Adaptive Management Plan

This comment requests the Project to develop an adaptive management plan that addresses noncompliance and/or system failure. Pages 3.3-29 through 3.3-30 in the DEIR describe such an adaptive management plan, stating that “NAFC has the ability to immediately implement one or more of the following operational management actions to reduce the volume of pollutants in its treated effluent discharge, in addition to any regulatory action taken by the NCRWQCB to obtain compliance with the terms and conditions of the NPDES order.”

BEAR RIVER BAND of the ROHNERVILLE RANCHERIA

266 KEISNER RD LOLETA, CA 95551-9707

PHONE 707-733-1900 FAX 707-733-1723



February 18th, 2022

Re. DEIR -Nordic Aquafarms Aquaculture Project

We are pleased to see that the proposed project will include substantial remediation and restoration efforts, and that testing will include both screening techniques and qPCR (testing for specific viruses). However, the report doesn't yet fully address the frequency and level of testing (for example, a list of viruses) for known and emerging viruses (Appendix D), detailed plans for timing of testing should a pathogen be detected, or a cost benefit analysis of alternative uses of effluent water.

404-1

Immune responses that align with gene expression profiles have been linked to mortality in wild migratory smolts and adults (Miller et al. 2011; Jeffries et al. 2014), and to salmon mortalities of uncertain cause in marine net pens in British Columbia (Miller et al. 2017; Di Cicco et al. 2018). These data suggest that decreased survival of migratory salmon in the Pacific Northwest could be linked to viruses, and that the expansion of salmon aquaculture in British Columbia, which operate in the same waters through which wild Pacific salmon migrate (Morton et al. 2017), could have contributory mortality effects.

404-2

As for testing, multiplexing is desirable, but if utilizing the qPCR assay, necessitates the use of probes with several different fluorophores. Digital PCR (dPCR), a more recent method of detecting and quantifying nucleic acids is advantageous because it allows for the direct absolute quantification of virus genome copy numbers per sample without requiring external calibration; each reaction can then be recorded as either positive (fluorescent) or negative, and unlike qPCR, results are accurate at very low target numbers.

404-3

The Bear River Band of the Rohnerville Rancheria would like to see further consideration of alternatives that avoid release of effluent to the wastewater stream, and a more intense monitoring plan that includes appropriate testing (possibly dPCR testing, upon the advice of biologists) for known and unknown viruses and other pathogens. There are several potential uses of the treated effluent water; some of these are discussed in the report. Commercial viability of alternative uses of treated effluent should include the risk cost associated with releasing effluent through the pipe as proposed.

404-4

Letter 404 – Response to Comments

Response to Comment 404-1 – Biosecurity Wastewater

This comment requests additional information regarding the testing for pathogens and cost benefit analysis for wastewater. Please see Master Response 4 (Fish Health and Biosecurity).

Response to Comment 404-2 – Statements regarding viral links to decreased survival of migratory salmon in the Pacific Northwest

This comment is concerned with the potential for viral infection of native fish associated with the Project. The comment suggests that decreased survival of migratory salmon in British Columbia could be linked to viruses associated with marine net pens in that locality but provides no evidence as a basis for the likelihood of a similar occurrence as a result of NAFC's land-based operation at the Project location. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). As described in Section 2 (Water Treatment), starting on page 2-23 of the DEIR, NAFC will establish Best Management Practices (BMP), Standard Operating Procedures (SOPs), and strong biosecurity on the outfall, including 0.04 µm ultrafiltration and a 300 mJ/cm² ELL UV dose before discharge, which are intended to contain and prevent bacterial/viral egress to receiving waters. Please see Master Response 4 (Fish Health and Biosecurity) for further information on the biosecurity measures in place at the facility and Master Response 5 (Marine Outfall) for a detailed description of the outfall structures.

Response to Comment 404-3 – Biosecurity and Fish Health Testing

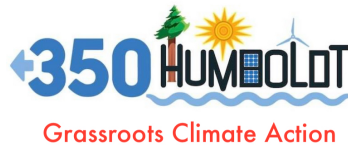
The comment is concerned with fish health testing methodologies and suggests multiplexing and digital PCR (dPCR) are advantageous methods for pathogen screening and requests the use of quantitative PCR (qPCR) for pathogen screening. Please see Master Response 4 regarding fish health and biosecurity.

Response to Comment 404-4 – Biosecurity and Wastewater

This comment requests additional alternatives be considered that would avoid the release of process water with a more intense monitoring plan. For questions related to the frequency and level of testing for fish pathogens, please see Master Response 4 (Fish Health and Biosecurity). The request for additional alternatives presumes that the release of process water constitutes a potentially significant impact, but this is not correct. The record does not indicate that the effluent has the potential to cause a significant adverse impact. The applicant has agreed to additional testing and monitoring to ensure that the actual operation of the facility is consistent with the modeling completed.

2.3. Organizational Comments Received During Circulation

This section includes copies of the comment letters and emails received from organizations during the 60-day public review period for the DEIR. Responses to individual comments are provided after each letter.



February 18, 2022

Planning Director John Ford
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501
CEQAResponses@co.humboldt.ca.us

Dear Planning Director Ford,

350 Humboldt is a climate action group dedicated to reducing greenhouse gas emissions. We have a mailing list of 900 and a weekly letter writing group that has written over 6000 letters and postcards in the last two years. We also comment on local projects like the proposed Nordic aquaculture facility. Our overall Nordic comments are part of a joint letter with several other environmental organizations.

We did want to be sure, however, that you receive material that explains exactly why the PG&E carbon intensity figure included in the DEIR is not only totally anomalous but actually meaningless. Here are the data that show, but do not explain the error:

The DEIR for the Nordic Aquafarm reached a conclusion that there would be no significant greenhouse gas impacts. To do this the DEIR used the PG&E carbon intensity figure of 2.68 found at: https://www.pgecorp.com/corp_responsibility/reports/2021/pl02_climate_change.html

Benchmarking Greenhouse Gas Emissions for Delivered Electricity
(Pounds of CO₂ per MWh)

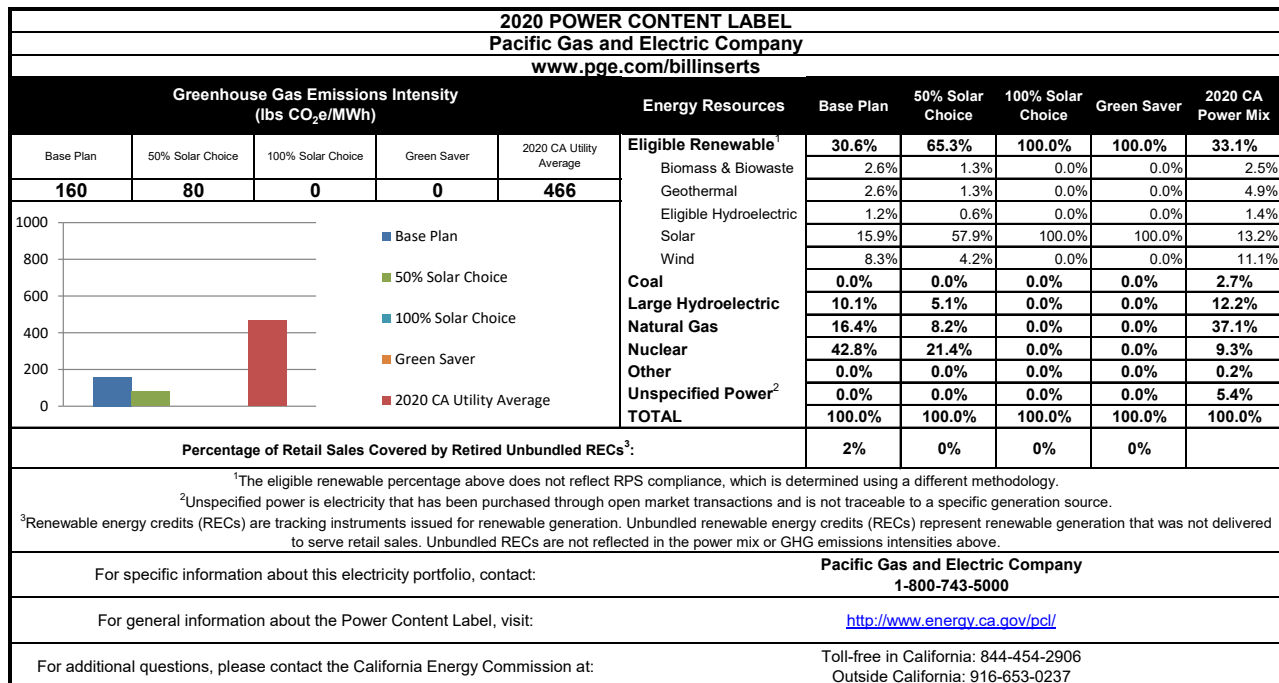
U.S. Average¹	947
Pacific Gas and Electric Company	
2019	2.68 ²
2018	206
2017	210
2016	294
2015	405
2014	435
2013	427
2012	445
2011	393
2010	445

1. U.S. Environmental Protection Agency eGRID 2018.¹

2. For 2019 emissions reporting, PG&E used the CEC's Power Source Disclosure program methodology to calculate the CO₂ emission rate associated with the electricity delivered to retail customers. As required by AB 1110, the CEC modified the Power Source Disclosure program methodology in 2020 for the 2019 reporting year. This methodology differed from prior reporting years and results in a significantly lower emissions rate.²



This anomalous figure for 2019 appeared to be an error, yet PG&E was saying it was verified by a third party. It also conflicted with more recent PG&E statements of greenhouse gases released per unit of electricity. In the graph below, PG&E lists its 2020 base emissions intensity at 160 lbs. of CO₂eq/MWh (a far cry from 2.68).

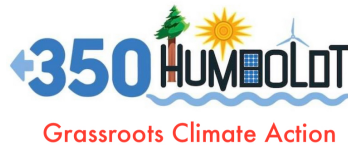


The explanation for why the PG&E carbon intensity figure for 2019 is wrong, and indeed will be for some years to come, is quite technical. So we want to be sure you are in a position to understand it and revise the DEIR by using the most recent carbon intensity figure from PG&E *prior* to application of the revised methodology. Under CEQA an EIR is required to accurately assess greenhouse gas emissions. The current DEIR does not fulfil this requirement.

We are attaching:

A peer reviewed article which predicted the situation we find ourselves in: Von Wald, Gregory, Michael D. Mastrandrea, Danny Cullenward, and John Weyant. "Analyzing California's framework for estimating greenhouse gas emissions associated with retail electricity sales." *The Electricity Journal* 33, no. 8 (2020): 106818.

A comment to the CEC on this issue by Danny Cullenward, Ph.D., a leading California Climate Policy Scientist, of the group Near Zero. Please see section 4.



Thank you for considering these materials and using an accurate measure of PG&E carbon intensity for the DEIR.

A handwritten signature in black ink that reads 'Daniel Chandler'.

Daniel Chandler, Ph.D.
350 Humboldt Steering Committee

CC:

Marianne Naess, Nordic AquaFarms, mn@nordicaquafarms.com
Cassidy Teufel, California Coastal Commission Cassidy.Teufel@coastal.ca.gov
Matthew Marshall, Redwood Coast Energy Authority mmarshall@redwoodenergy.org



Analyzing California's framework for estimating greenhouse gas emissions associated with retail electricity sales

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ABSTRACT

Accurately attributing greenhouse gas (GHG) emissions in the electric power sector is critical to measuring progress towards climate policy goals. We evaluate a new methodology adopted by the California Energy Commission to calculate the GHG emissions intensity of retail electricity providers. In the long run, the new regulations better align with the physical nature of grid operation than did past practices, but policymakers should monitor a set of potential challenges as market structures evolve.

1. Introduction

The Power Source Disclosure (PSD) program is a consumer information program administered by the California Energy Commission (CEC) (California Energy Commission (CEC), 2019a). The PSD program requires load-serving entities (LSEs) to publish and disseminate information on the mix of generation sources used to satisfy their retail electricity sales in California. Regulated LSEs include investor-owned utilities (IOUs), publicly owned utilities (POUs), co-ops that offer bundled service, and generation-only community choice aggregators (CCAs).

California Assembly Bill 1110 (AB 1110) was enacted in 2016 and required the CEC to update the PSD program to report the greenhouse gas (GHG) emissions intensity of each LSE's resource portfolio (Ting, 2016). GHG emissions are reported in terms of the metric tons of carbon dioxide equivalent emitted per unit of retail electricity delivered [tCO₂e/MWh]. The purpose of the PSD program and the AB 1110 updates is to provide accurate, reliable, and simple to understand information regarding fuel sources for electricity generation offered for retail sales in California, as well as their associated environmental impacts (Ting, 2016). Retail suppliers will begin disclosing the GHG emissions intensity of their portfolios on the 2021 calendar year Power Content Label, based on their 2020 procurement.

The new regulations are notable not just for their inclusion of GHG emissions, but also for how they respond to an important debate over how those emissions should be assigned. This question is particularly relevant with respect to long-term renewable energy contracts and their

associated renewable energy credits (RECs) used for compliance with California's Renewables Portfolio Standard (RPS). The debate reflects the fact that both the physics of power system operations and the economics of wholesale electricity markets jointly determine the delivery of electric power to retail consumers, but physical power flows frequently do not match contractual agreements. As a result, LSEs can end up with a contractual (or nominal) supply of resources that does not fully align with the electricity physically delivered to their customers.

The PSD regulations borrow key definitions from the state's RPS. Both programs define electricity as being "delivered" to California if the underlying resource has a first point of interconnect in a California balancing authority or is dynamically transferred to a California balancing authority (as verified by e-tags from the North American Electric Reliability Corporation (NERC)) (California Energy Commission (CEC), 2019a). Procurement of qualified renewable energy from sources that are directly interconnected to a California balancing authority or dynamically transferred, with the corresponding NERC e-tags (i.e. "delivered"), are designated as portfolio content category (PCC) 1 for RPS compliance. PCC 2 contracts, also referred to as "firmed and shaped" renewable procurements, involve renewable energy purchases that are delivered to a non-California balancing authority, but for which associated RECs are matched with an equivalent amount of energy that is scheduled for delivery to a California balancing authority. PCC 3 procurements refer to the purchase of "unbundled" RECs with no associated energy procurement.

The difference between the physical operation of the grid and the

* Corresponding author.

contractual operation of energy markets has led to a debate over how GHG emissions should be assigned in policy systems. Some researchers have suggested that emissions accounting could be based on purely physical flows using tools like consumption-based accounting or marginal emissions analysis (de Chalendar et al., 2019; Siler-Evans et al., 2012). In practice, however, most legacy policy systems for renewable energy have relied, at least in part, on the use of contractual accounting mechanisms like RECs. However, some policy experts have highlighted the potential for the use of unbundled RECs to distort the true GHG emissions associated with physically delivered electricity (Weissman, 2018). In addition, California's Independent Emissions Market Advisory Committee (IEMAC) observed the potential for "double-counting" of zero-emissions electricity across different regulatory authorities if one agency accounts for emissions on the basis of physically delivered power while another associates the nominal transfer of a REC with the emissions attribute of electricity (Burtraw et al., 2019a). Other stakeholders have argued that many contracting parties believe RECs should be associated with a zero-GHG attribute and therefore any decision that treats RECs as not including those environmental attributes could be problematic to existing marketplace actors (Comments of Center for Resource Solutions (CRS), 2018; California Energy Commission (CEC), 2019b).

The PSD regulations focus primarily on reporting GHG emissions associated with the LSEs' delivered electricity, rather than their nominally contracted resource mix (California Energy Commission (CEC), 2019b). Critically, the PSD regulations require that LSEs' reported emissions intensity of PCC 2 purchases should be that of the delivered power, rather than the nominal, contractual procurement. This treatment extends to any specified contract that allows for substitute power to be delivered, including contracts for electricity from large hydro-electric generators that are not RPS-eligible but which otherwise fit the "firmed & delivered" contract model. As PCC 3 purchases are unbundled RECs and not associated with the purchase of any power, they are not used to compute the fuel mix or GHG emissions intensity of an LSE's retail sales (California Energy Commission (CEC), 2019a).

The PSD regulations' focus on physical emissions accounting, as opposed to contractual emissions accounting, has important implications for California's long-term climate policies. California's 100 % clean electricity law, Senate Bill 100 (SB 100), sets a 2045 target of having 100 % of retail electricity sales come from zero-GHG resources (De León, 2018). The CEC's new methodology for calculating the GHG emissions profile of LSEs' retail sales could thus take on additional importance as state policymakers develop an accounting structure and enforcement regime for the SB 100 target.

This paper explores how the PSD program might perform going forward as a climate policy by evaluating how the program reports GHG emissions intensity. Section 2 summarizes the CEC-adopted calculation methodology, identifies the data and assumptions we use to estimate GHG emissions intensities based on the CEC's methods, and presents an alternative approach for calculating the GHG emissions intensity of an LSE's retail sales, as originally proposed by a CEC staff proposal (California Energy Commission (CEC), 2017). Section 3 applies the calculation methodology to data from LSE-submitted supply forms to present a snapshot of potential emissions intensity values for a selection of California's largest LSEs. Because LSEs might decide to modify their procurement behavior in response to the new regulations, we develop a simple snapshot of the outlook based on 2019 reporting that occurred prior to the finalization of the regulations. Section 4 discusses some implications of the adopted calculation methodology in the near and long term. Finally, Section 5 draws conclusions about the updates to the PSD program and provides recommendations for further analysis and monitoring.

2. Methods

2.1. CEC calculation methodology

We summarize the CEC's adopted methodology (California Energy Commission (CEC), 2019a) here.

2.1.1. Net purchases

The CEC's methodology characterizes the energy mix for each LSE by aggregating its specified electricity purchases on an annual basis. Specified purchases are transactions in which electricity is traceable to specific generating facilities by an auditable contract trail, including associated e-tags. Retail suppliers can employ annual data to meet this requirement instead of hour-by-hour matching of loads and resources. Any specified wholesale sales must be deducted from each specified gross purchase, per Eq. (1), to yield the specified net purchases [MWh] for the year.

$$\forall i \in SP, NP_i = GP_i - WS_i \quad (1)$$

NP_i = Specified net purchase i , [MWh]

GP_i = Specified gross purchase i , [MWh]

WS_i = Specified wholesale sales of gross purchase i , [MWh]

SP = Set of all specified purchases

We refer to an LSE as "under-procured" if its retail sales exceed total net specified purchases and "over-procured" if it has net specified purchases that exceed its retail sales.

2.1.2. Reconciling retail sales and procurement

If an LSE has total specified net purchases in an amount less than their retail sales (i.e., is under-produced), then the remainder is assessed as unspecified power, per Eq. (2).

$$U = RS - TNP \quad (2)$$

U = Net unspecified power attributable to the electricity portfolio, [MWh]

RS = Retail sales attributable to the electricity portfolio, [MWh]

TNP = Sum of all net purchases, [MWh]

If an LSE has total specified net purchases in an amount greater than their retail sales (i.e., is over-produced), then specified net purchases must be decremented in an amount such that the sum of all net purchases will equal total retail sales. The CEC's method allows entities that are over-procured to deduct natural gas specified purchases first, per Eq. (3). If the natural gas procurements are smaller than the difference between total specified purchases and retail sales, then all other fossil-fueled purchases are decremented proportionately, per Eq. (4). Finally, if the total amount of adjusted net purchases still exceeds retail sales, the remainder of specified purchases will be decremented proportionately, per Eq. (5).

$$\text{if } 0 < (TNP - RS) \leq NP_{NG},$$

$$\forall i \in SP_{NG}, ANP_i = NP_i - (TNP - RS) \times \left(\frac{NP_i}{NP_{NG}} \right) \quad (3)$$

$$\text{if } NP_{NG} < (TNP - RS) \leq NP_{NG} + NP_F,$$

$$\forall i \in SP_{NG}, ANP_i = 0,$$

$$\forall i \in SP_F, ANP_i = NP_i - (TNP - NP_{NG} - RS) \times \left(\frac{NP_i}{NP_F} \right) \quad (4)$$

$$\text{if } NP_{NG} + NP_F < (TNP - RS),$$

$$\forall i \in SP_{NG}, ANP_i = 0,$$

$$\forall i \in SP_F, ANP_i = 0,$$

$$\forall i \in SP_Z, ANP_i = NP_i - (TNP - NP_{NG} - NP_F - RS) \times \left(\frac{NP_i}{NP_Z} \right) \quad (5)$$

NP_{NG} = Sum of net purchases from natural gas-fired purchases,

[MWh]

NP_F = Sum of net purchases from other fossil-fueled purchases, [MWh]

NP_Z = Sum of net purchases from non-fossil-fueled purchases, [MWh]

ANP_i = Adjusted net purchase i , [MWh]

NP_i = Net purchase i , [MWh]

SP_{NG} = Set of specified purchases from natural gas-fueled sources

SP_F = Set of specified purchases from other fossil-fueled sources

SP_Z = Set of specified purchases from non-fossil fueled sources

2.1.3. Calculating emissions

A source-specific emissions factor, EF_i [tCO₂e/MWh], is then applied to all adjusted specified net purchases in order to evaluate the amount of emissions associated with this portfolio of electricity. For any unspecified electricity purchases, a default emissions factor for electricity from unspecified sources, EF_u [tCO₂e/MWh], is applied. Dividing these gross emissions by retail sales yields the emissions intensity estimate, EI [tCO₂e/MWh] for the LSE portfolio, as per Eq. (6).

$$EI = \left(\frac{EF_u U + \sum_{i \in SP} EF_i ANP_i}{RS} \right) \quad (6)$$

For specified purchases with the corresponding NERC e-tags that are delivered to a California balancing authority, the source-specific emissions factor will reflect the emissions intensity associated with the contracted generator. As mentioned in Section 1, some specified purchases of RPS-eligible renewable energy fall under PCC 2 and PCC 3, which do not involve electricity purchases delivered to a California balancing authority. PCC 3 procurements are excluded from the GHG emissions intensity calculations, as these unbundled RECs are financial instruments that do not reflect electricity procurement.

The PSD regulations specify that the emissions factor associated with “firmed and shaped” PCC 2 purchases—or any similar contracts that allow for power to be delivered that is not from the contracted source—should be that of the substitute (delivered) power, rather than the nominal (contractual) procurement. Unless the generator of the substitute power is identified with the associated e-tags, the delivered power will be deemed an unspecified import and assigned a default emissions factor. Unspecified power includes all unspecified spot market purchases (including those furnished by in-state generators), non-marginal imports from neighboring balancing authorities, or power from renewable sources that has been separated from its REC (null power).

The PSD’s physical delivery accounting structure applies only to new contracts, with legacy contracts that pre-date the regulation grandfathered under an accounting structure that is based on contracted resources instead. For legacy contracts, LSEs must report the emissions associated with the contracted resource, even if another resource is physically delivered to serve its customers. This contract-based treatment applies until the underlying contract expires or is modified. Thus, once all grandfathered contracts reach maturity or are modified, the PSD program will have shifted the state’s retail electricity emissions accounting structure to one based on the physical deliveries.

Unspecified purchases are assigned a default emissions factor developed by the California Air Resources Board (CARB) ($EF_u = 0.428$ tCO₂e/MWh). CARB adopted this emissions factor in 2010, based on data from 2006 to 2008, and intended it to represent the marginal emissions associated with electricity imports from unspecified sources on the Western Interconnect (WECC) (California Air Resources Board (CARB), 2010a; Kaatz and Anders, 2016). Although CARB maintains that this factor remains accurate today (California Air Resource Board (CARB), 2018a), others have argued that the use of a static value based on data from 2006 to 2008 may not accurately reflect the operational realities of the WECC today due to changes in fuel and technology costs (Kaatz and Anders, 2016). Reflecting these concerns, the IEMAC

recommended CARB update its unspecified emissions factor (Burtraw et al., 2019a, b).

2.2. Estimating portfolio GHG emissions intensities

To explore the implications of the CEC-adopted methodology, we estimate what the reported emissions intensity would be for some of California’s largest LSEs if the new methods were applied to reported data from the CEC’s 2019 Integrated Energy Policy Report (IEPR) filings Forms S-1 and S-2 (California Energy Commission (CEC), 2019c). More details on these forms can be found in (Kennedy, 2018). The IEPR supply forms include any contracts in place at the time of reporting and reflect actual procurement for 2017 and 2018 and planned procurement for 2019–2030. Actual procurement for 2019 and beyond may differ from these estimates, as contracts are transferred among LSEs in response to changes in retail sales forecasts. In addition, LSEs could also modify their procurement behavior in response to the new PSD regulations or any new developments in western electricity markets. We analyze a static outlook based on 2019 reporting to provide one view of how the PSD labels for individual LSEs might evolve, rather than to predict expected outcomes.

Our analysis uses generic emission factors for each reported fuel type—unlike the PSD regulations, which apply source-specific emissions factors for each specified electricity purchase. For coal and natural gas, we use the average emissions intensity of generators of each fuel in 2018: 0.981 tCO₂e/MWh for coal and 0.415 tCO₂e/MWh for natural gas (Energy Information Administration (EIA), 2019). This assumption overstates the amount of emissions from some natural gas-fired generators, as some supply contracts involve combined heat and power (CHP) plants that will report lower facility-specific emissions in practice. Finally, as retail sales data are not publicly available for all LSEs, we use the firm load procurement requirement from IEPR Form S-1 as a proxy for this value. The firm load procurement requirement includes retail sales, utility uses, losses, and any wholesale obligations.

Some LSEs have redacted supply data for specific years or for the entire time horizon. In such instances, persistence estimates are used to characterize the missing information. Most notably, this is the case for the natural gas-fired procurements of Pacific Gas & Electric (PG&E) beyond 2018. As such, we assume that the natural gas-fired procurements for PG&E will remain constant at 2018 levels. San Diego Gas & Electric only provides procurement information for the years 2017 and 2018 and consequently is not included in the forward-looking analysis.

2.3. Alternate methodological implementations

In the case of an over-procured LSE, it is necessary to decrement specified purchases in order that the contributions towards the portfolio sum to equal retail sales. The CEC’s adopted methodology preferentially decrements first (1) specified natural gas and then (2) other fossil fueled purchases before (3) non-fossil purchases. As an alternative approach, we consider a methodology that would retain the proportionate representation of the full set of LSE-purchased resources. Instead of preferentially reducing fossil resources over clean energy, this alternative method would reconcile total specified purchases with retail sales by proportionately adjusting all specified purchases downward. This method was originally proposed by the CEC, but (according to the Final Statement of Reasons) elicited broad opposition from stakeholders who requested that the retail supplier be permitted to assign its preferred resources to customers (California Energy Commission (CEC), 2020). This is expressed mathematically in Eq. (7).

$$\forall i \in SP, ANP_i = NP_i - (TNP - RS) \times \left(\frac{NP_i}{TNP} \right) \quad (7)$$

We also explore the treatment of firmed and shaped renewable energy contracts. The PSD program evaluates the emissions associated with new firmed and shaped contracts with respect to the substitute

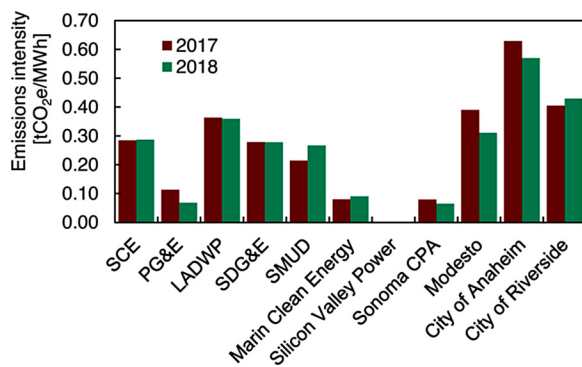


Fig. 1. Calculated emissions intensities for several large California LSEs.

(delivered) power rather than the nominal (contractual) resource. But contracts signed before the new regulations were developed are assigned the emissions of the nominal (contractual) resource. We test the exposure of various LSEs to this policy decision, as well as the temporal effects arising from the turnover of older contracts into new or modified contracts. We assume that all PCC 2 purchases identified in the IEPR supply forms will be grandfathered in and treated as zero-emissions renewables, not evaluated at the emissions intensity of the substitute power. We test the effect of treating PCC 2 procurements as unspecified power in order to characterize the extent to which results may change if existing contracts were not subject to grandfathering.

3. Results

Applying the CEC-adopted calculation methodology to the data from 2019 IEPR supply forms, we present the emissions intensity estimates for several of the largest California LSEs based on 2017 and 2018 procurement data in Fig. 1.

Additionally, we present the outlook for emissions intensity estimates, based on reported procurement plans and contracts in place from 2017 to 2030 (Fig. 2). Any LSE with a 2018 procurement requirement above 2 TW h was included in the analysis, subject to data availability constraints described in Section 2.2.

Fig. 2 illustrates three trends across different categories of LSEs. First, over-procured investor-owned utilities like PG&E would expect to see favorable application of the CEC's preferential reductions of natural gas purchases—causing PG&E's reported emissions intensity to drop to zero before increasing in later years due to the scheduled retirement of its Diablo Canyon nuclear generating units. In contrast, Southern California Edison (SCE) is expected to have constant emissions intensity estimates based on currently reported supply data. This is due to a high reliance on unspecified power and consistent under-procurement

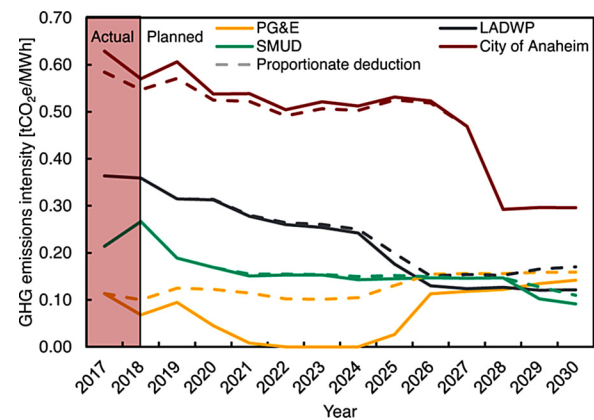


Fig. 3. Comparison of estimated emissions intensity for major load serving entities that plan to be systematically over-procured over the next ten years.

relative to their firm procurement requirement. California's third major IOU, SDG&E, has no public data available for this analysis.

Second, several community choice aggregators—including Marin Clean Energy, Silicon Valley Power, and Monterey Bay Community Power—would report very low GHG emissions intensities in the immediate term, with emissions intensities rising rapidly in the early 2020s. Many of these CCAs rely on firmed and shaped contracts that will be treated as zero-emissions electricity for legacy contracts, but which would receive higher emissions factors associated with actual physical deliveries for new contracts.

Third, some publicly-owned utilities, such as LADWP and SMUD, have emissions intensity values that trend downwards as planned shedding of coal-fired purchases and increased share of zero-emissions energy drives declines in average reported emissions intensity.

Fig. 3 provides additional insights into the effects of over-procurement among some LSEs. This figure compares the results we project using (1) the CEC's adopted method of preferentially decrementing specified natural gas and then other fossil fueled purchases before non-fossil purchases for over-procured LSEs, and (2) the alternate method we described in which all resources are decremented proportionately. For most LSEs, the CEC's adopted method generally biases emissions intensity estimates downward from the true proportionate contribution of specified purchases. In the case of Anaheim Public Utility, however, the preferential deduction of natural gas-fired purchases biases emissions intensity upwards because this POU has significant coal resources in its planned portfolio for most of the 2020s.

Taking this one step further, an LSE could report an emissions intensity of 0 tCO₂e/MWh under the adopted method by procuring an annual volume of zero-emissions energy equal to its retail sales,

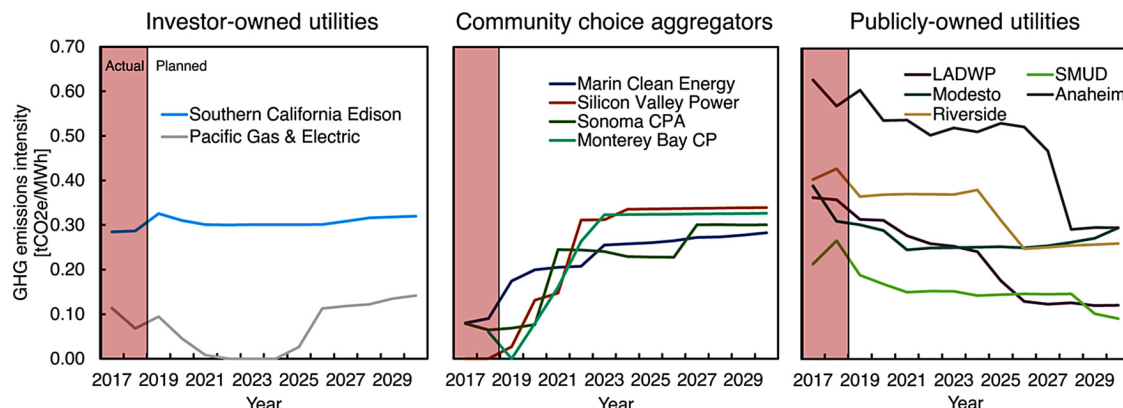


Fig. 2. Calculated emissions intensities for the electricity supply planning forms submitted by IOUs, CCAs, and POUs. Data for years 2017 and 2018 are reflective of actual procurement, while the years 2019–2030 are reflective of planned procurement.

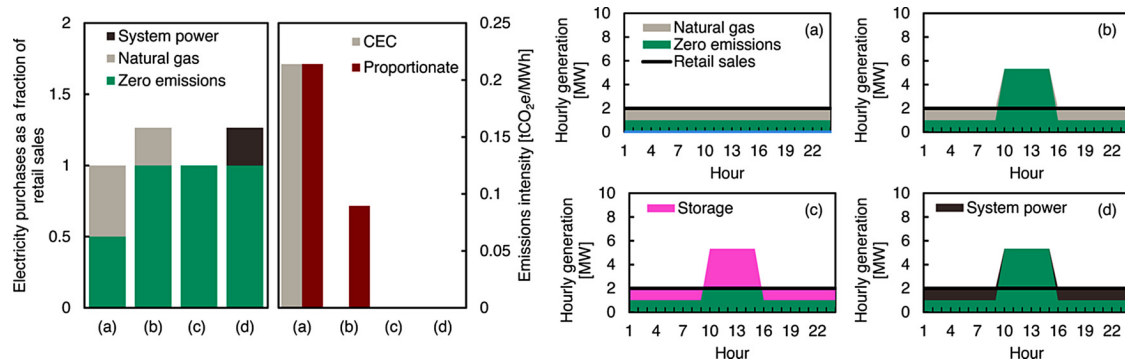


Fig. 4. Left: Various portfolios of specified purchases and/or reliance on system power for a toy load serving entity and the emissions intensity, as calculated by the CEC-adopted method, and using a proportionate reduction for any over-procurement. Right: Illustrative temporal profiles displaying how procured generation for each scenario could align with retail sales in real-time.

regardless of when that generation is provided to the grid. Unless actual zero-emissions generation (with or without storage) closely matches real-time demand, such an LSE would still need to rely on additional procurement that would not be reflected in the reported emissions intensity. Fig. 4 provides a stylized example. In the left panel, we calculate the emissions intensity for a hypothetical LSE with various annual portfolios of specified purchases and/or reliance on system power using (1) the CEC-adopted methodology and (2) the proportionate deduction methodology. The right panel illustrates how annual procured generation could align with retail sales in real time.

In scenario (a), annual retail sales are met by equal shares of specified zero-emissions and natural gas purchases. If instead specified purchases from zero-emissions resources increase to equal annual retail sales as in scenario (b), the CEC's adopted methodology will report 0 tCO₂e/MWh—even if the LSE still relies on natural gas purchases to meet real-time demand. The CEC's adopted methodology will also not differentiate between scenario (b) and scenario (c), in which the LSE utilizes storage (or other load-shifting strategies) to align zero-emissions procurement with demand in real-time, irrespective of their very different consequences for electricity grid operations. The proportionate deduction approach, on the other hand, will result in 0 tCO₂e/MWh if and only if an LSE's specified purchases come exclusively from zero emissions sources.

In scenario (d), the LSE meets real-time demand with unspecified spot market purchases, rather than specified natural gas purchases as in scenario (b). In this instance, neither the CEC-adopted method nor a proportionate reduction approach would allocate any emissions to the LSE, because unspecified power assigned to an LSE is calculated as the aggregate difference between specified purchases and retail sales. Improved temporal resolution, with hourly reconciliation of specified purchases and retail sales for example, is required to capture the reliance on system power visualized in Fig. 4, scenario (d).

Finally, we evaluate the impact of grandfathering existing PCC 2 renewable energy contracts designated as such by three CCAs in the supply forms used in this analysis. Fig. 5 estimates the GHG intensity of these CCAs' portfolios if their legacy contracts were assigned the emissions intensity of unspecified power, rather than renewable power under the CEC's new rules. This change has a substantial effect on 2017 and 2018 reporting, but the impact of this distinction quickly fades as LSEs do not report many long-term contracts designated as PCC 2.

We note that this is an illustrative example of how sensitive the emissions intensity estimates could be to the CEC's decision to provide a more lenient emissions treatment for legacy "firmed and shaped" contracts. We do not have information on the true source of the delivered power for each of these firmed and shaped import contracts—which could plausibly be specified in some legacy "firmed and shaped" contracts—but we believe that unspecified power emissions offers a reasonable way to bound the possible range of impacts. While the impacts

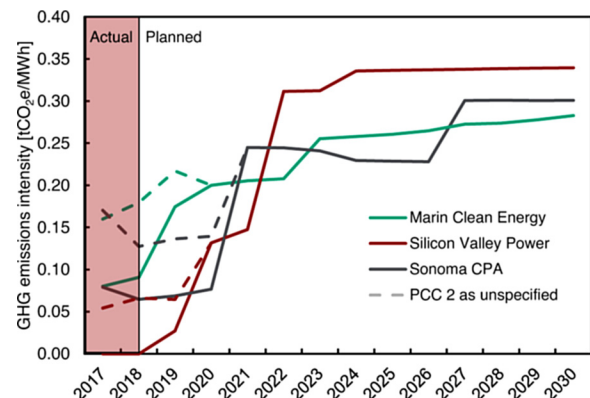


Fig. 5. Alternative emissions intensity estimates for three community choice aggregators if PCC 2 renewable energy contracts are assigned unspecified power GHG emissions.

of this methodological decision could be substantial for near-term reporting of emissions intensity for several entities, the supply forms used in this analysis do not indicate that longer-term contracts for these resources will meaningfully distort the emissions intensity reporting thereafter. In the future, we would expect that LSEs may evaluate whether to modify their procurement behavior because of changes in the PSD program regulations.

4. Discussion and policy implications

The CEC's new Power Source Disclosure methodology fundamentally orients the reporting of LSEs' GHG emissions intensities around the physical flows of power deliveries. As a means of establishing an emissions accounting framework that is reliable in the long run, the new methodology constitutes a meaningful step toward providing accurate, reliable, and simple to understand information regarding fuel sources for electric generation offered for retail sale in California and the associated GHG emissions. In the near term, however, GHG emissions intensities estimated by the new methods might not fully reflect the portfolio of generation resources procured for delivery to serve California customers for two reasons.

First, over-procured LSEs—most notably PG&E—are subject to preferential accounting rules. If these LSEs remain over-procured for the next few years, it is possible that some will report artificially low GHG intensities associated with the fact that they have procured a surplus of zero-carbon resources relative to their loads and may be selling these resources to other LSEs on the spot market. On the other hand, over-procured LSEs have generally been selling their procured resource contracts to other LSEs whose customer bases are growing. While LSEs have no fundamental economic interest in remaining over-

procured, to the extent they are able to balance their supply and demand needs through reselling in wholesale electricity markets—including possible future exports throughout and expanded western market—then it is conceivable that some will maintain a procurement posture that produces biased GHG intensity estimates under the PSD program. The pace at which resource re-allocation progresses will likely determine whether this issue manifests at a meaningful scale. A recent proposal could re-allocate large portions of the zero-GHG procurements from IOUs to CCAs, which would alter the trends identified, potentially leaving the CCAs in an over-procured position relative to their retail sales (Final Report of Working Group, 2020). State regulators should be well positioned to monitor these conditions and evaluate whether any methodological changes are needed in the future.

Second, the CEC made a policy decision to grandfather LSEs' firm and shaped contracts. Legacy firm and shaped contracts that provide non-zero-GHG delivered resources are treated as having zero emissions for the purpose of the PSD program, even though new contracts with identical provisions will be assessed at the emissions intensity of the physically delivered power. This decision will tend to bias downwards the reported emissions intensity of LSE portfolios in most cases where such contracts are present. Nevertheless, current supply data indicates that any such effects are likely to be transient: as long-term supply contracts and retail electricity load are transferred between IOUs and CCAs, the impact of these methodological decisions should be diminished because new or modified contracts will be assigned the emissions of the power they physically deliver.

We note that all our analysis is based on data and projections made in the IEPR reporting process, which occurred prior to the final PSD program regulations. We anticipate that many LSEs will evaluate how the new regulations affect them and may choose to modify their procurements going forward. For example, firm and shaped procurements may be less popular now that the emissions intensity of such purchases will be calculated with respect to the delivered energy, rather than the nominally contracted source. As a result, we would expect that actual procurement will vary from what is projected in the 2019 IEPR planning process. Our results should not be interpreted as a prediction, but rather as an empirically grounded scenario for exploring potential issues arising under the PSD program requirements.

It is also possible that LSEs might adapt their procurement behavior to achieve artificially low emissions intensity estimates under the PSD accounting methodology. For example, an LSE's over-procurement of long-term supplies relative to retail sales will tend to create GHG emissions intensity estimates that are biased downward. LSEs are permitted to count any "delivered" electricity as a specified purchase, which is broadly defined to include any generation with a first point of interconnection in a California balancing authority. It is likely that in the coming decades, enhanced regional coordination will increase spot export of electricity from in-state renewable generators to mitigate curtailment (California Independent System Operator (CAISO), 2019). The current CEC-adopted methodology would allow LSEs to nominally achieve zero emissions associated with retail sales while maintaining specified purchases of fossil-fueled generation offset on an annual basis by an equal amount of over-procured renewables that are exported to serve out-of-state load. This would represent a divergence between the regulatory definition of "delivered" electricity and the electricity physically delivered to serve California customers. Such an outcome could also create inconsistencies in interagency GHG accounting. For example, the greenhouse gas emissions inventory conducted by CARB assesses emissions liabilities that reflect all in-state generation and gross electricity imports (California Air Resources Board (CARB), 2018b). In a high-exports scenario, the CEC could report LSE emissions intensities approaching zero while CARB assesses nontrivial emissions liabilities to electricity importers and/or in-state merchant generators. While the spot market price risk of this financial position may not be attractive to LSEs, we offer this thought experiment as an illustration of how the CEC's new methodology could be exploited to bias reported emissions

intensities downwards.

This potential divergence could be remedied by moving towards an hourly accounting system to reconcile LSEs' procured generation supplies and retail sales. Under this framework, hourly generation that exceeds demand would be credited according to the emissions avoided by displacing system power, while demand that exceeds specified purchases would be assessed liabilities at the emissions intensity of system power for that hour. This approach is taken for long term planning of future energy systems by the California Public Utilities Commission in the Clean System Power calculator (California Public Utilities Commission (CPUC), 2020a). In order to match this methodological approach in the PSD program, the nominal allocation of historical hourly generation to retail load would require additional data reporting from LSEs on the temporal generation of all specified purchases. In theory, generation curtailment could eventually create the incentive for LSEs to pursue improved hourly matching. By adopting hourly accounting structures, however, policymakers could accelerate that trend, limit the nominal concentration of emitting generation among unregulated segments of load (losses, self-consumption, wholesale sales, exports, etc.), and improve consistency with other utility planning proceedings (The Utility Reform Network (TURN), 2019; California Public Utilities Commission (CPUC), 2020b).

The CEC's adopted regulations also include an exclusion such that newly established CCAs will not begin reporting the GHG emissions intensity of their retail sales portfolio until two years following service of their first retail customers (California Energy Commission (CEC), 2019a). As additional CCAs form, the PSD program will not produce public information during CCAs' initial years, when customers are most likely to decide whether to opt out of a newly formed CCA. CCAs often claim superior environmental attributes relative to the incumbent utility provider, but the lack of clear information on emissions characteristics during the initial phase of new CCAs' operations—as well as potential bias in the values reported for over-procured incumbents—could deprive consumers of relevant information.

5. Conclusions

In updating its Power Source Disclosure program, the California Energy Commission has taken meaningful steps to improve the reporting structures for GHG emissions intensity associated with retail electricity service to California customers. By assigning imported specified purchases of electricity the emissions associated with delivered power, the CEC aims to balance recognition of the physical and contractual elements of electricity system operation.

We find that the PSD program's methods are likely to produce a clear and reasonable basis for evaluating the emissions associated with physical deliveries of retail power over the long run. In the near term, however, two effects—both of which are likely transient—could lead to artificially low reported GHG emissions intensities for some LSEs. First, the PSD program rules reward LSEs that are over-procured by preferentially deducting the GHG emissions associated with emitting resources. This allows over-procured LSEs to claim a higher share of zero-carbon resources than is present in their total procurement profile. Until the process of re-allocating retail electricity load and long-term supply contracts among LSEs is complete, the CEC-adopted methodology could allow several LSEs to report artificially low emissions intensity estimates. Second, a decision to grandfather legacy firm and shaped contracts under a preferential emissions accounting method will tend to produce artificially low GHG emissions estimates for LSEs that, like many community choice aggregators, have relied heavily on contracts that include renewable energy certificates but physically deliver other resources to retail customers. As these contracts reach maturity, however, the reported GHG emissions of their replacements will be increasingly based instead on the power that they physically deliver.

The PSD program's primary use is as a customer-facing retail labeling program, but its accounting structure could also be applied to

other state policies. Notably, SB 100 set a target for all LSEs to deliver 100 % of retail sales from zero-GHG resources by 2045. Because this target is expressed in the same terms as the PSD program, it is possible that the PSD methods could be adapted or applied to inform an implementation strategy for SB 100.

Both in the context of evaluating the accuracy of the retail labeling program as well as any future application to deep decarbonization policy, the PSD program would benefit from ongoing regulatory monitoring and evaluation. As electricity markets evolve, some of the program's methodological choices could lead to unintentional bias that becomes more problematic than it appears today. For example, if an export-intensive spot market develops and some LSEs remain contractually over-procured, it might be possible that some of the challenges we identified in this paper become more problematic. In addition, there may be important opportunities to improve the PSD program by incorporating hourly analysis of generation and retail load matching, especially if this can be done in coordination with other state agencies. Meanwhile, by shifting to a retail electricity emissions accounting regime that is based on physical power deliveries, the PSD program is now set up to help policymakers and LSEs navigate the direct climate impacts of their procurement decisions.

Acronyms

CARB	– California Air Resources Board
CCA	– Community choice aggregator
CEC	– California Energy Commission
GHG	– Greenhouse gas
IEMAC	– Independent Emissions Market Advisory Committee
IEPR	– Integrated Energy Policy Report
IOU	– Investor-owned utility
LSE	– Load-serving entity
NERC	– North American Electric Reliability Corporation
PCC	– Portfolio content category
POU	– Publicly-owned utility
PSD	– Power Source Disclosure
REC	– Renewable energy credit
RPS	– Renewables Portfolio Standard

Declaration of Competing Interest

The authors report no declarations of interest.

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STATE OF CALIFORNIA

BEFORE THE CALIFORNIA ENERGY COMMISSION

In the Matter of:

AB 1110 Implementation Rulemaking

Docket No. 16-OIR-05

**Near Zero's Comments on the Draft
Regulatory Amendments to the Power
Source Disclosure Program**

October 28, 2019

Thank you for the opportunity to offer comments on the proposed changes to the Commission's Power Source Disclosure (PSD) Program regulations. Near Zero is a non-profit research organization focused on the design and implementation of climate policies, especially those that support the goal of deep decarbonization.

We appreciate the effort the Commission has put into updating the PSD Program to account for the greenhouse gas (GHG) emissions associated with electricity that serves California customers' loads. We believe the proposed regulations reflect important progress in improving the quality and accuracy of the PSD Program and commend the Commission for its efforts. Below we provide a set of comments that offer some specific constructive suggestions to further strengthen the Commission's proposal as well as to identify a set of issues we suggest the Commission may wish to monitor for consideration in future rulemakings.

1. The proposed PSD regulations would strengthen the quality of GHG emissions accounting for electricity that serves California customers' loads, particularly in the treatment of firmed-and-shaped and unbundled REC contracts (General comment).

The proposed regulations would take important steps to improve the quality of GHG emissions accounting, consistent with AB 1110. In particular, the Commission proposes to assign the GHG emissions intensity associated with actual power deliveries that serve retail loads for firmed-and-shaped and unbundled REC contracts in Section 1393(c)(1). This approach will help more accurately report the GHG emissions associated with the electricity that physically serves California retail loads.

Although we believe the proposed regulations would improve the basis for identifying GHG emissions associated with electricity serving California customers' loads, we note that the proposed methodology is calculated only on an annual basis. We appreciate that an annual accounting structure offers a straightforward approach that facilitates regulatory oversight and minimizes compliance burdens on load-serving entities, but stress that matching clean energy with load on a more real-time basis, such as hourly accounting, will likely be needed to support deep decarbonization of the electricity sector. The proposed PSD regulations would improve the quality of GHG accounting but would not provide a direct incentive to balance loads at this level of temporal granularity.

As a result, we encourage the Commission to monitor load-serving entities' progress toward real-time clean energy load-balancing and consider future updates to the PSD Program as circumstances warrant. Further updates will likely be necessary to enable the PSD Program to directly support SB 100's long-term goal of serving California's retail loads with zero-carbon electricity by 2045.

2. The Commission should explicitly extend its GHG accounting principles for specified purchases to purchases from large hydropower generators (Section 1393(c)(1)).

Section 1393(c)(1) of the proposed regulations requires load-serving entities to calculate the GHG emissions of "specified purchases [of electricity], including eligible firm-and-shaped products" based on the GHG emissions of "delivered electricity." According to the staff ISOR, this requirement would apply to all electricity procurements, including but not limited to those from RPS-eligible resources.¹ However, the ISOR discussion focuses on RPS-eligible resources and the text of the proposed rule is not explicit regarding whether large hydropower generators are included in Section 1393(c)(1). We recommend making large hydropower's inclusion explicit, rather than implicit.

Explicit inclusion of large hydropower resources is warranted because these resources are an important part of California's electricity mix and some hydropower imports may raise accounting issues that are essentially identical to those raised by some RPS-eligible firm-and-shaped renewable energy contracts. Our understanding is that some California load-serving entities may have contracts with large hydropower facilities that include clauses accommodating a certain amount of unspecified or replacement power deliveries, such that these contracts resemble the structure of "[RPS-]eligible firm-and-shaped" contracts—except for the fact that large hydropower generators are not RPS-eligible. Thus, it would be consistent

¹ CEC ISOR, Docket No. 16-OIR-05 (Sept. 2019) at 15-16.

with the Commission’s proposed treatment of eligible firm-and-shaped products to require load-serving entities to report the GHG emissions associated with actual power deliveries from hydropower products, which may in some cases include some non-hydropower deliveries.

Given the importance of large hydropower resources to serving California’s load and their associated contributions to GHG emission reductions, we recommend explicitly extending the reach of Section 1393(c)(1) to include these resources. This approach would ensure that hydropower is treated on an equal basis with RPS-eligible specified deliveries and could be accomplished by adding the following language in Section 1391(c)(1), which draws on the existing definition of “large hydroelectric” in Section 1391:

GHG emissions of specified purchases, including but not limited to large hydroelectric and eligible firm-and-shaped products, shall be based on the delivered electricity.

Again, our understanding is that the proposal already intends to include large hydropower resources in this provision; our recommendation is to make this explicit to avoid any potential ambiguity affecting the largest source of specified low-GHG imports.

3. The Commission should monitor any new research addressing the default unspecified GHG emissions factor that applies to unspecified power because this factor was calculated from 10-year-old market conditions and may be inaccurate (Section 1393(c)(3)).

One important question for any GHG accounting system is how to assign emissions to unspecified power—that is, electricity that cannot be traced to specific generation sources. The proposed regulations would assign unspecified power the default emissions factor developed by the California Air Resources Board (CARB) in its Mandatory Reporting Regulation. This approach has the advantage of ensuring consistency with the methods taken by CARB in its cap-and-trade program and GHG inventory, which is a commendable policy goal.

Nevertheless, CARB’s default emissions factor has been criticized as outdated and potentially inaccurate. This factor is based on a calculation of WECC-wide emissions from certain generating sources over the period 2006-2008, a period that reflects a very different time in the history of western electricity markets.² Reflecting these concerns, the Independent Emissions Market Advisory Committee, which was created to provide independent advice to CARB and

² Joe Kaatz & Scott Anders, The role of unspecified power in developing locally relevant greenhouse gas emissions factors in California’s electric sector, *Electricity Journal* 29: 1-11 (2016).

the Legislature, recommended in 2018 that CARB update its default emissions factor.³ CARB has not provided an update and maintained in a recent rulemaking that no update is needed.⁴

We respectfully urge the Commission to monitor any new research that becomes available on the GHG emissions associated with unspecified power deliveries to California. If it appears that CARB's current default emissions factor does not accurately capture the GHG emissions associated with unspecified power, its adoption in the PSD Program could distort the true GHG emissions profile of electricity serving California customers' load.

4. The proposed methods for calculating the GHG emissions profile of load-serving entities that procure more electricity than they have retail sales create potential perverse incentives and potential accounting inaccuracies (Section 1393(a)(6), Equation 3).

The Commission observes that some load-serving entities procure more specified net purchases of electricity than they have retail sales, as calculated on an annual basis—a condition we will call “over-procured” here for convenience. As a result, the PSD Program requires a method for decrementing specified net purchases such that the sum of total adjusted net purchases equals the entity's retail sales.

To accomplish this goal, the Commission proposes to calculate the GHG emissions intensity of load-serving entities' retail sales by reducing the number of megawatt-hours of specified resources reported for PSD purposes in Section 1393(a)(6). A load-serving entity that is over-procured would reduce the number of megawatt-hours of specified natural gas purchases it reports under the PSD Program. If these adjustments are not sufficient to reduce procurement down to the level of its retail sales, the load-serving entity would further reduce its reported purchases from coal and other fossil resources, then large hydropower and nuclear resources, as needed, in that order.

The proposed approach would match the number of megawatt-hours of procured specified contracts to each load-serving entity's retail sales, but it introduces a number of complexities, some of which Anaheim Public Utilities raised in an earlier comment.⁵ The proposed methods raise the possibility that some load-serving entities that are over-procured will report

³ 2018 IEMAC Annual Report (Oct. 2018) at 38, https://calepa.ca.gov/wp-content/uploads/sites/6/2018/10/Final_2018_IEMAC_Annual_Report_10-22-2018.pdf. Please note that Dr. Cullenward is a member of the IEMAC but does not speak on behalf of the IEMAC in this comment letter.

⁴ CARB, 2018 Mandatory Greenhouse Gas Reporting Regulation Update, ISOR (Sept. 2018) at 16, <https://ww2.arb.ca.gov/rulemaking/2018/mandatory-reporting-greenhouse-gas-emissions-2018>.

⁵ Comments from Anaheim Public Utilities, CEC Docket No. 16-OIR-05, TN #230259 (Oct. 17, 2019).

significantly lower GHG intensity than would actually be associated with the net portfolio of resources they deliver to retail customers because the Commission’s proposed approach would allow such entities to preferentially reduce their GHG-emitting resources first; others that have significant coal procurements but relatively few gas procurements at this time, like Anaheim, might report higher GHG intensity than they would without the Commission’s proposed treatment in Section 1393(a)(6).

Not only might the Commission’s proposed approach lead to inaccurate GHG emissions accounting, but it might also encourage load-serving entities to procure unshaped RPS-eligible resources—that is, to procure additional gross megawatt-hours without regard to real-time retail demand, rather than appropriately timed clean energy supplies—because all such procurement will tend to significantly reduce the entity’s reported GHG emissions under the Commission’s proposal in Section 1393(a)(6).

We agree with Anaheim that the Commission may wish to consider an alternative approach to calculating the GHG emissions associated with retail sales and suggest a different option here. Rather than preferentially reducing one category of resource after another until specified net purchases are equal to retail sales, the Commission might instead discount the total amount of every resource type by the ratio of retail sales to total specified procurement. That is, if a load-serving entity procures 25% more specified energy than it has retail sales (i.e., 125%), then the reported proportion of each resource type could be discounted by 80% (i.e., 100%/125%).

Our suggested alternative approach could be implemented by replacing the text of the proposed Section 1393(a)(6) in its entirety with the following text:

If the total procurement of specified net purchases of an electricity portfolio exceeds retail sales, each net purchase of electricity shall be proportionately reduced so that the sum of all adjusted net purchases equals the retail sales of an electricity portfolio, as expressed in Equation 3.

In turn, this alternative approach could be implemented by striking the term “NP_{NR}” from Equation 3 and replacing it with the term “NP”.

$$\text{Equation 3: } ANP_i = NP_i - (NP - RS) \times \left(\frac{NP_i}{NP} \right)$$

Where the terms have the same meaning as in the current proposal:

ANP_i = Adjusted net purchase i, measured in MWh

NP_i = Net purchase i, measured in MWh

NP = Sum of all net purchases, measured in MWh

RS = Total retail sales of an electricity portfolio, measured in MWh

NP_{NR} = Any net purchase of a fuel type that is not an eligible renewable, large hydro, or nuclear resource, measured in MWh.

For further clarity, this alternative Equation 3 can be simplified and rewritten as:

$$\text{Equation 3: } ANP_i = NP_i \times \left(\frac{RS}{NP} \right)$$

This alternative approach would achieve the Commission's goal of matching total procured specified net purchases with retail sale volumes. It would also create two additional advantages.

First, this alternative would not shift the proportional share of resources each load-serving entity reports, only the quantity of each resource that counts toward the total GHG intensity calculation. This would avoid the potential for over-procured load-serving entities to book unrealistic reductions in reported GHG emission intensities as well as avoid outcomes where load-serving entities with coal procurements report GHG emission intensities that overrepresent the emissions associated with their coal imports.

Second, as load-serving entities strive to report emissions intensities approaching zero, this alternative calculation would create a modest incentive for load-serving entities to procure low-GHG energy that is coincident with retail demand, such that more of its specified RPS-eligible resources would contribute toward reducing reported GHG outcomes. Under any annual accounting structure, including the proposed rules and our suggested alternative, load-serving entities can dilute their reported GHG emissions intensity by over-procuring specified low-GHG resources relative to retail load. An accounting structure that preferentially rewards over-procurement of low-GHG resources, like the Commission's proposal, could exacerbate the incentives load-serving entities face under an annual accounting regime to rely on over-procurement to reduce reported GHG intensity. In contrast, a proportional discounting method, such as the one we present here, would partially mitigate those incentives by reducing the extent to which over-procurement affects the reported GHG intensity. By reducing the incentive to over-procure low- and zero-GHG resources, our alternative would support the longer-term alignment of the PSD Program with more temporally granular approaches, such as

the hourly Clean Net Short approach used in the California Public Utilities Commission's Integrated Resource Planning process.

5. The Commission should clarify how it will limit grandfathering of eligible firm-and-shaped products under contracts executed prior to January 1, 2019 (Section 1393(d)(1)).

The Commission proposes to exempt certain legacy firm-and-shaped contracts from its approach to GHG emissions accounting, which, under Section 1393(c)(1), would otherwise require load-serving entities to report the GHG emissions associated with the power that is physically delivered to California. Under the Commission's proposal in Section 1393(d)(1), contracts for eligible firm-and-shaped resources signed prior to January 1, 2019 would be exempt from this requirement; instead, their off-takers would report the GHG emissions associated with the contracted-for eligible renewable energy resource substantiated by RECs, even if another source of electricity ends up providing the power physically serving retail loads.

Grandfathering provisions should be carefully tailored to avoid any potential loopholes that could enable legacy contracts to be extended beyond the initial accommodation period. We urge the Commission to ensure that it finalizes a tight and clear definition that limits legacy contracts, consistent with the policy preferences it articulates in the ISOR. The ISOR contemplates that whenever "the duration of a contract has been extended or renewed for an additional term or the terms have been amended or otherwise modified," then a legacy contract will no longer be exempted from the provisions of Section 1393(c)(1)—that is, any extension, renewal, amendment, or modification will end the contract's exemption.⁶

If the Commission decides to include any grandfathering in the first place—despite the fact that, as the Commission observes, CARB's Mandatory Reporting Regulations have required since 2011 that firm-and-shaped resources be treated similarly to how they would be treated under the Commission's current proposal for the PSD program—then we agree that the limits contemplated in the ISOR are both reasonable and important. However, the proposed regulatory text does not necessarily reflect these concepts as well as it might. We would encourage the Commission to strengthen the text of Section 1393(d)(1)(B) as follows:

Retail suppliers with specified purchases of eligible firm-and-shaped products under a purchase agreement or ownership agreement that has been amended, modified, renewed, or extended in any way, including by automatically renewing or extending terms as

⁶ CEC ISOR, Docket No. 16-OIR-05 (Sept. 2019) at 23.

contemplated in the original agreement, on or after January 1, 2019, shall report GHG emissions according to the source of the delivered electricity for inclusion in the GHG emissions intensity calculation of the electricity portfolio pursuant to subdivision (c)(1).

These additional clarifications are warranted because many long-term purchase or ownership agreements contain provisions that enable the parties to automatically extend or renew contract terms beyond the minimum duration committed to in the contract. While these types of provisions provide important commercial benefits to contracting parties, it cannot be said that these parties have a vested right to extend or renew grandfathering terms. The fact that any possible extensions or renewals contemplated in the grandfathered agreement would end the grandfathering exemption is fair as a matter of public policy: parties need not elect these extensions or renewals, and parties have no right to expect that regulatory conditions will remain fixed through any optional extension of the contract terms. The only thing that private parties have committed to is the minimum duration of their purchase or ownership agreements, and therefore the only timeframes and conditions under which their legacy agreements are legitimately grandfathered are those same timeframes and conditions.

We are confident the Commission would be able to review and assess these issues under the reporting requirements already proposed in Section 1393(d)(1)(A) but believe that stronger language in paragraph (B) is warranted to create clear market expectations that are consistent with the existing reasoning in the ISOR.

6. The Commission should monitor the role of electricity exports and consider how a changing net import-export balance may affect the goals and implementation of its PSD Program in the future (General comment).

Finally, we suggest that the Commission may want to monitor how changes to electricity exports and net electricity trades with neighboring states could recommend alternative approaches to GHG accounting associated with retail loads in the future.

Currently, electricity exports play a relatively small role in California's electricity system, but particularly as the state deploys additional RPS-eligible resources, there may be significant economic and environmental value to exporting surplus clean electricity to neighboring states. These potential benefits are among the motivations behind the California Independent System Operator's consideration of an Extended Day-Ahead Market (EDAM) that would involve the

participation of non-CAISO balancing area authorities on the western grid that participate in the current, real-time Energy Imbalance Market.⁷

While the complexities of the CAISO EDAM market design process and its associated GHG accounting provisions are outside the scope of this rulemaking process, it is plausible that California may end up exporting significant quantities of electricity in the future—and particularly from low-carbon renewable resources. The Commission may wish to monitor trends and consider how to account for any such outcomes in its PSD Program, as well as how to ensure consistency with the GHG accounting discussions that will be part of the CAISO EDAM process.

State GHG accounting structures, including the Commission’s PSD Program, do not currently account for the GHG emission reductions clean electricity exports facilitate in neighboring states when they displace the need for fossil generation to serve those states’ customers’ retail loads. This choice allows other states to book their own GHG reductions in response to consumption of California’s low-carbon exports, rather than giving credit to California entities for these outcomes; and that flexibility might be important in a broader regional discussion about GHG accounting. However, it is conceivable that the potential for exporting significant quantities of clean electricity will create incentives for California load-serving entities to procure additional specified resources that are sold, in part, in regional electricity markets.

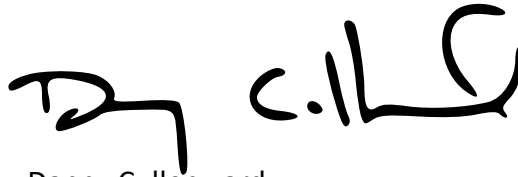
As a result, it will be important to consider how these incentives and market structures may affect the Commission’s selected methods for calculating the GHG emissions intensity of each load-serving entity on the basis of its final retail sales—for example, as contemplated in either the Commission’s proposal for Section 1393(a)(6) or in our suggested alternative.

* * * *

⁷ CAISO, Extending the Day-Ahead Market to EIM Entities, Issue Paper (Oct. 10, 2019), <http://www.caiso.com/Documents/IssuePaper-ExtendedDayAheadMarket.pdf>.

We appreciate the opportunity to provide these comments and hope they will help further strengthen the Commission's final regulations.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D. Cullenward'.

Danny Cullenward
Michael Mastrandrea

Near Zero

260 Panama Street

Stanford, CA 94305

Email: dcullenward@nearzero.org

Gregory Von Wald

PhD student, Stanford University⁸

October 28, 2019

⁸ Mr. Von Wald is signing in his individual capacity and not on behalf of Stanford University, where he is a PhD student in the Energy Resources Engineering Department. We also thank Stanford Law School JD candidate Amanda Zerbe for her help drafting this letter and developing its analysis.

Letter 501 – Response to Comments

Response to Comment 501-1 – Carbon Intensity Factor

This comment states Pacific Gas and Electric's (PG&E) 2019 third-party verified carbon intensity is incorrect to use for the Project's GHG emissions estimate. Please see Master Response 2 (GHG and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and the energy intensity factor applied.

McNamara, Cade

From: CEQAResponses
Sent: Thursday, January 27, 2022 11:06 AM
To: McNamara, Cade
Subject: FW: Nordic Aquafarms
Attachments: Nordic Aqua Farms - Letter of Support 1-20-22.pdf



Laura McClenagan

Executive Secretary
Humboldt County Planning and Building Department
3015 H Street | Eureka, CA 95501
Phone: 707-268-3702 | Fax: 707-268-3792
Email: lmcclenagan2@co.humboldt.ca.us

From: Scott Pesch <pacificpartnerscommercial@gmail.com>
Sent: Tuesday, January 25, 2022 3:42 PM
To: CEQAResponses <CEQAResponses@co.humboldt.ca.us>
Subject: Nordic Aquafarms

Cade, please find attached my letter of support for their potential project. Thank you.

Scott Pesch
Broker / Owner
Coldwell Banker Commercial Pacific Partners
1036 5th Street, Suite A
Eureka, CA 95501
DRE#01190750

(o) 707.442.2222
(c) 707.845.3459
(f) 707.442.4474
pacificpartnerscommercial@gmail.com
scott@pacificpartnerscommercial.com

January 20, 2022

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501

Dear County of Humboldt Planning and Building Department,

On behalf of Coldwell Banker Commercial Pacific Partners, I am pleased to write this letter in support of Nordic Aquafarms' project planned for the Samoa Peninsula. Nordic Aquafarms focuses on fish welfare and environmental sustainability, and they employ proprietary recirculating aquaculture systems (RAS) with patented technology. The end-results are modules ready for truly large-scale RAS farming – and a key solution in contributing to increasing seafood supply without leaving a material environmental footprint.

The Nordic Aquafarms' project will provide many community benefits, including clean-up of a long-abandoned site containing hazardous materials, abandoned buildings and industrial debris. The project will also stimulate economic activity and provide a wide range of employment opportunities. In addition to what Nordic will directly contribute to our local economy, the Nordic project will be a draw for other aquaculture businesses on the peninsula, thereby increasing economic prosperity and employment opportunities for our region.

Nordic Aquafarms has been actively engaging in our community through public meetings, site tours and targeted outreach to stakeholders. Nordic is working closely with College of the Redwoods to revitalize their aquaculture program and with HSU to ensure a steady pipeline of local qualified professionals. Nordic is also working with the Humboldt County Office of Education to introduce information to students about careers in aquaculture and to offer support in classroom educational programs.

The Nordic team has gone to great lengths to be transparent, inclusive, and comprehensive in their research and sharing results throughout the public process and we are confident that they will be a benefit to our local economy as well as to our community. The insert organization here is pleased to support this project.

Sincerely,

Scott Pesch

President / Owner

502-1

Letter 502 – Response to Comments

Response to Comment 502-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).



Sent via email to address shown below

February 18, 2022

Planning Director John Ford
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501
CEQAResponses@co.humboldt.ca.us

Dear Planning Director Ford,

On behalf of Humboldt Baykeeper, the Coalition for Responsible Transportation Priorities, Surfrider Foundation, the Northcoast Environmental Center, 350 Humboldt, the Environmental Protection Information Center, Friends of the Eel River, Save California Salmon, and the Sierra Club Redwood Chapter North Group, please accept these comments on the Draft Environmental Impact Report (DEIR). The project proponent has been receptive to criticism and open to suggestion and these comments are presented in that same spirit.

I. LEGAL FRAMEWORK

At its heart, the California Environmental Quality Act (CEQA) mandates that government decisionmakers understand the environmental ramifications of their decisions. CEQA serves “to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.”¹ If CEQA is “scrupulously followed,” the public will know the

¹ *Laurel Heights Improvement Ass’n v. Regents of Univ. of Cal.* 47 Cal. 3d 376, 392 (1988)

basis for the agency's action and "being duly informed, can respond accordingly to action with which it disagrees."² Thus, CEQA "protects not only the environment but also informed self-government."³

CEQA further strives to result in better environmental decisionmaking. Critical to that is a full understanding of the way that project impacts can be avoided, minimized, or mitigated, either through alternatives to the proposed action or project mitigation measures.

A project should not be approved if environmentally superior alternatives exist "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."⁴ The Project must be rejected if an alternative available for consideration would accomplish "most [not all] of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects."⁵ "An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation."⁶ The CEQA Guidelines expressly provide that a feasible alternative may impede achievement of the project objectives to some degree, or may be more costly.⁷ This is reasonable because if applicants could thwart consideration of all potentially feasible alternatives simply by adopting overly narrow objectives, CEQA would be rendered meaningless.⁸ Accordingly, the EIR must consider a range of alternatives that would achieve the basic objectives of the project while avoiding or substantially lessening significant environmental effects, and it is essential that the "EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project."⁹

CEQA Guidelines section 15126.2(a) provides that:

Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in...other aspects of the resource base....

CEQA mandates that government agencies must deny approval of a project presenting significant adverse effects when feasible alternatives or feasible mitigation measures can substantially lessen such effects.¹⁰ Only when feasible mitigation measures have been exhausted may an agency find that overriding considerations exist that outweigh the significant environmental effects.¹¹ This mandate—to avoid, minimize and mitigate significant adverse effects where feasible—has been described as the "most important" provision of the law.¹²

² Id.

³ Id.

⁴ Pub. Res. Code §§ 21002; CEQA Guidelines §§ 15021(a)(2), 15126.6.

⁵ Guidelines § 15126.6(c).

⁶ Guidelines, § 15126.6(a).

⁷ See Guidelines, § 15126.6(a), (b).

⁸ See *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 736-37 (holding that applicant's prior commitments could not foreclose analysis of alternatives).

⁹ CEQA Guidelines § 15126.6.

¹⁰ Pub. Resources Code 21002.

¹¹ Pub. Resource Code 21081; see also CEQA Guidelines 15091(a).

¹² *Sierra Club v. Gilroy City Council*, 222 Cal. App. 3d 30, 41, 271 Cal. Rptr. 393 (Ct. App. 1990).

To effectuate this “most important” provision, the government is tasked with investigating the potential adverse effects and all feasible alternatives and mitigation measures that decisionmakers may adopt.¹³ CEQA likewise requires alternatives and mitigation measures to be sufficiently detailed to “to foster informed decision-making and public participation.”¹⁴

Feasibility, as used by CEQA and the Guidelines, is where a mitigation measure is “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.”¹⁵ “In keeping with the statute and guidelines, an adequate EIR must respond to specific suggestions for mitigating a significant environmental impact unless the suggested mitigation is facially infeasible. While the response need not be exhaustive, it should evince good faith and a reasoned analysis.”¹⁶

The ultimate determination of the sufficiency and feasibility of mitigation measures is the province of the action agency. These determinations must be supported by findings supported by substantial evidence.¹⁷ Averments by project developers concerning the financial feasibility of mitigation are not dispositive of the question; rather, that is one piece of information that may be considered by the action agency.

II. GREENHOUSE GAS EMISSIONS

We believe that the only reasonable conclusion from the CEQA record is that this project will result in significant impacts from greenhouse gas emissions associated with electricity usage and transportation-related emissions. Additionally, we have concerns with the sufficiency of the analysis related to refrigerants. Additional mitigation measures are necessary, either to bring the project below a threshold of significance *or* in conjunction with a statement of overriding consideration. We have suggested additional mitigation measures in this document although we are happy to work with the county and the developer to identify other measures that would accomplish similar reductions in greenhouse gases.

A. Emissions from Electricity

The DEIR is flawed in two related but independent ways. First, the modeling of likely greenhouse gas emissions from electricity use utilizes an estimate from 2019 concerning the “carbon intensity” of existing energy. However, the 2019 estimate used is widely known to undercount actual greenhouse gas emissions from electricity. If the analysis was completed using more accurate data, the associated greenhouse gas emissions would increase significantly and above the threshold of significance employed by the project. Second, the DEIR employs the wrong threshold of significance. With the correct threshold, even utilizing the lower emissions estimate contained in the DEIR, the project would surpass this threshold of significance. Either way, both errors work in the same direction as underreporting or mischaracterizing the significance of project-related emissions. Additional mitigation measures are necessary and some are provided for consideration

¹³ Pub. Resources Code 21100; CEQA Guidelines 15126.

¹⁴ *Save Round Valley Alliance v. County of Inyo*, 157 Cal.App.4th at pp. 1456, 1460 (2007).

¹⁵ Public Resources Code 21061.1; CEQA Guidelines, § 15364.

¹⁶ *Los Angeles Unified School District v. City of Los Angeles*, 58 Cal. App. 4th 1019, 1029 (1997) (internal citation omitted).

¹⁷ *See Federation of Hillside & Canyon Associations c. City of Los Angeles*, 83 Cal. App. 4th (2d Dist. 2000); *Concerned Citizens of South Los Angeles v. Los Angeles Unified School District*, 24 Cal. App. 4th 825 (2d Dist. 1994).

1. Greenhouse Gas Modeling Assumptions Flawed

The Initial Study/Mitigated Negative Declaration (IS/MND) published for the project in April 2021 estimated that the energy used by the project would produce 15,293 MT CO₂e/yr.¹⁸ This calculation was purportedly based on “existing PG&E carbon intensity factors,” although no year was specified.¹⁹ The DEIR used 2019 PG&E carbon intensity factors and concluded that greenhouse gas (GHG) emissions from energy use would only be 340 MT CO₂e/yr at full build-out—a nearly 50-fold decrease from the IS/MND estimate, and an unrealistically low number based on the project’s electricity consumption.²⁰ Appendix B of the DEIR, which shows modeling results, contains the explanation on p.94: the assumed carbon intensity of PG&E delivered energy is 2.68 lb. CO₂e/MWh, derived from PG&E reporting in 2019.²¹ However, the 2019 figure is an aberration resulting from a change in calculation methodology developed by the California Energy Commission (CEC). As explained in Von Wald et al., the new method of carbon intensity calculation which took effect in 2019 “preferentially decrements first (1) specified natural gas and then (2) other fossil fueled purchases before (3) non-fossil purchases.”²² Because PG&E in 2019 (and subsequent years) had purchased substantially more electricity than they supplied, this allowed them to artificially lower their carbon intensity figure by failing to include their high-carbon sources in the calculation, despite those sources contributing substantially to the actual electricity delivered. As Von Wald et al. put it: “[O]ver-procured LSEs—most notably PG&E—are subject to preferential accounting rules. If these LSEs remain over-procured for the next few years, it is possible that some will report artificially low GHG intensities associated with the fact that they have procured a surplus of zero-carbon resources relative to their loads and may be selling these resources to other LSEs on the spot market.”²³ This is exactly what happened. As Von Wald et al.’s Figure 3 very clearly shows, this artificial lowering of PG&E’s carbon intensity factor will gradually correct itself over the course of several years, and the carbon intensity in the years of the Nordic project’s actual operation will be comparable to the pre-2019 factors, if not higher.

The DEIR must use the best available science, and therefore must use a pre-2019 carbon intensity factor for estimating the GHG emissions from PG&E-supplied electricity. The reported 2018 carbon intensity of PG&E’s electricity was 206 lb. CO₂e/MWh.²⁴ At the 2018 carbon intensity level, the project’s CO₂e emissions would be over 22,000 MT CO₂e/yr, well above any applicable significance threshold.

In a recent news article, Nordic Aquafarms Vice President of Commercial Operations Marianne Naess tacitly admits that the DEIR’s estimate of GHG emissions from electricity is wrong. She states that the company has “committed to follow RCEA’s goals with regards to non-carbon and renewable energy...The GHG levels in the EIR therefore reflects the actual emission levels.”²⁵ In other words, she argues that using a carbon intensity factor of essentially zero is justified because the company has promised to “follow RCEA’s goals” of achieving zero-carbon electricity by the time of the project’s

¹⁸ IS/MND at 4-99.

¹⁹ IS/MND at 4-98.

²⁰ DEIR at 3.7-13.

²¹ https://www.pgecorp.com/corp_responsibility/reports/2021/pl02_climate_change.html#pl2_fnm2

²² Von Wald, Gregory, Michael D. Mastrandrea, Danny Cullenward and John Weyant. 2020. Analyzing California’s framework for estimating greenhouse gas emissions associated with electricity sales. *The Electricity Journal* 33. p.3.

²³ Von Wald et al. p.5

²⁴ https://www.pgecorp.com/corp_responsibility/reports/2021/pl02_climate_change.html#pl2_fnm2

²⁵ Burns, Ryan. February 15, 2022. With just days left for public comment, enviro groups seek more detail, assurances in Nordic Aquafarms’ EIR. *Lost Coast Outpost*. <https://lostcoastoutpost.com/2022/feb/15/one-week-left-public-comment-enviro-groups-seek-mo/>

operation. However, the promise to “follow RCEA’s goals” cannot be relied upon in the DEIR because: (a) the DEIR fails to actually contain any commitment, in either the project description or any mitigation measure, to purchase renewable energy; (b) the DEIR offers a completely different explanation for the estimate of GHG emissions from electricity, namely that it is an accurate representation of the carbon intensity of recent PG&E-delivered electricity (which as demonstrated above is inaccurate). In order for Nordic’s promise or “goal” to purchase electricity of a given carbon intensity to have any bearing on an EIR’s conclusions, it must be incorporated in a binding fashion into the EIR itself.

503-3
Cont.

Furthermore, in failing to commit to purchase of any particular energy mix, the DEIR leaves open the possibility of direct power purchases, which could have a substantially higher carbon intensity factor than the available utility energy mixes and result in even higher annual emissions for the project. There does not seem to be any reason, for example, why Nordic could not contract for electricity directly with a gas-powered power plant, like the Humboldt Bay Generating Station. If the 195 GWh per year at buildout were purchased directly from the PG&E gas plant, the emissions would be 468.4 kg of CO₂e for each of 195,000 MWh, or a total of 91,338,000 kg, or 91,333 MT CO₂e. For illustration, 91,333 MT of emissions is equivalent to the emissions of 19,863 automobiles. This is obviously, under any standard, a significant greenhouse gas impact. However, it could be worse. Nordic could contract with the Humboldt Sawmill Company for biomass power from its Scotia power plant, since it can produce 32 MW of power, which would be enough for the Nordic facility. However, this biomass plant has roughly four times the CO₂e emissions per MWh (2,201) as does natural gas (468).²⁶

503-4

2. Choice Threshold of Significance Flawed

As noted in the DEIR, the North Coast Unified Air Quality Management District (NCUAQMD) has not adopted significance thresholds for project-level GHG emissions and instead recommends using the Bay Area Air Quality Management District (BAAQMD) adopted thresholds.²⁷ The DEIR purports to use the BAAQMD guidelines, but in fact adopts the wrong threshold. The DEIR argues that the “stationary source” threshold applies, because the majority of the project’s emissions will not be mobile.²⁸ However, in the context of air pollution, the term “stationary source” derives from federal law and refers to “any building, structure, facility, or installation which emits or may emit” a regulated pollutant - in other words, a project where the emissions come from the facility itself.²⁹ In this case, the bulk of the project’s emissions will be off-site, from the burning of fossil fuels used to produce the electricity consumed on-site. Therefore, while the power plants that produce the electricity would be considered stationary sources, the project itself is not a stationary source, and the relevant BAAQMD threshold is the land development threshold. BAAQMD establishes this threshold at either 1,100 MTCO₂e/year or 4.6 MTCO₂e/employee/year, which would equate to 690 MTCO₂e/year for this project.³⁰ Applying this threshold to the project, we see that the project will exceed significance thresholds, and thus, the impact must be considered significant.

503-5

Inexplicably, the DEIR also invents a number of additional and completely unsupportable significance thresholds. These include a threshold of 25,000 MTCO₂e/year, which it identifies as being derived from

²⁶ <https://findenergy.com/ca/humboldt-county-electricity/#production>

²⁷ DEIR at 3.7-10.

²⁸ DEIR at 3.7-9 and 3.7-11.

²⁹ 40 CFR 51.165(a)(1)(i)

³⁰ BAAQMD CEQA Air Quality Guidelines 2017. https://www.baaqmd.gov/~/_media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

a 2010 National Environmental Policy Act guidance from the federal Council on Environmental Quality.³¹ This source, however, is in no way relevant to the CEQA process in 2022.

503-5
Cont.

The DEIR also proposes two qualitative significance thresholds: comparison to an adopted Climate Action Plan (CAP) in Yolo County,³² and comparison to the Humboldt County General Plan. Both of these are inappropriate. The former is “justified” by citing the fact that there is not yet a local adopted CAP, and that the two counties are “similar.” However, emissions sources and conditions in Yolo County are dramatically different from those in Humboldt County. For example, by far the largest source of GHG emissions in Yolo County is agriculture, while Humboldt County’s predominant source is transportation. In addition, the Yolo County CAP is from 2011 and uses the goal of 27% reduction from 1990 levels when the state goal is 40% reduction. Thus the Yolo document the DEIR proposes is not consistent with current California emissions goals. The resulting comparison of the project with Yolo County’s CAP is irrelevant to any reasonable attempt to quantify significance. The use of Humboldt County General Plan consistency is equally absurd, as the DEIR admits that the General Plan itself was found to have a significant impact on GHG emissions.³³

If the DEIR is to apply the CAP standards of another county, then Sonoma County should be considered instead. The DEIR should have started by looking for a county with basic similarities and therefore look for a county on the North Coast. A great deal of the nature of each county along the coast (Marin, Sonoma, Mendocino, Humboldt, Del Norte) stems from our common geography. Notably, this is reflected in our legislative districts which have long recognized our commonalities. However, Marin is not a good comparison because most of the inhabitants are part of the San Francisco bedroom community. Del Norte is also not appropriate because it is very small (pop=27,000) and has one large distorting industry, the Pelican Bay prison. Mendocino shares a logging history with Humboldt, but also has not yet completed a CAP with goals and actions to achieve a 40% or greater reduction in greenhouse gas emissions by 2030, in line with state law. Sonoma has a larger population than Humboldt, but is in most other ways close to Humboldt, especially regarding sources of emission.

503-6

Table 1 in the appendix shows comparisons between Yolo, Sonoma and Humboldt counties both with respect to the character of each county and the greenhouse gas emissions and energy source for each county. Yolo shares very little with the two north coast counties, while in contrast the coastal counties share broad characteristics and emission-specific characteristics with each other.

A 2015 emissions inventory for Sonoma is available, which matches the latest Humboldt inventory – also from 2015. While somewhat different categories are used, in both counties the majority of emissions in 2015 were from transportation: 58% in Sonoma and 53% in Humboldt. Agriculture was 10% in Sonoma and 12.6% in Humboldt. Wastewater treatment and solid waste were 7% in Sonoma and 4.9% in Humboldt. Emissions from energy use are 25% for Sonoma and 22% for Humboldt. Both counties have an ambitious Community Choice Aggregator as electricity provider.

However, unlike Yolo with its superannuated goal of 27% emissions reductions by 2030, Sonoma has set itself a goal of 80% emissions reductions by 2030 and achieving net-zero by 2030. This exceeds the

³¹ DEIR at 3.7-8.

³² The DEIR standard is: Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? With minimal analysis, the DEIR concludes that the Nordic facility is consistent with the Yolo CAP. Given how far away from the current and likely state goals the Yolo plan is, this consistency stands as an indictment not a recommendation.

³³ DEIR at 3.7-10.

state's current goal of 40%, but anticipates a likely change to set 2035 as the date by which the state will achieve net-zero.³⁴ The Sonoma CAP³⁵ has other goals which are relevant to Humboldt and to the Nordic project.

- It sets a goal of carbon neutral buildings by 2030 (all buildings, not just new ones) and will provide \$20 million to facilitate meeting the goal.³⁶
- It sets a goal of carbon-free electricity by 2030.

503-6
Cont.

In this context, the Nordic project is clearly out of line with standards for emissions. The large indirect emissions created by adding a new electricity requirement equal to a fourth of the total county demand seriously interfere with the possibility of reducing Humboldt County emissions by 40%, much less the more appropriate 80% Sonoma has chosen as a goal.

Suggested Mitigation Measures or Project Design Features

The DEIR must correct its estimate of GHG emissions from electricity consumption and compare the project's corrected GHG emissions estimate with the adopted BAAQMD threshold for land use developments. This process will inevitably result in a finding of significant impact, and thus require the adoption of mitigation measures. Alternatively, new analysis that incorporates similar project design features may reduce impacts below a threshold of significance. Feasible mitigation measures or project design features include but are not limited to the following:

503-7

- Increasing the size of the on-site solar electricity system, including solarizing parking areas and including an energy storage system;
- Committing to purchase 100% renewable energy;
- A commitment to purchasing local, carbon free, renewable electricity, whenever it is available and feasible to purchase.

B. Emissions from Refrigerants

Existing analysis of greenhouse gas emissions related to the use of refrigerants would benefit from clarification.

503-8

In the DEIR discussion of greenhouse gasses, perfluorocarbons and sulfur hexafluoride are mentioned. These are damaging to the environment because of extremely high global warming potential (GWP) and a lifetime of thousands of years. No description of whether they will be used in this facility is provided, but given their normal uses,³⁷ it seems highly unlikely. Note that neither of these gasses is a refrigerant,

³⁴ "To meet the urgency of the climate crisis, Governor Newsom has requested the California Public Utilities Commission (CPUC) and California Air Resources Board (CARB) to accelerate California's progress toward its nation-leading climate goals. At the Governor's request, CARB will evaluate pathways for the state to achieve carbon neutrality by 2035 – in advance of the 2045 target – including strategies to reduce fossil fuel demand and supply. The CPUC will work to establish a more ambitious greenhouse gas emissions target for electricity procurement by 2030, stepping up the state's pace in achieving zero carbon electricity." <https://environmentcalifornia.org/news/cae/statement-gov-newsom-announces-he-accelerating-california%E2%80%99s-progress-climate-goals>

³⁵ To access this CAP go to rcpa.ca.gov/projects/Sonoma-climate-mobilization and under Resources and Events, on lower right select Sonoma Climate Mobilization Strategy (adopted 3/8/21)

³⁶ <https://socostrategicplan.org/climate-action-and-resiliency/>

³⁷ No PFCs are approved by the EPA as refrigerants. They are used in making aluminum and in making semi-conductors. SF6 is for certain equipment in generating electricity. Again, it has nothing to do with refrigeration.

so refrigerant regulations do not apply. SF6 has its own very stringent California regulations, some of which went into effect in January 2022.³⁸ Perfluorocarbons are regulated by the EPA.

HFC refrigerants are also discussed. Nordic has explained that final design on refrigeration will wait until the project is permitted but has said that it will attempt to maximize cooling from water and that Humboldt is particularly well-suited to this due to the stability of water-temperature year-round. However, approximately 25% of the energy usage (5.7 MW) is designated for “Chilling, est.”³⁹ The AIM Act cited in the DEIR does not directly apply to an aquaculture facility since it only limits the manufacture and import of HFCs. It is, however, highly relevant to operations of the facility that the EPA is proposing to eliminate at least 85% of HFCs by 2035, well before the end of the project. The remaining 15% are likely to be HFCs with highly specialized uses, such as in anesthetics. Thus, HFCs will not be available, and it would be far better to design the system using the very low GWP refrigerants we know will be available (like natural refrigerants).

The current CARB refrigerant regulations cover two types of refrigeration equipment that Nordic might use: stationary refrigeration and chillers. Stationary refrigeration, as used in supermarkets, is equipment that uses one refrigerant to cool or freeze. A subtype of stationary refrigeration is industrial process refrigeration, which “means to cool process streams at a specific location in manufacturing and other forms of industrial processes and applications. These are complex, customized systems that are directly linked to the industrial process.”⁴⁰ Chillers involve a two-stage process, with the chiller used to cool a refrigerant that then transfers the cooling to a second system, often water for cooling large buildings.⁴¹ All HFCs are regulated both by the EPA and CARB.

As of January 1, 2022, CARB requires that new installations of stationary refrigeration use refrigerants with a GWP of less than 150. This is mentioned in the DEIR. The GWP level of refrigerants for chillers currently is unregulated but CARB regulates them in other ways. A chiller regulation that will be in effect starting in 2024, however, has three GWP levels, 750, 1500, and 2200 based specifically on how cold the chiller has to make the fluid as it leaves the chiller.

Emissions (leaks) for stationary refrigeration are commonly 25% annually and chillers may leak up to 15% annually, although it is usually less. Chillers are typically smaller systems. About 80% of chillers use ammonia as a refrigerant, and others use CO2 or propane. All three of these are “natural refrigerants” with extremely low GWP. The average GWP of HFCs is around 2000 times that of CO2. Since the Nordic aquaculture cooling is anticipated to use 25% of the energy, refrigerants could be used in very large quantities. Unless we are certain refrigerants will be very low GWP, this could add a massive amount to the greenhouse gas emissions of the facility that is not accounted for in the DEIR. *The EIR should explain in detail the estimated 25% of energy that is intended for “chilling.”* A very

³⁸ <https://ww2.arb.ca.gov/our-work/programs/elec-tandd>

³⁹ DEIR 3.5-04. This graph is the only specific mention of refrigerants in the DEIR.

⁴⁰ CARB Final Regulation Order: California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4.

⁴¹ “The way to distinguish between a chiller and a non-chiller refrigeration system is that a secondary heat transfer fluid is necessary for the former. The primary heat transfer fluid in a chiller is a synthetic (or natural) refrigerant which operates in a smaller closed loop and does not directly cool products/occupied spaces. It cools a secondary fluid, usually water, CO2, glycol, or air, which traverses a much larger closed loop generally and directly cools the product/occupied space. In a standard refrigeration system, there is only one heat transfer fluid, e.g., an HFC, which directly cools the product/occupied space as is common in supermarkets.” Personal correspondence with Aanchal Kohli, Ph.D. California Air Resources Board staff member.

specific definition of what a “chiller” is can be found on the CARB website.⁴² The EIR should employ this definition, in conjunction with Nordic, to characterize accurately the refrigeration system to be used and to be sure applicable regulations for chillers are applied.

503-8
Cont.

Suggested Modifications

The Final EIR should include the following provisions:

- Explain whether SF6 and Perfluorocarbons will be used, and if so for what purpose.
- Explain how their use will be consistent with all pertinent laws and regulations.
- Explain the measures Nordic will take to keep them from being emitted into the atmosphere.
- Leaks of refrigerants from refrigeration/chilling equipment should be listed as a significant but mitigatable environmental effect.
- The mitigation should specify that refrigeration/cooling must be accomplished using refrigerants with the lowest possible GWP, with a maximum of no more than 150 GWP.
- Every effort should be made to use “natural” refrigerants, that is CO2, ammonia, or hydrocarbons, which have GWP of less than 10 and do not need to be reclaimed.

503-9

503-10

C. Life-Cycle Analysis

The state has explained the rationale for certain changes to CEQA Guidelines in part as follows:

“[A] new subdivision (b) cautions that the analysis of energy impacts is subject to the rule of reason, and must focus on energy demand caused by the project. This sentence is necessary to place reasonable limits on the analysis. Specifically, it signals that a full “lifecycle” analysis that would account for energy used in building materials and consumer products will generally not be required.”⁴³

503-11

However, scientists consistently state that lifecycle analysis (LCA) *is* required for understanding the effects of aquaculture,⁴⁴ since overwhelmingly the emissions stem from energy used to run the facility and food used to grow the fish, both inputs which are ongoing operational emissions directly caused by the project—not one-time inputs like the materials in a building.

The life cycle assessment of aquaculture is the method used by the IPCC⁴⁵ and all scientific studies of greenhouse gasses and aquaculture. It makes possible the comparison of aquaculture using different

⁴² <https://ww2.arb.ca.gov/our-work/programs/california-significant-new-alternatives-policy-snap/chillers>

⁴³ California Department of the Interior. Final statement of reasons for regulatory action amendments to the state CEQA guidelines OAL notice file no. Z-2018-0116-12. Our emphasis.

⁴⁴ Cao, Ling, James S. Diana, and Gregory A. Keoleian. "Role of life cycle assessment in sustainable aquaculture." *Reviews in Aquaculture* 5, no. 2 (2013): 61-71. ["Life cycle assessment (LCA) has become the leading tool for identifying key environmental impacts of seafood production systems.]; Bartley, Devin M., Cecile Brugere, Doris Soto, Pierre Gerber, and Brian Harvey. *Comparative assessment of the environmental costs of aquaculture and other food production sectors: Methods for meaningful comparisons: FAO/WFT Experts workshop 24-28 Apr 2006 Vancouver, Canada*. FAO, Roma (Italia)., 2007. [See the chart from this paper with pros and cons of different methods.]

⁴⁵ IPCC 2013 100a in IPCC, 2013: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1535 pp, doi:10.1017/CBO9781107415324.

methods (a pen in the ocean vs. a land-based system, for example) and the comparison of emissions from different species of fish; it also allows comparison of aquaculture to raising cattle or chickens or catching wild fish. An explanation of why and how this method is used is available in *Nature: Scientific Reports* in 2020.⁴⁶

It is impossible to analyze the cumulative effects of the project on climate change over the 30 years or more the facility operates, as required by CEQA, without including energy use and the CO₂e emissions attributable to the fish food to be used in large quantities over the life of the project.

In a 2009 article on global aquaculture, production of fish food drove 93% of energy use and 95% of greenhouse gas emissions.⁴⁷ Because the use of wild fish products in feed has declined considerably and because open pen aquaculture uses less electricity, the balance between food production and electricity has changed. But they are still the two major sources of greenhouse gas emissions associated with aquaculture.

For understanding the Nordic facility, we need studies that focus on land-based closed containment recirculating aquaculture systems (LBCC-RAS), which is how the proposed Nordic facility is classified.⁴⁸ A few of these kinds of studies are reported below:

- A 2016 study compared a hypothetical RAS facility in the United States with an open pen design in Norway.⁴⁹ Exclusive of transportation costs, the LBCC-RAS-produced salmon has a carbon footprint that is double that of the open pen-produced salmon, 7.01 versus 3.39 kg CO₂e/kg salmon live-weight, respectively.⁵⁰ The 7.41 kg CO₂e/kg salmon, when translated to the 25,000 - 27,000 metric tons of salmon production annually planned by Nordic, would equate to 185,250 - 200,070 MT CO₂e/yr. If we assume, as the authors of this study did, that alternatively 90% renewable energy is available, then the kg CO₂e/kg salmon went to 4.1, which for Nordic translates to 102,500 - 110,700 MT CO₂e/yr.
- A second LCA study, of a land-based RAS, was done in China by Norwegian, Swedish and Chinese researchers in 2019.⁵¹ It is also far smaller than the Nordic facility since only 29,000 fish

⁴⁶ MacLeod, Michael J., Mohammad R. Hasan, David HF Robb, and Mohammad Mamun-Ur-Rashid. "Quantifying greenhouse gas emissions from global aquaculture." *Scientific reports* 10, no. 1 (2020): 1-8.

⁴⁷ Pelletier, Nathan, Peter Tyedmers, Ulf Sonesson, Astrid Scholz, Friederike Ziegler, Anna Flysjo, Sarah Kruse, Beatriz Cancino, and Howard Silverman. "Not all salmon are created equal: life cycle assessment (LCA) of global salmon farming systems." (2009): 8730-8736.

⁴⁸ DEIR 2-1.

⁴⁹ Liu, Yajie, Trond W. Rosten, Kristian Henriksen, Erik Skontorp Hognes, Steve Summerfelt, and Brian Vinci. "Comparative economic performance and carbon footprint of two farming models for producing Atlantic salmon (*Salmo salar*): Land-based closed containment system in freshwater and open net pen in seawater." *Aquacultural Engineering* 71 (2016): 1-12.

⁵⁰ An earlier LCA study found a huge discrepancy in CO₂e produced per ton of fish between open pen (2,073) and a closed circulation land based facility like the proposed Nordic design (28, 200). Ayer, Nathan W., and Peter H. Tyedmers. "Assessing alternative aquaculture technologies: life cycle assessment of salmonid culture systems in Canada." *Journal of Cleaner production* 17, no. 3 (2009): 362-373.

⁵¹ Song, Xingqiang, Ying Liu, Johan Berg Pettersen, Miguel Brandão, Xiaona Ma, Stian Røberg, and Björn Frostell. "Life cycle assessment of recirculating aquaculture systems: A case of Atlantic salmon farming in China." *Journal of Industrial Ecology* 23, no. 5 (2019): 1077-1086.

"Results showed that 1 tonne live-weight salmon production required 7,509 kWh farm level electricity and generated 16.7 tonnes of CO₂ equivalent (eq), 106 kg of SO₂ eq, 2.4 kg of P eq, and 108 kg of N eq (cradle-to-farm gate). In particular, farm-

at 5kg each were produced in a year: 145 metric tons rather than 25,000. However, it is an operating version of a land based Atlantic Salmon RAS. We are hampered in assessing the proposed Nordic facility in that no facility of its type and size exists anywhere in the world. The energy source in China was 65% coal and 35% renewables, so it was more carbon intensive than the Nordic facility is likely to be unless Nordic contracts directly for biomass power. Electricity use and fish feed dominated eight of the environmental effects assessed by the study, including greenhouse gasses. For greenhouse gasses, electricity was the cause of 45% and fish food 30% of emissions. The total CO₂e emissions were 16.747 kg per kg of salmon, or CO₂e of 418,675 – 452,169 MT CO₂e/yr for Nordic's proposed project.

- For comparison with LBCC-RAS, we present results from a life-cycle analysis for a Canadian open pen Atlantic Salmon facility:

Using IPCC methodology, one kg of salmon contributed to 2.26 kg CO₂e of GWP. Agricultural feed components include by-product poultry meal, wheat, corn gluten meal, canola seed and meal, canola oil, and soy meal, while marine-based ingredients include fish meal, by-product fish meal and oil, fish oil, and menhaden oil. Agricultural products lead impacts in GWP, acidification, eutrophication, and ecotoxicity, while impacts are more evenly distributed in ozone depletion and smog. Using the 25,000 – 27,000 metric ton annual production of the Nordic facility at buildout, this would be 56,500 to 61,020 MT CO₂e emitted indirectly annually. It is attributable primarily to the feed because open pen facilities are much less electricity intensive — and so constitutes a minimum estimate.⁵²

- In 2019,⁵³ a meta-analysis of LCA studies on salmonids (a much broader category than Atlantic Salmon) was performed with important conclusions. Twenty-four studies were found, nine dealing with Atlantic Salmon. The 24 studies were grouped into Open or Closed and Land vs Sea-based, forming four groups. Differences by production grouping are more important than differences by the fish type. The GHG impacts of land based recirculating systems are higher than other models. The three studies we presented above are in line with the averages shown in Figure 1 in the Appendix, with the LBCC-RAS studies showing in yellow. For 25,000 metric tons of fish from Nordic the metric tons of CO₂e would be 150,000 if we use the average.

There are limitations in citing LCA studies for Atlantic salmon aquaculture. The most serious issue, when looking at this literature for guidance on the Nordic proposal, is that LCA studies are by nature individualized. What is required for *this* project in the context of CEQA is an estimate informed by the best available science of the GHG emissions directly resulting from the planned and reasonably foreseeable operations of the project, including the composition and use of fish food.

level electricity use and feed product were identified as primary contributors to eight of nine impact categories assessed (54-95% in total)...."

⁵² Sherry, Jesse, and Jennifer Koester. "Life Cycle Assessment of Aquaculture Stewardship Council Certified Atlantic Salmon (*Salmo salar*).\" Sustainability 12, no. 15 (2020): 6079.

⁵³ Philis, Gaspard, Friederike Ziegler, Lars Christian Gansel, Mona Dverdal Jansen, Erik Olav Gracey, and Anne Stene. "Comparing life cycle assessment (LCA) of salmonid aquaculture production systems: status and perspectives.\" Sustainability 11, no. 9 (2019): 2517.

D. Emissions from Fish Food

“Most LCAs suggest that the majority of environmental impacts, probably in excess of 90%, are indirect, feed-related and thus occurring well away from the farm itself.”⁵⁴ Below is a 2007 estimate of the carbon impact of each fish food ingredient. While proportions of different ingredients have changed so that grain-based rather than fish-based foods are increasingly common, the climate impacts of the individual ingredients has changed little. Therefore, it is clear from the wide range of ingredient impacts that the actual impact of the Nordic Humboldt facility will be directly related to the content of the feed.

The DEIR, however, is silent on how much food will be used annually and the actual proportion of ingredients. The section of the DEIR on fish food starts on 2-37. It assures us the fish food will be FDA approved (or the Canadian equivalent). It tells us they can’t say much for sure because they haven’t settled on a supplier yet. It tells us their aspirations:

NAFC will aim to integrate the use of ingredients that are viable alternatives to harvest fisheries to the extent that it is practical such as: a. Vegetable proteins and oils. b. Insect meal c. Single cell proteins and oils (e.g., bacteria, yeast or microalgae-based products). NAFC will utilize byproduct trimmings from consumption fisheries. Today this can be as much as 20% of the fish meal utilized in the feed formulation.

We share those same aspirations.

What the DEIR doesn’t do is discuss the greenhouse gas impacts of the food and give us a range based on what percentages of different types of ingredients might be used. It commits fairly strongly to environmental safety, but ignores the carbon footprint of the food. If the standard for a DEIR is a “reasonable” expectation of impact, then this DEIR is clearly insufficient, since it fails to describe one of the two largest contributors to greenhouse gasses from the facility.

The closest the DEIR comes to dealing with the greenhouse gas impact is this paragraph:

For aquaculture farms, there are several sustainability indexes that are used to measure resource utilization or environmental impact. The Fish-In-Fish-Out ratio (FIFO) has been widely adopted to measure the ecological efficiency of feed. At the farm level, FIFO compares the tonnage of fish consumed via feed with the tonnage of fish produced. NAFC will initially set target limits for FIFO that are among the best in the industry and in line with standards for third party certification standards such as ASC, BAP, or Global GAP. These certification standards are regularly adjusted to match advances in feed and ingredient technologies.

These are all industry certifications, not government standards. The purpose of the DEIR should be to tell us which standard Nordic actually will commit to and what the greenhouse gas impact of that standard is. Notwithstanding professed “targets,” Nordic has made no commitments and does not report the potential range of greenhouse gas effects associated with the different standards.

⁵⁴ Little, David C., James A. Young, Wenbo Zhang, Richard W. Newton, Abdullah Al Mamun, and Francis J. Murray. "Sustainable intensification of aquaculture value chains between Asia and Europe: a framework for understanding impacts and challenges." *Aquaculture* 493 (2018): 338-354.

Furthermore, there is empirical evidence that with respect to salmon in particular, certifications like those Nordic cites do not reflect climate impact. A 2020 study open pen study examined, using life cycle assessments, “the environmental impacts of salmon raised to Aquaculture Stewardship Council (ASC) certification standards in order to determine if ASC certification achieves the intended reductions in [environmental] impact.” It found:

We find that environmental impacts, such as global warming potential, do not decrease with certification. We also find that salmon feed, in contrast to the on-site aquaculture practices, dominates the environmental impacts of salmon aquaculture and contributes to over 80% of impacts in ozone depletion, global warming potential, acidification, and ecotoxicity.⁵⁵

503-13

Essentially, the conclusion is that ASC certification, one of the two largest certification organizations, doesn’t encompass greenhouse gas emissions because the certification omits the carbon footprint of the fish food.

There have been recent studies on the GHG impact of fish food that actually test the commercially available feed products. A 2021 study in the Nature journal Scientific Reports says: “Importantly, we have used recent commercial feed formulations for the main species groups and geographic regions, thereby providing a more up to date and detailed analysis than is generally provided in academic literature.”⁵⁶ To assess the impact of the commercial feed they used a standard model from the Food and Agriculture Organization of the United Nations (FAO).⁵⁷ The article is designed to compare aquaculture to other livestock:

503-14

Production of crop feed materials (the green segments of Fig. 2) accounted for 39% of total aquaculture emissions. When the emissions arising from fishmeal production, feed blending and transport are added, feed production accounts for 57% of emissions.... For most of the finfish, the EI [Emissions intensity] lies between 4 and 6 kg CO₂e/kg CW (carcass weight, i.e. per kg of edible flesh) at the farm gate....[T]he carnivorous salmonids have more emissions associated with fishmeal and higher crop land use change (LUC) emissions (arising from soybean production), reflecting their higher protein rations.⁵⁸

With the production amount from Nordic and the energy intensity found in the above study, the range in GHG emissions annually would be between 100,000 and 162,000 MT CO₂e. Here is the conclusion of the study with regard to commercial fish food. The Figure 2 referred to can be found in the Appendix to this document.

The importance of feed is clear in Fig. 2 for all fed species. However, feed composition is constantly changing as nutritional knowledge and its application develop in response to commercial demand. This study was based on regional assumptions of feed formulations and raw material origins for the main species in the key regions. Data for this was obtained from a variety of sources (see “Methods”) and updated in light of discussions

503-15

⁵⁵ Sherry, Jesse, and Jennifer Koester. "Life Cycle Assessment of Aquaculture Stewardship Council Certified Atlantic Salmon (*Salmo salar*)." Sustainability 12, no. 15 (2020): 6079. Our italics.

⁵⁶ MacLeod, Michael J., Mohammad R. Hasan, David HF Robb, and Mohammad Mamun-Ur-Rashid. "Quantifying greenhouse gas emissions from global aquaculture." Scientific reports 10, no. 1 (2020): 1-8.

⁵⁷ FAO.GlobalLivestockEnvironmentalAssessmentModel(GLEAM)109(FAO,Rome,2017)www.fao.org/gleam/en/.

⁵⁸ MacLeod, op cit.

with feed companies. Improved knowledge of feed formulation and raw material sourcing, combined with the overall feed efficiencies of conversion to edible seafood will help provide a more accurate picture of the overall emissions. Ultimately this would have to be done with primary data from feed companies and farmers on a case by case level.⁵⁹

What is clear from the many studies we have cited is that a) climate science has a precise way of determining greenhouse gas emissions from aquaculture and it includes the emissions from fish feed; b) this impact is usually on the order of 40% or more of the total project greenhouse gas emissions; and c) ideally, the emissions would be calculated by using the actual feed that Nordic will be using. Nordic and the DEIR have embraced science when it comes to some aspects of the project. There is no reason that the science on greenhouse gas emissions from fish food should be ignored by the DEIR.

503-15
Cont.

For the Final EIR, Nordic should supply the certifications and greenhouse gas profiles of their other (operating) facilities. And they could tell us which manufacturer will supply their feed so that its greenhouse gas impacts can be analyzed. It is not reasonable to avoid specifying, when it is easy to do so, the exact source of one of the two largest inputs to greenhouse gasses.

Assuming that fish feedstock will further contribute to the significant greenhouse gas emissions and thus require mitigation, we ask that the EIR quantify the carbon intensity of various feedstocks and include an adaptive management provision that maximizes the use of vegetable proteins and oils, insect meal, and single cell proteins and oils.

E. Emissions from Truck Traffic

The DEIR estimates that the project will generate 95 new truck trips per week. However, this number is based on adding together 40 “outgoing product delivery trucks,” 32 “outgoing trucks...carrying waste streams,” 20 “deliveries of fish feed,” and 3 deliveries of other items.⁶⁰ Outgoing trucks must first travel to the facility, however, and delivery trucks must then leave. When assessing trip generation, a standard definition of a trip is “a *single or one-direction* person or vehicle movement with either the origin **or** the destination (exiting or entering) inside a study site” (emphasis added).⁶¹ Based on the description of the 95 truck trips, it appears that the DEIR does not account for delivery trucks leaving or outgoing trucks arriving. Therefore, the actual number generated by the project will be twice the amount estimated, or 190 trips per week. Additionally, in modeling the emissions impacts from truck trips, Appendix B of the DEIR assumes 100 truck trips *per day*, or 700 trips per week,⁶² a dramatic difference from the number stated in the text of the document. This discrepancy must be addressed.

503-16

It follows that the emissions from truck trips for the project are underestimated by a factor of at least 2, and perhaps as much as a factor of 7. However, there are additional inconsistencies in Appendix B which must also be addressed. The text of the DEIR does not specify the geographic extent of the analysis of trucking emissions. However, given that the document makes the argument that the project’s emissions estimates are conservative as a result of its final trips to market being assumed to be shorter than other alternatives, we assume the intent was to include the entire length of the truck trips.⁶³

⁵⁹ MacLeod, op cit

⁶⁰ DEIR at 2-27.

⁶¹ Institute of Transportation Engineers. September 2021. Trip Generation Manual: 11th Edition, Volume 1, Desk Reference. <https://itetripngen.org/Content/TgmReference/Desk%20Reference%20Complete.pdf>.

⁶² DEIR Appendix B at pp.87, 111.

⁶³ DEIR at 3.7-14.

Inexplicably, however, the model inputs shown in Appendix B reflect an assumption that each truck trip would only be 18.5 miles long within county limits,⁶⁴ despite the fact that most of the truck trips will leave the county,⁶⁵ and no county line is less than 50 miles from the proposed facility.

Appendix B also assumes that each truck trip includes only 28 miles of driving outside of the boundaries of the NCUAQMD,⁶⁶ despite the fact that the document elsewhere states that many (if not most) of the truck trips will have destinations (and thus also presumably origins) in locations as far away as Seattle and Los Angeles.⁶⁷ These destinations would require driving distances outside of the boundaries of the NCUAQMD of approximately 500-600 miles—distances that are greater than the modeling input by about a factor of 20.

One final issue with Appendix B's modeling of emissions from truck traffic is that it divides truck trips into distances traveled within Humboldt County, and distances traveled outside of the NCUAQMD. However, the NCUAQMD is not coterminous with Humboldt County, but also includes Del Norte and Trinity Counties. Therefore, for trips going east or north, it appears that Appendix B has neglected to include emissions from distances driven in Del Norte and Trinity Counties.

Collectively, these discrepancies between the text of the DEIR and the modeling inputs in Appendix B, along with apparent internal errors in Appendix B, substantially call into question the results of emissions modeling for truck trips. Emissions could be, and indeed are very likely to be, many times higher than those cited in the text of the document, further contributing to the project's clearly significant level of GHG emissions. Mitigation measures must therefore be adopted, including adopting an adaptive management plan requiring adoption of zero emission trucks and other vehicles as they become commercially available.

F. Vehicle Miles Traveled (VMT)

The DEIR argues that the project's impact on VMT is not significant because per capita employee VMT will be more than 15% lower than the per capita work VMT in the county as a whole.⁶⁸ However, the countywide per capita work VMT is not an appropriate baseline for comparison. Countywide VMT data are skewed by relatively small numbers of commuters who travel very long distances in the rural parts of the county. The project site is located in Samoa, which is a suburb of Arcata and Eureka. Therefore, the baseline for comparison should be the per capita work VMT for the Arcata-Eureka area. If this comparison demonstrates a significant impact, the DEIR must identify VMT-reducing mitigations.

Without mitigations, the project as proposed is unlikely to stimulate any non-vehicular travel. For example, the project proposes to provide 115 parking spaces, despite the fact that the maximum number of employees ever expected on site at one time is only 100.⁶⁹ Excessive free parking is well known to incentivize commuting by personal vehicle. In order to reduce VMT (see below), the project should dramatically reduce the number of parking spaces and include a parking cash-out program for employees.

⁶⁴ DEIR Appendix B at pp.87, 111.

⁶⁵ DEIR at 2-27.

⁶⁶ DEIR Appendix B at pp.91, 114.

⁶⁷ DEIR at 2-27.

⁶⁸ DEIR at 3.12-9 et seq.

⁶⁹ DEIR at 2-27.

503-16
Cont.

503-17

The DEIR suggests that the project will be subject to an Operation and Construction Transportation Plan to be approved by the county as part of its Coastal Development Permit,⁷⁰ and that the Plan will help reduce VMT, but does not incorporate approval of such a plan as a mitigation measure. The DEIR identifies several measures which such Plan “may” include, such as carpooling incentives and providing on-site dining facilities and showering/changing facilities. The lack of commitment to any specific strategies to be included in the Plan makes it impossible to judge its likely effectiveness. However, the possible strategies described raise some issues. For example, while providing on-site showering facilities for bicycle commuters is great, they are not very useful without weather-proof secure bicycle storage. Even with bike storage, the high speeds, large trucks, and complete lack of bicycle facilities on surrounding roadways makes the likelihood of bike commuting low unless the Plan also includes funding of bicycle facilities on these roadways.

503-17
Cont.

The DEIR also states that the Plan may include a new bus stop, and that “installation of a transit stop in proximity to the project can be used to satisfy this requirement [of bicycle shower facilities].”⁷¹ However, local experience demonstrates clearly that public transit services to low-density areas such as the Samoa Peninsula are neither effective nor sustainable, and neither the DEIR nor the Plan should rely on the long-term success of the Samoa Transit System. Given the project’s expected 2-shift work schedule, a much more effective mode shift strategy for employees would be to provide a free vanpool at shift changes, which could bring employees either to their homes or to the nearest high-frequency fixed-route bus line.

G. Potential Positive Emissions Benefits

The DEIR suggests that greenhouse gas analysis should consider the potential benefit from changes to the supply chain to reduce the distance traveled by fish to meet market need for West Coast consumers:

The proposed Project will deliver product to local (west coast) markets, thereby lessening the need for these markets to import seafood from long-distances... This replacement of existing, higher-emitting sources of importing farmed salmon is not incorporated into the Proposed Project’s quantitative analysis; therefore, the emissions analysis is overly conservative.

503-18

Are there actually offsetting climate savings from avoiding air transport? The DEIR is disingenuous and deficient by citing what is considered to be a major advantage without analyzing it. By stating that omitting such an analysis makes the actual analysis more conservative, it is assuming the truth of Nordic’s interpretation of the study and the idea that a facility here will have a lower carbon footprint and will replace salmon from Norway and Chile. Instead the claim needs to be analyzed. Here is a beginning. We hope the final EIR digs into this issue in depth.

- In the 2016 study cited above⁷², it was shown that fresh salmon produced in an LBCC-RAS system close to a US market that use an average US electricity mix have a much lower carbon footprint than fresh salmon produced in Norway in [open net pen] systems shipped to the same

⁷⁰ DEIR at 2-20.

⁷¹ DEIR at 2-21.

⁷² Liu, Yajie, Trond W. Rosten, Kristian Henriksen, Erik Skontorp Hognes, Steve Summerfelt, and Brian Vinci.

"Comparative economic performance and carbon footprint of two farming models for producing Atlantic salmon (*Salmo salar*): Land-based closed containment system in freshwater and open net pen in seawater." *Aquacultural Engineering* 71 (2016): 1-12.

market by airfreight, 7.41 versus 15.22 kg CO₂e/kg salmon [head on gutted], respectively. That is, the airfreight doubles the greenhouse gas effects.

- However, only 5% of US fish imports are carried by air freight, the rest are delivered frozen in ships.⁷³ NOAA makes available a table showing all types of salmon imported into different ports from Norway and Chile, the countries cited in the DEIR. Below we see data for Seattle from Norway. The fresh whole fish is only a small portion of the Norwegian salmon imports.⁷⁴

Country Name	Product Name	Volume (kg)	Value (USD)
NORWAY	SALMON ATLANTIC FILLET FRESH FARMED	1,048,887	16,676,918
NORWAY	SALMON ATLANTIC, DANUBE FROZEN	23,459	105,825
NORWAY	SALMON ATLANTIC FRESH FARMED	48,620	447,585
NORWAY	SALMON ATLANTIC FILLET FROZEN	36,288	536,200

Source: NOAA Fisheries landings data available at <https://www.fisheries.noaa.gov/foss/f?p=215:2:159351792464::NO::>

- The DEIR says Nordic will annually produce and distribute 25,000 to 27,000 metric tons of whole fish.⁷⁵ For comparison, we have put just the 2020 fresh farmed salmon imports from the two countries that Nordic mentioned, Norway and Chile, into the table below.

⁷³ <https://eurofishmagazine.com/sections/trade-and-markets/item/173-freshness-and-quality-versus-environmental-and-climate-impact> ; and only 15% of Norway's salmon exports go by air: <https://salmonfacts.com/fish-farming-in-norway/transport-of-farmed-salmon/>

⁷⁴ These data for Norway and Chile and all three cities, including the data in the table, are all available at: <https://www.fisheries.noaa.gov/foss/f?p=215:2:159351792464::NO::>

⁷⁵ DEIR 2.13.

Whole Atlantic Fresh Farmed Salmon Imports 2020

NORWAY	Kilos	Metric Tons	\$ Value
LA fresh	743,102	743.1	6,080,525
SF fresh	205,555	205.6	1,635,514
Seattle fresh	48,620	48.5	447,585
CHILE			
LA fresh	2,037,035	2,037.0	13,138,948
SF fresh	5,664	5.7	55,639
Seattle fresh	5,847	5.8	111,571

503-18
Cont.

Notice that the 25,000 metric tons to be produced by Nordic in Humboldt is ten times the amount imported into Los Angeles. In fact, the total imported from Norway and Chile is only 3.04 metric tons. So even if Nordic replaced all this, it would only reduce transportation-related greenhouse gasses a small amount. (It would be great to have the DEIR figure out the difference between trucking and air.) However, even that amount might not be a reduction in greenhouse gasses since Norway and Chile sell most of their salmon to Asian markets and to 140 countries overall.⁷⁶ There is no reason to think either global production or air traffic would be reduced by Nordic's local production even if it replaced an equivalent amount of imports.

III. COMPATIBILITY WITH ENERGY PLANNING

CEQA guidelines command that “[a] lead agency should consider...[t]he extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.”⁷⁷ Further, the agency “may consider a project's consistency with the State's long-term climate goals or strategies....”⁷⁸

The DEIR fails to provide the analysis required by CEQA for both statewide climate goals and plans and local renewable plans. As such, additional analysis is required.

503-19

A. Compatibility with State Climate Goals

Lead agencies may consider a project's consistency with the state's “long-term climate goals or strategies” when evaluating significance. Any finding of no significant impact predicated on consistency must be supported by “substantial evidence...of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.”⁷⁹

⁷⁶ <https://www.lifeinnorway.net/norwegian-salmon140>

⁷⁷ Guidelines § 15064.4

⁷⁸ Id.

⁷⁹ Jessica Wentz, Columbia Law Blog, <http://blogs.law.columbia.edu/climatechange/2019/01/10/california-adopts-ceqa-guidelines-aimed-at-improving-consideration-of-ghg-emissions-and-climate-change-impacts-in-environmental-reviews/>

The DEIR has no consideration of cumulative energy consequences over the next 30 years in the context of state plans and goals despite a finding of no significant energy impact. The question of the capacity to generate needed renewable energy is at the heart of this issue, in large part because of the very limited capacity for getting power into or out of Humboldt County. This section looks at Humboldt's current and future demand for electricity and capacity to provide it according to state and local goals and standards. For most potential projects such consideration would not be necessary, but the Nordic facility would add electric power demands equal to half of our residential use today, a scale of impact which demands serious consideration.⁸⁰

California's strategy for countering climate change and reaching net-zero emissions in 2045 is to convert electric power generation to renewables and then to "electrify everything." In particular, vastly more electricity will be used as we convert to electric vehicles and as we convert our gas and wood stove powered housing and buildings to electric heat pumps. An official California strategic plan released in May 2021 estimates that in order to meet SB 100 goals in 2045 California will need three times the electricity that we use today.⁸¹ A table from a report CAISO issued on February 3, 2022 showing greatly increased needs for renewable power sources and decreased natural gas is in the appendix as Table 2.⁸²

We can get a minimal estimate for future Humboldt electrical needs by seeing how much more electricity Humboldt County would need if it converted all natural gas to electricity (which does not account for conversion to electric vehicles or converting wood stoves). The Humboldt Draft CAP says: "According to countywide estimates prepared for this CAP, there are currently around 34,000 homes powered by natural gas appliances and just over 5,000 powered by propane. If we are going to achieve carbon neutrality by 2045, these homes will need to decarbonize." More generally, in Section 3.52 the DEIR cites a CEC report saying we use 31.8 million therms of natural gas. If this load is converted to electricity, it means an extra 931.97 GWh, more than equal to our current total electrical use. In other words, conversion of gas to electricity would by itself double our annual electricity demands.

To a large extent our transformation to electricity will be mandatory. For example, no new cars will be sold in California after 2035 unless they are zero emission, which is anticipated to mostly mean battery-electric. New houses will have to include solar and completed EV hook-ups to make the houses all electric, including electric vehicle chargers. Many more such requirements will be enacted over the next 23 years. In July the Governor proposed moving net zero to 2035 if possible.⁸³ In other words, the SB 100 goals, plans and mandates for electrical energy between now and 2045 are indeed the relevant standard at the state level for whether the Nordic facility will have a significant impact on Humboldt energy utilization. However, the DEIR does not adequately assess the project's consistency with SB 100.

Humboldt County is greatly constrained as to electricity use. We currently have a 170 MW peak electricity demand. This is limited by the fact that only 70 MW of transmission from outside the county is available. The local renewable sources available now equal 54 MW. A possible 323 MW of renewable sources is conceivable according to RCEA, but 120 MW of this would be from planned but

⁸⁰ CEC data show 392 GWhs of residential electricity use in 2020; Nordic proposes 195 GWhs.

⁸¹ <https://www.energy.ca.gov/news/2021-03/california-releases-report-charting-path-100-percent-clean-electricity>

⁸² <https://www.pv-tech.org/californias-energy-transition-to-require-53gw-of-solar-pv-us30bn-for-grid-upgrades-by-2045-says-caiso/>

⁸³ <https://environmentcalifornia.org/news/cae/statement-gov-newsom-announces-he-accelerating-california%E2%80%99s-progress-climate-goals>

unimplemented offshore wind energy and 125 from unplanned onshore wind.⁸⁴ Offshore wind energy is not a sure bet, being dependent on new transmission lines; developers have made it clear they will not bid on the Humboldt Wind Call Area unless they can be assured of selling the 1.6 GW of electricity the area is expected to produce. BOEM has also made it clear they are only offering the entire Humboldt call area for bid, not a 120 – 150 MW “pilot.”

In addition to the state requirements listed above, the most notable local plan is the Comprehensive Action Plan for Energy (CAPE). The CAPE plan makes some assumptions about changes in power demand and utilization for 2030:

- There will be 64,000 MW of rooftop solar added
- 20% less gas use so 18,000 MWh of electricity needed
- There will be 19% use of small electric vehicles, so additional load of 57,000 MWh

It also assumes that the CAPE low carbon, renewable goals will be met mostly by offshore and onshore wind. It assumes a capacity of 315 MW, but 120 MW of this will be offshore wind and 125 MW of (potential but unplanned) onshore wind.⁸⁵

This 315 MW of renewable energy is approximately double the peak demand that we currently experience of 150 MW, roughly in line with the doubling of electricity demand if we convert all our gas to electricity. In short, with wind power—half of which is at least planned but half is unplanned—there will probably be sufficient sources of renewable energy for the county, including the 22.3 MW Nordic would add. If transmission lines are added with the offshore wind, electrical capacity and renewable capacity will not be problematic.

But what will be the situation if we do not get wind power? The gas-powered Humboldt Bay Generating Station has a capacity of 160 MW; the Humboldt Sawmill biomass plant is high carbon but classified as renewable and has a capacity of 15 MW, and we can import 70 MW, which we will assume is all renewable. The draft CAP lists 36.7 MW of additional renewable energy, some of which is currently unplanned, but we will assume goes ahead. Of the 300 MW (or more) we will need by 2045, 121.7 MW will be renewable, 160 MW will be gas (if the Humboldt Generating Plant is still operating; it is scheduled for decommissioning before 2045), leaving a gap of approximately 18 MW which might be made up by additional rooftop solar or other small renewable plants. In summary, if we don’t get wind power, our local energy capacity is likely to be barely sufficient for our demand, and we will get less than half of our power from renewable sources. This is the situation if Nordic is *not* built. If it *is* built, it adds another 22.3 MW to the total capacity needed and to the demand for the insufficient supply of renewable energy.

One might think that Nordic, like American companies such as Amazon and Microsoft, could create a power purchase agreement with a large, off-site renewable energy supplier connected to the grid. In 2021, 17 gigawatts of renewable energy was purchased that way in the US.⁸⁶ However, this option is limited by the 70 MW capacity of our existing transmission lines. In effect Humboldt is an island, so the availability of ample renewable energy on the mainland does not solve the problem.

⁸⁴ See page 4-34 of the Draft Climate Action Plan, October edition, for all renewable sources planned by RCEA.

⁸⁵ https://redwoodenergy.org/wp-content/uploads/2019/12/5.4-2-RePower-2019-Update-Draft3-CLEAN-app-A-B_NS.pdf

⁸⁶ Nathaniel Bullard, “Sparklines,” in Bloomberg Green, Feb 3, 2022. <https://www.bloomberg.com/news/articles/2022-02-03/the-growing-corporate-presence-in-global-power-markets>

Given the easily anticipatable demands for more electricity throughout the county, and the fact that they are in effect mandated by state law and regulation and also assumed in the CAPE, it would be a significant detrimental impact on Humboldt's ability to meet SB 100 targets if it were to approve a single project that uses on average 22.3 MW every day—as much as Eureka and Fortuna together. This requires a finding of significant impact under CEQA.

503-21
Cont.

B. Compatibility with Local Renewable Energy Plans

CEQA Guidelines require an EIR to assess whether a project would “conflict with or obstruct an adopted state or local plan for renewable energy or energy efficiency.” As noted above, the most relevant local plan of this type is the Redwood Coast Energy Authority's CAPE (also called RePower Humboldt). The DEIR acknowledges the existence of the CAPE, and claims that the project will “support goals established” in the CAPE, but does not actually assess whether the project conflicts with or obstructs the CAPE. Instead, the DEIR chooses SB 100 as the only significance threshold for this impact, labeled Impact ER-b. While SB 100 consistency is an appropriate threshold at the statewide level, consistency with the CAPE must also be recognized as part of the significance threshold for Impact ER-b. Doing so would result in a significant impact, as the project would likely obstruct implementation of the CAPE and cannot demonstrate consistency with the CAPE in its current form.

The DEIR states that the project proponent “is committed to tie its goals and timeline of non-carbon and renewable use of energy to the goals of RCEA,” but has not committed to purchasing electricity from RCEA. RCEA's renewable energy targets in the CAPE are substantially more ambitious than PG&E or statewide targets. For example, the CAPE calls for 100% zero-carbon energy by 2025, while SB 100 calls for a similar goal by 2045. Thus, if the project purchases energy from PG&E, it will almost guarantee non-compliance with the CAPE.

503-22

Furthermore, the CAPE calls for 100% local zero-carbon energy by 2030. The project will increase the county's electricity load by nearly 25%, substantially increasing the challenge of meeting the CAPE target with local energy sources and thus likely obstructing the plan. See the above analysis of local energy supplies and demands for additional detail.

Thus the CEQA standard of conflicting with or obstructing a state or local plan for renewable energy or energy efficiency is clearly met, both for the state plan and the CAPE plan, creating a significant impact.

In short, although not analyzed (as required) in the DEIR, Humboldt is only likely to have the capacity to accommodate the project if the offshore windfarm and/or transmission lines are implemented. Therefore, mitigation options are limited. Here are those we suggest:

- Increasing the size of the on-site solar electricity system;
- A commitment to purchasing local renewable electricity whenever it is available.

IV. SAFETY AND INCOMPATIBLE USES

As noted above, the DEIR estimates that the project will generate 95 new truck trips per week, while in fact the actual number of trucks trips generated by the project under the stated assumptions appears to be 190 trips per week. As also noted above, Appendix B of the DEIR assumes 100 truck trips *per day*, or 700 trips per week,⁸⁷ a dramatic difference from the number stated in the text of the document. This

503-23

⁸⁷ DEIR Appendix B at pp.87, 111.

discrepancy must be addressed. If the true number of truck trips per week is in fact 700 rather than 95, the dramatic increase in truck traffic on local roads will create an incompatible use for vulnerable road users which is undeniably significant.

The DEIR notes that New Navy Base Road and Highway 255 to either Eureka or Arcata constitute “the only two routes available” to the project site.⁸⁸ The DEIR further notes that, while bicycles are allowed on these roadways and there are hopes for a future separated bikeway, there are currently no dedicated facilities for either biking or walking on New Navy Base Road or Highway 255.⁸⁹ We note that despite the lack of facilities, these roads—including the Samoa Bridge to Eureka—are regularly used by people walking and biking for both transportation and recreation purposes. The substantial increase in truck traffic as a result of the project has the potential to pose significant increased hazards to non-vehicular road users due to what CEQA identifies as “incompatible uses,” identified in the DEIR as Impact TR-c.⁹⁰

The DEIR argues that the increase in truck traffic is not significant compared to existing levels of truck traffic on these roads. However, this analysis is flawed by the significant undercount of truck trips noted above. The DEIR further argues that “increases in traffic related to the Project would not affect the residential areas as truck traffic would utilize New Navy Base Road and SR 255.”⁹¹ However, Highway 255 bisects the communities of Manila and Arcata, and in the other direction enters downtown Eureka. In both directions, the only connecting truck route is Highway 101, which passes through much of Eureka as a city street and has a very high rate of bicycle and pedestrian-involved collisions and fatalities. Official collision data⁹² show that for the 10 years ending December 31, 2020, there were 4 severe injury crashes involving bicyclists or pedestrians on Highway 255 in Arcata and Manila, 6 fatal or severe injury bike or pedestrian crashes on Highway 101 in Arcata, and 59 fatal or severe injury bike or pedestrian crashes on Highway 101 in Eureka. All truck trips to and from the project site will therefore travel through residential and other areas with many vulnerable users and severe existing impacts. The DEIR must more accurately analyze additional truck traffic, including reconciling the volume estimates in the document’s text and in Appendix B. The impact of that traffic will create additional hazard for vulnerable road users, and almost certainly will cause an incompatible use under CEQA Guidelines with people walking and biking along the only available routes for trucks to travel to and from the project site—New Navy Base Road, Highway 255, and Highway 101 in Eureka and Arcata. Thus, the DEIR must mitigate impacts through bicycle and pedestrian safety improvements along New Navy Base Road, Highway 255 and Highway 101.

503-23
Cont.

V. BIOLOGICAL RESOURCES

A. Noise Impacts on Birds

Noise generated by demolition activities would attenuate below 140 dBA (the threshold to avoid hearing damage in birds)⁹³ at 130 feet from the blast.⁹⁴ Appropriate thresholds should be set at levels low enough to avoid disturbing breeding and nesting birds, fledglings, and temporary hearing loss, tailored to bird species likely to be present in the vicinity.

503-24

⁸⁸ DEIR at 3.12-1.

⁸⁹ DEIR at 3.12-1 to 3.12-2.

⁹⁰ DEIR at 3.12-13.

⁹¹ DEIR at 3.12-14.

⁹² UC Berkeley Transportation Injury Mapping System, accessed January 2022. <https://tims.berkeley.edu/>.

⁹³ Dooling, Robert & Popper, Arthur. (2007). The Effects of Highway Noise on Birds.

⁹⁴ DEIR at 3.3-17.

B. Noise Impacts on Northern Elephant Seals

Seal haulouts are above low tide, and are not mapped in the DEIR, although Northern elephant seals are known to haul out to molt at unpredictable times of year, and often for days or weeks at a time.⁹⁵ Failure to assess Northern elephant seals' use of haul out sites in the project vicinity could result in significant harm from noise during soil densification, as well as demolition and other construction activities. Mitigation Measure BIO-6, which calls for soil densification construction during low tide conditions,⁹⁶ is not adequate to avoid these impacts.

503-24
Cont.

C. Potential Impacts of the Bay Intakes

The project proponent proposes to intake seawater from Humboldt Bay for use at the facility. The DEIR states that the capacity of the Harbor District sea chests on the RMT II and Red Tank Docks is being expanded to provide up to 10 mgd saltwater supply to the Project.⁹⁷ Industrial installations using seawater for cooling, heating, or industrial processing must complete a Water Code Section 13142.5(b) determination to ensure "the best available site, design, technology, and mitigation measures feasible" are "used to minimize the intake and mortality of all forms of marine life."⁹⁸

The DEIR, however, does not indicate whether the facility will be required to complete a section 13142.5(b) determination, despite that the intake structure has the potential to cause significant environmental impact. The facility cannot be approved until the intake structure is evaluated and either conditioned or approved by the Regional Water Board in accordance with Water Code Section 13142.5(b).

503-25

Potential impacts to Longfin Smelt (*Spirinchus thaleichthys*) are particularly concerning, since surveys have not been completed to evaluate the potential for this species to occur near the intakes, and in what numbers. The Longfin Smelt was listed as threatened under the California Endangered Species Act in 2009, and is known to spawn in Humboldt Bay tributaries.⁹⁹ Impacts and adequate mitigations to Longfin Smelt must be fully addressed in the DEIR, since the Project is reliant upon the intakes, which have not yet been permitted.

The DEIR states that off-site compensatory restoration, including piling removal and *Spartina* removal, is expected to be a condition of approval required under the Harbor District permits at a future date.¹⁰⁰ These conditions of approval for future permits are speculative at best, since site-specific surveys to quantify the extent of impacts from entrainment and impingement have not yet been conducted. The approach used to estimate impacts due to entrainment relied entirely on physical data on the intake and source water volumes without detailed biological survey data on the fish and invertebrate larvae potentially impacted.¹⁰¹ Site-specific biological surveys are particularly important for evaluating impacts

⁹⁵ Lynda Stockton, Northcoast Marine Mammal Care Center Stranding Coordinator. Pers. comm. Feb. 10, 2022.

⁹⁶ DEIR at 3.3-24.

⁹⁷ DEIR at 2-23.

⁹⁸ Cal. Wat. Code § 13142.5, subd. (b).

⁹⁹ Garwood, R. S. 2017. Historic and contemporary distribution of Longfin Smelt (*Spirinchus thaleichthys*) along the California coast. California Fish and Game 103(3): 96-117; 2017 <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=152476&inline>

¹⁰⁰ DEIR at 2-56.

¹⁰¹ DEIR Appendix P at 1-7.

to longfin smelt, since little is known about their presence near the intakes, including both adults and larval stages.

The policies of the state with respect to water quality as it relates to the coastal marine environment are that “Independent baseline studies of the existing marine system should be conducted in the area that could be affected by a new or expanded industrial facility using seawater in advance of the carrying out of the development.”¹⁰²

An example of an important larval prey species that has not been addressed is Pacific sand lance (*Ammodytes hexapterus*), which have been documented in the vicinity of the intakes.¹⁰³ A key forage species found along the coastal North Pacific Ocean from northwestern California to northern Japan, they are known to overwinter in sandy subtidal areas.¹⁰⁴ Sand lance constitute a major prey for birds, marine mammals, fishes, and some invertebrates, and variation in the availability of sand lance can have major effects on the breeding success and survival of their predators.¹⁰⁵ Direct impacts to eggs, larval, and adult Pacific sand lance from operating the bay-water intakes was not considered in the DEIR, but should be, considering their importance as prey for so many other species, including many protected under the State and Federal Endangered Species Acts, Marine Mammal Protection Act, and the Migratory Bird Treaty Act. Until surveys are completed, estimates of the impacts on Pacific sand lance are speculative at best.

503-25
Cont.

D. Potential Impacts on Eelgrass from Mitigation Measures Related to the Intakes

The piling removal project proposed as off-site compensation for impacts to spawning longfin smelt is not appropriate, since the subject area is not known to be spawning habitat for the species. The DEIR states that the potential for entrainment of Longfin Smelt larvae can be mitigated on a 1:1 basis to ensure there would be no loss in number of individual larvae; therefore, the impact is less than significant.¹⁰⁶ However, the DEIR also states that “[t]he removal of pilings does not directly recreate habitat for the life stage of the larvae, but improving habitat will increase the number of Longfin Smelt resulting in an increased number of larvae.”¹⁰⁷ It is not clear if or how improving non-spawning habitat will improve spawning. A mitigation measure that directly recreates or restores Longfin Smelt spawning habitat should be developed and incorporated, once the site-specific surveys quantify the extent of impacts on this species.

503-26

¹⁰² Cal. Wat. Code § 13142.5, subd. (d).

¹⁰³ Garwood, Rebecca & Mulligan, Timothy & Gleason, Erin. (2004). Fish Distribution in Humboldt Bay, California: A GIS Perspective by Habitat Type. https://www.researchgate.net/publication/287813293_Fish_Distribution_in_Humboldt_Bay_California_A_GIS_Perspective_by_Habitat_Type

¹⁰⁴ Greene, H. G., David A. Cacchione, and Monty A. Hampton. 2017. Characteristics and Dynamics of a Large Sub-Tidal Sand Wave Field—Habitat for Pacific Sand Lance (*Ammodytes personatus*), Salish Sea, Washington, USA. *Geosciences* 7, no. 4: 107. <https://doi.org/10.3390/geosciences7040107>

¹⁰⁵ Robards, Martin D.; Willson, Mary F.; Armstrong, Robert H.; Piatt, John F., eds. 1999. Sand lance: a review of biology and predator relations and annotated bibliography. Res. Pap. PNW-RP-521. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. https://www.fs.fed.us/pnw/pubs/pnw_rp521.pdf

¹⁰⁶ DEIR at 3.3-48.

¹⁰⁷ DEIR at 3.3-48.

The area proposed for piling removal is known to support eelgrass,¹⁰⁸ and yet potential impacts to eelgrass from activities related to off-site compensation restoration have not been evaluated. Eelgrass is protected under state and federal No Net Loss policies.¹⁰⁹ Eelgrass beds are considered Essential Fish Habitat under the Magnuson-Stevens Act and environmentally sensitive habitat areas (ESHA) under the California Coastal Act. Any impact to eelgrass generally requires mitigation in the form of transplanting the eelgrass and/or creating new eelgrass habitat.

503-26
Cont.

We request the County condition the approval of the Project on the evaluation and approval of an intake permit that complies with Water Code Sections 13142.5(b) and (d) to ensure the facility uses the best available site, design, technology, and mitigation measures to minimize marine life mortality, and minimize any harm to fisheries that the communities surrounding Humboldt Bay rely on.

E. Impacts to Aquatic Ecosystems from Feedstock Demand

We may think of farmed fish as a way of taking pressure off wild fish, but farmed fish cannot provide the necessary micronutrients without being fed wild fish. In general, at least as much wild fish is turned into fish food as we get from farmed fish. The key issue in farming of salmon is the percentage of other fresh fish going into the feed, particularly wild fish, as they are under great pressure from fishing and could be used for eating directly much more efficiently:¹¹⁰ “One of the most persistent debates in aquaculture is on the use of fishmeal and oil in fish feed and, above all, the quantity of wild-caught fish required to produce farmed fish. This debate has reached its peak in the area of salmon farming.”¹¹¹ Over the last 30 years, the percentage of fish products used in feed has been reduced greatly.¹¹² A 2021 article in Nature shows the farmed salmon fish input to fish output (FIFO) worldwide to be 1.87 (see Table 3 in the Appendix).¹¹³ A 2020 article says that it is now possible to get a 1:1 ratio of FIFO or even less.¹¹⁴

503-27

While the FIFO ratio has greatly been reduced in recent years, it is largely attributable to substitution of grains for fish and fish products, which have their own negative environmental effects:

¹⁰⁸ Humboldt Bay Harbor, Recreation, and Conservation District. Eelgrass Distribution Map.
<http://humboldt-bay.org/eelgrass-distribution-map>

¹⁰⁹ NOAA Fisheries, West Coast Region. 2014. California Eelgrass Mitigation Policy and Implementing Guidelines.
https://media.fisheries.noaa.gov/dam-migration/cemp_oct_2014_final.pdf

¹¹⁰ “Fed’ aquaculture is reliant on wild-caught fish as a key feed ingredient, usually small ‘forage fish’, which are processed into two ingredients, fishmeal and fish oil: every year, around 15 million tonnes of wild fish from across the globe are used for this purpose. The omega 3 content in farmed salmon is obtained through feeding salmon with these ingredients, in particular fish oil. Many of the species used to make fishmeal and fish oil, such as herring, sprat and capelin, could be eaten directly by people, although they are not widely consumed currently. Fishing for these wild fish may have a negative effect on ocean ecosystems, but more than this, it is highly inefficient to feed wild fish to farmed salmon, to deliver nutrients to human diets which could be obtained by eating the wild fish directly. In fact, globally, 90% of fish used in fishmeal and fish oil production comes from food-grade or prime food-grade fish (prime food-grade fish are almost never forage fish). And yet current evidence suggests that the omega 3 fatty acids in the world’s remaining fish stocks are insufficient to meet the global population’s daily requirement for omega 3 fatty acids” <https://feedbackglobal.org/research/off-the-menu-the-scottish-salmon-industrys-failure-to-deliver-sustainable-nutrition/>

¹¹¹ <https://www.globalseafood.org/advocate/how-much-fish-is-consumed-in-aquaculture/>

¹¹² Ytrestøl, Trine, Turid Synnøve Aas, and Torbjørn Åsgård. "Utilisation of feed resources in production of Atlantic salmon (*Salmo salar*) in Norway." *Aquaculture* 448 (2015): 365-374.

¹¹³ Naylor, Rosamond L., Ronald W. Hardy, Alejandro H. Buschmann, Simon R. Bush, Ling Cao, Dane H. Klinger, David C. Little, Jane Lubchenco, Sandra E. Shumway, and Max Troell. "A 20-year retrospective review of global aquaculture." *Nature* 591, no. 7851 (2021): 551-563.

¹¹⁴ Kok, Björn, Wesley Malcorps, Michael F. Tlusty, Mahmoud M. Eltholth, Neil A. Auchterlonie, David C. Little, Robert Harmsen, Richard W. Newton, and Simon J. Davies. "Fish as feed: Using economic allocation to quantify the Fish In: Fish Out ratio of major fed aquaculture species." *Aquaculture* 528 (2020): 735474.

Studies modeling fishmeal replacement with plant-based proteins (for example, soy protein concentrate) in shrimp and salmon show potential increases in ecotoxicity from fertilizer and pesticide use, rising pressure on freshwater and land resources, and heightened carbon emissions and biodiversity loss from forest clearing—particularly in Brazil.¹¹⁵

Various studies have reported that higher inclusion of vegetable oils in aquafeed reduces the omega-3 fatty acid and increases monounsaturated fatty acid (MUFA) content in aquaculture products.... Consequently, the nutritional value of the farmed salmon is compromised, requiring larger portion sizes to satisfy recommended EPA + DHA intake... Additionally a shift from the ocean onto the land puts additional pressure on valuable agriculture resources, such as water, land and phosphorus, which have socio-economic and environmental implications as well as unknown trade-offs between terrestrial and aquatic ecosystem impacts.¹¹⁶

503-27
Cont.

These various interdependencies in which solving one problem may exacerbate another have led one analyst to call fish feed in aquaculture a “wicked problem.”¹¹⁷

We want transparency from the DEIR, which would include the specific fish feed to be used and its composition. If the FIFO and GHG effects are not known they should be calculated using the standard methods available. We would like a commitment from Nordic that their FIFO ratio will be 1:1 or less. Removing as many pounds of fish from their habitat as you produce obviously still has a large environmental impact¹¹⁸, but it is better than the 10:1 ratios of 20 years ago, or the 5:1 ratios of 2009.¹¹⁹ It is, however, an unavoidable, minimum effect that should be recognized by the DEIR. A potential mitigation measure is for Nordic to support an insect growing business in Humboldt County. With enough insects in the diet, no fish or fish products need to be in the food.¹²⁰

503-28

While we have other outstanding concerns related to Biological Resources that have not been adequately assessed in the DEIR, not all of those have been included here since other stakeholders will be commenting on them in detail. These include the potential for viruses to impact native fish such as Chinook and Coho Salmon and other Threatened and Endangered species, and the level of treatment of fish processing liquids before discharge.

¹¹⁵ Naylor, Rosamond L., Ronald W. Hardy, Alejandro H. Buschmann, Simon R. Bush, Ling Cao, Dane H. Klinger, David C. Little, Jane Lubchenco, Sandra E. Shumway, and Max Troell. "A 20-year retrospective review of global aquaculture." *Nature* 591, no. 7851 (2021): 551-563.

¹¹⁶ Kok, Björn, Wesley Malcorps, Michael F. Tlusty, Mahmoud M. Eltholth, Neil A. Auchterlonie, David C. Little, Robert Harmsen, Richard W. Newton, and Simon J. Davies. "Fish as feed: Using economic allocation to quantify the Fish In: Fish Out ratio of major fed aquaculture species." *Aquaculture* 528 (2020): 735474.

¹¹⁷ <https://feedbackglobal.org/research/off-the-menu-the-scottish-salmon-industrys-failure-to-deliver-sustainable-nutrition/>

¹¹⁸ ... the sum of micronutrients from fish such as herring, anchovy, sprat and sardines currently fed to salmon is much larger than the micronutrients that end up on our plates in the form of farmed salmon. <https://feedbackglobal.org/research/off-the-menu-the-scottish-salmon-industrys-failure-to-deliver-sustainable-nutrition/>

¹¹⁹ Jackson, A. N. D. R. E. W. "Fish in-Fish out." *Ratios explained* 34, no. 3 (2009);

¹²⁰ See the resources in this presentation: <https://ras-n.org/wp-content/uploads/2021/01/10.-Allen-Place-Presentation.pdf>

VI. Hazards and Hazardous Materials

The DEIR concludes there would be no significant impacts from hazardous materials related to the ocean discharge, and therefore no mitigations are necessary. However, we have concerns that have not been assessed, as follows.

Appendix N states that “even very low levels of leaching of PAHs from the weathered pilings in Humboldt Bay may still represent a risk to fishes and other marine organisms.”¹²¹ Creosote is derived from coal tars and was used as a preservative treatment for wood pilings up until 1993 when the CDFW prohibited its use in state waters.¹²² Appendix R describes the sea chests as being constructed from creosote-treated lumber,¹²³ and given the era in which they were built, they may also have been treated with pentachlorophenol, a wood preservative that contained dioxins and furans. The treated lumber in the sea chests should be tested for pentachlorophenol and dioxins prior to construction. The potential impacts from mobilizing creosote or pentachlorophenol during construction should be assessed and mitigated, and if feasible, these materials should be removed, disposed of appropriately, and replaced with non-toxic materials. Since Humboldt Bay is on the 303(d) as Impaired by dioxins and furans,¹²⁴ any and all pentachlorophenol-treated materials in the sea chests should be removed.

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Last September, a large fire at a salmon factory in Denmark resulted in a spill of iron chloride, a chemical used in wastewater treatment. Exposure to iron chloride can cause acute shortness of breath and rashes, according to an article about the incident.¹²⁵ In addition to being corrosive and irritating to eyes and lungs, according to the Material Safety Data Sheet for iron chloride, it releases a toxic gas when it comes in contact with water; users are warned to “Prevent, by any means available, spillage from entering drains or watercourses.”¹²⁶ It is not clear whether iron chloride will be used in the Project in the wastewater treatment process, but the DEIR lists some caustic and chlorinated chemicals that will be used.¹²⁷ The potential effects on human health in the environment from either planned or accidental discharge of these chemicals is not addressed in the DEIR. The list of potential chemicals and drugs and rates of use are not sufficient to analyze potential harmful effects of regular use. Further, accidental release is not addressed. How will an accidental spill or release of hazardous chemicals in the effluent be contained? How will the public be notified in the event of an accidental spill or release? How will the environment and public health be protected, given the use of the area for surfing and other water recreation?

¹²¹ DEIR Appendix N, The Use of Piling Removal for Mitigating Effects of Entrainment Losses to Longfin Smelt and Other Marine Resources Resulting from Operation of the Proposed Samoa Peninsula Intakes in Humboldt Bay. Tenera Environmental, Dec. 13, 2021.

¹²² Werne, C., J. Hunt, E. Beller, K. Cayce, M. Klatt, A. Melwani, E. Polson, and R. Grossinger. 2010. Removal of Creosote-Treated Pilings and Structures from San Francisco Bay. Prepared for California State Coastal Conservancy. Contribution No. 605. San Francisco Estuary Institute, Oakland, California.
https://www.sfei.org/sites/default/files/biblio_files/ReportNo605_Creosote_Dec2010_finalJan13.pdf

¹²³ DEIR Appendix R, Figure 2. Sea Chest Drawing D-12-226.

¹²⁴ North Coast Regional Water Quality Control Board. 2018 303(d) List For the North Coast Region.
https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/303d/pdf/220203/2018%20303d%20List.pdf

¹²⁵ Large fire at salmon factory has created corrosive chemical emissions. Nord News, Sept. 16, 2021.
<https://nord.news/2021/09/16/large-fire-at-salmon-factory-has-created-corrosive-chemical-emissions-2/>

¹²⁶ Santa Cruz Biotechnology, Inc., 2010. Material Safety Data Sheet: Iron (III) Chloride

¹²⁷ DEIR at 3.9-18.

VII. Hydrology & Water Quality

A. Water Quality Data and Project Modeling

Ambient water quality data from closer to the discharge point than was used in the Numeric Modeling Report¹²⁸ should be obtained and used to better assess potential impacts of nutrients proposed to be discharged in the project's effluent. The dataset used in the modeling study was collected approximately 3.5 miles south-southeast of the Redwood Marine Terminal II diffuser, rather than in the area that will be affected by the discharge.

The Central & Northern California Ocean Observing System (CeNCOOS),¹²⁹ partnered with Humboldt State University and the Wiyot Tribe, measures hydrographic parameters at Trinidad Pier and several locations within Humboldt Bay and serves these data through the CeNCOOS Data Portal.¹³⁰ Comparing CeNCOOS data provides evidence that there are significant differences in water quality conditions in Humboldt Bay (measured at the Humboldt Bay Shoreline Station) compared to open ocean conditions (measured at the Trinidad Pier Station).

Ambient water quality conditions such as temperature (Fig. A), salinity (Fig. B), dissolved oxygen (Fig. C), and chlorophyll levels (Fig. D) are considerably different during different seasons in Humboldt Bay compared to the open ocean. These data do not support the assumption in the DEIR that ambient water conditions taken inside Humboldt Bay (Swanson, 2015) are adequate for modeling ambient conditions 1.55 miles offshore at the point of discharge.

Higher temperatures and lower salinity levels can be an attractant, can exacerbate Harmful Algal Blooms, and can encourage the growth of invasive species. For example, *Diplosoma listerianum*, a colonial tunicate that can outcompete indigenous colonial tunicates and benthic invertebrates for space, was one of several invasive fouling species which showed increased growth (% coverage) at temperatures 3.5 and 4.5°C above the ambient temperature in Bodega Harbor (13.5°C), while a native tunicate, *Distaplia occidentalis*, showed reduced survival.¹³¹

There is concern over further elevating the water temperature in the region as our oceans are already warming. In 2014 a large Marine Heat Wave (MHW) known as “the blob” was identified as it began dominating the northeast Pacific Ocean. Researchers documented many ecological effects associated with the blob, including unprecedented harmful algal blooms, shifting distributions of marine life, and changes in the marine food web.¹³² Nordic needs to monitor how elevated ocean temperatures will affect the surrounding environment and mitigate any harmful effects.

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¹²⁸ Samoa Peninsula Land-based Aquaculture Project Numeric Modelling Report, Rev. 1. Feb. 2021. Humboldt County Initial Study/Mitigated Negative Declaration, Appendix E. Accessed at <https://humboldt.gov/DocumentCenter/View/95070/Appendix-E---Numeric-Modelling-Report-Dilution-Study-PDF>

¹²⁹ Central & Northern California Ocean Observing System (CeNCOOS). <https://www.cencoos.org>

¹³⁰ CeNCOOS Data Portal. <https://data.cencoos.org>

¹³¹ Sorte et al. 2010. Ocean warming increases threat of invasive species in a marine fouling community. Ecology, 91(8), 2010, pp. 2198–2204. <https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1890/10-0238.1>

¹³² California Current Project. The California Current Marine Heatwave Tracker – An experimental tool for tracking marine heatwaves. <https://www.integratedecosystemassessment.noaa.gov/regions/california-current/cc-projects-blobtracker>

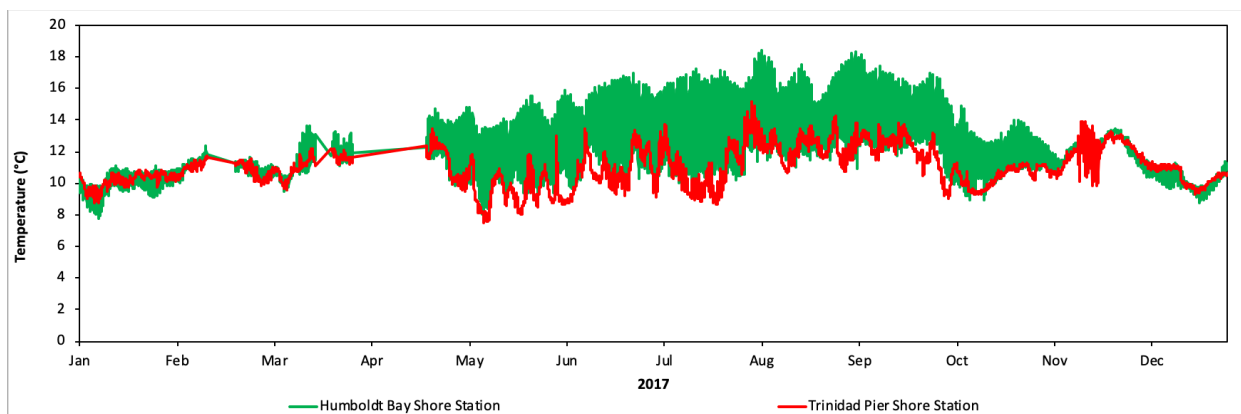


Fig. A. Water temperatures at the Humboldt Bay Shore Station were several degrees higher than at the Trinidad Pier Station between May and November, 2017. Source: CeNCOOS.

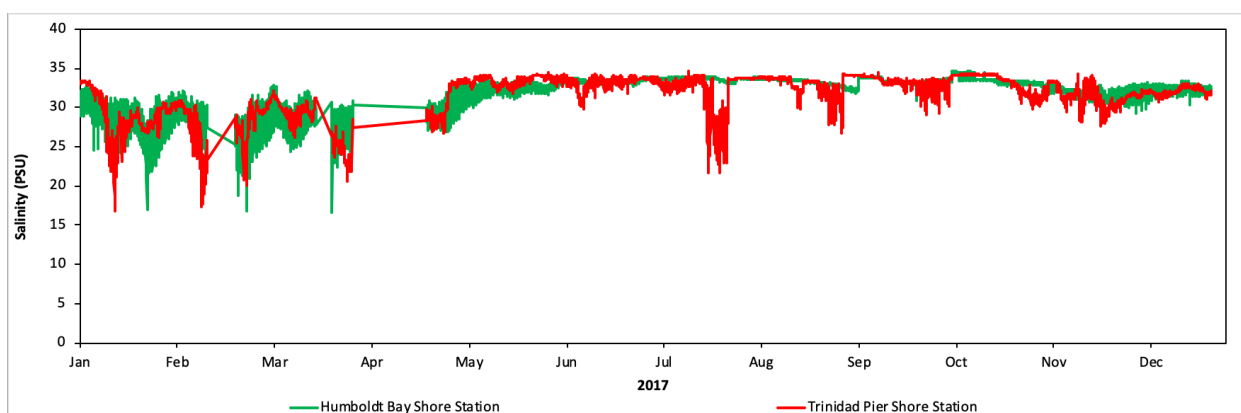


Fig. B. Levels of salinity at the Humboldt Bay Shore Station and the Trinidad Pier Station, 2017. Source: CeNCOOS.

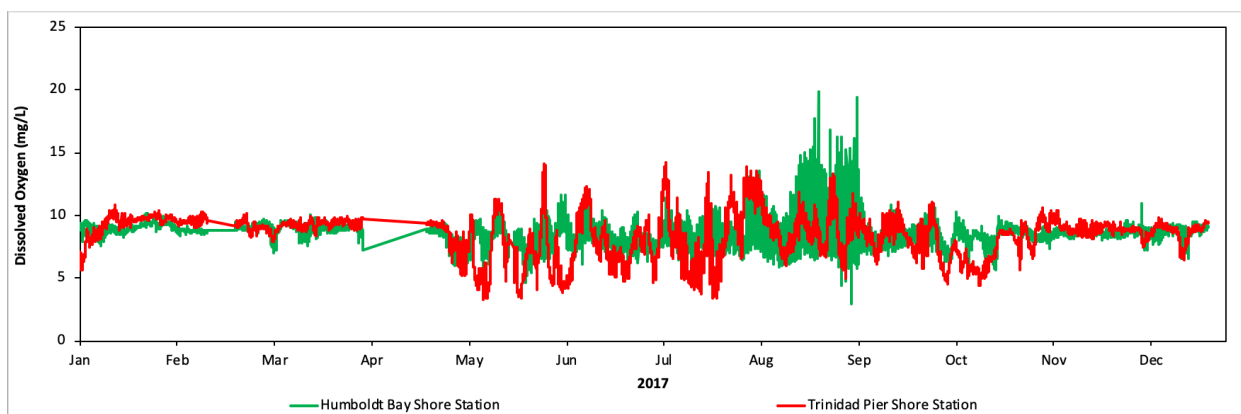


Fig. C. Dissolved oxygen levels at the Humboldt Bay Shore Station and the Trinidad Pier Station, 2017. Source: CeNCOOS.

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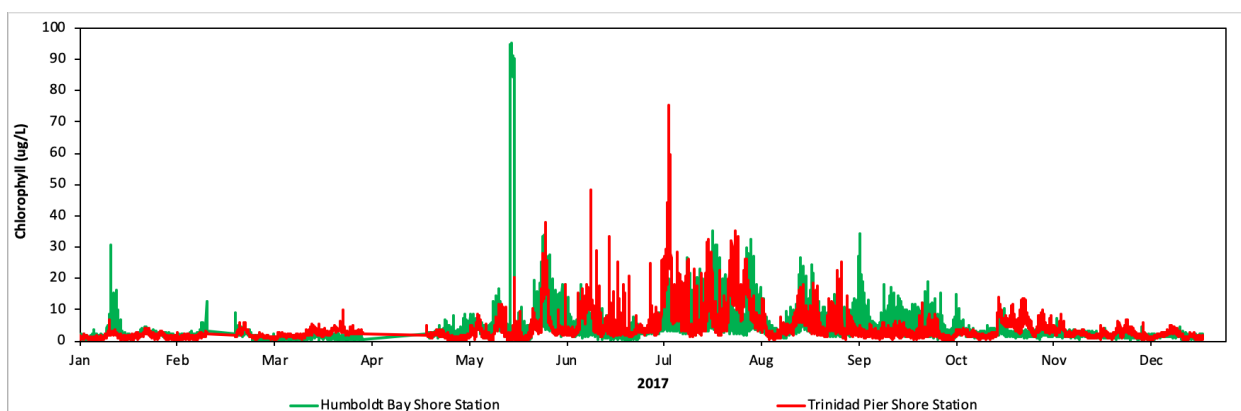


Fig. D. Chlorophyll concentrations at the Humboldt Bay Shore Station and the Trinidad Pier Station, 2017. Source: CeNCOOS.

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B. Conditions in Entrance Bay are Not Indicative of Ocean Conditions

The Numeric Modeling Report¹³³ used to determine there would be no significant impacts from the ocean discharge relied on a hydrodynamic model done in 2010.¹³⁴ The author revised the model in 2019.¹³⁵ The findings strongly suggest that conditions in Entrance Bay are not reliable indicators of ocean conditions. The study showing age-of-water (residence time) of ocean versus Entrance Bay strongly suggests that Humboldt Bay water quality may not be representative of ocean conditions. In this study, the model domain encompasses Humboldt Bay and the adjacent ocean, as well as the Eel, Mad and Little Rivers and major bay tributaries (Elk River, Freshwater and Jacoby Creeks). The calibrated/validated model was used to predict basic physical processes in Humboldt Bay. Anderson's Figure 3 (below) shows the upper grid layer salinity distribution in Humboldt Bay and adjacent ocean during a large rainfall runoff event in 2017. Anderson's Figure 4 (below) shows the summer water temperature pattern with north and south bays having temperatures approximately 10 °C higher than the ocean. Entrance Bay has greater water age, or residence time, than adjacent ocean waters. The difference in temperature and residence time suggest that Humboldt Bay water quality may not be representative of ocean conditions and that further data collection and modeling need to be done at the site of discharge. At a minimum, a sensitivity analysis should be conducted to understand assumptions regarding ambient background data.

503-31

¹³³ Samoa Peninsula Land-based Aquaculture Project Numeric Modelling Report, Rev. 1. Feb. 2021. Humboldt County Initial Study/Mitigated Negative Declaration, Appendix E. Accessed at <https://humboldt.gov/DocumentCenter/View/95070/Appendix-E---Numeric-Modelling-Report-Dilution-Study-PDF>

¹³⁴ Anderson, J. 2010. A Three-Dimensional Hydrodynamic and Transport Model of Humboldt Bay. Poster Presentation presented at 2010 Humboldt Bay Symposium. Eureka, CA.

¹³⁵ Anderson, J. and A. Costello-Anderson. 2019. Three-Dimensional Modeling of Hydrodynamics, Salinity and Temperature in Humboldt Bay. Poster Presentation presented at Humboldt Bay Symposium. Eureka, CA.

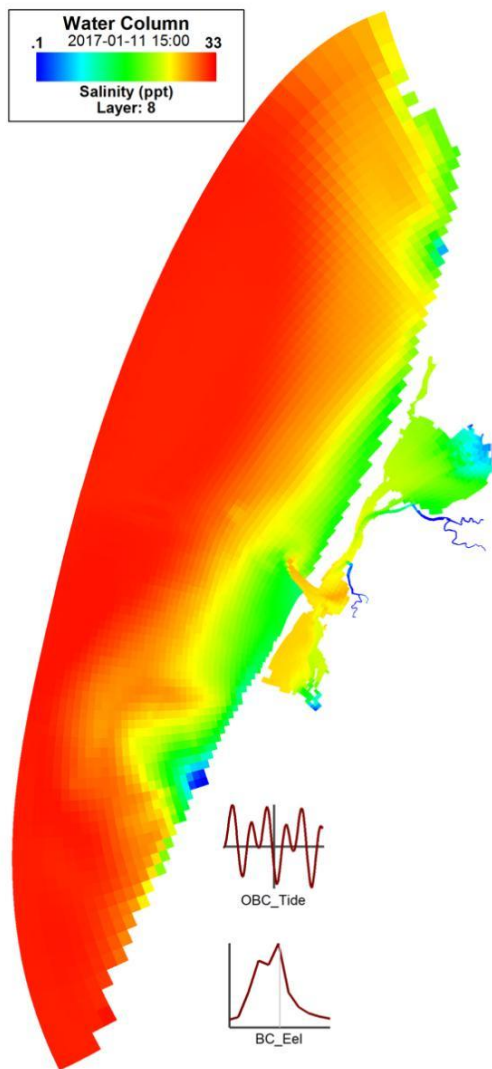


Figure 3. Predicted salinity distribution on 11 January 2017 runoff event (upper vertical layer).

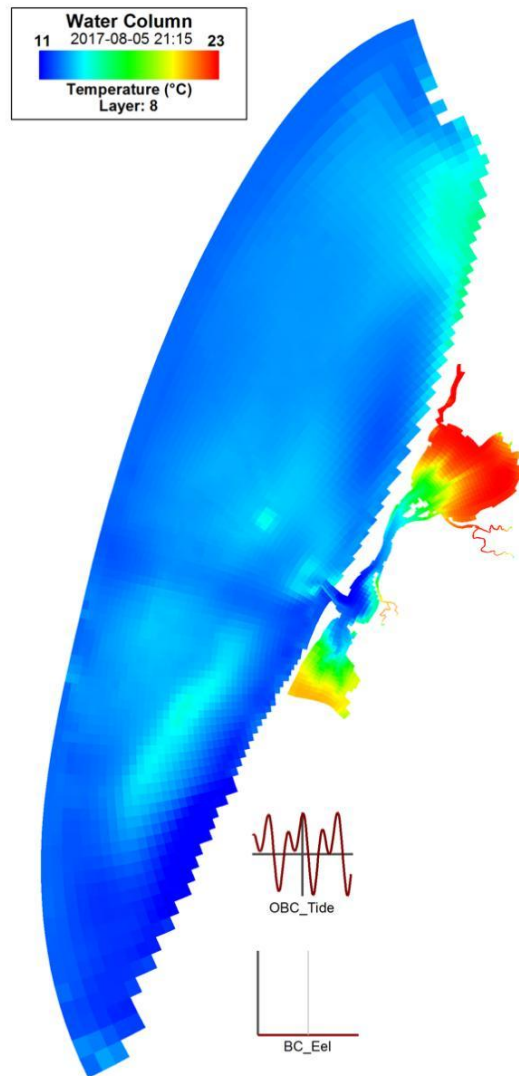


Figure 4. Predicted temperature distribution on 8 August 2017 low-flow period (upper vertical layer).

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Cont.

Figures 3 and 4 from Anderson and Costello-Anderson, 2019.¹³⁶

According to the Central and Northern California Ocean Observation System's webpage on Humboldt Bay, HSU and NOAA's Southwest Fisheries Science Center have collaborated since 2006 to conduct monthly hydrographic and biological surveys along the Trinidad Head Line (THL). These surveys provide the only year-round, high-frequency ship-based ocean observations in the highly dynamic, strongly forced transitional zone between Cape Blanco and Cape Mendocino.

Since these data are already being collected monthly, the research team may be willing and able (with funding) to add a sample site or two closer to the discharge point to begin collecting data on the baseline

¹³⁶ *Ibid.*

conditions as suggested by the National Marine Fisheries Service.¹³⁷ The data should then be used to refine the model to assess potential impacts using an upwelling model as recommended by Dr. Joe Tyburczy of California Sea Grant.¹³⁸ These data are critical for accurately assessing the potential impacts of nutrients discharged into the nearshore marine environment.

503-31
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C. Nitrogen Discharge and Harmful Algal Blooms

The estimated discharge of 1484 lbs. of nitrogen per day¹³⁹ reinforces the need for baseline ambient water quality assessment at the point of discharge and regular monitoring to accurately assess the impact of increased nutrients, including monitoring for Harmful Algal Blooms (HAB). The coast of Humboldt County has already experienced high levels of *Pseudo-nitzschia australis*, which causes domoic acid and has led to fisheries closures in Humboldt County in 2016 through 2021.¹⁴⁰ *Pseudo-nitzschia* growth and domoic acid production benefit from nitrogen loading in the environment.¹⁴¹ Given the potential risk to ecosystems and the local economy, it is important that NAF collect appropriate data to accurately conclude that the impacts of increased nitrogen are indeed “less than significant” and that regular monitoring of discharged nitrogen be conducted throughout all phases of production to ensure that it does not contribute to increased HABs. As is previously stated, ambient water quality data from closer to the discharge point than was used in the Numeric Modeling Report should be obtained and used to better assess potential impacts of nutrients proposed to be discharged in the project’s effluent.

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The potential for the effluent to exacerbate Harmful Algal Blooms, particularly in winter, should be assessed using an upwelling model as suggested by California Sea Grant Advisor Joe Tyburczy: “Simple calculations undertaken using a published model for ocean productivity (BEUTI, Biologically Effective Upwelling Transport Index) suggest that nitrate released by the Nordic facility (roughly 700 kg/day) may be substantial relative to natural, ambient nutrient supply – especially during the winter when upwelling is lower and when alongshore currents and resultant dilution is reduced.”¹⁴²

Baseline and post-project monitoring for toxic algae near the discharge point should be conducted and a threshold that would trigger adaptive management should be established as a condition of the project. Ongoing monitoring should include early detection of toxic algae such as *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid, which caused devastating impacts to the marine ecosystem in 2014-15, including the Dungeness crab fishery, marine mammals, and seabirds from Alaska to Southern California. The California Harmful Algal Risk Mapping (C-HARM)¹⁴³ monitors ocean waters across the state for early detection of toxic algae; it may be a source of baseline conditions in the local nearshore environment and can provide

503-33

¹³⁷ National Marine Fisheries Service. June 2, 2021. Comment to the North Coast Regional Water Quality Control Board on the Draft Waste Discharge Requirements for the Nordic Aquafarms California, LLC Humboldt County, Order R1-2021-0026.

¹³⁸ California Sea Grant. June 4, 2021. Comment to the North Coast Regional Water Quality Control Board on the Draft Waste Discharge Requirements for the Nordic Aquafarms California, LLC Humboldt County, Order R1-2021-0026.

¹³⁹ DEIR at 2-46 (Table 2.9)

¹⁴⁰ CDFW Director's Declaration Razor Clam Fishery August 2021, accessed at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=193772&inline>

¹⁴¹ Martin-Jezequel et al. 2015. Effects of Organic and Inorganic Nitrogen on the Growth and Production of Domoic Acid by *Pseudo-nitzschia multiseries* and *P. australis* (Bacillariophyceae) in Culture. Mar Drugs. 2015 Dec; 13(12): 7067–7086.

¹⁴² Tyburczy, Joe. California Sea Grant Extension. Comments on the Waste Discharge Requirements for the Nordic Aquafarms California, LLC Humboldt County, ORDER R1-2021-0026. June 4, 2021.

¹⁴³ Anderson, C. R. et al. 2016. *Initial skill assessment of the California Harmful Algae Risk Mapping (C-HARM) system*. Harmful Algae 59: 1-16. Accessed at <https://www.sciencedirect.com/science/article/abs/pii/S1568988315301037>

information on the types of monitoring that should be conducted to ensure early detection of toxic algae. Monitoring alone will not mitigate the impacts of a toxic algae bloom, but can help identify the problem before its impacts become widespread.

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Adaptive Management Plan: An adaptive management plan should be adopted that sets thresholds that would trigger action to avert a toxic algae bloom once it is detected. The adoption of appropriate thresholds and implementation plan for adaptive management should include experts in detecting and managing Harmful Algal Blooms, as well as scientific experts from trustee agencies focused on protecting marine resources, including the California Coastal Commission, California Dept. of Fish & Wildlife's Marine Region, and National Marine Fisheries Service. We suggest that the following language be adopted to implement the Science Advisory Panel:

Impacts to the ocean environment from nutrient pollution are anticipated to be below a level of significance based on modeling performed by the project proponent. If actual pollution released is above anticipated or permitted amounts or if the pollution may be a causal factor in a significant algal bloom, a Science Advisory Panel will meet to discuss the discharge and whether additional measures should be implemented to avoid significant impacts. The Science Advisory Panel shall consist of four voting members and one non-voting member: (1) CDFW scientist with expertise in ocean ecosystems; (2) NOAA scientist with expertise in ocean ecosystems; (3) Coastal Commission scientist with expertise in ocean ecosystems; and 4) an employee of the Humboldt County Planning Department or a designated representative of the Planning Department. Nordic Aquafarms shall send a representative to the Science Advisory Panel, although this person may not vote. The Panel should strive to produce consensus decisions, although any recommendation made by a majority of its members shall be considered a binding condition on the project. The Panel must be convened if actual discharges exceed permitted discharges or in the event of a significant algal bloom, as determined by at least one member of the Panel.

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D. Antibiotic-Resistant Bacteria

The policies of the state with respect to water quality as it relates to the coastal marine environment are that "[w]astewater discharges shall be treated to protect present and future beneficial uses, and, where feasible, to restore past beneficial uses of the receiving waters. Highest priority shall be given to improving or eliminating discharges that adversely affect...[a]reas important for water contact sports."

The potential impacts of antibiotic-resistant bacteria (ARB) to human health need to be fully analyzed and mitigated. Antibiotic residues and ARB can be dispersed through air or water. It has been shown that people living in proximity to high-density land agriculture operations have an increased risk of MRSA (methicillin-resistant *Staphylococcus aureus*) infection.^{144, 145} It has also been shown that "Airborne bacteria can disperse from the animal houses to a distance of 10 km."¹⁴⁶

503-35

¹⁴⁴ Beresin et al. Environ Res. 2017. Swine exposure and methicillin-resistant *Staphylococcus aureus* infection and colonization among hospitalized patients with skin and soft tissue infections in Illinois: a ZIP code-level analysis. 159: 46–60. doi:10.1016/j.envres.2017.07.037.

¹⁴⁵ Carrel et al. 2014. Residential Proximity to Large Numbers of Swine in Feeding Operations Is Associated with Increased Risk of Methicillin-Resistant *Staphylococcus aureus* Colonization at Time of Hospital Admission in Rural Iowa Veterans. Infection Control and Hospital Epidemiology, Vol. 35, No. 2 (February 2014), pp. 190-192

¹⁴⁶ Bai et al. 2022. Spread of airborne antibiotic resistance from animal farms to the environment: Dispersal pattern and exposure risk. [Environment International](#)

It is well-established that aquaculture is a major contributing source to the proliferation of ARB and ARG into the environment. After completing a large systematic review, Zheng et al (2021) found, "Aquaculture [is a] major pollution source of antibiotics and ARGs in estuarine and coastal environments."¹⁴⁷

The risk of spread of ARB from fish feed that includes poultry byproducts poses a significant risk to surfers, other beachgoers, and fishermen. The threat comes from two partially-treated effluent streams generated by the Project and from any failures, tears, or degradation of the biofilters.

A study done by UCLA shows that surfers were over six times (odds ratio = 6.35, 95% CI 1.28 to 31.5, p=0.02) more likely to be colonized by MRSA (methicillin-resistant *Staphylococcus aureus*) than non-surfers, because of resistant bacteria carried into the ocean from stormwater runoff¹⁴⁸. While this research looked at colonization and did not prove active infection/illness, colonization itself is the greatest risk factor for subsequent infection. An antibiotic-resistant infection can be extremely severe and even life-threatening depending on the type of pathogen (e.g. there have been cases of cholera, vibrio, hepatitis, and worse).

These potential impacts can be avoided by a condition of approval prohibiting the use of feed containing poultry byproducts, or at the very least, a condition requiring testing of the feed and effluent for known antibiotic-resistant bacteria (*Campylobacter* spp., *Escherichia coli*, *Enterococcus* spp., *Salmonella* and *Staphylococcus aureus*) and report the findings to the public in a timely manner. A plan for testing, removal, and replacement of the biofilm filters is essential to ensure they are successfully filtering the effluent and removing any bacteria before entering the ocean.

VIII. Conclusion

Our organizations are concerned with the size of the project and its potential for significant environmental impacts. We have tried through these comments to provide a useful roadmap to ensure compliance with CEQA and to reduce impacts associated with the project. Should you have any questions concerning these comments, please do not hesitate to contact us by writing to us at the email addresses provided below.

Sincerely,

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[Volume 158](#), January 2022, 106927

¹⁴⁷ Zheng et al. 2021. A systematic review of antibiotics and antibiotic resistance genes in estuarine and coastal environments. [Science of The Total Environment](#) Volume 777, 10 July 2021, 146009

¹⁴⁸ Ben Burdick et al. 2019. Prevalence of MRSA Colonization in Surfers Following Exposure in Select Southern California Coastal Waters.pp 12-13

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APPENDIX

Appendix Table 1: Comparison of Yolo, Sonoma and Humboldt Counties

Characteristic	YOLO COUNTY	SONOMA COUNTY	HUMBOLDT COUNTY
Character of the county comparisons			
Location	Sacramento Valley	North Coast	North Coast
Senate and assembly district; us representative	Not shared	Shared	Shared
Population in 2018	221,270	503,332	136,002
Largest city	West Sac 54,163	Santa Rosa 178,488	Eureka: 26,348
Rural area in 2010	95.4%	90.9%	98.7%
Major university	UC Davis	Sonoma State	CalPoly Humboldt
Emissions-relevant comparisons			
Climate action plan	2011 (27% goal)	2020 (80% goal)	2022 Draft 40% goal
CCA electricity	Valley Clean Energy	Sonoma Power	RCEA
Emission source: transportation	25% (2009 inventory)	58% (2015 inventory) [1]	53% (2015 inventory)
Emission source: agriculture	48%	10%	13%
Emission source: solid waste and wastewater treatment	0.7%	7%	5%
Emission source: energy	22%	25%	22%

Data from Humboldt and Sonoma 2015 Emissions Inventory and Yolo's CAP

Appendix Table 2: CAISO Data on Electrical Demand and Diminished Natural Gas
<https://www.pv-tech.org/californias-energy-transition-to-require-53gw-of-solar-pv-us30bn-for-grid-upgrades-by-2045-says-caiso/>?)

Table 3.1-3: Resource assumptions in 2021-2022 transmission planning process for 2013 and the SB100 starting point scenario for 2040

Resource Type	2021-2022 TPP Base Portfolio for 2031 (MW)	2040 Starting Point Scenario (MW)
Natural gas fired power plants	0	(15,000)
Battery energy storage	9,368	37,000
Long-duration energy storage	627	4,000
Utility-scale solar	13,044	53,212
In-state wind	1918	2,237
Offshore wind	0	10,000
Out-of-state wind	2,087 ¹⁶	12,000 ¹⁷
Geothermal	651	2,332

¹⁶ 1,062 MW on new transmission and 1,025 MW on existing transmission.

¹⁷ 9,900 MW on new transmission and 2,100 MW on existing transmission.

Appendix Table 3: Naylor, Rosamond L., Ronald W. Hardy, Alejandro H. Buschmann, Simon R. Bush, Ling Cao, Dane H. Klinger, David C. Little, Jane Lubchenco, Sandra E. Shumway, and Max Troell. "A 20-year retrospective review of global aquaculture." *Nature* 591, no. 7851 (2021): 551-563.

Table 1 | Wild fish used in aquaculture feeds for 11 commonly farmed fed fish and shellfish

Farmed fish and crustaceans ^a	Total production (kilotons) ^a	Percentage produced with compound feed (by weight) ^a	Average FCR ^b	Percentage fishmeal in feed (wild)	Percentage fishmeal in feed (trimmings)	Percentage fish oil in feeds (wild)	Net wild fish used (kilotons)	FIFO ^c in 2017
Fed carps	13,986	57	1.7	0.4	0.6	0	0	0.02
Tilapia	5,881	92	1.7	0.5	1.5	0	0	0.03
Shrimp	5,512	86	1.6	5	5	2	3,034	0.82
Catfishes	5,519	81	1.3	0.5	1.5	0	0	0.02
Marine fish	3,098	80	1.7	8	6	3	2,528	1.25
Salmon	2,577	100	1.3	6	6	6	4,020	1.87
Freshwater crustaceans	2,536	60	1.8	5	7	1	548	0.43
ODF fish	2,491	43	1.7	3	8	2	728	0.38
Milkfish	1,729	55	1.7	2		0	0	0.07
Trout	846	100	1.3	5	4	6	1,320	1.82
Eel	259	100	1.5	25	10	5	389	2.98
Total	44,424						12,566	0.28

^aCategories from Tacon³, Table 4. ODF, other diadromous and freshwater fish. The calculations by the authors are based on data from the following sources: production, share of production and FCR were obtained from the FAO² and Tacon³; inclusion of fishmeal and fish oil data were from the National Resource Council report on Nutrient Requirements for Fish and Shrimp²⁴, Naylor et al.³⁹, and Ytrestøl et al.⁵⁰; and analyses of fish trimmings in fishmeal were from Green (SeaFish)⁴² and Leadbitter⁴⁴. We use conservative estimates of 24% fishmeal and 10% fish oil recovery from wild fish.

^bFCR is defined as the estimated average species-group economic FCR (total feed fed/total species group biomass increase). Economic FCR (also known as EFCR)^{35,59} is defined as total feed fed/total species group biomass increase and includes waste, escapes and other non-ingested feeds⁵⁰.

^cFIFO, wild fish inputs to fed fish output.

Appendix Table 4: Sherry, Jesse, and Jennifer Koester. "Life Cycle Assessment of Aquaculture Stewardship Council Certified Atlantic Salmon (*Salmo salar*).\" Sustainability 12, no. 15 (2020): 6079.

Table A2. Impact of 1 kg of salmon feed using TRACI.

Impact Category	Total	Fish Meal (Peru)	By-Product Fish Meal and Oil (British Columbia)	Fish Oil (Peru)	Menhaden Oil (U.S.)	By-Product Poultry Meal (British Columbia)	Wheat (Alberta)	Corn Gluten Meal (Ontario)	Canola Seed and Meal (U.S.)	Canola Oil (Alberta)	Soy Meal (Ontario)
Ozone depletion (kg CFC-11 eq)	2.79 × 10 ⁻⁸	7.60 × 10 ⁻⁹	2.65 × 10 ⁻¹⁰	4.14 × 10 ⁻⁹	1.64 × 10 ⁻⁹	6.59 × 10 ⁻⁹	1.92 × 10 ⁻⁹	1.18 × 10 ⁻⁹	2.23 × 10 ⁻⁹	2.26 × 10 ⁻⁹	1.11 × 10 ⁻¹⁰
Global warming (kg CO ₂ eq)	1.91	0.275	0.0223	0.150	0.0681	0.567	0.0540	0.158	0.298	0.303	0.0179
Smog (kg O ₃ eq)	0.137	0.0434	0.00364	0.0237	0.0105	0.0116	0.00194	0.0132	0.0137	0.0140	0.00173
Acidification (kg SO ₂ eq)	0.0192	0.00157	0.000124	0.000856	0.000379	0.00482	0.000737	0.00146	0.00454	0.00461	0.000114
Eutrophication (kg N eq)	0.0192	0.000133	1.18 × 10 ⁻⁵	7.27 × 10 ⁻⁵	3.38 × 10 ⁻⁵	0.00243	0.00115	0.00128	0.00699	0.00711	3.73 × 10 ⁻⁶
Carcinogenics (CTUh)	4.29 × 10 ⁻⁸	4.24 × 10 ⁻¹⁰	3.75 × 10 ⁻¹¹	2.31 × 10 ⁻¹⁰	1.08 × 10 ⁻¹⁰	5.51 × 10 ⁻⁹	1.12 × 10 ⁻⁹	2.86 × 10 ⁻⁹	1.61 × 10 ⁻⁸	1.64 × 10 ⁻⁸	7.09 × 10 ⁻¹¹
Non carcinogenics (CTUh)	1.9 × 10 ⁻⁶	2.74 × 10 ⁻⁹	1.92 × 10 ⁻¹⁰	1.50 × 10 ⁻⁹	6.27 × 10 ⁻¹⁰	3.29 × 10 ⁻⁷	9.17 × 10 ⁻⁸	2.70 × 10 ⁻⁷	5.98 × 10 ⁻⁷	6.08 × 10 ⁻⁷	1.37 × 10 ⁻⁹
Respiratory effects (kg PM2.5 eq)	8.37 × 10 ⁻⁴	0.000115	8.99 × 10 ⁻⁶	6.27 × 10 ⁻⁵	2.74 × 10 ⁻⁵	0.000181	2.98 × 10 ⁻⁵	6.38 × 10 ⁻⁵	0.000170	0.000173	4.95 × 10 ⁻⁶
Ecotoxicity (CTUe)	8.86	0.0150	0.00124	0.00816	0.00366	2.52	0.968	0.681	2.28	2.32	0.0653
Fossil fuel depletion (MJ surplus)	1.91	0.466	0.0385	0.254	0.114	0.230	0.0451	0.232	0.257	0.261	0.0148

Appendix Figure 1: Comparison of GHG for 24 LCA studies of salmonids. Note: Studies are grouped by type of aquaculture. Closed Horizontal bars are averages by type. The left axis shows Kg of CO₂eq per metric ton. (The right axis shows Feed Conversion Ratio, that is, weight of feed divided by weight gained by fish.)

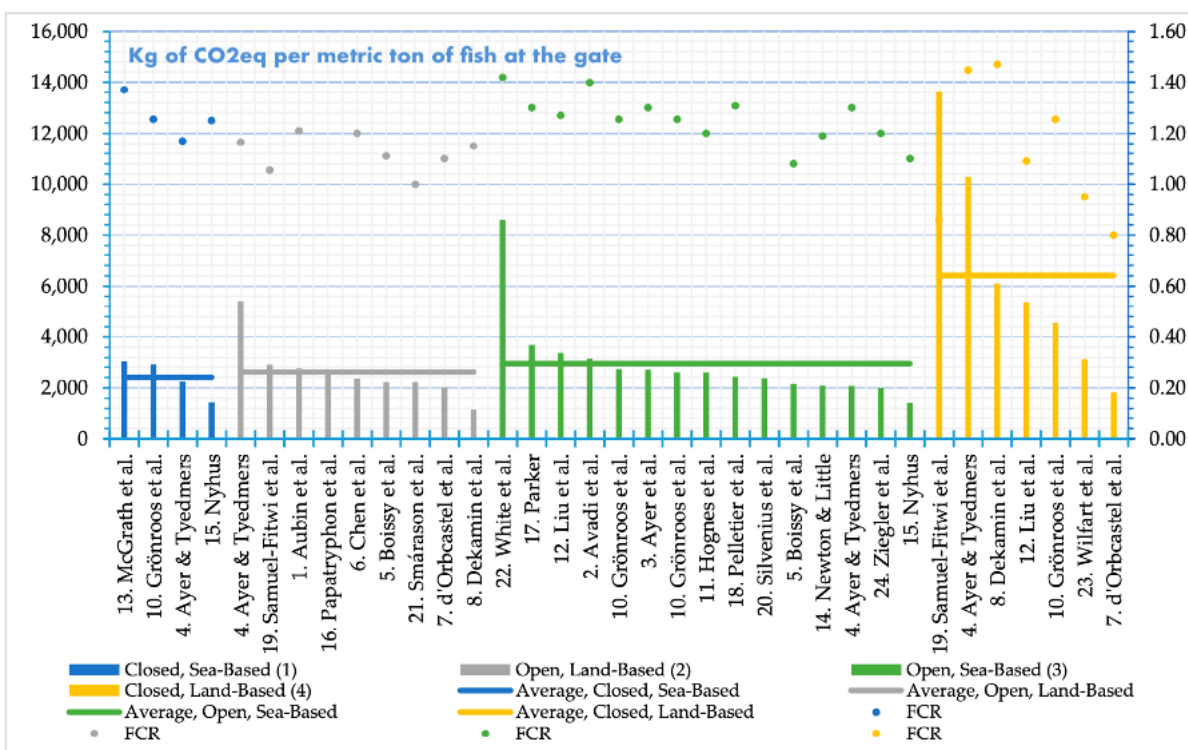
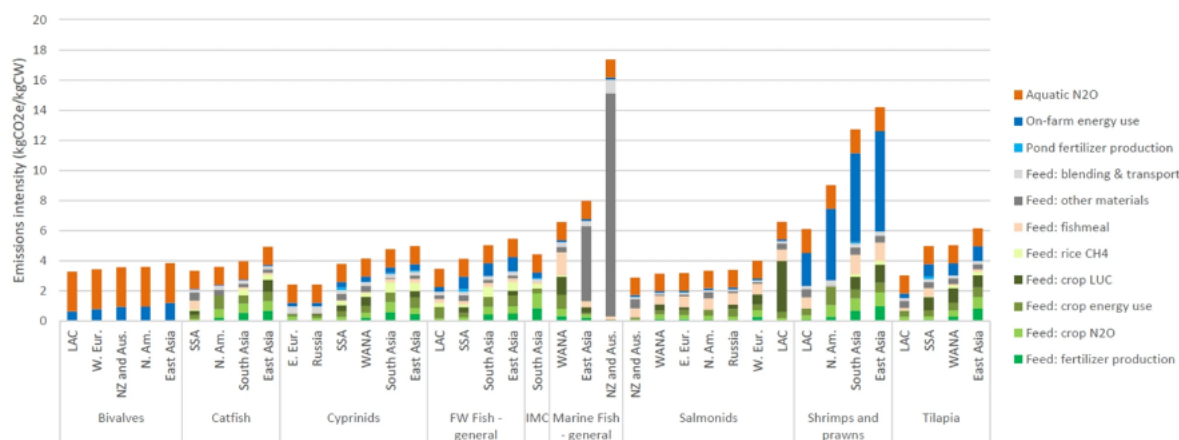


Figure 4. Salmonids global warming potential (GWP) impacts (kg CO₂-e) and FCR based on production technology clusters.

Appendix Figure 2: Energy Intensity of Aquaculture Based on Feed

From: [Quantifying greenhouse gas emissions from global aquaculture](#)



Emissions intensity of the main aquaculture groups, 2017. *Source* calculated in this study. *IMC* Indian Major Carps, *E. Eur.* Eastern Europe, *LAC* Latin America and the Caribbean, *N. Am.* North America, *NZ and Aus.* New Zealand and Australia, *SSA* Sub-Saharan Africa, *W. Eur.* Western Europe, *WANA* West Asia and North Africa.

^[1] <https://rcpa.ca.gov/data-and-reports/sonoma-county-greenhouse-gas-inventory/>

Letter 503 – Response to Comments

Response to Comment 503-1 – Introductory Remarks and Summary of CEQA Guidelines

This is an introductory comment that summarizes CEQA guidelines. No specific concerns are raised. A response is not required.

Response to Comment 503-2 – Emissions

This comment is providing an introductory paragraph for Comments 503-3 through 503-18. Please see Response to Comments 503-3 through 503-18, below.

Response to Comment 503-3 – Carbon Intensity Factor

This comment requests use of a different energy carbon intensity factor and threshold of significance for GHG emissions impacts. Please see Master Response 2 (Greenhouse Gas and Energy) for detailed information regarding energy carbon intensity factors and NAFC's commitment to 100% renewable and/or non-carbon energy. As described in Master Response 2, PG&E and RCEA have a demonstrated ability to provide 100% renewable and/or non-carbon energy portfolios. As the Project is committed to 100% renewable and/or non-carbon energy, it would be inappropriate to apply an energy provider's system-wide or 'base plan' carbon intensity to the Project. A more appropriate carbon intensity factor would be zero pounds of carbon dioxide equivalent per megawatt hour (0 poundsCO₂e/MWh).

Response to Comment 503-4 – Commitment to Energy Mix

This comment states that without commitment to energy mix power could come from source with substantially higher carbon intensity factor. Please see Master Response 2 for detailed information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, and energy carbon intensity factors. As shown in Master Response 2, PG&E and RCEA have demonstrated ability to provide 100% renewable and/or non-carbon energy portfolios, and as the Project is committed to 100% renewable and/or non-carbon energy, it would be inappropriate to apply an energy provider's system-wide (i.e., base plan) carbon intensity to the Project. A more appropriate carbon intensity factor would be zero pounds of carbon dioxide equivalent per megawatt hour (0 poundsCO₂e/MWh). As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project.

Response to Comment 503-5 – Quantitative Thresholds of Significance for GHG Impacts

This comment requests use of a different quantitative threshold of significance for GHG emissions impacts. The comment posits that use of an industrial source threshold is misapplied in the DEIR, and incorrectly asserts that the majority of Project-related GHG emissions would be generated offsite from, "burning of fossil fuels used to produce the electricity consumed onsite."

Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the selection of the quantitative/numeric thresholds of significance used in the GHG emission impact analysis, and the NAFC's commitment to 100% renewable and/or non-carbon energy, and the enforceability of that commitment. The NAFC's commitment to 100% renewable and/or non-carbon energy means that the Project would not result in offsite GHG emission from, "burning of fossil fuels used to produce the electricity consumed onsite."

As substantiated in the DEIR and Master Response 2, Humboldt County, as the Lead Agency, carefully evaluated the basis and justification for the draft and adopted thresholds, as published by the respective agencies, when determining the appropriate threshold to apply to the Project. Those agencies included SCAQMD, BAAQMD, CARB, and the EPA. The agencies differentiate between industrial land uses and typical 'indirect' land uses such as commercial or residential development. These agencies describe and acknowledge the substantive difference between the emission inventory profiles of industrial development from commercial/residential development. The DEIR Section 3.7.5 (Methodology), Section 3.7.6 (Impacts and Mitigation Measures) and Master Response 2 describe the differences between an industrial source's emissions inventory profile and that of a typical commercial or residential development, how the Project's emission inventory profile is substantively different than a typical commercial or residential development, and how the Project's emissions inventory profile is more closely aligned with that of an industrial source. Furthermore, the comment uses the federal definition of a 'stationary source' to assert that the 10,000 MTCO₂e threshold for industrial sources is not correct to use. However, Humboldt County selected the threshold to apply after careful review of the documentation from the local air districts that had adopted or developed that threshold (BAAQMD and SCAQMD). As provided in the DEIR and Master Response 2, the SCAQMD has provided:

Although the GHG significance threshold for industrial sources is based only on operation natural gas usage at facilities evaluated, the GHG threshold adopted by the Governing Board applies to both emission from construction and operational phases plus indirect emissions (electricity, water use, etc.). (SCAQMD 2008)

Furthermore, the Minutes from the SCAQMD's guidance development state that SCAQMD staff recommend using land use definitions that are generally aligned with the URBEMIS model land use definitions, and provide the following recommended definition of industrial land uses (SCAQMD 2008):

Industrial

- *Characterized by production, manufacturing, or fabrication activities (e.g., manufacturing, light and heavy industry, etc.), or;*
- *Storage and distribution (e.g., warehouse, transfer facility, etc.).*

The California Emissions Estimator Model (CalEEMod) replaced URBEMIS as the recommended model for estimating emissions from proposed land uses for CEQA purposes. Both CalEEMod and URBEMIS identify General Light Industry, General Heavy Industry, and Manufacturing as industrial land uses. The Proposed Project is an industrial land used characterized by the production of finfish, with an annual production capacity of approximately 25,000-27,000 metric tons of head on gutted fish (HOG) once complete.

The comment posits that the relevant threshold to use would be BAAQMD's threshold for land development, which includes the use of either 1,100 MTCO₂e or 4.6 MTCO₂e/Employee per year. As provided above, the Project is not a typical land use development. As described in Master Response 2, the BAAQMD has adopted updated thresholds of significance for climate impacts and has explicitly stated that the thresholds are based on typical residential and commercial land use projects and may not be appropriate for other types of projects that do not fit into the model of a typical residential or commercial project. Additionally, the BAAQMD provides that a lead agency should not use the BAAQMD-adopted threshold when the agency is, "faced with a unique or unusual project for which the analysis supporting the thresholds as described in this report do not squarely apply." The BAAQMD recommends that in such cases, the lead agency should develop an alternative approach that is more appropriate to the particular project before it, considering all the facts and circumstances of the project on a case-by-case basis. Although the Project DEIR was developed prior to BAAQMD's recently adopted thresholds and justification

report, the DEIR's analysis of potential thresholds, selection of threshold, and justification of the selection follow the BAAQMD's most-recent guidance, as detailed above and in Master Response 2. Therefore, for the reasons identified in the DEIR, Master Response 2, and above, the comment's recommended threshold of 1,100 MTCO₂e/year would be inappropriate to apply as the threshold of significance for evaluating the Project.

Finally, the use of a second quantitative threshold of 25,000 MTCO₂e is substantiated by review of the CARB's definition of a major source under the Cap-and-Trade program as well as the EPA's CEQ guidance, as described in Master Response 2 and DEIR Section 3.7.5, and not solely on the CEQ's 2010 guidance as asserted by the comment.

The Project's GHG impacts were evaluated in DEIR Section 3.7 (Greenhouse Gas Emissions) and were found to be less than significant. The information provided by the comment regarding the numeric thresholds utilized in the DEIR does not constitute substantial evidence that the Project would result in a significant GHG impact.

Response to Comment 503-6 – Qualitative Threshold of Significance for GHG Impacts

This comment requests the use of a different qualitative threshold of significance for GHG emission impacts. The threshold of significance utilized to analyze the Project's GHG emissions are described in DEIR Section 3.7. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the thresholds of significance used in the GHG emission impact analysis.

Response to Comment 503-7 – Suggested Mitigation or Project Design Features

The comment states that the DEIR must correct its estimate of GHG emissions from electricity consumption and compare an updated GHG emissions estimate with the adopted BAAQMD threshold for land use developments. The comment further states that this process will result in a finding of significant impact and thus require the adoption of additional mitigation measures. The Project's energy usage and GHG emissions are thoroughly evaluated in accordance with CEQA protocols as described in DEIR Section 3.5 (Energy) and Section 3.7 (Greenhouse Gas Emissions). As described in the DEIR, no additional mitigation measures related to GHG emissions are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding quantitative thresholds of significance used in the GHG emission impact analysis.

Response to Comment 503-8 – Refrigerants

This comment requests additional information and detail regarding the type(s) of refrigerators, chillers, and refrigerants to be used by the Project. GHGs normally associated with the proposed Project are listed in DEIR Section 3.7.2.

The Project consists of a former pulp mill that was in operation from 1965 to 2010. Section 3.8 Hazards and Hazardous materials goes into greater detail about the former materials of concern associated with the pulp mill operations. Section 3.7 also lists those compounds with potential impacts as related to GHG. These include substances that may be used in building the new facility or portions of the old facility that will continue to be employed for a period of time, such as the substation. The Project does not propose any new uses of SF₆.

as SF6 was commonly used as a gas insulator in electrical components as an arch quencher. there may be components in the substation that still contain SF6 that will continue to be employed at the Project. As these components reach the end of their service life, they will be replaced with components that are compliant with all regulations.

Regarding the comments concerns that HFC's may be used as anesthetics, section 3.9 Operational Discharge Characterization pages 16 through 19 provides "a comprehensive list of all potential chemicals and aquaculture drugs that may be used at the Facility." The Project does not plan to use any anesthetics that used HFC's and will only seek to employ those currently listed in the NPDES application. As new compounds become available that are more benign or more effective, they may be employed after following the formal process to gain approval for their use. Other chemicals and aquaculture drugs can only be authorized if the NAFC submits a written request to the Executive Officer of the NPDES Permit to use a new drug or chemical. The request for new chemical usage shall contain the following:

- The common name(s) and active ingredient(s) of the drug or chemical proposed for use and discharge
- The purpose for the proposed use of the drug or chemical (i.e., list the specific disease for treatment and specific species for treatment)
- The amount proposed for use and the resulting calculated concentration in the discharge
- The duration and frequency of the proposed use; - Safety Data Sheets (SDS) and available information and
- Any related Investigational New Animal Drug (INAD), New Animal Drug Application (NADA) information, extra label use requirements, and/or veterinarian prescriptions

NAFC commitment to seek the most responsible use of refrigerants in its facility is detailed in the DEIR project description on page 2-28, and we are actively engaged in these efforts now. NAFC will continue to seek the advice of key stakeholders and those with technical expertise as we move forward. NAFC has not committed to specific systems as rapid gains continue to be made in the area of chillers with regards to the use of natural refrigerants.

As noted in Master Response 2 refrigerants: the chiller systems have not been designed and, therefore, specifics regarding sizing, outgoing fluid temperatures, and other parameters are not currently known. In finalizing this design, NAFC will take measures to minimize the emission of GHG's associated with the refrigerants. To date, NAFC has consulted with multiple environmental groups including Humboldt 350 and has worked to incorporate their suggestions such as the potential use of recycled refrigerants. Additionally, regulations and programs that may be implemented in the future to regulate equipment such as chillers would be applicable to the Project as they come into effect and NAFC would be required to adhere to them. NAFC appreciates the comments request to add further defining language about chillers to the DEIR for clarity and will add this information for the benefit of all readers. Please see response to comment 503-9 for discussion on perfluorocarbons and sulfur hexafluorides. Please see Master Response 2 for additional information regarding GHG and refrigerants.

Response to Comment 503-9 – Refrigerant Leaks Regulations

This comment asks for clarification around the use of SF6 and perfluorocarbons. The most common use for SF6, both domestically and internationally, is as an electrical insulator in high voltage equipment that transmits and distributes electricity. Please see the response to comment 503-8 for additional context around SF6. The Project will be compliant with and adhere to all regulations. The Project does not propose new materials containing SF6 and does not include new uses for SF6 in Project operations.

Perfluorocarbons have been used in some specialized refrigeration systems, building foams, and insulation. It is plausible that buildings on the Project from the former pulp mill that was in operation from 1965 to 2010 may contain foam insulation that contains PFCs. As with SF6 this possibility has not been completely eliminated to date so NAFC has taken the most conservative approach of including this compound as something that may be present in parts of existing infrastructure that may be used by the Project. The phasing out of these materials will be in full compliance with all pertinent regulations. The GHGs normally associated with the Project are listed on DEIR page 3.7-2 through 3.7-3 and includes a list of potential refrigerants. DEIR Subsection 3.7.3 (Regulatory Framework) discusses in detail applicable GHG regulations. The Project will be compliant with and adhere to all regulations. Master Response 2 (Greenhouse Gas and Energy)

Response to Comment 503-10 – Refrigerants

The comment requests that leak of refrigerants be described as a significant but mitigatable impact and requests that both natural refrigerants and those with the lowest GWP be required. DEIR Subsection 3.7.3 Regulatory Framework on pages 3.7-3 through 3.7-7 has a detailed description of regulations that pertain to emissions under CEQA. The chiller system is a critical component of the Project. The Project would utilize multiple systems, including refrigerators for ice-making and two different chiller systems. The Project will be subject to regulations and programs within the California Significant New Alternatives Policy (SNAP), founded on SB 1013 and the CARB HFC regulations. Specifically, the chillers will be subject to CARB's HFC Regulation and refrigerators will be subject to CARB's Refrigerant Management Program (RMP). Under the RMP, leak detection and monitoring requirements are based on system sizing.

Regulations specific to refrigerants are specifically addressed on DEIR page 3.7-6, including the requirements for leak detection maintenance programs and maximum global warming potential of refrigerants:

Starting in 2022, the Refrigerant Management Program (RMP) requires facilities with refrigeration systems containing more than 50 pounds of high-GWP refrigerant to conduct and report periodic leak inspections, promptly repair leaks; and keep service records on site.

Additionally, newly adopted regulations by CARB require new stationary refrigeration installations to use refrigerants with a global warming potential of 150 or less.

The Project will be a new facility and will employ a full-time maintenance team as listed in DEIR Table 2-7 (NAFC Employment Overview) on page 2-29. Preventative maintenance checks, service, and inspections are effective means of preventing leaks from occurring in these systems and would be conducted as a component of regulatory compliance. As chillers are an essential part of the Project's daily operations, they will receive regular attention to ensure they are functioning optimally. Estimates of leakage rates for older systems in previous years (before 2022) are not accurate indications of potential leaks in the future. New requirements for leak inspection and prompt repair were implemented in 2022. These new requirements are aimed at preventing and quickly repairing all leaks. The regular inspection for and immediate repair of leaks will ensure that any potential impacts associated with these systems would be minimized. Refrigerants leaks would be anomalies, not normal operating status. It would be inappropriate to assume that refrigeration and chilling systems would be operating outside of the parameters of regulatory requirements resulting in a significant impact. To result in a significant impact both large and regular leaks would need to occur, and the leaks would need to be comprised of high GWP materials.

NAFC has committed "to seek the most responsible use of refrigerants in its facility" (see DEIR page 2-28). As detailed engineering work begins post permitting for these systems natural and low GWP refrigerants will be given preference.

Please see Master Response 2 (Greenhouse Gas and Energy) refrigerants for further clarification related to GHG and refrigerants and the leak detection, maintenance and reporting program as promulgated by regulation. As the Project will seek to employ the most responsible use of refrigerants and will employ a full-time maintenance team to conduct regular inspections and prompt repair of all newly manufactured and installed chiller and refrigeration systems throughout the lifetime of the facility, we respectfully disagree that a significant impact designation is appropriate, nor do we feel that mitigation measures are required to replace detailed regulatory programs. Master Response 2 (Greenhouse Gas and Energy)

Response to Comment 503-11 – Greenhouse Gas (GHG) Emissions Related to Fish Feed

This comment requests the use of a different emissions inventory methodology, to include life-cycle emissions from the Project's anticipated use of fish foods. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the lifecycle analysis and appropriate emissions inventory methodology.

Response to Comment 503-12 – Fish Feed and GHG

This comment requests volume of feed used annually by the Project and includes statements related to GHG emissions associated with fish feed. Feed amounts have been calculated to properly define the amount of truck trips required to bring feed to the facility as 20 trucks per week and is described in the Project Description of the DEIR on page 2-27. A truckload of feed is approximately 18-20 metric tons. The actual proportion of feed ingredients in the formulation to be used by the Project is not yet determined. Please see Master Response #10 subsection Feed Composition for further explanation.

As discussed in more detail above, Greenhouse gas emissions from fish feed would fall outside of the approach commonly used to analyze GHG inventories of the Project under CEQA. Furthermore, the production of feed would take place outside of California. Thus, emissions embedded in feed were not included in GHG analysis of the Project. Please see Master Response #2 for factors included in GHG analysis of the Project.

The Project has clarified that it is likely to utilize Skretting, Cargill, and/or BioMar as feed suppliers (see Master Response #10 subsection Feed Suppliers). All three companies participate in ASC Feed Standards among other certification programs as well as maintaining sustainability programs with aggressive targets for reduction of GHG emissions at each facility they operate. As feed suppliers to Project, NAFC places a high value on the sustainability programs at these companies and commits to procuring supply from them. To learn more about LCA and GHG emissions from feed manufacturing as well as Key Performance Indicators of annual GHG emissions from these feed suppliers, please see their respective sustainability reports (Skretting 2020; BioMar 2020; Cargill 2020).

The comment references FIFO ratio as an indicator of GHG impact. FIFO is a score indicating the ecological efficiency of feed as it relates to marine derived raw materials. See Master Response #10 subsection Marine Ingredients for the Project commitment to FIFO.

Response to Comment 503-13 – Fish Feed and GHG

Comment states that ASC does not encompass GHG in their feed standards

The comment states that the Aquaculture Stewardship Council (ASC) does not account for GHG emissions in their certification scheme. The ASC creates both the ASC Feed Standard (v1.0 June 2021) for certification of feed manufacturers and the ASC Salmon Standard (v1.3 July 2019) for farms. Both standards require the quantification of GHG emissions. The ASC Feed Standard states that “feed

manufacturers should play their role in climate change mitigation by measuring the GHG emissions from their direct operations and engage in activities to reduce these” and follows the GHG Protocol Corporate Standard and the ISO 14064-1 requirements for quantifying GHG emissions. The ASC Salmon Standard requires farms to quantify energy consumption and GHG emissions on the farm and follows the GHG Protocol Corporate Standard and ISO 14064-1. Included in ASC Salmon standard is the calculation of the GHG emissions for the feed used, and this calculation requires farms to multiply the GHG emissions per unit feed, provided to them by the feed manufacturer, by the amount of feed used on the farm during the production cycle. These ASC standards set the requirement to quantify, monitor and publicly report on energy consumption in the production of fish and that on a continual basis growers should develop means to improve efficiency and reduce consumption of energy sources, particularly those that are limited or carbon-based.

Response to Comment 503-14 – Greenhouse Gas (GHG) Emissions of Fish Feed

The comment cites an article in Nature Scientific Reports (MacLeod 2020) as evidence that raw material production and manufacturing of feed contributes significantly to GHG emissions in aquaculture. Based on this evidence and more (see previous and next comment), the comment advocates that GHG emissions from feed should be included in the GHG emissions analysis of the DEIR. Greenhouse gas emissions from fish feed would fall outside of the approach commonly used to analyze GHG inventories of the Project under CEQA. Furthermore, the production of feed would take place outside of California. Thus, emissions embedded in feed were not included in GHG analysis of the Project. Please see Master Response #2 for factors included in GHG analysis of the Project.

NAFC agrees with the overall conclusion of the referenced publication “Aquaculture is a biologically efficient way of producing animal protein compared to terrestrial livestock (particularly ruminants) due largely to the high fertility and low feed conversion ratios of fish. The biological efficiency is reflected in the relatively low prices and emissions intensities of many aquaculture commodities” (MacLeod 2020).

Response to Comment 503-15 – Greenhouse Gas (GHG) Emissions

This comment proposes an estimated range for NAFC’s CO₂e emissions based on a 2020 study (Sherry and Koester 2020). The comment suggests that NAFC should provide certifications and GHG profiles for its operating facilities, identify a feed supplier and maximize the use of alternative feed ingredients. Please see the preceding responses (503-12 – 503-14) for information regarding the chosen GHG analysis methodology. For further information, see Master Response 2 (Greenhouse Gas and Energy).

Response to Comment 503-16 – Truck Trips

This comment is generally concerned with the truck trip calculation and resultant GHG emissions. This comment states that the number of trucks incoming and outgoing was not calculated correctly because it was based on the total number of trucks and not total truck trips in and out. NAFC has provided additional clarifying data related to weekly truck traffic for the daily truck trips calculation in Section 3.12 (Transportation), which is included in the Errata for Section 2.2.4 (Facility Truck Traffic). An updated calculation results in a total of 95 trucks per week, and 32 truck trips per day (in and out) of the Project Site. Please see Master Response 1 and Section 4.0 (Errata) for additional information regarding trip calculation, truck traffic, and road safety. The amount of daily truck trips has been corrected in and documented in Section 4.0 (Errata). As presented in MR 1, the amount of truck trips per day would not result in a substantial increase in hazards because the daily truck percentage on these roadways increases by at most 0.5% with the Project. The findings of Less Than Significant Impact for Impact TR-c remains the same as in the DEIR and no mitigations are warranted.

The comment also states that there is a discrepancy with the number of truck trips in the emissions modelling in DEIR Appendix B, that emissions from trucks are underestimated. The comment states that the geographic extent of the analysis of trucking emissions is not specified and the assumption of truck trip lengths is unexplained and does not correlate to actual truck trip lengths as described in the Project Description. The comment also states that Appendix B of the DEIR has neglected to include emissions from distances in Del Norte and Trinity Counties because the modelling of truck traffic divides the truck trip distances traveled within Humboldt County and outside of North Coast Unified Air Quality Management District (NCUAQMD) jurisdiction. Please see Master Response 2 (Greenhouse Gas and Energy) for the detailed explanation of the discrepancy of truck trips and geographic extent and truck trip lengths in DEIR Appendix B. As described in Master Response 2, for the purposes of modeling, inputs were adjusted in order to achieve the Project's estimated annual vehicle miles travelled (VMT) for each of the following mobile sources:

- Employee Activity
- Hauling within the NCUACMD's Jurisdiction (short hauling)
- Hauling outside of the NCUAQMD's Jurisdiction (long-hauling)

For both GHG emissions and criteria pollutant emissions, annual emissions threshold of significance is applied to the Project; therefore, the purpose of the modeling inputs was solely to generate the correct annual activity for the purposes of annual emissions estimates. The Project's annual activity utilized in the GHG and air quality modeling includes an estimated 575,839 annual VMT for employee trips, 673,314 annual VMT for short-hauling trips, and 1,019,754 annual VMT for long-hauling trips. The County understands that confusion arose when readers viewed the data inputs for the emissions modeling; however, the emissions modeling appropriately characterizes the annual mobile activity for the Project and no changes to the quantification of the Project's operational mobile activity is warranted or required.

Response to Comment 503-17 – Transportation, Vehicle Miles Traveled

The comment posits that the work Vehicle Miles Traveled (VMT) per employee analysis compared against the Countywide baseline is not appropriate because the Countywide VMT data are skewed by a few long-distance commuters who travel to rural areas within the County. The comment states that the baseline for comparison should be for the Arcata-Eureka area since the Project is located in Samoa, a suburb of Arcata and Eureka. The comment also states that without mitigation the Project is unlikely to stimulate non-vehicular travel because the Project proposes to provide 115 parking spaces with 100 employees on site at one time and claims that it is excessive free parking which would incentivize vehicular travel. The comment argues that the Project should reduce VMT by limiting parking and providing an employee parking cash-out program.

The comment then states that the Operation and Construction Transportation Plan (Plan), approved by the County as part of the Coastal Development Permit, identifies some measures that will likely reduce VMT but argues that the approval of the Plan should be a mitigation measure and that some of the strategies raise other issues including the lack of bicycle facilities off-site reduces likelihood of bicycle commuters unless the Plan constructs bicycle facilities on the nearby roadways. The comment also states that transit service in the currently low-density area is neither effective nor sustainable and the Plan should not rely on it for long-term. The comment further posits that given the two-shift work schedule of the Project, vanpools may be more effective.

It is appropriate for VMT baseline, to consider the entire county as this is the jurisdictional area and thus should be the comparison for VMT. Humboldt County is a rural county where people commute longer

distances and are reliant on automobiles for transportation. The county has much different trip lengths than more urbanized areas. The OPR Technical Advisory (OPR 2018b) provides the following guidance for VMT analysis of work-related trips:

“Office projects that would generate vehicle travel exceeding 15 percent below existing VMT per employee for the region may indicate a significant transportation impact. In cases where the region is substantially larger than the geography over which most workers would be expected to live, it might be appropriate to refer to a smaller geography, such as the county, that includes the area over which nearly all workers would be expected to live.”

The Countywide area takes into consideration that Nordic will draw employees who live not only in the Samoa, Eureka, and Arcata areas but also the larger county area. The VMT analysis should account for the full length of commute trips including baseline values. Section 3.12 (Transportation) on page 3.12-11 of the DEIR states that, “Office of Planning and Research (OPR) guidance states that a county is an appropriate geographical boundary for a baseline if that is the area within which workers of the project would be expected to live. Employees of the proposed project are expected to reside within the County of Humboldt, so countywide data was used to establish the baseline VMT per employee.” Additionally, based on 2019 journey-to-work US Census data from Longitudinal Employer-Household Dynamics (LEHD), approximately 16% of residents and workers within Eureka and Arcata commute to work longer than 50 miles (US Census Bureau 2019). Therefore, using a Countywide baseline is appropriate for work VMT per employee estimation.

As documented in Section 3.12 (Transportation) starting on page 3.12-9, the Project would result in a Less Than Significant impact on VMT, and, therefore, no mitigation is warranted under CEQA. In the context of the County, this facility would be near both Eureka and Arcata, providing many housing opportunities in proximity to the facility. The VMT analysis reflects this. The proposed location of the Nordic Aquafarms facility thus is consistent with the CEQA provisions to minimize vehicle miles traveled.

Further, as explained in Section 3.12 (Transportation) on pages 3.12-10 through 3.12-11 of the DEIR, the VMT modelling for the DEIR provided conservative vehicle occupancy assumptions for the Project, that account for lack of transit ridership in Samoa area. Further, the Operation and Construction Transportation Plan, in Section 2.2.3 (Project Description – Project Construction) starting on page 2-20 of the DEIR, includes “Encourage ride-sharing and carpooling vanpooling to reduce VMT.” This Plan would be submitted and reviewed by the County for adequacy as a condition of approval at time of building permit issuance and prior to commencement of operations.

Additionally, the number of parking spaces is set by County Code 313-109 (Off-Street Parking) whereas a management office for industrial uses requires one parking space for every 300 square feet of gross floor area plus one per employee, and the remainder of light vehicle parking including Americans with Disabilities Act (ADA) spaces was determined based on one parking space per employee at peak shift. As presented in DEIR Section 2 (Project Description – Facility Parking), beginning on Page 2-27 consistent with the County Code, this results in 115 standard light vehicle parking spots and six accessible parking spots. However, Nordic will provide rewards or other incentives for employees who commute to work by modes other than single-occupancy vehicle, including ride sharing, vanpools, free bus passes, and bicycle facilities as outlined in the Transportation Management Plan.

Please see Master Response 1 (Truck Traffic & Road Safety). Please see Master Response 2 (Greenhouse Gas and Energy – On Road Truck Activity). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the alternative transportation strategies that NAFC has voluntarily committed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 503-18 – Emissions

This comment requests additional detail and analysis to disclose the Project's potential positive benefit, or reduction in GHG emissions, related to locating the Project close to western markets. The comment cites text provided in DEIR Section 3.7 (Greenhouse Gas Emissions) on page 3.7-14, which is a general statement about the Project's location relative to the west coast fish market versus the GHG emissions resulting from importing fish from Europe and South America. However, the no emission benefit was quantified or otherwise incorporated into the emissions analysis or impact determination and the text clearly states this. Since there is no attempt to capture imported fish as a baseline condition there is no need to quantify the GHG emissions from importing fish from Europe or South America. Please see Master Response 2 regarding lifecycle analysis and appropriate emissions inventory analysis under CEQA. Since this seems to be a confounding text that does not add to the analysis of GHG impacts it will be shown as stricken in the Errata. Please see Section 4.0 (Errata) for revised text.

Response to Comment 503-19 – Additional Climate Analysis

This comment requests inclusion of additional analysis for consistency with statewide climate goals and plans, and states that the DEIR has no consideration of cumulative energy in the context of state plans or goals. The comment posits that because of the Project's anticipated energy demand, additional analysis is warranted to demonstrate that the Project would not result in a cumulatively significant conflict with required regulations and speculates that other projects would not have to conduct a similar cumulative impacts analysis.

Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the Project's commitment to 100% renewable and/or non-carbon energy at the first year of operations. The NAFC's commitment to 100% renewable and/or non-carbon energy is described within the DEIR, is enforceable through permitting conditions, and is feasible as both potential energy providers have demonstrated ability to deliver 100% renewable and/or non-carbon energy.

The comment combines several assertions to conclude that the Project would jeopardize the energy provider's ability to meet state-mandated and locally adopted clean energy goals. The comment's assertions include:

- There is 'very limited' capacity for getting power into or out of Humboldt County
- Conversion of natural-gas consuming equipment and processes within the County would result in an additional 931.97 GWh of electricity consumption

The calculation provided by the comment to estimate the electricity demands by decarbonizing the County's existing housing stock contains multiple critical errors. The comment provides a straight energy-value conversion of natural gas to electricity gigawatt hours (GWh) but provides no evidence that decarbonizing existing equipment and processes results in a 1-for-1 energy unit conversion from existing natural gas consumption to future non-carbon electricity. Additionally, much of the existing equipment and processes to be decarbonized (particularly that in existing housing) are comprised of older, less-efficient technology that would be upgraded to newer, more efficient technology.

The information provided by the comment regarding state energy goals and the need to decarbonize existing housing stock within Humboldt County is fundamentally flawed and does not constitute substantial evidence that the Project would result in a cumulatively significant energy impact. Additionally, the comment provides no evidence that the Project's energy demand is inconsistent with the electricity demand forecast prepared by the CEC as part of their Integrated Energy Policy Report (IEPR) process. The CEC's energy demand forecasts, updated every 2 years, is used to inform both PG&E and RCEA's 2020 Integrated Resource Plans. The 2019 IEPR states:

The CPUC identified the IEPR process as "the appropriate venue for considering issues of load forecasting, resource assessment, and scenario analyses, to determine the appropriate level and ranges of resource needs for load-serving entities in California." (CEC 2020)

Regarding the State's energy goals set under SB 100, DEIR Section 3.5 (Energy Resources) identifies the goals set by SB 100:

SB 100, California's Commitment to 100 Percent Clean Energy, was signed by Governor Brown on September 10, 2018. It commits California to operating with 100 percent clean energy by 2045, speeding up the state's timeline for moving to carbon-free power sources. Under the law 60 percent of the power purchased by California utilities must come from renewable sources by 2030. The additional 40 percent of the power California utilities will deliver to residents, businesses and government agencies must come from 'zero-carbon' sources. This is a term still waiting to be defined by California's policy makers. (DEIR page 3.5-6)

A joint report issued by the CEC, CUP, and CARB in 2021, the 2021 SB 100 Joint Agency Report, found that achieving 100 percent clean electricity sales in California from renewable and zero-carbon resources by 2045 is technically achievable through multiple pathways. The SB 100 Joint Agency Report utilized the 2019 IEPR California Energy Demand forecasts.

Additionally, the California Independent System Operator (CAISO) released a draft 20-Year Transmission Outlook report, prepared in collaboration with the CPUC and CEC, that focuses meeting the needs identified in the CEC's SB 100-related processes. Per CAISO's draft report, the report identified resource development that would meet the load demands of SB 100 as well as a projected reduction in natural gas-fired generation:

*The **reduction in natural gas-fired generation enabled analysis** of not only system-wide needs, but also the **local need of major load centers dependent on natural gas-fired generation for reliable service today**, and the retirement assumptions focused on age and proximity to disadvantaged communities.* (emphasis added) (CAISO 2022)

The CAISO draft report identifies offshore wind on California's north coast as an integral element required to achieve the State's SB 100-mandated 2045 energy goals and a 'high electrification load projection' for year 2040, with an assumed 'starting point' of 4,000 MW off Del Norte/Humboldt Bay/Cape Mendocino area and 2,000 MW off Humboldt Bay specifically. A study of transmission alternatives for the California North Coast Offshore Wind found that increased local electricity demand (loading) in Humboldt County would improve the financial forecast (increased revenue) of offshore wind.

Another key finding from the production cost analysis was that wind farm size and the relative magnitude of the local load have a very large impact on the Locational Marginal Price (LMP), and therefore on potential revenues. Currently, the Humboldt Area's electrification needs are predominantly served by in-county generation from the Humboldt Bay Generating Station (63%) and the Scotia biomass plant (17%), and supported by the 60 and 115 kV intercounty transmission lines. As the transmission capacity stands today, if a wind farm in the Humboldt WEA generated large amounts of power, the degree of transmission system congestion could be significant. This local oversupply relative to demand would reduce the local LMP, which

leads to a non-intuitive phenomena where the development of larger wind farms would result in less total revenue being generated. (Jacobson 2022)

In short, the Project's anticipated steady-rate electricity demand of 20 MW would improve the financial viability of proposed offshore wind in Humboldt County. Offshore wind in Humboldt County is identified by multiple agencies (CEC, CPUC, and CAISO) as being necessary for the State to achieve SB 100 energy goals. Therefore, the Project would assist the State in achieving SB 100 energy goals by improving the financial viability of needed offshore wind in Humboldt County.

As shown in Master Response 2 (Greenhouse Gas and Energy) the NAFC has committed to purchasing grid electricity that is 100% renewable and/or non-carbon energy at the first year of operations. Additionally, as noted in Master Response 2, PG&E and RCEA have demonstrated ability to provide 100% renewable and/or non-carbon energy portfolios; the Project's energy demands would not jeopardize or conflict with statewide or locally adopted energy plans.

As stated on DEIR page 3.5-2, the addition of the Project's full load energy use in the county will still be substantially lower than in previous decades. As demonstrated in DEIR Image 3.5-2, the Project's energy demand, when added to the existing non-residential energy demand, will still equate to less energy use than levels typical of the 2000s. Evaluation of the Project's potential to conflict with SB 100 is provided in DEIR Section 3.5.6 (Impacts and Mitigation Measures) Impact ENG-b; the DEIR concluded that the Project would not conflict with or obstruct SB 100. Master Response 2 (Greenhouse Gas and Energy)

Response to Comment 503-20 – Energy Demand and Renewable Energy

This comment builds upon Comment 503-19 regarding the Project's compatibility with State climate goals and raises additional concerns about the Project's consistency with SB 100. Please see Response to Comment 503-19 regarding energy demand forecast, the State's evaluation of achieving SB 100, and the Project's evaluation of energy impacts.

Please see Master Response 2, GHG and energy, for additional information regarding the Project's commitment to 100% renewable and/or non-carbon energy at the first year of operations. The NAFC's commitment to 100% renewable and/or non-carbon energy is described within the DEIR, is enforceable through permitting conditions, and is feasible as both potential energy providers have demonstrated ability to deliver 100% renewable and/or non-carbon energy. As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project.

The comment identifies current peak electricity demand in the County, the size and availability of local renewable energy resources, the limitations of existing transmission lines for import of electricity, and the planned local renewable energy resources to assert that the Project's energy demand would jeopardize the State's ability to meet SB 100 requirements. Additionally, the comment posits that the Project's energy demand would conflict with the local energy provider's ability to meet state-mandated and locally adopted clean energy goals. The comment provides that the with planned and unplanned local renewable energy projects (including offshore wind), there would likely be sufficient local renewable energy generation to support the Project, but questions how the Project could procure sufficient renewable energy if the offshore wind plans are not implemented.

The comment posits that existing renewable energy resources within the geographic bounds of the County are not sufficient to generate the energy required to meet local demand. However, as shown in Response to Comment 503-19 and DEIR Section 3.5 (Energy Resources), SB 100 is a statewide goal to achieve 100

percent clean electricity sales in California from renewable and zero-carbon resources by 2045. SB 100 does not require each LSE to individually generate 100 percent of their retail sales through renewable resources located within the same county as the retail sales.

Should the offshore wind project proceed, the Project would improve the financial viability of offshore wind and further support the State's ability to achieve SB 100 goals (see Response to Comment 503-19). Should the offshore wind project not proceed, the NAFC has committed the Project to 100% renewable and/or non-carbon energy as described within the DEIR, enforceable through permitting conditions, and as shown to be feasible as both potential energy providers (PG&E and RCEA). Contrary to the commenter's discussion of interregional electricity transmission capacity, PG&E and RCEA do not guarantee (nor is required by the State to guarantee) that the renewable or non-carbon-generated electrons from clean energy sources be delivered from the energy production location to the buyers of that clean energy. It would be infeasible to track 'clean' from fossil-fuel-generated electrons across California's energy grid. Instead, the LSE's track procurement and sales, matching the clean energy procurement with the sales.

As shown in DEIR Section 3.5 (Energy Resources), full Project production use and no additional large users are reflected in DEIR Image 3.5-2: Non-residential energy use over the last 30 years on page 3.5-2. The addition of the Project's full load energy use in the county would still be substantially lower than in previous decades. In context of peak historical non-residential energy consumption, electricity consumption has decreased by more than 400 GWh between 1999 and 2019.

In 2003, the County's assessment of total, county-wide electricity consumption was 940 GWh, with an estimated 27% of that energy (or 253.8 GWh) imported (Humboldt County 2005). The CEC's data shows the county used 917.58 GWh in 2003. The DEIR identifies that non-residential electricity consumption within Humboldt County has been steadily decreasing; demand in Humboldt County decreased by 149 GWh between 2003 and 2019 (DEIR page 3.5-1). Total electricity consumption (non-residential and residential) in the County decreased by 126 GWh in the same timeframe.

As shown in Response to Comment 503-19, the State's energy demand forecasts were used in the 2021 SB 100 Joint Agency Report, which found that achieving 100 percent clean electricity sales in California from renewable and zero-carbon resources by 2045 is technically achievable through multiple pathways. Evaluation of the Project's potential to conflict with SB 100 is provided in DEIR Section 3.5.6 (Impacts and Mitigation Measures) Impact ENG-b; the DEIR concluded that the Project would not conflict with or obstruct SB 100.

Response to Comment 503-21 – Energy Demand and Renewable Energy

This comment raises concerns that energy use for the Project would prevent implementation of SB 100 in Humboldt County due to the anticipated energy demand of the Project. Please see Response to Comment 503-19 and Response to Comment 503-20 regarding SB 100 requirements and the Project's energy impacts. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information around renewable energy commitments of the Project. As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project.

The comment identifies the potential for NAFC to create a power purchase agreement with a large, off-site renewable energy supplier connected to the grid, but cites the existing transmission facility capacity as a limitation. The commenter does not demonstrate that Project would, if using either PG&E or RCEA's

services, exceed either entity's capacity to provide clean power through the available resources and infrastructure. As shown in Response to Comment 503-19, Response to Comment 503-20, and Master Response to Comment 2, GHG and energy, the Project would not conflict or obstruct SB 100. Master Response 2 (Greenhouse Gas and Energy)

Response to Comment 503-22 – Consistency with RCEA's Repower Humboldt Plan

The comment states that the Project would conflict with the RCEA's RePower Humboldt Plan (also known as CAPE) as a result of the Project's electricity demand. The comment mischaracterizes the RCEA's 2030 goal as "100% local zero-carbon energy by 2030." The RCEA's goal states:

By 2030 Humboldt County will be a net exporter of renewable electricity and RCEA's power mix will consist of 100% net-zero-carbon-emission renewable sources.

The RCEA's goal is to have a power mix that consists of 100% net-zero-carbon-emission renewable sources. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the Project's commitment to 100% renewable and/or non-carbon energy at the first year of operations. The NAFC's commitment to 100% renewable and/or non-carbon energy is described within the DEIR, is enforceable through permitting conditions, and is feasible as both potential energy providers have demonstrated ability to deliver 100% renewable and/or non-carbon energy. Please see Response to Comment 503-21 regarding the Project's electricity demand relative to the county's historic electricity demand and existing transmission infrastructure capacity.

Furthermore, DEIR Impact ER-b provides an analysis of the Project's consistency with RCEA's Repower Plan, stating:

Furthermore, the Project will directly support goals established in RCEA's Repower Humboldt Action Plan for Energy (RCEA 2019) by using efficient technologies, all electric equipment (except for emergency power associated with short-term power interruption), and installation of a utility scale onsite solar energy generation system. (DEIR page 3.5-9)

The information provided by the comment does not constitute substantial evidence that the Project would result in a significant energy impact.

Response to Comment 503-23 – Truck Trips Discrepancy

This comment notes that there are currently no dedicated bicycle or pedestrian facilities on New Navy Base Road or SR 255 and that these roadways are regularly used by people walking and biking. The comment states that if the true number of truck trips per week is 700 it would be a substantial increase in truck traffic, thus, a substantial increase in hazards to non-vehicular road users.

The comment posits that SR 255 bisects Manila, and travels through Arcata and Eureka and is contrary to the DEIR statement in Section 3.12 (Transportation) on page 3.12-14 that, "the Project would not affect the residential areas as truck traffic would utilize New Navy Base Road and SR 255."

The comment additionally states that the only connecting truck route is Highway 101 and in Eureka 101 has a very high rate of bicycle and pedestrian collisions. However, the comment does not provide actual collision rate calculations and comparison to collision rates on similar facilities but does cite 10 years of collision data on SR 255 in Arcata and Manila and Highway 101 in Eureka. The comment states that all truck trips will therefore travel through residential and other areas with many vulnerable users and severe existing impacts. The comment requests that the DEIR more accurately analyze truck traffic including in text and DEIR Appendix B. The comment posits that the impact of traffic will create additional hazard for

vulnerable road users, and almost certainly will cause an incompatible use under CEQA Guidelines, and thus the DEIR must mitigate impacts through bicycle and pedestrian safety improvements.

The number of truck trips stated in the comment at 700 per week is inconsistent with the proposed Project. Please see Master Response 1 for additional information regarding truck trip calculation, truck traffic and road safety, and Master Response 2 (Greenhouse Gas and Energy) for clarification on DEIR Appendix B, of the DEIR, inputs. The number of daily truck trips has been corrected and documented in Section 4.0 (Errata), with 95 trucks per week, and 32 truck trips per day. The comment regarding residential areas on page 3.12-14 is contextually specific for residential roadways that are not arterials or designated truck routes such as SR 255 and US Highway 101. Yes, the community of Manila is primarily residential, however, Project truck traffic would not travel through local residential streets and would remain on highway SR 255 while passing the Manila area. Bicyclists and pedestrians are permitted on US 101 in Eureka but prohibited on US 101 in Arcata as the facility is a limited access freeway in this area. Review of the 10-year collision history referenced in the comment presented that none of the bicyclist or pedestrian-involved collisions on SR 255 also involved trucks, and that the majority of collisions on US 101 in Eureka occurred at intersections with pedestrians where either the driver failed to yield the right of way while turning, or the pedestrian crossed illegally or failed to obey crosswalk signals. This has been added to Section 4.0 (Errata).

The City of Eureka has also developed the US 101 Broadway Multimodal Corridor Plan that would increase safety for non-motorized users which the Project would not conflict with. As documented in Section 3.12 (Transportation, Impact TR-c), and additionally in Section 4.0 (Errata), project truck traffic would not substantially increase hazards to vulnerable roadway users or incompatible uses, nor does the Project create additional undue substantial risk because the Project does not significantly intensify truck traffic, because the daily truck percentage on these roadways increases by at most 0.5% with the Project.

Collision data on SR 255 has been evaluated and added in Section 4.0 (Errata) over the most recent five-year period which is a typical analysis period for collision data amongst engineering professionals, per industry standard. Caltrans calculates average crash rates based on five years of collision data (Caltrans 2018). Additionally, Caltrans requires the most recent three to five years of collision data for Benefit Cost Ratio projects for the Highway Safety Improvement Program. There was one pedestrian-involved collision during the five-year period along SR 255, which did not involve a truck, and does not present a significant concern related to safety on SR 255. Bicyclist- or pedestrian-involved collisions on US 101 in Eureka mostly occurred at intersections with turning vehicles failing to yield the right-of-way or pedestrians illegally crossing. The findings of Less Than Significant Impact for Impact TR-c remains the same as in the DEIR and no mitigation is warranted.

Response to Comment 503-24 – Demolition Noise Impacts on Birds

This comment expresses concern that noise associated with demolition could be impactful to birds. Page 16 of the DEIR Appendix J (Construction Noise, Vibration and Hydroacoustic Assessment) provides details with regard to anticipated noise levels that would be generated from the use of explosives. Use of explosives will be limited and is anticipated to have two likely occurrences (boiler building and stack) and noise generation will be of very short duration from use of explosives.

Noise impacts on special status and protected birds is discussed in Section 3.3 of the DEIR on pages 3.3-17. Mitigation Measure BIO-5 on page 3.3-21 of the DEIR outlines measures to protect special status, migratory and nesting bird species. Mitigation Measure BIO-5 is a multi-tiered mitigation measures, with the initial portions of the mitigation measure discussing work outside of the nesting season. If use of explosives is conducted outside the bird nesting season, there would be no impact on nesting birds. If explosives are

used during the bird nesting season, then Mitigation Measure BIO-5 outlines procedures to conduct nesting bird surveys, including surveying for nesting birds 500 feet from construction activities, developing buffers for nesting birds and “on a case-by-case basis consult with CDFW....” Based on the facts that use of explosives will be very limited, noise generation will be of short duration and with implementation of Mitigation Measure BIO-5, impacts to nesting birds are judged to be less than significant with mitigation.

Noise impacts on special status marine mammals is discussed in Section 3.3 of the DEIR on pages 3.3-22 to 3.3-23. Mitigation Measure BIO-6 on page 3.3-24 of the DEIR outlines measures to protect special status marine mammals from noise impacts from soil densification construction. Soil densification construction has the potential to disturb marine mammals as far as approximately 330 feet (100 meters) into Humboldt Bay, when soil densification construction methods are implemented on the eastern portion of the Project Site nearest Humboldt Bay. The 330-foot radius is also within the confines of the existing dock, and marine mammals would be unlikely to be present within this zone during construction for long periods. However, if present, soil densification construction occurring within the southeast corner of the Phase 2 Grow-Out Module could result in a potentially significant Level B injury (behavior harassment) impact to marine mammals. Mitigation Measure BIO-6 would be incorporated into the Project to prevent these activities when the 330-foot radius is tidally inundated, reducing the potential impact to marine mammals to a less-than-significant level.

Response to Comment 503-25 – Water Intakes

The comment posits that the proposed water intake should have a complete Water Code Section 13124.5(b) determination from the NCRWQCB. The Harbor District is coordinating with the NCRWQCB to determine and obtain required approvals. This may include a Water Code Section 13142.5(b) determination.

The comment states that site specific biological surveys are important for evaluating impacts and that the “approach used to estimate impacts due to entrainment relied entirely on physical data on the intake and sources water volumes...”. The comment also states that impacts to larval species, including Pacific sand lance, are not adequately assessed.

The effects analysis related to entrainment by the proposed water intakes is based on biological and physical data for the bay (for example, see DEIR Section 3.3.6, Pages 3.3-50 to 3.3-52). As described in the DEIR, there are many factors that allow for a determination of less than significant (in some cases with mitigation) based on existing data. These factors include (1) only 0.14% of the volume of water moving through the main channel over a tidal cycle would be withdrawn, (2) the high salinity of the water intake site makes it an unsuitable nursery area for longfin smelt and hence impacts to longfin smelt larvae would be minimal, and (3) the intake screens will avoid entrainment or impingement of juvenile and adult fish, including longfin smelt. Additionally, due to the low percentage of bay water that will be withdrawn, effects to other fish (including Pacific sand lance) would not be significant.

Response to Comment 503-26 – Water Intakes

The comment states that the mitigation for potential LFS impacts should be specifically comprised of longfin smelt spawning habitat. The proposed mitigation measure for impacts to LFS (Mitigation Measure BIO-6a) has been modified such that mitigation would occur in areas of fresh and/or brackish water and shall create habitat suitable for LFS spawning as recommended by the comment (see Section 4 – Errata). The comment raises concern about impacts to eelgrass associated with the proposed removal of pilings. As described in the DEIR (Section 3.3.6, Page 3.3-56) “Pile removal would benefit eelgrass in Humboldt Bay

by creating additional eelgrass habitat and would thus self-mitigate temporary impacts to eelgrass.” Please also see Response 301-3.

The comment requests that the County condition approval of the Project on the evaluation and approval of an intake permit that complies with Water Code Sections 13142.5(b) and (d). The County and District are working with the NCRWQCB to identify and obtain any approvals required under the Water Code. The proposed condition is not necessary.

Response to Comment 503-27 – Use and Replacement of Marine Ingredients

The comment suggests farmed fish cannot provide the necessary micronutrients without being fed wild fish. The comment suggests that, in general, fish farming uses as many fish in feed as is produced. The comment suggests that reductions in fish in fish out ratio are largely attributable to substitution with grains. The comment references publications that suggest plant-based proteins used for fish meal substitution are contaminated with pesticides and fertilizers. The comment references publications that suggest fishmeal and fish oil replacement with plant-based alternatives is associated with environmental consequences including higher usage of freshwater and land resources, biodiversity loss, and increased carbon emissions as well as impacts on product quality such as reduced omega-3 fatty acid content. Please see Master Response 10 regarding fish feed, which gives additional detail on the proposed feed composition and feed conversion ratio. No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

Response to Comment 503-28 – Feed composition, FIFO, and GHG

The comment requests that NAFC disclose the specific fish feed to be used on the farm and asks for transparency in feed composition. The comment requests that NAFC commit to a Fish In Fish Out Ratio (FIFO) and make calculations for GHG emissions for feed production. Please see Master Response 10 regarding FIFO objectives for the Project. Refer to Master Response 2 for additional information related to the GHG emission analysis methodology.

Response to Comment 503-29 – Hazardous Materials

The comment expresses concern that making improvements to the RMT II sea chest may mobilize creosote or pentachlorophenol during construction and this potential should be assessed and mitigated, if feasible.

Best management practices will be followed to properly remove and dispose of wood as needed during modernization of the sea chests. The modernization effort is not expected to mobilize contaminants into the environment. All work on the sea chests will involve either further encapsulation of materials that are already in place or the removal of materials for replacement with more appropriate material. Any contaminated material that is required to be removed during modernization will be disposed of at an appropriate offsite location and replaced with non-hazardous materials.

The comment requests additional information regarding chemical safety and use of ferric and ferrous chloride. Please see pages 3.8-11 through 3.8-17 for analysis of if the Project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, which was found to be Less than Significant with Mitigation. The Facility will be required to develop a Spill Prevention Containment and Countermeasures (SPCC) Plan prior to operations for all chemicals and hazardous material used or stored at the Facility.

As discussed on page 3.9-6, under subsection 3.14 Industrial – Protection Against Spillage “Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.”

Any potentially hazardous material would be properly stored and handled in accordance with applicable regulations and manufacturers’ specifications. Typical storage for these materials in the Project’s facilities involve a double containment tank where the outer tank is 110% of the volume of the inner tank for complete spill containment. For more caustic material, NAFC may also employ a third containment measure consisting of a concrete tub that would house large volume containers. This tub would also be capable of containing at least 110% of the volume of the containers it is intended to house. Emergency spill response procedures, including employee hazard communication training, will be established and implemented by NAFC to address accidental releases within the facility.

Should ferric or ferrous chloride be employed to precipitate phosphorus as illustrated in Image 2-5 Wastewater Treatment (DEIR page 2-24), the process where either ferric or ferrous chloride would be applied is prior to the membrane bioreactors (MBRs). As noted on page 2-25 of the DEIR and as described in the letter Membrane Bioreactor – Absolute Barrier the MBRs are cassette filters submerged in chamber tanks (Suez 2021). These tanks are drained on a regular basis to send solids for dewatering. All flow of effluent out of these tanks can be stopped in the event of a spill as effluent must be vacuumed out of the MBRs to be sent through the UV and then the outfall. The SPCC would further specify all measures based on the final as built designs and equipment installed. Iron (II&III) chloride is safely used globally as an effective means of precipitating out metals and or phosphorus from water and wastewater. The spill referenced in the comment was the result of a fire which destroyed the entire Danish facility and was not the result of an operational accident or spill.

Pages 3.9-2 through 3.9-6 of the DEIR describe the stringent regulatory measures in place to protect the public and the environment from the intentional or unintentional introduction of materials into the marine environment. Should there be an accidental spill of materials, the agencies and authorities would be notified and utilized as described in the DEIR Section 3.8.3, pages 3.8-5 through 3.8-8.

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local government agencies. Responding to hazardous materials incidents is a part of this plan. The plan is administered by the OES, which coordinates the responses of other agencies such as local fire and police agencies, emergency medical providers, California Highway Patrol (CHP), CDFW, and Caltrans. Humboldt County has adopted the Humboldt County Operational Area Hazard Mitigation Plan. Federal Emergency Management Agency (FEMA) approved the Humboldt Operational Area Hazard Mitigation Plan on March 20, 2014. The facility SPCC Plan would contain all the information needed by first responders for all chemicals and hazardous material used or stored at the Facility in the event of an emergency.

Response to Comment 503-30 – Water Quality Data and Project Modeling

This comment expresses concern that the ambient water quality data should come from closer to the discharge point than was used in the Numeric Modeling Report to better assess potential impacts of nutrients proposed to be discharged in the Project’s effluent. Please see Master Response 5 (Marine Outfall for additional information and clarification regarding ambient data used. It is important to note, as further detailed in the master response, that the Bay entrance data referred to in the comment was not used as model inputs, but rather as a form of benchmark to assess model performance. Also included in MR5 is further information related to harmful algae blooms (HABs)

Response to Comment 503-31 – Entrance Bay Water Quality Data

This comment addresses concerns regarding the use of Entrance Bay water quality data to represent ambient water quality at the RMIT Diffuser location. CeNCOOS data was not available and/or suitable upon investigation (as summarized on page 3.9-8 of the DEIR (Section 3.9, Hydrology and Water Quality / Methodology), so Entrance Bay data was used. Please see Master Response 5 (Marine Outfall) which specifically addresses these issues.

Response to Comment 503-32 – HABs and BEUTI

This comment addresses concerns regarding nitrogen-related water quality concerns and BEUTI. Please see Master Response 5 (Marine Outfall) which specifically addresses this issue.

Response to Comment 503-33 – Monitoring for Toxic Algae and Adaptive Management

The comment requests baseline and post-project monitoring for toxic algae near the discharge point but provides no substantial evidence as a basis for the likelihood of toxic algae to occur. Please see Master Response 5 (Marine Outfall) which specifically addresses these issues.

The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9. HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 (Marine Outfall) which addresses the issue of HABs and monitoring requirements.

Given the Project would likely not contribute to a HAB, the applicant has agreed to complete additional monitoring above and beyond any regulatory requirement and will share results with stakeholders (including this comment). The Project must comply with the NCRWQCB NPDES order and included provisions for violation thereof. The Project includes contingency protocols for water quality protection and has accounted for adaptive scenarios specific to water quality. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 503-34 – Adaptive Management

This comment requests an adaptive management plan and the implementation of an advisory panel on the Project Master Response 5 (Marine Outfall) comprised of agency staff with voting rights. As included in Master Response 5, the DEIR has conservatively accounted for adaptive management specific to unanticipated water quality detrimental effects (i.e., water quality degradation at spatial scales greater than predicted in the DEIR). On page 3.9-23 (Contingency Protocols for Water Quality Protection), the DEIR describes NAFC management actions that would be taken to address any unanticipated detrimental effects to marine water quality, including an event related to toxic algae or a Harmful Algae Bloom (HAB) attributable to the discharge from the facility. These management actions are to be implemented in addition to any regulatory action taken by the NCRWQCB. In the event of a water quality impact related to the Project's discharge, NPDES-required monitoring shall continue throughout these operational adjustments. Operational constraints shall continue until the water quality exceedance(s) attributable to the Project have been resolved to the satisfaction of the NCRWQCB.

Additionally, the draft NPDES order includes reopener provisions which are triggered at any point if there is a Reasonable Potential for the discharge to cause or contribute to an excursion above a water quality criterion in the permit or objective applicable to a receiving water (DEIR page 3.9-10). If sampling results

show non-compliance, NCRWQCB would issue a Cease and Desist or a Time Schedule Order under the NPDES program. NAFC would then coordinate with the NCRWQCB to obtain compliance. As a standard provision in the draft order, failure to comply with provisions or requirements of the order, of violation of other applicable laws or regulations governing the NAFC discharge may subject NAFC to administrative or civil penalties, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject NAFC to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities (Section 6.1.2.1 of the draft NPDES order for the Project).

Impact analysis in the DEIR concluded that potential water quality and biological resources impacts related treated effluent discharge would remain less than significant and identified contingency protocols and NPDES requirements to support that finding, discussed above. Contingency protocols, combined with NPDES requirements, assure that any unanticipated detrimental water quality impact attributable to the Project would be swiftly corrected under existing regulations to ensure potential impacts associated with the treated effluent discharge remain less than significant. Therefore, additional mitigation would not be required. The requirement of a Science Advisory Panel would constitute mitigation, which is not required based on impact analysis, and overreaches beyond the requirements of existing applicable regulations (e.g., California Coastal Act, California Ocean Plan, California Thermal Plan, and the Clean Water Act) that specifically apply to this Project. The recommended language regarding a Science Advisory Panel has not been incorporated into the Final EIR; however, the Project would continue to work with the commentor and jurisdictional agencies to transparently share the outcomes of additional voluntary monitoring to be completed by NAFC. Any violations of the NPDES order related to HABs, any other regulated water quality parameter, or other permit requirements (e.g., California Coastal Commission Coastal Development Permit conditions) would be immediately reported to the jurisdictional agencies, as required.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 503-35 – Fish Feed and Biosecurity

The comment suggests the Project could have potential impacts to human health by releasing antibiotic-resistant bacteria associated with poultry by-product to the environment. The comment requests that the Project be prohibited from using poultry by product and requests monitor feed and effluent for known antibiotic-resistant bacteria. For information concerning fish feed safety please see Master Response 10.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

The comment also requests that the FEIR require a commitment from the Project to not use poultry by-products in feed formulation as well as include a monitoring program for antibiotic-resistant bacteria. While the Project has committed to the fish feed criteria detailed in Master Response 10, NAFC is not yet able to exclude these materials from feed formulations that will be decided on several years in the future. Inclusion of poultry by-products would adhere to the fish feed criteria detailed in Master Response 10 to ensure fish feed safety. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 503-36 – Concluding Remarks

This comment is a concluding remark. No additional concerns are raised. All specific concerns raised in comment letter 503 are addressed above.

McNamara, Cade

From: Frank Fogarty <fogartyfa@gmail.com>
Sent: Friday, February 18, 2022 4:22 PM
To: CEQAResponses
Subject: CNCC Comment Letter on Nordic Aquafarms DEIR
Attachments: CNCC Comment Letter on Nordic Aquafarms DEIR.pdf

Hello,

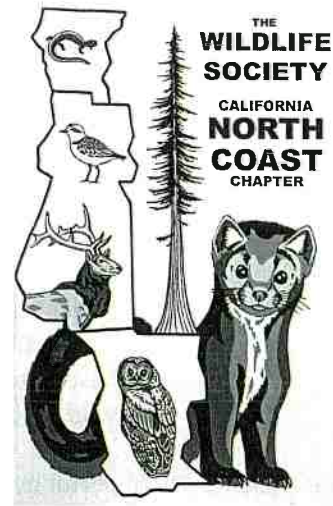
On behalf of the California North Coast Chapter of The Wildlife Society, I am submitting the attached comment letter on the Nordic Aquafarms DEIR.

Sincerely,

Dr. Frank Fogarty
President
California North Coast Chapter of The Wildlife Society

February 12, 2022

Cade McNamara, Planner II
County of Humboldt
Planning and Building Department, Planning Division
3015 H Street, Eureka, CA 95501
PlanningBuilding@co.humboldt.ca.us
CEQAresponses@co.humboldt.ca.us



The CA North Coast Chapter of The Wildlife Society is a professional organization of Wildlife biologists. Our members work in all sectors of the wildlife field, academics, consultants, public and private organizations, as well as students. The California North Coast Chapter (CNCC) has approximately 150 members currently, and collectively we have hundreds of years of experience. We offer our professional opinion on the Nordic Aquafarms CA, LLC project Draft Environmental Impact Report (DEIR), case # PLN-2020-16698.

504-1

1. The Cumulative impacts section does not address several issues that are well known (or should have been known) to Nordic Aquafarms' project proponents. For example, water use from this project and other aquaculture producers will have adverse environmental effects on fish and Dungeness crab larvae due to entrainment at the new salt water intake installed to serve the Atlantic salmon farm. The Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD) has publicly announced plans to create a large "Terminal" complex immediately adjacent to Nordic Aquafarms.

504-2

2. Section 2.4.2: The salt water intake pumps at the old pulp mill site are not operable, and therefore do not adversely impact fish larvae. The proposed "modernizations" to the existing salt water intake will have potentially significant adverse environmental impacts.

504-3

3. Section 2 suggests that the permitting and use of existing "Sea Chests" will be accomplished by the HBHRCD. This is "piecemeal" planning and splitting of environmental impacts in a way that CEQA does not allow.

504-4

4. The schedule of salt and fresh water intake infrastructure work is not documented.

504-5

5. Detailed information on marine protection measures (seasonal closure or variation in water intake volumes) have not been provided.

504-6

6. A more specific and detailed analysis is necessary to document or prevent adverse environmental effects. For example, the source of fish food used to grow exotic Atlantic salmon may adversely affect native fish in Humboldt Bay or the Pacific Ocean, and the

504-7



current iteration of the DEIR lacks specific information on how much and in what proportion for fish protein will be obtained.

↑ 504-7
Cont.

7. The DEIR fails to consider adverse impacts on the food chain for avian species as well. While Sec. 3.3.6 describes the potential impacts of individual sensitive or special status species, the DEIR overall does not adequately address how several of the issues above may have potentially significant adverse impacts on local bird species which thrive on Humboldt Bay's fish and invertebrates.

504-8

Thank you for the opportunity to provide these comments.

Sincerely,



Frank Fogarty, President

CA North Coast Chapter, TWS

Letter 504 – Response to Comments

Response to Comment 504-1 – Introductory Remarks

This comment is introductory in nature. Specific issues discussed in comment letter 504 are addressed individually below in response to comment 504-2 through 504-8. No additional response is required.

Response to Comment 504-2 – Water Intakes

DEIR cumulative impact analysis is incomplete, specifically potential impacts of the intakes on fish and Dungeness crab populations.

The DEIR provides a detailed analysis of the potential impacts on a wide variety of marine species, including Dungeness Crab, which can be found in section 3.3 Biological Resources. Further discussion and analysis of the proposed intake design and potential impacts can be found in Master Response 7 (Intake Biological Productivity, Intake Salmonids).

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 504-3 – Water Intakes

Comment states the saltwater intake pumps at the old pulp mill site are not operable, and modernizations will have potentially significant, adverse environmental impacts.

The DEIR evaluates potential impacts from the proposed saltwater intake structures across all CEQA criteria. For analysis of potential impacts to marine organisms, please see DEIR section 3.3 Biological Resources. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 504-4 – Water Intakes

The comment is concerned with permitting and use of existing ‘sea chests’ and suggests that piecemealing is occurring under CEQA. The DEIR is a dual applicant EIR that fully analyses potential impacts from the NAFC Project, including the Harbor District Seawater intake modernization, and does not result in any piecemealing under CEQA. All Project components, including the water intakes, associated compensatory restoration, terrestrial development, and the outfall are analyzed in the DEIR.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 504-5 – Water Intakes

The comment states that a schedule of salt and freshwater intake infrastructure work is not documented. A schedule is not required to assess the significance of the environmental effects of the water intakes under CEQA, and therefore is not included in the DEIR. It is still too early in the permitting process to give concrete timelines, as regulatory and agency input still needs to be incorporated. Timelines for construction of the proposed intake structure work will be developed later as part of that specific permitting process. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 504-6 – Water Intakes

The comment states that detailed information on marine protection measures (seasonal closure or variation in water intake volumes) is not provided in the DEIR. Because water is continuously circulated and treated within the individual RAS systems, a continuous source of replacement water is needed for the 1% that is sent to the onsite wastewater treatment facility. As such, seasonal closures of the saltwater intakes would not be feasible. The DEIR provides a detailed analysis of the potential impacts of the proposed saltwater intakes across the broad array of CEQA topics and finds the impacts of the intakes to be less than significant when incorporating proposed mitigation measures. Further description of the proposed intake system and associated impact mitigation measures can be found in Master Response 7 (Intake Biological Productivity, Intake Salmonids).

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 504-7 – Fish Feed

The comment requests a more specific and detailed analysis of adverse environmental effects from feed that includes impact to native fish in Humboldt Bay and forage fish in the Pacific Ocean. Please see Master Response 10 (Fish Feed). No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

Response to Comment 504-8 – Biological Resources / Birds

This comment requests analysis of impacts of the Humboldt Bay Water Intakes on the food chain for birds in Humboldt Bay. The DEIR addressed effects of the Humboldt Bay Water Intakes on impacts to EFH, which included effects on invertebrate prey for fish as well as impacts to fish that are in turn prey for birds, in Section 3.3 (Biological Resources), starting on pages 3.3-50, and 3.3-61. The findings of this analysis show less than significant impacts when incorporating noted mitigation measures to all species investigated, including birds and noted prey species of fish. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.



January 26, 2022

Cade McNamara
County of Humboldt Planning & Building Department, Planning Division
3015 H Street
Eureka, CA 95501

RE: Letter of Support for Nordic Aquafarms Fish Project

Dear County of Humboldt Planning & Building Department,

On behalf of the Fortuna Chamber of Commerce and its Board of Directors, I am pleased to write this letter in support of Nordic Aquafarms' fish project planned for the Samoa Peninsula.

Nordic Aquafarms focuses on fish welfare and environmental sustainability, and they employ proprietary recirculating aquaculture systems (RAS) with patented technology. The end-results are modules ready for truly large-scale RAS farming – and a key solution in contributing to increasing seafood supply without leaving a material environmental footprint.

The Nordic Aquafarms' project will provide many community benefits, including clean-up of a long-abandoned site containing hazardous materials, abandoned buildings, and industrial debris. The project will also stimulate economic activity and provide a wide range of employment opportunities. In addition to what Nordic will directly contribute to our local economy, the Nordic project will potentially be a draw for other aquaculture or sustainable businesses on the peninsula, thereby increasing economic prosperity and employment opportunities for our region.

Nordic Aquafarms has been actively engaging in our community through public meetings, site tours, and targeted outreach to stakeholders. Nordic is working closely with College of the Redwoods to revitalize their aquaculture program and with Humboldt State University to ensure a steady pipeline of local, qualified professionals. Nordic is also working with the Humboldt County Office of Education to introduce information to students about careers in aquaculture and

505-1





to offer support in classroom educational programs. We are confident that Nordic Aquafarms will be a benefit to our local economy as well as to our local communities.

505-1
Cont.

The Fortuna Chamber of Commerce is pleased to support this project.

Sincerely,

Renee Lindsay
President & CEO
ceo@fortunachamber.com



Letter 505 – Response to Comments

Response to Comment 505-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Ali Freedlund <ali@mattole.org>
Sent: Tuesday, February 15, 2022 1:09 PM
To: CEQAResponses
Subject: Nordic Fish Farm

Hello, I have 3 requeats:

1- Please require Nordic to invest in LOCAL clean energy and storage to meet their power needs.	506-1
2-Please require Nordic to build a local compost facility.	506-2
3-Please, PLEASE, please require a better analysis of ocean impacts from increased nitrogen inputs!! The ocean is a sanctuary we have fowled enough. Enough is enough!	506-3

--
Ali Freedlund
Working Lands Human Communities Program Director
Mattole Restoration Council
Lower Mattole Fire Safe Council
(707) 629-3514

Letter 506 – Response to Comments

Response to Comment 506-1 – Energy

This comment requests the Project invest in local clean energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 506-2 – Waste

This is a comment requesting Nordic to build a compost facility in Humboldt County. No onsite or local composting facility is proposed as part of this project. Please refer to DEIR Project Description, subsection Handling of Waste Streams for an overview of the proposed facility waste streams. Please see Master Response 11 for additional clarification regarding waste handling and disposal. NAFC seeks responsible and sustainable solutions for its waste streams and will continue to develop a local and regional network of waste handlers and waste repurposing operations. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 506-3 – Ocean Impacts from Nitrogen

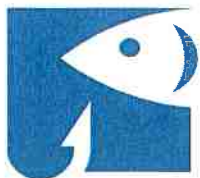
The comment requests a better analysis of ocean impacts from increased nitrogen inputs but does not identify specific issues with the analysis provided in the DEIR. The numeric modeling completed for the Project (DEIR Appendix E) concluded the risk of enhanced pelagic productivity from elevated nutrients in the surface and mid- water column is 'very low'. The numeric modeling also concluded the risk of enhanced benthic productivity from elevated nutrients in the near-seabed waters is 'very low.' Please see Master Response 5 (Marine Outfall) for additional information regarding nitrogen in the discharge. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Larry De Ridder <clderridder@hotmail.com>
Sent: Friday, February 18, 2022 12:47 PM
To: CEQAResponses
Subject: Nordic Aquafarms DEIR comments
Attachments: HASA letter_Nordic AquaFarms_draft EIR.pdf

The attached is submitted by Humboldt Area Saltwater Anglers.

Larry De Ridder
HASA



Humboldt Area Saltwater Anglers Inc.

P.O. Box 6191, Eureka, CA 95502

Email: hasa6191@gmail.com

FEIN #61-1575751



February 17, 2022

Humboldt County Planning and Building Department
3015 H Street
Eureka, CA, 95501

RE: Humboldt Area Saltwater Anglers comments on Nordic Aquafarms Draft EIR.

The Humboldt Area Saltwater Anglers (HASA) appreciates the opportunity to provide comments regarding Nordic Aquafarms (NAF) draft Environmental Impact Report (DEIR) for their proposed fish farm. HASA is a non-profit association whose purposes include educating anglers in conservation and best management practices of fishing, work cooperatively with Federal and State fishery management officials on proposed regulations, and providing our perspective on how regulations will affect our sector from opportunity and economic perspectives. HASA's membership of approximately 300 saltwater anglers are passionate about maintaining long-term recreational angling opportunities on the north coast of California, within the context of sound fishery management practices.

507-1

While we appreciate that NAF took the extra effort to develop an EIR for their proposed projects, HASA still has concerns and questions regarding the project as currently described in the DEIR. HASA's concerns include the following topics: bay water intake, effluent discharge to the ocean, and feed sources.

Bay Water Intake: The project proponent proposes to intake seawater from Humboldt Bay for use at the facility. The DEIR states that the capacity of the Humboldt Bay Harbor District sea chests on the RMT II and Red Tank Docks is being expanded to provide up to 10.5 million gallons per day (mgd) saltwater supply to the Project. Industrial installations using seawater for cooling, heating, or industrial processing must complete a Water Code section 13142.5(b) determination to ensure "the best available site, design, technology, and mitigation measures feasible" are "used to minimize the intake and mortality of all forms of marine life." The DEIR, however, does not indicate whether the facility will be required to complete a section 13142.5(b) determination, despite the fact the proposed intake structure has the potential to cause significant environmental impact. The facility should not be approved until the intake structure is evaluated and either conditioned or approved by the Regional Board in accordance with Water Code section 13142.5(b).

507-2

Regarding the fish screens at the seawater intakes in Humboldt Bay, the DEIR's Project Description claims that: "modifications would increase water withdraw [sic] capacity and add features that reduce environmental impacts of aquatic species entrainment and impingement with installation of new 1.0 mm wedge wire intake screens." Claiming that the new fish screens would reduce environmental impacts is a sweeping, general statement using the premise that organisms can swim away and avoid the seawater intakes, then applying the premise to a myriad of aquatic organisms that lack the capacity to swim away (or ignoring that these weaker swimming organisms are present within the bay). These organisms include larval fishes (ichthyoplankton) and the entire planktonic invertebrate community of Humboldt Bay. The Biological Resources

section concluded that the seawater intake system is not expected to reduce larval numbers of Dungeness crab because of strong tidal currents, low intake volume relative to source waters, intake velocity that megalopae are capable of avoiding, and the settling nature of megalopae. The smaller Dungeness crab zoea are an earlier, mid-water column, life-history stage for the species, and as such are significantly more vulnerable to entrainment. In selecting the megalopae life-history stage of Dungeness crab for analysis and not the considerably more vulnerable zoea life-history stage, the DEIR is skewed toward a less-than-significant determination for effects to Dungeness crab and the estuarine ecosystem, and it disguises the potential impact of seawater withdrawal on the Dungeness crab population in Humboldt Bay.

507-2
Cont.

Effluent Discharge to the Pacific Ocean: The estimated discharge of 1,484 lbs of nitrogen per day reinforces the need for baseline ambient water quality assessment at the point of discharge and regular monitoring to accurately assess the impact of increased nutrients, including monitoring for Harmful Algal Blooms (HAB). The coast of Humboldt County has already experienced high levels of *Pseudo-nitzschia australis*, which causes domoic acid and has led to fisheries closures in Humboldt County in 2016 through 2021. *Pseudo-nitzschia* growth and domoic acid production benefit from nitrogen loading in the environment. Given the potential risk to ecosystems and the local economy, it is important that NAF collect appropriate data to accurately conclude that the impacts of increased nitrogen are indeed “less than significant” and that regular monitoring of discharged nitrogen be conducted throughout all phases of production to ensure that it does not contribute to increased HABs. Ambient water quality data from closer to the discharge point than what was used in the Numeric Modeling Report should be obtained and used to better assess potential impacts of nutrients proposed to be discharged in the project’s effluent.

In addition, higher water temperatures and lower salinity levels of the project’s effluent has the potential to exacerbate HABs. There is concern over further elevating the water temperature in the region, as our oceans are already warming. In 2014, a large Marine Heat Wave (MHW) known as “the blob” was identified as it began dominating the northeast Pacific Ocean. Researchers documented many adverse ecological effects associated with the blob, including unprecedented HABs, shifting distributions of marine life, and changes in the marine food web. NAF needs to consider how elevated ocean temperatures may affect the surrounding environment, and mitigate for any harmful effects.

507-3

One of the key issues brought up during public comment on the Initial Study/Mitigated Negative Declaration (IS/MND) was the potential threat to wild salmonids from viruses exiting the Project’s effluent pipe. Effluent from the fish processing area of net pen facilities in British Columbia is now known to be a primary source of exposure of wild salmonid populations to piscine reoviruses. Wastewater from NAF Project’s fish processing area is shown on page 2-25 of the DEIR to have a flow of 0.5 MGD. This wastewater will contain the highest viral loading of the entire wastewater stream, because maximum viral loading in salmonids is often in the blood and in the abdomen, where virus-laden fluid from lysed or broken cells accumulates. Beyond the unquantified UV treatment, there is no proposal to treat this wastewater for pathogens, no proposed ozone treatment, no reverse osmosis treatment, and no proposed monitoring of high-risk pathogens. Page 2-41 of the DEIR responds to the concern of viruses in the wastewater by redirecting the discussion to fish escape and claiming that there is “a zero probability of fish (adult, fry, eggs) from passing through the wastewater treatment system.” However, it is the ruptured or failed fibers in the wastewater treatment plant (also mentioned on page 2-41) that are precisely the source of concerns that needs to be addressed. These are: the risk of viral pathogens escaping the

Project and infecting wild salmonids, and the risk posed to wild salmonid populations from that exposure.

The DEIR is premature in its conclusion that the Project's risk of exposure to fish diseases is eliminated by the Project's "robust biosecurity measures" and water treatment facility. There are zero known sources of Atlantic salmon eggs that have been proven to be 100% virus free, so the Project does not have an established biosecurity measure for keeping viruses out of the facility. Not only are the source eggs an issue, the DEIR fails to include monitoring or testing for viruses and other pathogens within the facility itself or its wastewater utilizing contemporary testing methods. We recommend that the EIR substantially evaluate potential impacts and risk of elevated viral pathogens to native salmonids based on proposed operations, and include a rigorous monitoring effort and mitigation plan to assess virus pathogen discharge.

507-3
Cont.

Feed Sources: It's been nearly three years of project planning and NAF is still unable to provide specific information about what they will feed their fish and where this food will come from. The DEIR provides "guidance criteria" in regards to procurement of fish feed. This guidance contains numerous steps where NAF will "aim" to "use, avoid or integrate" certain criteria to ensure a safe and healthy food source for the fish they plan to rear. Unfortunately, "guidelines" and "aiming" to do (or not do) something lacks any legal or binding commitment. The Feed Standards (pages 2-37 and 2-38) say NAF "aims" to "integrate the use of ingredients that are viable alternatives to harvest fisheries to the extent that it is practical." However, this statement is shortly followed by a discussion of the use of ocean-harvested fish meal and oils and the standards NAF would require its suppliers of these products to adhere to. Thus, it appears even though NAF "aims" to avoid the use of marine-derived fish food, it is hedging its bets that it will ultimately use ocean-harvested fish meal and oils. Again, no specific information is provided as to who would provide the feed for the facility or where this potential source of ocean-harvested fish meal would come from.

507-4

The potential impacts of antibiotic-resistant bacteria to human health need to be fully analyzed and mitigated. The risk of spread of antibiotic-resistant bacteria from fish feed that includes poultry byproducts poses a significant risk to surfers, other beachgoers, and anglers. The threat comes from two partially-treated effluent streams generated by the Project and from any failures, tears, or degradation of the biofilters. These potential impacts can be avoided by a condition of approval prohibiting the use of feed containing poultry byproducts, or at the very least, a condition requiring testing of the feed and effluent for known antibiotic-resistant bacteria (*Campylobacter* spp., *Escherichia coli*, *Enterococcus* spp., *Salmonella* and *Staphylococcus aureus*) and report the findings to the public in a timely manner. A plan for testing, removal, and replacement of the biofilm filters is essential to ensure they are successfully filtering the effluent and removing any bacteria before entering the ocean.

507-5

Sincerely yours,



Larry De Ridder
President, Humboldt Area Saltwater Anglers

Letter 507 – Response to Comments

Response to Comment 507-1 – Introduction

This is an introductory comment, noting the organization has concerns about the Project. No specific concerns are raised. A response is not required. Specific concerns in response to comments 507-2 through 507-5 are addressed individually below.

Response to Comment 507-2 – Water Intakes

The comment states that the proposed water intakes should complete Water Code Section 13142.5(b) and that DEIR does not adequately assess effects of the proposed water intakes on larval fishes and invertebrates. The Harbor District is coordinating with the NCRWQCB to determine and obtain required approvals. This may include a Water Code Section 13142.5(b) determination. The comment provides no substantial evidence as a basis for this claim. Please see Master Responses 8 and 9 regarding substantial evidence, speculation, and unsubstantiated opinion, and level of detail in an EIR and response to comments. Further discussion and analysis of the proposed intake design and potential impacts can be found in Master Response 7 (Intake Biological Productivity, Intake Salmonids). Mitigation to reduce Longfin Smelt impacts to a less than significant level would be implemented per Mitigation Measure BIO-6a (see Section 4 – Errata).

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 507-3 – Discharge and Pathogens

The comment expresses concern regarding impacts of the proposed discharge volume and contents, particularly related to algal blooms and pathogen release. Section 3.3 Biological Resources of the DEIR presents a detailed assessment of potential environmental impacts from the proposed Project discharge and found “no impact” or “less than significant” impacts across a wide array of wildlife. This section also references DEIR Appendix E, the Project-specific dilution study, which provides further detail on the proposed effluent discharge behavior. Additional information and clarifications regarding the discharge and associated modeling is included in Master Response 5 (Marine Outfall). It is important to note that monitoring of the Project effluent will be required by the Project’s NPDES permit, and NAFC has committed to additional monitoring above regulatory requirements. Details of these monitoring requirements and programs can be found within DEIR section 3.9 Hydrology and Water Quality.

Project biosecurity is discussed in DEIR section 2 Project Description, under the subheading *Fish Welfare and Biosecurity*. This section gives a detailed overview of the principles and methods by which the proposed facility will mitigate pathogen introduction to, accumulation within, or release from the facility. Further detail on Project biosecurity can be found in Master Response 4 – Fish Health and Biosecurity. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 507-4 – Feed Composition and Sourcing

The comment expresses concern that NAFC has yet to provide specific information on feed composition, feed sourcing, and marine ingredients. As noted in the comment, section 2 of the DEIR contains information regarding feed criteria and guidelines but does not specify a particular source or provider. Please see Master Response 10 regarding fish feed for further clarification on the feed source selection process and

timing. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 507-5 – Antibiotic-Resistant Bacteria

The comment concerns the potential impacts of antibiotic-resistant bacteria to human health, the requirement of additional testing, and equipment maintenance. Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 10 regarding fish feed and bacteria concerns. As stated in the DEIR Subsection 3.9.6 (Impacts and Mitigation Measures) all key aspects of water and waste treatment would have built in redundancy to always enable 100% operational capacity, such as during regular scheduled maintenance of the equipment (see page 3.9-17). Once facility design has been finalized and equipment selection completed a detailed operation and maintenance manual will be developed, along with emergency response and contingency plans. These documents will include proper equipment inspection and maintenance protocols and will provide instruction to prevent impacts in the event of equipment failure or emergency. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: nick colazas <NickC_Fish@hotmail.com>
Sent: Thursday, February 17, 2022 9:14 PM
To: CEQAResponses
Cc: Planning Clerk; McNamara, Cade; Cassidy.Teufel@coastal.ca.gov
Subject: HFMA comments RE: Nordic Aquafarms DEIR PLN-2020-1669
Attachments: HFMA-Comment_NORDIC-DEIR_2-17-22.pdf

Mr. McNamara,

I've attached a copy of HFMA's public comment for your review and to be entered into the administrative record.

Thank you,
Nick Colazas

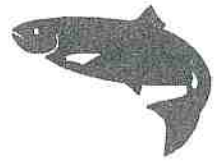
HUMBOLDT FISHERMEN'S MARKETING ASSOCIATION, INC.



3 Commercial Street
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2/17/2022

Cade McNamara
Planner II
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501



Submitted by email to CEQAResponses@co.humboldt.ca.us

RE: Nordic Aquafarms DEIR, Case Number PLN-2020-1669

Dear Mr. McNamara:

Humboldt Fishermen's Marketing Association (HFMA) is opposed to the Atlantic salmon aquaculture facility (the Project) proposed by Nordic Aquafarms (NAF) for the Samoa Peninsula in Humboldt County, CA. As mentioned in our May 16, 2021 letter, HFMA has been a valued and contributing member to this community since 1955. HFMA has been involved and following the progress of the Project since its first public announcement February 2019. Our members respect and rely upon maintaining the health, biological diversity, and resilience of Humboldt Bay and its surrounding waters.

HFMA believes that Atlantic salmon have no place being farm raised in proximity to Humboldt Bay or the Pacific Coast in California. Home to imperiled wild Pacific salmon stocks and being a delicate marine environment, the stakes are simply too high. Land-based RAS salmon facilities lower some of the common risks involved with traditional net-pen facilities but they do not eliminate any of these risks, and they create new risks of their own. While this is not a comprehensive list, some issues of great concern are:

- Fish escape
- Virus/pathogen introduction
- Waste discharge
- Harmful algal blooms
- Fresh water usage
- Saltwater intake/supply
- Enormous power consumption

508-1



- Solid waste storage/disposal
- Chemical waste
- Infrastructure/economic effects
 - Job displacement
 - Competition with existing markets
 - Competition for limited trucking/shipping availability
- Financial burden for County residents

508-1
Cont.

NAF states that the risk of fish escapes from the Project are, “minimized inherently by design” and that they have gone beyond most standards to, “virtually arrive at an escape-proof facility and farm site” (DEIR project description 2-40, 2021). While this could be a great improvement over traditional net-pen or older land-based RAS facilities for countries that currently operate them, it is a significant adverse biological and environmental risk for Northern California where such facilities do not exist. NAF does not state, in their own document, that the risk of fish escape is zero because doing so would be a lie. Between 2010 and 2018 there were 17 unique escape incidences from similar land-based RAS facilities in Norway, one incident involving 49,000 fish (Føre and Thorvaldsen, 2019). The risk is real, and has been documented. Any risk of fish escape or viral/pathogenic introduction to threatened and endangered wild salmon populations is unacceptable. When farmed Atlantic salmon escape to Pacific waters, or salmonid viruses are introduced, there are no known mitigation measures to correct the resulting environmental and biological damage. This would be a devastating scenario to already vulnerable threatened and endangered wild stock.

508-2

The introduction of viruses is of particular concern, because there are multiple ways for them to be introduced to the environment from the facility. Fish escape being the most obvious pathway; but also, from the Project’s effluent discharge and from the un-treated solid waste sludge removed from NAF’s filtration system. The DEIR relies upon a best-case scenario for the filtration systems ability to remove viruses and pathogens and to prevent them from being released into coastal waters. This works in theory, but necessitates all filtration components and systems to work at 100 percent efficiency, 100 percent of the time to keep 12.5 million gallons of effluent per day virus free. The DEIR references that ruptures or failings are likely to occur within the filtration system (page 2-41). There is no mention of monitoring the system for this type of degradation, no maintenance schedule presented, and loss of efficiency due to said failures has not been quantified. The prevention of viral pathogens seems to rely 100 percent on using a “certified” source of eggs. The DEIR is deficient, in that it fails to mention who the supplier of “certified” eggs will be, the certification, standard, country of origin, or if such a source even exists. There is no mention of genetic testing or monitoring the facility’s fish stock for viruses, viral testing or monitoring of Project effluent, reporting to NMFS or CDFW in case of inevitable viral outbreak, or any planned mitigation for such an outbreak. These omissions are serious, and could potentially be devastating to our wild salmon populations.

508-3

NAF does not state where the enormous amounts of untreated waste sludge will be disposed of in the DEIR, but does reference storage of said waste on-site. This untreated waste is a huge potential vector for viral transmission to wild listed and non-listed native salmonid populations. While farm raised Atlantic salmon are known carriers for many different viruses and pathogens, scientists have discovered one in particular that has originated in European salmon farms and now infects wild salmon all across the British Columbian coast to Northern Washington state. Piscine orthoreovirus (PRV) has now spread globally from Europe, and has been determined to be first introduced to British Columbia via egg import from Norwegian salmon farms (Mordecai et al., 2021).

508-4

HFMA is opposed to permitting the Humboldt Bay Harbor Recreation and Conservation District (HBHRCD) to pump saltwater from the Humboldt Bay Estuary for the purpose of supplying saltwater to the NAF project and any other HBHRCD mariculture tenants on HBHRCD properties. Any saltwater required must be sourced elsewhere. Humboldt Bay is the largest estuarine nursery for marine vertebrate and invertebrate species North of San Francisco Bay. The estuary contains diverse larval populations of mollusks, crustaceans, and fish species in large quantities. These species include, but are not limited to, herring, sardine, anchovy, both artherinid and osmerid smelt, Dungeness and rock crab in both zoea and megalopae stages, copepods, amphipods, and shrimp. Also abundant are different species of zooplankton and phytoplankton; which nearly all larval populations rely upon for feed.

508-5

The Endangered Species Act defines “take” as, “To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct”. Operation of said intake pumps will result in take of ESA and CESA listed species, both by direct impingement or entrainment *and by removal of their food sources*. The DEIR is deficient in this regard. Rigorous larval sampling must be conducted in the Humboldt Bay Estuary, at different tidal stages and at different times of year, to determine not only how much take of ESA and CESA species will occur, but also the removal of their food sources. Examination of past HBHRCD performance regarding preventative maintenance and operation of HBHRCD systems and equipment leads HFMA to believe that HBHRCD will likely fail to properly design, operate, and maintain any in-bay pumping system in a way that prevents the take of Humboldt Bay’s important marine flora and fauna. Again, sourcing required saltwater elsewhere will avoid any problems that HBHRCD will create if permitted to pump these volumes from Humboldt Bay.

508-6

Negative environmental effects such as harmful algal blooms may occur in Humboldt Bay and nearshore waters as a result of the high temperature and nutrient levels contained in the Project’s effluent. In their June 2, 2021 letter to the North Coast Regional Water Quality Control Board (NCRWQCB), the National Marine Fisheries Service (NMFS) states,

508-7

“NMFS is concerned that the discharge of 12.5 million gallons per day (MGD) into the Pacific ocean will cause significant adverse effects to Essential Fish Habitat, that include the following: the increase in temperatures of up to 4 degrees Celsius represents a significant change in local water temperatures that would likely disrupt the natural species composition in



the area, favoring warmer water species; the NCRWQB assumes in the National Pollutant Discharge Elimination System permitting that Humboldt Bay is enclosed and receives no ocean water, which is largely incorrect and the effluent would likely enter and effect Humboldt Bay during certain conditions; the perennial discharges of nutrients will support increases in the local populations of algae species and likely contribute to increased frequency of future harmful algal blooms and corresponding toxins and depressed dissolved oxygen conditions."

508-7
Cont.

Harmful algal blooms are dangerous to fish, marine mammals, birds, and humans. Blooms of *pseudo-nitzschia sp.*, which create the neurotoxin Domoic acid, is the cause of Amnesic Shellfish Poisoning in humans. One such bloom was the reason for a 6-month delay to the start of the 2015-16 commercial Dungeness crab season. A facility that contributes to more frequent and longer durations of harmful algal blooms would be unsafe to the community and a devastating blow to the California commercial Dungeness crab fishery, which is a huge economic driver both locally and statewide.

As mentioned in HFMA's May 16, 2021 letter, HFMA is still unaware of a county requirement for financial guarantees or protections from NAF. NAF is a new company that has yet to construct a facility such as the proposed, and has only operated two significantly smaller facilities with limited experience. With no financial protections in place and no requirement from the county for NAF to purchase the project site from HBHRCD, the financial burden of decommissioning and site cleanup is placed directly on Humboldt County taxpayers should NAF's operations fail to be profitable.

508-8

HFMA and Humboldt County fishermen have vested interest and legal status as potential impacted stakeholders to protect Humboldt Bay and its coastal waters. We believe a project such as the proposed takes away from years of conservation and restoration efforts, and will be damaging to the marine environment for many years to come. We would like to thank you for hearing our comments on this matter.

Sincerely,



Harrison Ibach
President



Nick Colazas
Board Member

References:

Føre, H.M. and Thorvaldsen, T., 2021. Causal analysis of escape of Atlantic salmon and rainbow trout from Norwegian fish farms during 2010–2018. *Aquaculture* 532:736002.

Mordecai, G.J., Miller, K.M., Bass, A.L., Bateman, A.W., Teffer, A.K., Caleta, J.M., Di Cicco, E., Schulze, A.D., Kaukinen, K.H., Li, S. and Tabata, A., 2021. Aquaculture mediates global transmission of a viral pathogen to wild salmon. *Science Advances*, 7(22), p.eabe2592. <https://www.science.org/doi/epdf/10.1126/sciadv.abe2592>

Letter 508 – Response to Comments

Response to Comment 508-1 – Opposition to Project

This comment is introductory in nature and a statement of opposition to the Project. Specific topics raised in Comment 508-1 are addressed in more detail in responses to comments 508-2 through 508-8. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Note concerns regarding economic and financial impacts are issues unrelated to CEQA; however, such comments provide valuable input to the County's process of considering approval of a project, and all submitted comments will be provided to the Planning Commission as part of the approval process. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). The comment also lists issues of general concern in bulleted format, summarized in below.

Table 2.12 Summary of General Concerns Included in Comment 508-1 and Associated Responses

Listed Concern	Response or Applicable Master Response
Fish escape	Please see Master Response 3.
Virus/pathogen introduction	Please see Master Response 4.
Waste discharge	Please see Master Response 5 and 11.
Harmful algal blooms	Please see Master Response 5.
Freshwater usage	Per page 2-22 of the DEIR, The HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021). Existing permits associated with freshwater allowable use far exceeding the needs of NAFC have been completed by HBMWD.
Saltwater intake/supply	Please see Master Response 7.
Enormous power consumption	Please see Master Response 2.
Solid waste storage/disposal	Please see Master Response 11.
Chemical waste	Please see Master Response 11.
Infrastructure/economic effects	Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).
Financial burden for County residents	Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 508-2 – Fish Escape

This comment expresses concern over the potential for fish escape and the potential environmental impact of an escape. Please see Master Response 3 regarding fish escape for information regarding escape prevention measures and clarification regarding escape risk and associated impacts. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 508-3 – Introduction of Viruses and Egg Sources

This comment states that the filtration components and systems must work at 100 percent efficiency, 100 percent of the time to keep 12.5 million gallons of effluent per day virus free. The comment also states that

the DEIR references that ruptures or failings are likely to occur within the filtration system (page 2-41) but that there is no mention of monitoring the system for this type of degradation, no maintenance schedule presented, and loss of efficiency due to said failures has not been quantified.

It is important to note that great consideration and care has gone into the facility design in order to eliminate or minimize impacts due to equipment failure. Furthermore, a detailed operation and maintenance manual will be developed in coordination with final design and equipment selection, which will guide operators in the proper protocols to keep equipment running effectively. While no equipment will ever operate at 100% efficiency 100% of the time, the systems identified in the DEIR are designed to operate effectively across a range of conditions and will be subject to very regular inspection and upkeep to prevent failure. Please see Master Response 4 (Fish Health and Biosecurity), for further information on the proposed wastewater treatment system and prevention of pathogen release.

The comment states that the DEIR is deficient as it does not mention who the supplier of certified eggs will be or the country of origin. The importation of eggs into California is permitted and regulated by CDFW and has strict criteria related to disease and pathogen screening. Please see Master Response 9, level of detail in an EIR and response to comments and disagreement among experts. For concerns related to the certification standard, please see Master Response 4 (Fish Health and Biosecurity). No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

Response to Comment 508-4 – Waste

This comment requests information regarding the location of waste disposal and expresses concern regarding potential pathogens in the waste sludge. Please see Master Response 11 – Waste Handling and Disposal for additional information on the proposed facility waste streams. The filtrate from the water treatment systems will be temporarily stored onsite before being loaded into sealed trucks for transport to approved disposal sites, or other facilities for additional processing. The waste itself is unlikely to contain harmful pathogens due to the stringent and multilayered biosecurity measures within the facility. Please see Master Response 4 for additional clarification on the proposed facility biosecurity measures to prevent disease outbreak or accumulation. Biosecurity and eggs sources are also discussed on pages 2-35 through 2-37 of the DEIR Project Description. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 508-5 – Opposition to Water Intakes

The comment states an opinion opposing the bay intakes for mariculture uses due to environmental effects. The DEIR analyzes the impacts of the proposed intakes across all CEQA categories and should be referred to for specific impact analysis. Further information on the proposed intake system upgrades and environmental impact mitigation measures can be found in Master Response 7 (Intake Biological Productivity, Intake Salmonids). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 508-6 – ESA Related Concerns

The comment requests additional analysis of impacts to ESA-listed species and that an alternate saltwater source should be explored. The DEIR analyses the impacts of the proposed intakes on listed species in Section 3.3 Biological Resources, starting on page 3.3-57. Further information on the proposed intakes can be found in Master Response 7 (Intake Biological Productivity, Intake Salmonids).

Other sources of salt water, including use of a slant well, oceanic seawater intake and Humboldt Bay seawater well are analyzed in DEIR Chapter 4. These alternatives would not have less environmental

impact than the proposed water intakes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 508-7 – HABs

This comment addresses concerns regarding changes in the temperature of marine waters by the NAFC discharge that may cause increased HAB risk. Increases to temperature are very limited to the immediate vicinity of the RMT II diffuser. Please see Master Response 5 (Marine Outfall) which specifically addresses this concern. Revisions to the DEIR have not been made.

Response to Comment 508-8 – Decommissioning

This is a comment requesting financial protection for decommissioning if the Project is built and then ceases operations. The Project site currently contains hazardous materials, is in a state of disrepair, and there is no public funding mechanism available to complete remediation and building demolition. The first step of the Project is for NAFC to fully remediate contaminants including lead and asbestos then demolish all pulp mill structures within the lease area. This effort, fully funded by NAFC, would provide significant benefit to the region, including Humboldt Bay. Please see pages 2-2 and 2-3 for project benefits. Please see Master Response 6 for statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.



January 20, 2022

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501

Dear County of Humboldt Planning and Building Department,

On behalf of Ming Tree Realtors, I am pleased to write this letter in support of Nordic Aquafarms' project planned for the Samoa Peninsula. Nordic Aquafarms focuses on fish welfare and environmental sustainability, and they employ proprietary recirculating aquaculture systems (RAS) with patented technology. The end-results are modules ready for truly large-scale RAS farming – and a key solution in contributing to increasing seafood supply without leaving a material environmental footprint.

The project will also stimulate economic activity and provide a wide range of employment opportunities. In addition to what Nordic will directly contribute to our local economy, the Nordic project will be a draw for other aquaculture businesses on the peninsula, thereby increasing economic prosperity and employment opportunities for our region.

Nordic Aquafarms has been actively engaging in our community through public meetings, site tours and targeted outreach to stakeholders. Nordic is working closely with College of the Redwoods to revitalize their aquaculture program and with HSU to ensure a steady pipeline of local qualified professionals.

The Nordic team has gone to great lengths to be transparent, inclusive, and comprehensive in their research and sharing results throughout the public process and we are confident that they will be a benefit to our local economy as well as to our community. Ming Tree Realtors is pleased to support this project.

Sincerely,



Larry O. Doss

Broker / President Ming Tree Realtors larryo@mingtree.com 707-599-3332
509 J St Eureka CA 95501 & 1543 Main St Fortuna CA 95540



509-1

Letter 509 – Response to Comments

Response to Comment 509-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Shester, Geoff <GShester@oceana.org>
Sent: Friday, February 18, 2022 5:41 PM
To: CEQAResponses
Subject: comments on DEIR for Nordic Aquafarms Aquaculture Project
Attachments: nordic-aquafarms-DEIRcomments2-18-22.pdf

Dear Planning Director Ford,

Please accept the attached comments on the Draft Environmental Impact Report for the proposed Nordic Aquafarms Aquaculture Project.

Thank you for considering these comments, and please feel free to reach out to me if you have any questions.

Sincerely,
Geoff Shester

Geoff Shester, Ph.D. | California Campaign Director and Senior Scientist



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February 18, 2022

Planning Director John Ford
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501
Submitted via email to: CEQAResponses@co.humboldt.ca.us

RE: Nordic Aquafarms Finfish Aquaculture Project Draft Environmental Impact Report

Dear Planning Director Ford:

Oceana is the largest international marine conservation organization dedicated solely to protecting the world's oceans. We have over 100,000 members in California and have been actively engaged in ocean and fisheries conservation off the US West Coast since 2003. Our science-based organization has been actively engaged in aquaculture regulation and management in several countries where we operate throughout the world. Please accept these comments on the Draft Environmental Impact Report (DEIR) on the proposed Nordic Aquafarms aquaculture project.

510-1

We are deeply concerned about the newly proposed aquaculture facility that seeks to produce up to 27,000 metric tons of farmed Atlantic salmon annually at Samoa Point adjacent to Humboldt Bay. To understand the scale, this single location would more than double the entire U.S. production of farmed salmon, which averaged 17,750 metric tons in recent years.¹ This massive scale project threatens sensitive ecosystems, wild fish stocks, and the recreational, commercial, and subsistence fisheries in the Humboldt Bay estuary and Northern California's open ocean ecosystem. The potential harms to the economy, wild fish stocks, habitats, and ecosystems could outweigh any positive economic benefits provided by the project. We share the concerns raised in the February 18, 2022 comment letter by Humboldt Baykeeper, the Coalition for Responsible Transportation Priorities, Surfrider Foundation, the Northcoast Environmental Center, 350 Humboldt and the Environmental Protection Information Center. In addition, we have additional concerns.

510-2

California currently does not allow farmed salmon operations in the marine environment due to the unacceptable risks to ocean ecosystems and coastal economies. While we recognize that several components of the proposed project will be in building on land rather than open ocean net pens, the system itself is inherently and unequivocally connected to the ocean ecosystem through inputs and outputs during operations, proximity to the marine environment as well as construction, maintenance, and mitigation efforts. After reviewing the DEIR, we are concerned that the impacts are severely downplayed and underestimated, while there is an overarching false assumption that impacts are either insignificant or will be mitigated. Simply put, most of the risks posed marine-based Atlantic salmon aquaculture are still present with this project due to the proximity to the marine environment, the intake of seawater, the outflows into open ocean, and the biology of Atlantic salmon.

510-3

¹ Estimate from NOAA Fisheries "Fisheries of the United States, 2019" report using data from 2013-2018.
<https://www.fisheries.noaa.gov/resource/document/fisheries-united-states-2019>

Atlantic salmon are a non-native species. Any escapes of farmed fish or larvae can harm or displace native fish species in a variety of ways including competition and spread of disease or parasites. Pacific salmon (particularly Chinook and coho salmon) are in trouble in this region, and there are many runs that are threatened or endangered. There is no guarantee that catastrophic events such as earthquakes or tsunamis, as well as human error and other accidents, won't cause fish to escape into close by surrounding ocean and estuary waters. While many aquaculture operations claim to have escape-free safeguards and mitigation, history has shown time and time again that they are subject to failure. Examples such as the major farmed salmon spill by Cooke Aquaculture off Washington state in August 2017 show that despite decades of efforts to develop escape-free systems, major spills are inevitable and the industry consistently does everything it can to hide how bad it was.² Given the many avenues that fish can escape, the outflows into the ocean, the proximity of the operations to the marine environment, and unpredictable natural events it is not a question of "if" but "when" a major spill of farmed salmon will occur with the proposed project. Escapes must be anticipated despite mitigation measures and those impacts to wild stocks should be analyzed in the DEIR accordingly.

510-4

Farmed fish incubate and spread diseases to wild populations. Grown in unnatural densities and conditions, farmed salmon are prone to disease outbreaks and parasite amplification, such as sea lice. Among the most pervasive parasites are sea lice, tiny saltwater crustaceans that attach by suction to salmon and leave lesions, lessen resistance to disease, and reduce growth. When salmon farms contain large numbers of crowded adult fish, they can also contain epidemic-level numbers of the lice. While sea lice don't harm humans who eat infested fish, they can be lethal to salmon by creating open sores and infections.

Salmon farming is correlated with a reduction in populations of wild native salmon. "Wild salmon close to fish farms are 73 times more likely to suffer lethal sea lice than juveniles not adjacent to fish farms," according to the Alaska Department of Fish and Game.³ And the department points out a farm can elevate levels of sea lice up to 40 miles from the farming operation itself, which endanger native salmon passing through. Juveniles "catch" the parasites and bear them on their seaward migrations.

510-5

These and other pathogens can spread through any connection to the open ocean, including the outflows and leaks. The DEIR essentially dismisses this concern by describing water treatment and filtration without factual demonstration that such methods will eliminate 100% of all pathogens. There should be a serious examination of all potential diseases and pathogens that may originate from the operation examining outbreaks that have occurred worldwide throughout the history of salmon farming, and assess what the worst case scenarios could look like, including a thorough examination of the biological and economic impacts if such diseases are spread to wild fish stocks.

To treat diseases, the use of antibiotics both to prevent prophylactically and to treat bacterial infections is an essential component of farmed salmon aquaculture. The impacts from this antibiotic use on the marine environment and the potential to create antibiotic-resistant bacteria should be thoroughly analyzed. The full suite of antibiotic uses authorized under the proposed project must be presented and analyzed.

² <https://www.seattletimes.com/seattle-news/fish-farm-caused-atlantic-salmon-spill-state-says-then-tried-to-hide-how-bad-it-was/>

³ http://www.adfg.alaska.gov/index.cfm?adfg=wildlifefews.view_article&articles_id=388

In contrast to aquaculture for shellfish and seaweeds, farmed Atlantic salmon need to be fed large amounts of food to grow and survive, which puts more strain either on wild fisheries for forage fish (e.g., anchovy) or on land-based agriculture (e.g., soy, rice, corn, etc.). The simple biological fact is that farmed eat more than they grow, so are inherently a global sink on food supply. Due to the fundamental biology of Atlantic salmon, salmon aquaculture requires high amounts of feed in excess of the salmon ultimately produced. Even if alternative feeds are used such as corn, soy, or rice, that contributes to on water use, pesticides and fertilizers, greenhouse gas emissions and habitat loss, while also diverting food that could be used to feed people. Therefore, even in the best of circumstances, the large amounts of feed used to produce farmed salmon is harmful to ecosystems, and wasteful in the context of the global food supply. The full impacts of all ingredients in the salmon feed at the full scale of production must be analyzed.

510-6

The need for feed also places additional pressure on wild fisheries for forage species, such as anchovy and sardines. Forage species are critical to marine ecosystems, supporting larger predators such as sharks, seabirds, dolphins, pinnipeds, and whales, as well as supporting commercial and recreational fish.⁴ The state of California has adopted a precautionary policy on Forage Species, prioritizing and recognizing their critical ecosystem role.⁵ The impacts of additional forage species removals from ocean ecosystems to provide food for 27,000 metric tons of farmed Atlantic salmon production per year must be analyzed.

All U.S. West Coast estuaries and eelgrass beds are designated by NOAA Fisheries as Habitat Areas of Particular Concern, which overlap in Humboldt Bay. The intake of massive amounts of seawater will cause great harm to fish and invertebrate larvae in one of the prime nursery grounds off the Northern California Coast, including important fishery species such as Dungeness crab, Chinook salmon, groundfish and Pacific herring. The impacts of these removals and modification of Essential Fish Habitat are inadequately examined in the DEIR and cannot be mitigated.

510-7

In addition, several Essential Fish Habitat Conservation Areas are designated in the vicinity of Humboldt Bay in the open ocean. These include Trinidad Canyon, the Mad River Rough Patch, Samoa Deepwater, Eel River Canyon, Blunts Reef, Mendocino Ridge, Delgada Canyon, and Tolo Bank (See Figure). Oceana participated heavily in the Pacific Fishery Management Council's Essential Fish Habitat processes. We proposed many of these protections based on the importance of these habitats to federally managed groundfish. Due to the high levels of outflows combined with ocean currents, we are concerned with the impacts to benthic areas will extend many miles from the outflow location itself. Therefore, the DEIR must evaluate impacts over a large spatial scale including these EFH conservation areas.

510-8

⁴ For a review, see *Little Fish, Big Impact*. 2012 Lenfest Report. https://www.lenfestocean.org/-/media/assets/extranets/lenfest/len_little_fish_big_impact.pdf

⁵ <https://fgc.ca.gov/About/Policies/Fisheries#Forage>



Figure: Essential Fish Habitat Conservation Areas in the vicinity of the proposed Nordic Aquafarms Atlantic salmon farm (shown with red dot).

https://www.habitat.noaa.gov/protection/efh/newInv/docs/pfmc_datasheet.pdf

510-8
Cont.

Furthermore, the project takes place in and could adversely modify critical habitat designated under the Endangered Species Act for several populations of threatened and endangered species including the Southern Distinct Population Segment of green sturgeon, humpback whales, and southern resident orcas.

510-9

The environmental impacts of farmed salmon operations have been well documented, and unfortunately are unlikely to be solved with technological innovation. Moving some of the operations onto land may address small portion of the impacts, however, the massive scale of the project and vicinity to sensitive marine areas could cause inevitable harm that ultimately negates the mitigation measures proposed by the project. Throughout the world, salmon aquaculture industry leaders continue to struggle to address impacts of their operations on wild species and ecosystems, and we should not expect the situation to be any different here.

510-10

In summary, the environmental impacts of the proposed Nordic Aquafarms farmed Atlantic salmon operation at Humboldt Bay are legitimate, wide-ranging, serious, and well established in the scientific literature. The estuary and marine ecosystems surrounding and affected by the proposed project are exceptional, from the seafloor throughout the water column. We are concerned with the overly optimistic conclusions in the DEIR that effects will be insignificant or can be readily mitigated. These conclusions fail to reflect the wide body of literature and experience with salmon farms throughout the world. Despite the industry's best efforts to mitigate such impacts, the expansion of Atlantic salmon aquaculture will only threaten the sustainability of wild fisheries, native species, ecosystems, and ocean habitats.

510-11

Thank you for considering these comments.

Sincerely,

Geoff Shester, Ph.D.
California Campaign Director & Senior Scientist

Letter 510 – Response to Comments

Response to Comment 510-1 – Introductory Remarks

This is an introductory comment. No specific concerns are raised, and no specific comments on the Project area provided. Specific issues discussed in comment letter 510 are addressed individually below.

Response to Comment 510-2 – Project Concerns

This comment is noting their general concerns about the Project, including the scale of the Project. The comment is correct, in that operation of the Project could increase the supply of farmed salmon in the United States, especially to West Coast markets but the aim of the Project is to replace imported farmed Atlantic Salmon. The comment notes the Project's scale threatens sensitive ecosystems, wild fish stocks, and recreational, commercial, and subsistence fisheries but does not provide evidence to link the Project with the stated concerns. The DEIR provides a substantial analysis across a wide array of CEQA topics and should be referred to with specific concerns or questions.

The DEIR did analysis potential impacts to sensitive ecosystems and wild fish stocks in Section 3.3 (Biological Resources) and included mitigation where required to ensure all potential impacts remain less than significant. The comment also notes they share the concerns raised in the February 2018, 2022, comment letter from a coalition of organizations. The cross-referenced comment letter is included in this FEIR as comment letter 503. Please see responses to individual comments in comment letter 503. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 510-3 – Biosecurity Opinion

This comment is concerned that most of the risks associated with net pen farming will still be present due to the proximity of the facility to the ocean, the Project's treated effluent discharge, construction, and other operational impacts. The comment states concern that the impacts in the DEIR are downplayed and underestimated yet provides no substantial evidence to this regard. As described in the DEIR, the Project is substantially different than an open ocean net pen farming operation. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

Table 2.13. These Master Responses, combined with the impact analysis in the DEIR, demonstrate that the Project's impacts are indeed less than significant. Where impacts were found to be potentially significant, mitigation has been incorporated into the Project to reduce impacts to a less than significant level.

Table 2.13 Summary of Master Responses Relevant to the General Concerns Raised in Comment 510-3

Concern	Applicable Master Response
Concerns related to the Project's energy consumption	Please see Master Response 2.
Concerns related to fish escape	Please see Master Response 3.
Concerns related to virus/pathogen introduction	Please see Master Response 4.
Concerns related to the treated effluent discharge and potential marine impacts	Please see Master Response 5.
Concerns related to saltwater intake/supply and potential impacts to biological resources	Please see Master Response 7.
Concerns related to waste streams	Please see Master Response 11.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 510-4 – Fish Escape and Biosecurity

The comment expresses concern over the potential for fish or pathogen release due to external event (earthquake, tsunami) or equipment/operational failure. Comment cites a 2017 escape event as supporting evidence.

The risk of impacts on the surrounding environment due to fish or pathogen release is taken extremely seriously by NAFC. Although design of the facility is yet to be fully detailed, there already exist many significant barriers to escape for eggs, fish, and pathogens in the design, and these will be strengthened through the future development of both design and operational documents. A description of the proposed facility safeguards and design measures to prevent biosecurity breaches can be found in the Fish Welfare and Biosecurity section of the Project Description within the DEIR (page 2-33). Further discussion of the proposed facility biosecurity measures can also be found in Master Response 3 – Fish Escape, and Master Response 4 – Fish Health and Biosecurity.

The potential for unintended release of biomass from the facility due to an external catastrophic event such as an earthquake or a tsunami was identified very early on in the Project, and thus has been one of the key guiding concerns in the facility layout and design. Multiple examples of how regional seismicity is incorporated into the Project design can be found throughout the Project Description section of the DEIR, and the Probabilistic Site-Specific Tsunami Hazard Analysis can be found in DEIR Appendix I.

Finally, in response to the cited 2017 escape event, it is important to note the vast differences that exist between the cited net pen operation and the Project, which is a land-based facility. The numerous advantages and added safeguards presented by a land-based approach are enumerated throughout the Project Description of the DEIR, and further discussed in Master Response 3 with regards to escape risk in particular. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 510-5 – Sea Lice, Water Treatment, and Antibiotics

This comment expresses concern regarding sea lice control at the facility. Sea lice is a significant problem facing the salmon net pen industry that requires continual pest management strategies. Sea lice does not impact land-based farms. Please see Master Response 4 (Fish Health and Biosecurity) under the subheading Sea Lice Control for additional information on sea lice.

This comment requests that a risk assessment of global salmon diseases be carried out by the Project. Assessment of disease risk to the farm is not a technical analysis required by CEQA. Please see Master Response 9 level of detail in an EIR and response to comments. CDFW requires an evaluation of risk for reviewing new species for aquaculture, aquaculture license applications, and for importation/transfer permits. NAFC has submitted their Aquaculture Registration Application and Risk Evaluation for Atlantic salmon to CDFW Aquaculture Program and is currently awaiting next steps with them.

The comment states that the use of antibiotics is an essential component of salmon farming. This is a common misconception of the industry that dates to the 1980s before effective vaccines had been developed against pathogenic challenges of the time. During the 1990s antibiotic use declined significantly in the industry and today remains very low. The use of antibiotics by the net pen farming industry are for treatment of opportunistic bacterial pathogens that commonly impact fish during stressful times soon after transfer to sea or following mitigations for sea lice. Antibiotics are under strict regulations by every country where salmon farming is present and can only be used under responsible veterinarian oversight. For concerns related to environmental impacts associated with antibiotic use please see Master Response 4 fish health and biosecurity.

The comment expresses concern that NAFC's water treatment is not effective to eliminate 100% of all pathogens. For comments related to biosecurity measures to prevent transmission of pathogens to the environment and related to sensitivity of salmonid pathogens to UV see Master Response 4 (Fish Health and Biosecurity).

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 510-6 – Fish Feed and Sustainability

NAFC is committed to sustainable feed selection. While it is too premature to decide on a final feed supplier and exact formulation, an outline of the Project's feed standards is presented in the Project Description section of the DEIR (page 2-37); this topic is further expanded on in Master Response 10 – Fish Feed. As noted in the Master Response, expanding the scope of the environmental assessment to include feed sources would fall outside the guidance and jurisdiction of CEQA, and thus is not included in the DEIR.

Response to Comment 510-7 – Water Intakes

The comment indicates that the analysis related to entrainment of marine species and EFH is inadequate. Please see Master Response 7, intake biological productivity and intake salmonids. Also see Response 401-3.

Response to Comment 510-8 – Discharge Modeling and Essential Fish Habitat

This comment expresses concern that the Ocean Discharge would result in significant adverse effects to EFH Conservation Areas. The DEIR evaluated effects of the Ocean Discharge on EFH in Section 3.3 (Biological Resources), starting on page 3.3-35. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale and thus unlikely to contribute to

EFH in the highly dynamic coastal waters potentially affected by the Project or in EFH Conservation Areas. Additionally, NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond any regulatory requirement. This monitoring is described in Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant, starting on page 3.9-12). Please see Master Response 5 for additional information regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 510-9 – Critical Habitat for Marine Species

This comment expresses concern that the Project would drive significant adverse effects to Designated Critical Habitat for Green Sturgeon, Humpback Whale, and Southern Resident Killer Whale. The DEIR evaluates effects of the Ocean Discharge on Designated Critical Habitat for Green Sturgeon in Section 3.3 (Biological Resources), starting on page 3.3-35. Numerical modeling (DEIR Appendix E) demonstrates that elevated levels of temperature and nutrients are limited in spatial scale in the highly dynamic coastal waters in the vicinity of the Ocean Discharge site, and thus unlikely to cause significant adverse effects to designated critical habitat of Green Sturgeon.

Following preparation of the Marine Resources Biological Evaluation (DEIR Appendix D) used to support impact analysis for marine species in the DEIR, critical habitat was designated for the Humpback Whale and the Southern Resident Killer Whale. Thus, the Marine Resources Biological Evaluation did not include discussion of critical habitat on either whale species. This analysis has been noted here and added to the Errata in Section 4. The Project would not significantly impact critical habitat for either species.

Critical habitat was designated on April 21, 2021, for Humpback Whale (86FR21082). Critical habitat for two DPS's was designated off Humboldt, the Central America DPS and Mexico DPS. which extends offshore from the 50-m isobaths to a boundary drawn along the 2,000-m isobaths, and includes the marine waters off Del Norte County, CA, most of Humboldt County, CA, and borders a small portion of Curry County, OR. Unit 14 covers about 3,412 nmi² of marine habitat. Humpback Whale diet is primarily of krill and fish (e.g., anchovies), and essential features of critical habitat are prey species including euphausiids and forage fish e.g., sardine, anchovy, herring. The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on Coastal Pelagic Species EFH, which includes the prey species for Humpback Whale, in Section 3.3 (Biological Resources), starting on pages 3.3-36 and 3.3-60. The Ocean Discharge would not result in significant impacts to coastal habitat based on limited spatial area and organic loading, resulting in a low risk of adverse effects to the Coastal Pelagic Species EFH. The Humboldt Bay Water Intakes would not cause populations of target species, including larval stages of Coastal Pelagic Species, to fall below self-sustaining levels or otherwise eliminate such species. Entrainment from the proposed project's intake would not result in a substantial decrease in marine populations that could be detected over natural variability. Impingement of organisms would be avoided with the low intake velocity and screen design proposed.

Critical habitat was designated on August 2, 2021, for Southern Resident Killer Whale (SRKW) offshore between the 6.1-m and 200-m isobath contours and includes waters off Del Norte and Humboldt counties in California (86FR41668). For six coastal areas identified in the critical habitat designation, essential features include 1) Water quality to support growth and development; 2) Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and 3) Passage conditions to allow for migration, resting, and foraging. However, the primary essential feature in proximity to the Project is prey, which is primarily Chinook salmon, a species also listed under the Endangered Species Act and described and analyzed in Section 3.3 (Biological Resources),

starting on page 3.3-33 and DEIR Appendix D (Marine Resources Biological Evaluation Report, Sections 5.2.2 and 5.4). The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on Chinook Salmon and Pacific Coast Salmon EFH, which are the essential prey species for SRKW, in Section 3.3 (Biological Resources, Ocean Discharge), starting on pages 3.3-33 and 3.3-36, and Humboldt Bay Water Intakes, starting on page 3.3-50. The Ocean Discharge would not result in significant impacts to coastal habitat based on limited spatial area and organic loading, resulting in a low risk of adverse effects to Chinook Salmon and Pacific Coast Salmon EFH. The Humboldt Bay Water Intakes are specifically designed to meet NMFS screening criteria and avoid impingement or entrainment of juvenile salmonids.

Please see Master Response 5 (Marine Outfall) for additional information regarding marine outfall, and Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for information regarding the Humboldt Bay water intakes. No additional mitigations are warranted.

Response to Comment 510-10 – Impacts of Farmed Salmon

The comment expresses concern that the environmental impacts of farmed salmon operations are well documented; however, the majority of farmed salmon operations occur in marine environments (i.e., net pens) where environmental impacts indeed are greater. The comment does not attribute any specific impacts to land-based RAS operations, as separate from net pen operations. A land-based RAS fish farm is designed to be the least impactful method to farm fish. The comment addresses the industry in general and not the Project specifically, thus no modifications to the DEIR are proposed specific to this comment.

Response to Comment 510-11 – Concluding Remarks

This comment is a concluding statement reiterating concerns specifically addressed in responses to comments 510-2 through 510-10. As the contents of the comment are addressed in response to comments 510-2 through 510-10, no additional response is required.

McNamara, Cade

From: Ben-Aderet, Noah@CNRA <Noah.Ben-Aderet@resources.ca.gov>
Sent: Friday, February 18, 2022 9:12 PM
To: CEQAResponses
Cc: Gold, Mark@CNRA; Eckerle, Jenn@CNRA; Esgro, Michael@CNRA
Subject: OPC comments on Nordic Aquafarms DEIR
Attachments: OPC_NordicDEIR_Comments_02182022.pdf

Dear Mr. McNamara,

Please find our attached comments for the Nordic Aquafarms Draft Environmental Impact Report.
Thank you for the opportunity to comment and please do not hesitate to reach out with any questions or concerns.

Sincerely,
Noah Ben-Aderet

Noah Ben-Aderet, Ph.D.
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**OCEAN
PROTECTION
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OCEAN PROTECTION COUNCIL

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Michael Brown | Public Member
Jordan Diamond | Public Member

February 18, 2022

Cade McNamara, Planner II
Humboldt County Planning & Building Dept.
3015 H Street
Eureka, CA 95501



RE: Comments on Nordic Aquafarms Land-Based Aquaculture Project DEIR

Dear Mr. McNamara,

Thank you for the opportunity to provide comments and recommendations regarding the Draft Environmental Impact Report for the Nordic Aquafarms land-based aquaculture project. The Ocean Protection Council, along with partner agencies, released California's Guiding Principles for Sustainable Marine Aquaculture¹ in June of 2021. The Principles support land-based/recirculating tank operations for finfish and call for ensuring sustainable aquaculture operations through a precautionary approach to siting, operating, and managing aquaculture projects.

511-1

We acknowledge the proposed project has potential to enhance economic development and create jobs in a region where such opportunities are limited. We also recognize the project has been planned with sustainability as a key component, including, but not limited to, producing fish onshore within the footprint of an existing facility and removing hazardous waste and materials from the site. Despite these acknowledgements, we have concerns around several sections of the Draft Environmental Impact Report pertaining to potential impacts to the aquatic habitats surrounding the proposed project site.

At full capacity, the Project will require approximately 2.5 million gallons per day (MGD) of freshwater sourced from the Mad River and 10 MGD of seawater sourced from Humboldt Bay. Treated wastewater (12.5 MGD) will be discharged into the Pacific Ocean utilizing the existing Redwood Marine Terminal (RMT) II ocean outfall pipe located 1.55 miles offshore of the Samoa Peninsula. A total of five buildings (intake water treatment, grow out modules, hatchery, fish processing, and wastewater treatment) will be constructed with a combined footprint of 766,530 square feet. The scope and scale of the proposed project elicit concerns that fall into four main areas: effects on the adjacent marine and bay ecosystems from water intake and discharge, effects to physical habitat (particularly eelgrass beds), water quality issues arising from effluent and discharge, and the effects of sea level rise on the project site.

511-2

In addition to the concerns listed here, OPC incorporates by reference the attached letter from the California Department of Fish and Wildlife as part of our comments because of their thorough review of specific areas of the proposed project that necessitate further study or mitigation.

511-3

Impacts to aquatic organisms

In addition to the potential impacts of construction activities, we are concerned about the direct biological impacts from the large volumes of water pumped through the plant each day (10 MGD

511-4

¹ https://www.opc.ca.gov/webmaster/_media_library/2021/06/Aquaculture-Principles-Public-20210604.pdf

from Humboldt Bay and another 2 MGD of freshwater from the Mad River). Despite specialized screens utilized in the Humboldt Bay water intakes, we are concerned about a large impact to and potential loss of larval and juvenile salmonids, longfin smelt, pacific lamprey, tidewater goby and Dungeness crab. OPC echoes the specific concerns and recommendations detailed in CDFW's comment letter and reiterates the need for a more comprehensive understanding of potential biological effects. Further discharge concerns are detailed under water quality concerns below. In light of our concerns, please provide a more detailed analysis in the final EIR alternatives on an alternative intake that pumps in sea water from the ocean side of the Samoa Peninsula. Also, a more detailed analysis of a reduced size aquaculture facility that utilizes less fresh and saltwater is needed (for example – a 6 MGD facility). Additionally, an analysis on the potential of utilization of on-site water recirculation facilities to reduce water use and impingement and entrainment impacts is needed in the final EIR. As stated earlier, the recently developed sustainable marine aquaculture principles included language supportive of land-based/recirculating tank operations for mariculture, including finfish.

511-4
Cont.

Impacts to Native eelgrass

Native eelgrass (*Zostera marina*) beds are an important part of the Humboldt Bay ecosystem, with approximately 31% of the state's known mapped eelgrass habitat. Eelgrass beds are classified as a highly valuable and sensitive habitat by both state and federal statutes and are protected under state and federal "no-net-loss" policies for wetland habitats. Eelgrass provides primary production and nutrients to the ecosystem along with spawning, foraging, and nursery habitat for fish and other species. Additionally, the importance of eelgrass protection and restoration, as well as the ecological benefits of eelgrass, is identified in the California Public Resources Code (PRC §35630). OPC's strategic plan specifically highlights the need to both conserve existing eelgrass beds as well as restore additional eelgrass in order to protect valuable nursery habitats for various marine organisms as well as continue to capture carbon from the marine environment. We are concerned that the project proposal as it currently exists does not include an eelgrass monitoring or mitigation plan as well as provide sufficient assurances to protect existing eelgrass habitat in Humboldt Bay.

511-5

Impacts to Water Quality

The project proposes to treat its discharge at the Samoa Wastewater Treatment plant, which is regulated by a National Pollutant Discharge Elimination System (NPDES permit) for Peninsula Community Services District and Samoa Pacific Group Town of Samoa Wastewater Treatment Facility (Order No. R1-2020-0005) that authorizes a permitted discharge of 0.756 MGD. The proposed Aquaculture facility is anticipated to have a total maximum discharge of 12.5 MGD. While the existing ocean outfall (RMT II) utilized by two existing dischargers on the Samoa Peninsula has a total capacity of 40 MGD, it only has a permitted discharge of less than a single MGD per day: Peninsula Community Services District and Samoa Pacific Group Town of Samoa Wastewater Treatment Facility (Order No. R1-2020-0005) authorizes a permitted discharge of 0.756 MGD and DG Fairhaven Power, LLC (Order No. R1-2018-0013) authorizes a discharge of 0.350 MGD. Due to the significant increase in the volume of the proposed discharge, the water quality impacts of this discharge must be thoroughly evaluated.

511-6

Although OPC was pleased to see some detail about the wastewater treatment train for process wastewater, there were still some details lacking that should be addressed in the final EIR. The wastewater treatment plant will include moving bed biofilm reactors, MBRs and UV/ozone disinfection. If these facilities are properly designed, operated and maintained, they should provide drastic reductions in pathogen risk and in total nitrogen and ammonia mass loadings and concentrations. In order to properly assess the adequacy of the proposed facilities, please provide

the following additional information: What is the capacity of each step of treatment? What happens to plant operations in the event of an upset or membrane biofouling? In the event of a power failure, what is the maintenance plan for the facilities? Will any storage facilities be built to contain wastewater in the event of an upset or power failure? If not, is there a bypass for the inadequately treated wastewater? If so, where does the bypass discharge?

OPC is concerned that the discharge could exacerbate seasonal occurrences and risk of harmful algal blooms (HABs) and eutrophication. The Numeric Modelling Report, Dilution Study provided in Appendix E describes inorganic nitrogen and oxidized inorganic nitrogen as posing a potential risk in terms of increased ecosystem productivity/higher phytoplankton levels. The Numeric Modelling Report further found that modelled zone of potential water quality degradation (e.g., "nutrient enrichment") is seasonally dependent with elevated background levels of ammonia detected from local sources, which could exacerbate the presence of HABs and eutrophication that could harm fish, shellfish, and marine life. Section 3.9 of the draft EIR, however, describes that the risk of HABs occurrence caused by the project's proposed discharge is only "negligible." OPC requests that a complete analysis of the cumulative temporal and spatial impacts of the increased discharge be conducted, including the potential exacerbation of HABs or eutrophication caused by the proposed increased discharge. Additionally, the proposed discharge is very warm (approximately 10 degrees C above ambient ocean temperature), which coupled with high nutrient loads, could drive localized HABs. The proposed discharge is located in Dungeness crab and razor clam habitat, raising concern given both fisheries have experienced severe impacts from HABs and resulting high domoic acid levels in recent years.

OPC has additional concerns regarding the frequency of chronic toxicity testing. Section 3.9: Hydrology and Water Quality states that "[c]hronic toxicity would be sampled annually." The State Water Resources Control Board has adopted revised toxicity requirements for the Water Quality Control Plan for Inland Surface Water, Enclosed Bays, and Estuaries of California (ISWEEB) that require non-stormwater facilities that discharge 5 MDG or greater to conduct monthly – not annual – chronic toxicity tests. While the State Water Resources Control Board's Ocean Plan is yet to be amended to match the requirements of the ISWEEB, permits for facilities impacting ocean waters have already begun incorporating the updated requirements laid out in the ISWEEB Toxicity Provisions. Due to the proposed volume of the discharge and the potential impacts of unknown contaminants associated with aquaculture production, such as medicinal treatment (antibiotics, chemotherapeutants), it is recommended that the frequency of chronic toxicity testing be increased to monthly testing.

Also, considering the potential risk of pathogen releases and high nutrient discharges, the effluent monitoring requirements should be weekly for total nitrogen, ammonia, and fecal indicator bacteria for at least the first NPDES permit. And one should consider measuring virus loads in effluent on an annual basis to ensure that the disinfection process is effectively reducing viral pathogen loads to ocean waters.

Sea Level Rise Concerns

The location of the proposed project site on a low-lying barrier island raises concerns of potential impacts from sea level rise² (SLR), section 3.9-33 of the Draft EIR states that since the proposed project lifespan is 30 years, issues pertaining to SLR are "less than significant" and in fact could actually be beneficial by increasing the amount of time the bay-side seawater intakes are submerged during tidal fluctuations. We are concerned that this *laisse-faire* approach could have serious repercussions under both normal SLR scenarios as well as tsunami events similar or

² https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf

511-6
Cont.

511-7

greater to those seen in March 2011 and January 2022. We at minimum recommend further analysis of the potential impacts of SLR including scenarios that incorporate king tides and large swells on the proposed project site and associated physical structures including transportation infrastructure to and from the facility.

Thank you for the opportunity to comment on the Nordic Aquafarms California, LLC Land-based Aquaculture Project Draft EIR. If you have questions regarding this letter, please contact Noah Ben-Aderet (noah.ben-aderet@resources.ca.gov). We hope our concerns and those of the California Department of Fish and Wildlife are addressed before this project moves forward.

Sincerely,

Noah Ben-Aderet
Sustainable Fisheries and Aquaculture Program Manager
California Ocean Protection Council

511-7
Cont.



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Marine Region
1933 Cliff Drive, Suite 9
Santa Barbara, CA 93109
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



February 18, 2022

Cade McNamara, Planner II
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**SUBJECT: NORDIC AQUAFARMS CALIFORNIA, LLC LAND-BASED
AQUACULTURE PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT
SCH# 2021040532**

Dear Mr. McNamara,

The California Department of Fish and Wildlife (CDFW) received the Draft Environmental Impact Report (EIR) from the Humboldt County Planning & Building Department (County) for the Nordic Aquafarms California, LLC Land-based Aquaculture Project (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ CDFW previously submitted comments in response to the Draft Mitigated Negative Declaration and Notice of Preparation for the Draft EIR on May 24, 2021, and July 6, 2021.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife resources. Likewise, we appreciate the opportunity to provide comments regarding aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code (FGC). The Department recognizes the proposed project has been planned with sustainability as a key component including producing fish onshore within the footprint of an existing facility, removing hazardous waste and materials from the site, and producing fish close to the consumer market. The Department also recognizes the project may enhance economic development and create jobs.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state (FGC §711.7, subd. (a) and §1802; Pub. Resources Code §21070; CEQA Guidelines §15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of

¹ CEQA is codified in the California Public Resources Code in §21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with §15000.

Cade McNamara, Planner II
Humboldt County Planning & Building Department
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those species (*Id.*, §1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. CDFW is also responsible for marine biodiversity protection under the Marine Life Protection Act in coastal marine waters of California and ensuring fisheries are sustainably managed under the Marine Life Management Act.

CDFW is also submitting comments as a Responsible Agency under CEQA (Pub. Resources Code, §21069; CEQA Guidelines, §15381) and may need to exercise regulatory authority as provided by the FGC. As proposed, the Project may result in “take” as defined by State law of species protected under the California Endangered Species Act (CESA) (FGC, §2050 et seq.), and related authorization as provided by the FGC will be required.

Additionally, CDFW oversees and manages aquaculture activities in the State under the authority provided by the FGC (§§15000-15703) and Title 14 of the California Code of Regulations (CCR). All facilities devoted to the propagation, cultivation, maintenance, and harvesting of fish, shellfish, and plants in marine, brackish, and freshwater are required to register annually with CDFW (CCR §235). CDFW may prohibit an aquaculture operation or the culturing of any species at any location where it is determined it would be detrimental to adjacent native wildlife (FGC §15102). Similarly, the Department is authorized to review information and “ensure” that the operation will not be detrimental to native wildlife (FGC Section 15101(b)). State law also requires an Importation Permit from CDFW to import most live aquatic plants and animals, in all forms (CCR §236). Statutory authorities for aquaculture disease and aquatic animal health management are embodied in FGC (§15500 et seq.). Regulations regarding aquaculture disease controls and responses, including a list of diseases and parasites and the aquatic plants and animals they are known to infect or parasitize, are outlined in FGC (§§15500-15516) and CCR (§245).

PROJECT DESCRIPTION SUMMARY

Proponents: Humboldt County Planning & Building Department (County) and Humboldt Bay Harbor, Recreation and Conservation District (Harbor District)

Objective: Nordic Aquafarms California, LLC (Nordic) proposes to develop a land-based finfish recirculating aquaculture facility on the Samoa Peninsula and intends to cultivate all-female Atlantic salmon (*Salmo salar*) subject to CDFW approval. The Draft EIR also includes an analysis of farming alternative species, including Steelhead (*Oncorhynchus mykiss*) in seawater, Rainbow Trout (*O. mykiss*) in freshwater, and Yellowtail Kingfish (*Seriola lalandi*). The proposed aquaculture facility will include operations to grow-out fish from egg to harvestable size. The fish will be contained indoors in separate buildings connected by underground pipes for fish transfer. At full capacity, the facility will have an annual production of approximately 25,000-27,000 metric tons of head-on-gutted fish. The Project will require approximately 2.5 million gallons per day (MGD) of freshwater sourced from the Mad River and 10 MGD of seawater sourced from Humboldt Bay. Treated wastewater (12.5 MGD) will be discharged into the Pacific Ocean utilizing the existing

Cade McNamara, Planner II
Humboldt County Planning & Building Department
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Page 3

Redwood Marine Terminal (RMT) II ocean outfall pipe located 1.55 miles offshore of the Samoa Peninsula. A total of five buildings (intake water treatment, grow out modules, hatchery, fish processing, and wastewater treatment) will be constructed with a combined footprint of 766,530 square feet. The Project will also include ancillary support features such as paved parking, fire access roads, security fencing, stormwater management features, and a fire suppression water line. To remediate existing environmental contamination at the Project site associated with the former pulp mill (brownfield site), Project activities will include demolition of existing pulp mill infrastructure, asbestos abatement, soil remediation, and waste stream characterization, transportation, and disposal.

Location: The Project site is situated on the Samoa Peninsula, bounded on the west by dunes and the Pacific Ocean and on the east by Humboldt Bay, and located at the site of the former Samoa Pulp Mill in the unincorporated community of Samoa in Humboldt County (APN 401-112-021).

Timeline: Demolition and construction is anticipated to begin in 2022 or 2023, following final permit approvals.

PROJECT IMPACTS

Escape Risk of Atlantic Salmon

Comments: Cultivation of Atlantic salmon is unprecedented in California and carries a risk of significantly impacting the state's fish and wildlife resources, primarily via fish escape and introduction of pathogens. To avoid potential impacts associated with cultured salmon, the California legislature made it unlawful to spawn, incubate, or cultivate any transgenic or exotic species of finfish belonging to the family Salmonidae in the waters of the Pacific Ocean regulated by the state (FGC §15007). While land-based facilities are generally regarded as posing substantially fewer risks to the local environment than marine net pens, the proximity of the Project site to Humboldt Bay and the Pacific Ocean, coupled with the proposed seawater intakes and discharge of effluent into the Pacific Ocean, is concerning.

The Project is also being proposed in a region that is home to some of the State's most commercially and culturally significant runs of wild Pacific salmon, some of which are also at risk of extinction. This includes State- and/or federally protected (threatened) runs that return to the Project's immediate vicinity, like Southern Oregon/Northern California Coastal (SONCC) coho salmon that spawn in tributaries to Humboldt Bay or California Coastal Chinook (CCC) salmon and Northern California (NC) summer steelhead that spawn in the Eel and Mad Rivers. Central California Coast (CCC) coho are also potentially at risk as they spawn in rivers of Mendocino County directly to the south. The State's largest wild run of fall Chinook salmon spawns in the nearby Klamath Basin, approximately 45 miles to the north, and their progeny rear in coastal waters immediately adjacent to the Project. The Klamath Basin is also home to one of the largest riverine restoration projects in the world, which is focused primarily on helping dwindling runs of wild Pacific salmon. Steelhead and Longfin Smelt are also important and vulnerable components of the region's anadromous fish fauna. This setting is one in which any increase in risk to native fish – regardless of

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magnitude – or any addition of novel stressors – imperceptible, uncertain, or otherwise – must be weighed carefully and may ultimately be unacceptable.

The Draft EIR concludes that the risk of cultured Atlantic salmon escaping from Project facilities is eliminated by multiple physical barriers and water treatment barriers (e.g., jump screens on tanks, grates in the drainage system, 0.04µm membrane filter screens, and ultraviolet light in the wastewater treatment plant) and by using underground pipes to move fish between buildings (pg. 3.3-25). CDFW appreciates the additional measures that have been included to minimize the risk of escape, including designing the facility to meet tsunami design standards, biosecurity measures, and the development of an Escape Response and Reporting Plan. The Project has also reduced the risk of escaped fish from reproducing and establishing in the wild by committing to cultivating all-female fish.

CDFW understands that the potential for cultured Atlantic salmon to escape from the facility into local marine, estuarine, and freshwater environments is low, but does not consider the risk to be eliminated, and is concerned with the potential consequences of an escape event to vulnerable, native species. As noted in CDFW's previous comments responding to the Draft MND, the Project's proposed location is subject to seismic and tsunami hazards and may hold millions of Atlantic salmon as close as 300 feet from Humboldt Bay at any one time. Even well-designed land-based facilities outside of tsunami hazard areas have had unintended releases due to structural or operational failures (Føre and Thorvaldsen 2021). Additionally, biosecurity measures are fallible; the risk of intentional or unintentional release of fish cannot be completely eliminated. Cultivating all-female fish would effectively eliminate the potential for fish to reproduce and establish in the wild, but any escaped individuals may still prey upon or compete with native fauna until they themselves perish (Waknitz et al. 2003; Naylor et al. 2005; Morton & Volpe 2002; ADFG 2002). The Draft EIR does not analyze the potential for escaped Atlantic salmon (or the alternative species) to compete with native species for food or habitat resources or consume them as prey. Additionally, the Draft EIR does not analyze the potential for escape to occur during transportation of eggs to the facility. Escapes have been documented during transportation from other land-based facilities (Føre and Thorvaldsen 2021).

Fish Olfaction and Homing

Comments: Beyond concerns surrounding the physical escape of Atlantic salmon from the facility, it is unclear whether these fish will have a 'biochemical presence' in adjacent marine waters, via the release of 12 MGD of effluent from the facility. This is a critical uncertainty that must be addressed because the artificial manipulation of olfactory cues in the environment can disrupt salmon migrations (e.g., Drenner et al. 2018), and local streams are home to runs of native salmon or steelhead that are of conservation concern (e.g., state and federally listed coho salmon in Freshwater Creek, a tributary to Humboldt Bay) or that support important fisheries (e.g., Chinook Salmon in the Klamath Basin to the north).

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Recommendations:

- The Final EIR should analyze the potential consequences of an escape event, including escaped fish competing with native species for food and habitat resources or consuming them as prey. The analysis should assess impacts as it relates to the preferred species (Atlantic salmon) and alternative species to determine if impacts can be reduced based on species selection. Additional measures to reduce impacts to native species should be considered, such as cultivating triploid Steelhead, Rainbow Trout, and Yellowtail Kingfish to eliminate the risk of hybridization and establishment.
- The Final EIR should analyze the potential for escapes to occur during transportation of eggs to the facility.
- To ensure any escaped fish from the facility are unable to reproduce in the wild, CDFW recommends the Final EIR include the development of a QA/QC program to verify that all fish from each cohort are female.
- The Final EIR should address the potential for olfactory disruption to native salmonids resulting from the facility's discharge of pheromones or other chemical cues that influence homing or migration, including consideration of how the facility's wastewater treatment system may or may not eliminate these compounds.

Introduction of Pathogens to Native Fish

Comments: Pathogens associated with cultured Atlantic salmon from the Project may be transmitted to wild salmonid populations, an impact that could persist within native populations even if Atlantic salmon are unsuccessful at establishing reproductively viable populations (Mordecai et al. 2021; Morton & Volpe 2017). Pathogens may be introduced through egg importation, wastewater discharge at the ocean outfall (if not effectively treated or due to accidental spills/leaks), catastrophic flooding events, improper disposal of carcasses, and pathogens carried outside the facility on equipment or personnel. Existing regulations require that applications to import eggs of fishes of the family salmonidae shall be accompanied by a health certificate signed by a person competent in the diagnosis of fish diseases stating that the hatchery or other sources of the eggs to be imported and the eggs themselves are free of the following diseases for a minimum of two consecutive years: infectious pancreatic necrosis; bacterial kidney disease; infectious hematopoietic necrosis; and viral hemorrhagic septicemia. In questionable cases, CDFW shall determine whether the person making the certification is technically qualified to do so (CCR § 236(7)). In addition to the above list of pathogens, CDFW will also require the hatchery or other sources of eggs to be imported and the eggs themselves to be free of other diseases of concern specific to the species being farmed for a minimum of two consecutive years, such as piscine orthoreovirus and infectious salmon anemia virus.

The Draft EIR includes measures to minimize the risk of pathogens entering and exiting the facility. The Project intends to import Atlantic salmon eggs from a source hatchery that is shown to be free of significant pathogens of concern for a minimum of two years; however, a source hatchery that meets the above criteria has not been identified. Nordic also proposes a procedure to disinfect imported eggs, including twice at the source hatchery and a third time at the Nordic facility while in quarantine. The Draft EIR proposes that any cohort of fry must be declared free from evidence of all diseases of regulatory

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concern and approved by CDFW before being transferred out of the quarantine area. CDFW acknowledges that this is a proposed approach and recommends coordination with CDFW in developing a Fish Health Monitoring Plan that specifies at least the necessary implementation details shown in the Recommendations below.

Before being discharged into the Pacific Ocean, effluent from the facility will go through a wastewater treatment system which includes UV disinfection to neutralize pathogens. The effective dose of UV light to sterilize pathogens varies. Effective dose is determined by the intensity of the UV lamp, cleanliness of the quartz sleeve separating water from the UV lamp, the contact time and flow rate of the water flowing through the UV system, water clarity, as well as the size and biological characteristics of target pathogens (Yanong and Erlacher-Reid 2012). Design specifications and permit conditions relying on UV treatment should include minimum dosages as well as minimum operating standards reflecting the above concerns to ensure that effective UV treatment occurs. The Project proposes to use a 300 millijoule (mJ) end of lamp life UV dose before water is discharged to sterilize pathogens but does not specify the minimum operating standards mentioned above to ensure effectiveness. The Draft EIR also does not disclose the effective UV dose to neutralize potential pathogens of concern specific to Atlantic salmon or the alternative species.

Recommendations:

- CDFW recommends the Final EIR include a list of pathogens and parasites of concern specific to the preferred and alternative species being considered, and the required UV dose to inactivate them. Also included should be further details on the operation and maintenance plans to ensure effectiveness of the UV system, including minimum requirements for water clarity, contact time, flow rate, and quartz sleeve cleanliness, and confirmation that design specifications address the size/biological characteristics of target pathogens.
- CDFW recommends the Final EIR include the development of a Fish Health Monitoring Plan in cooperation with CDFW that specifies the frequency and number of fish at various life stages that are tested for listed pathogens and parasites, approved parties and methods used for testing, and identifies which pathogens and parasites are being tested for. The Plan should include specific responses such as immediate reporting (within 24 hours) of detections to CDFW as well as those measures directed by existing regulations (CCR §245). The Plan should also include an annual Fish Health Monitoring Report that summarizes measures taken to screen for and minimize the risk of pathogens and parasites, fish health issues experienced in the facility, and measures taken to treat/address those issues. The annual report should be provided to CDFW.

Transportation & Disposal of Fish Waste

Comments: Nordic's facility will produce a significant amount of fish waste, requiring 32 truckloads per week to dispose of waste to "various secondary processing sites within 150 miles of the facility" (pg. 2-27). The Final EIR should include further details about the location and safe disposition of fish waste and assess the environmental impacts associated with storage, handling, processing, transportation, and disposal of fish waste. CDFW is especially concerned with the potential transfer of pathogens or other

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environmental impacts that could occur during transportation (e.g., spill from trucks) and disposal of fish waste at undisclosed location(s).

Recommendations:

- As recommended in previous comments, the Final EIR should include the location(s) of waste disposal and an analysis of environmental impacts from storing, handling, processing, transporting and disposing of fish waste. Impacts may include but not be limited to onsite impacts, disposal site(s), potential for spills during transportation, and transfer of pathogens during transportation and disposal.

Entrainment from the Seawater Intakes & Compensatory Mitigation

Comments: The Harbor District proposes to upgrade and permit two seawater intakes in Humboldt Bay, with a combined maximum withdrawal capacity of 12 MGD. As mentioned in previous comment letters and during interagency meetings, CDFW is concerned with entrainment of CESA-listed Longfin Smelt (LFS; *Spirinchus thaleichthys*) and other larval organisms. The Draft EIR assumes LFS larvae are only susceptible to entrainment when salinity levels at the intakes are below 12 practical salinity units (psu), which is estimated to occur 0.014% of the time (pg.7, Appendix Q). However, LFS larvae have been observed in salinities higher than 12 psu in Humboldt Bay, including near the proposed intakes. During a CDFW-led study in 2017, a total of 25 LFS larvae (6.05-8.81 mm in body length) were collected at three different sampling locations in Arcata Bay (Ray & Bjorkstedt unpublished data). Salinity, measured at the surface and bottom, ranged from 11.36-30.24 psu during collections. During this study, four of the LFS larvae (6.98-7.25 mm in body length) were caught at a sampling location just south of the proposed intake locations (40.792254°N, -124.193258°W) on two different sampling events (January 26, 2017 & February 23, 2017) when salinity conditions ranged from 26.35-30.24 psu. Additionally, sampling conducted by Inner City Fund in 2020 collected LFS larvae (~7-8 mm) at salinities greater than 22 psu in the Eel River Estuary (ICF 2020). These observations suggest that the salinity tolerance of LFS larvae in Humboldt Bay and the Eel River Estuary could exceed the tolerance limits of other populations, such as LFS in the San Francisco Estuary.

The Harbor District anticipates obtaining an Incidental Take Permit from CDFW for take coverage of LFS and proposes off-site habitat restoration to mitigate for entrainment impacts. Compensatory mitigation will also be required by the California Coastal Commission (CCC) for impacts to biological productivity from the intakes, including entrainment of Pacific herring, northern anchovy, Dungeness crab, and other larvae. The total area of habitat restoration required to mitigate for impacts to LFS and biological productivity will be based on the results from the Intake Assessment Study that will be completed in 2023, but the Draft EIR includes a proposed mitigation approach. The Harbor District's habitat restoration proposal includes pile removal in the South Bay (at the former Kramer Dock site) and Spartina removal at an undisclosed location in Humboldt Bay. The Harbor District proposes to implement the mitigation using a phased approach: 1) For cumulative water withdrawal between 0-694 gallons per minute (gpm), no compensatory mitigation is proposed; 2) For cumulative water withdrawal between 695-1,250 gpm, impacts to biological productivity will be mitigated by restoring up to one acre of tidal wetlands in Humboldt Bay through the eradication of *Spartina densiflora* or removal of an

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equivalent number of piles; and 3) For cumulative water withdrawal between 1,251 to 8,250 gpm, additional piles will be removed at the Kramer Dock site. CDFW is concerned that the Draft EIR does not analyze the potential entrainment of LFS during the initial water withdrawal phase (0-694 gpm) or propose any mitigation to offset entrainment impacts. To mitigate for impacts to LFS, the Harbor District proposes to restore one square meter of habitat per ~295 larvae impacted by removing four pilings at the Kramer Dock site. This mitigation approach assumes the annual production of one female is 295 surviving larvae and each spawning female requires less than one square meter of habitat to spawn (the latter statement is not cited, Appendix N). However, pile removal at the Kramer Dock site will not provide additional spawning habitat since LFS do not spawn in this region of the Bay. While removing contaminated pilings will provide water quality benefits to Humboldt Bay, CDFW is concerned this approach is not sufficient to mitigate for impacts to LFS. The Draft EIR states it is unlikely that spawning habitat for LFS is limited in Humboldt Bay and contaminants are a greater concern (pg. 6, Appendix N). However, this statement is not supported by citations. Population declines of LFS are likely due to loss of tidal wetland habitats and changes in freshwater flows (Garwood 2017; CDFG 2009; California Department of Water Resources et al. 2020). A habitat restoration approach that benefits the life history stage being impacted will be necessary to ensure impacts to the species are fully mitigated.

To mitigate for impacts to biological productivity, the Harbor District proposes to receive four acres of mitigation credit for every one acre of habitat restored at the Kramer Dock site. This mitigation approach includes credit for the surface area of the pile removed, rather than the benthic footprint of the pile. For example, if the Area of Production Forgone to biological productivity from the intakes is calculated to be 10.4 acres, the Harbor District proposes an area of piling removal equivalent to 2.6 acres (Appendix N). CDFW is concerned this mitigation approach is not sufficient to offset impacts to biological productivity.

Recommendations:

- The LFS entrainment impact analysis should not assume larvae are only susceptible to entrainment when salinity is <12 psu. In the absence of understanding the physiological limits of LFS larvae in Humboldt Bay and given there have been multiple observations of LFS larvae in high salinity waters, CDFW recommends that LFS larvae are assumed to be viable in all of Humboldt Bay, regardless of salinity conditions.
- The Final EIR should analyze the potential take of LFS at each phase of water withdrawal. If take of LFS could occur during the initial phase of up to 694 gpm, then mitigation to offset impacts will be required.
- CDFW recommends mitigation for impacts to LFS, and biological productivity be provided in full and upfront, rather than the proposed phased mitigation approach.
- To fully mitigate for entrainment impacts to LFS, CDFW recommends additional or alternative mitigation that directly benefits the life history stage of LFS being impacted, such as protection or creation of spawning and/or rearing habitat. CDFW also recommends additional mitigation to compensate for loss of biological productivity. CDFW recommends that the Harbor District continue to engage with CDFW, CCC, National Marine Fisheries Service (NMFS) and other regulatory

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agencies in the development of an effective habitat restoration and mitigation plan prior to finalizing the EIR.

- Specific information on where Spartina removal will occur needs to be disclosed to determine the benefits of this mitigation approach to species impacted by entrainment.
- CDFW recommends a work window of July 1 – October 15 during pile removal activities to minimize impacts to listed salmonids.
- To avoid potential impacts to nesting birds on or near the pilings, CDFW recommends an avoidance mitigation measure, such as pile removal during the non-nesting season or pre-demolition nest surveys with specified no-disturbance buffers for active nests.

Seawater Intakes Screen Design, Operations & Maintenance

Comments: The intake screens have been designed to meet NMFS and CDFW's fish screening criteria. However, other than the mention of using an air burst or brush system self-cleaning technology while operating, the Draft EIR does not include details on how the screens will be cleaned and maintained to avoid changes in approach velocity and risk of impingement. CDFW has provided the Harbor District with concerns related to air burst cleaning systems, which in some circumstances may not be as effective as brush cleaning and can cause problems with meeting the fish screen hydraulic criteria of low approach velocities with hydraulic uniformity. Reliance on a 0.1-ft hydraulic head differential in the intake structures, additive to an estimated 0.44-ft minimum hydraulic head differential, to activate the screen cleaning system is not likely to indicate concentrated areas of biofouling on the screen surface that can then lead to areas of higher approach velocity and hydraulic non-uniformity. CDFW is concerned with the risk of impingement if the screens are not properly maintained. Frequent, regularly scheduled activation of the cleaning system and detailed visual inspection, including the inside of the screen, may be needed to ensure that this requirement is met for the life of the Project.

Recommendations:

- The Final EIR should include the development of an Operations & Maintenance Plan for both intakes that will provide details of the proposed self-cleaning technology, including how often the screens will be self-cleaned, manually checked for debris buildup and biofouling, and how the Harbor District will ensure the cleaning technology is always functioning properly. Additionally, the Operations & Maintenance Plan should provide sufficient detail on how the screens will be evaluated for effectiveness to verify hydraulic design objectives are achieved. A phased evaluation period of the screen cleaning system can be used to determine the program for frequency of visual inspections and cleaning cycles that help to ensure adherence to the hydraulic criteria. The Operations & Maintenance Plan should be provided to regulatory agencies for review and approval prior to final design and permitting of the intakes. CDFW recommends the Harbor District analyze the effectiveness of alternative cleaning systems, including self-cleaning brush technology, to ensure consistency of providing lower approach velocity and hydraulic uniformity near the fish screen which minimizes the chance for fish/larvae impingement and entrainment.

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- The Draft EIR and Appendix R describes that the existing RMT II dock intake structure is constructed of wood that has become deteriorated and will likely need repairs to seal cracks that would allow flow into the intake structure other than through the intake screen. CDFW recommends the Harbor District provide a final design of how this intake structure will be completely sealed to ensure all pumped flow will go through the screen. The Draft EIR also describes that the existing Red Tank dock intake concrete structure appears to be in functional condition and minor repair, or cleaning may be necessary to bring this structure back into service. CDFW recommends the Harbor District provide information on how this intake structure will be completely sealed to ensure all pumped flow will go through the screen.

Ocean Outfall Wastewater Discharge

Comments: At full capacity, the facility will discharge 12.5 MGD of treated effluent 1.55 miles offshore via the existing RMT II ocean outfall diffuser. The outfall diffuser is located approximately 82 feet below the surface in sandy habitat. The temperature of the discharge effluent will range between 68 to 72°F, approximately 20°F above the average ambient temperature of 51.8°F, with a salinity of 27 psu (compared to an ambient salinity of 33.5 psu). Based on the results from the Project's dilution modeling study, the dilution targets for temperature and salinity are expected to be met within five feet of the diffuser. However, the modeling study relies on oceanographic data that was collected near the entrance of Humboldt Bay, over three miles from the discharge location. The wastewater treatment facility is expected to remove 99% of biological oxygen demand, total suspended solids, and phosphorus, and 90% of nitrogen prior to discharge, but the Draft EIR does not describe how these water quality parameters will be measured to ensure the treatment design specifications are met.

Nordic proposes to conduct baseline water quality and biological monitoring at the ocean outfall location one to two years prior to discharge to characterize pre-discharge conditions. Post-discharge monitoring will be conducted over three to five years once the facility is discharging at full capacity using the same methods as baseline monitoring. The monitoring program will include collection of oceanographic data using an acoustic doppler current profiler to measure current velocities, and the use of a conductivity, temperature, and depth profiler to characterize spatial patterns of temperature and salinity. Surface and benthic water quality monitoring of nutrients, suspended solids, turbidity, and chlorophyll will be conducted at half of the profiling stations. Benthic biological transect surveys will occur concurrently with water quality monitoring, using either a remotely operated vehicle and/or a drop camera with laser lights for scale. Surveys will be conducted along the discharge pipe, within the zone of influence, and at reference sites. Baseline and post-discharge monitoring will include two annual survey events, separated by at least two weeks, during the summer/fall. The Draft EIR does not include implementation of a mitigation plan in the event that impacts to water quality or biological communities are observed.

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Recommendations:

- CDFW recommends collecting a minimum of two years of baseline data to capture interannual variability in ocean conditions.
- Before the facility can begin discharging, CDFW recommends the discharge modeling study (dilution study; Appendix E) be updated and reanalyzed using the baseline oceanographic data collected at the discharge location. The results from the updated dilution study should be provided to CDFW and other regulatory agencies for review prior to the facility using the ocean outfall.
- CDFW recommends post-discharge monitoring commence once the facility begins using the ocean outfall, rather than after the facility is discharging at full capacity. Continuous monitoring (at least twice per year) will provide necessary data on potential impacts of the discharge to receiving water quality and biological communities as the quantity of the facilities discharge increases over time.
- CDFW recommends sediment samples be collected at the discharge location, within the zone of influence, and at reference locations pre- and post-discharge to assess the accumulation of contaminants, including harmful algae bloom-associated toxins, in the benthic environment.
- CDFW recommends water quality and biological monitoring occur at least twice per year to capture annual variability in oceanic conditions and biological community structure (e.g., during both the upwelling and relaxation seasons), rather than the proposed two sampling events during the summer/fall.
- CDFW recommends the Final EIR include a wastewater discharge mitigation plan developed in consultation with CDFW, North Coast Regional Water Quality Control Board, CCC, NMFS and other relevant regulatory agencies. The plan should include a description of mitigation measures that will be immediately implemented if impacts to water quality (e.g., Ocean Plan water quality objectives are not met) or biological communities associated with the wastewater discharge are observed.
- CDFW recommends the Final EIR include a table of all pre- and post-discharge water quality and biological monitoring. The table should include the monitoring location (approximate GPS and distance from the diffuser), method, parameters measured, and number of replicate samples/surveys. Additionally, CDFW recommends the Final EIR include a map of the Ocean Discharge Study Area that includes water quality and biological monitoring locations in relation to the ocean outfall diffuser.

Eelgrass Habitat

Comments: Native eelgrass beds (*Zostera marina*) are an important part of the Humboldt Bay ecosystem and are recognized by state and federal statutes as both highly valuable and sensitive habitats. Humboldt Bay holds approximately 31% of the known mapped eelgrass in the state (Merkel & Associates 2017). Eelgrass provides primary production and nutrients to the ecosystem along with spawning, foraging, and nursery habitat for fish and other species. Pursuant to the federal Magnuson-Stevens Fishery Conservation and Management Act, eelgrass is designated as Essential Fish Habitat for various federally managed fish species within the Pacific Coast Groundfish and Pacific Coast Salmon Fisheries Management Plans (FMP). Eelgrass is also considered a habitat area of particular concern for various species within the Pacific Coast Groundfish-FMP. Eelgrass habitats are further protected under state

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and federal “no-net-loss” policies for wetland habitats. Additionally, the importance of eelgrass protection and restoration, as well as the ecological benefits of eelgrass, is identified in the California Public Resources Code (PRC §35630).

Eelgrass habitat occurs within the Kramer Dock pile removal mitigation site. CDFW is concerned with potential direct and indirect effects to eelgrass during proposed pile removal activities. The only mitigation measure included in the Draft EIR is to remove piles during a tide of sufficient elevation to float the barge and tugboat without scarring mudflats or injuring eelgrass (pg. 3.9-29). The Draft EIR does not include an eelgrass monitoring or mitigation plan.

Recommendations:

- CDFW recommends the Final EIR analyze the potential impact to eelgrass habitat from pile removal activities. Impacts to eelgrass should be avoided and minimized to the fullest extent possible. To ensure no net loss, CDFW recommends the Final EIR include the development of an eelgrass monitoring and mitigation plan, as defined in the California Eelgrass Mitigation Policy (CEMP; NMFS 2014). The plan should include pre- and post-construction surveys to map eelgrass habitat at the Kramer Dock pile removal site. Surveys should be conducted by a qualified biologist during the high growth season (May-September) and follow the standards of the CEMP. This plan should include mitigation for any impacts to eelgrass. Additionally, the Final EIR should include additional eelgrass avoidance measures, such as avoiding anchoring in eelgrass habitat during pile removal activities.

Use of Explosives and Nesting Birds

Comments: Native birds, particularly their nesting stages, are protected pursuant to FGC sections 2000, 3503, and 3503.5. Effects of structure demolition, including use of explosives, to nesting birds is discussed in the Draft EIR (pg. 3.3-17), stating, “*noise generated by demolition activities would attenuate below 140 dBA (the threshold to avoid hearing damage in birds; Dooling and Popper 2007) at 130 feet from the blast*”. However, the Draft EIR Construction Noise, Vibration, and Hydroacoustic Assessment (Appendix J) also discusses a worst-case scenario where air-overpressure levels ranged from 142 to 150 dB(L) at distances of approximately 800 to 1,100 feet, and 141 to 142 dB(L) at distances of 1,300 to 1,500 feet. Given the range of building demolition noise scenarios presented in the Draft EIR and appendices, building demolition timing outside the nesting bird season would provide the greatest certainty in avoiding harm to nesting birds.

Recommendations:

- CDFW recommends Mitigation Measure BIO-5 (Protect Special Status, Migratory, and Nesting Birds) be revised to avoid use of explosives during the nesting bird season. Alternatively, if explosives will be used during the nesting season, the Final EIR should provide further analysis or clarification of explosion sound pressure distances that may result in bird hearing damage or nest failure.

Osprey Nest Management

Comments: Native birds, particularly their nesting stages, are protected pursuant to FGC sections 2000, 3503, and 3503.5. CDFW observations in recent years indicate two osprey

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(*Pandion haliaetus*) pairs each have a nesting territory on the Project site. To avoid potential impacts to osprey, the Draft EIR (pg. 3.3-20) states, "*The Harbor District is actively working with CDFW to relocate Osprey nests from the Project Site*". Current and future osprey nest management to avoid impacts due to Project-related changes to the physical environment should be analyzed in the Final EIR.

Recommendations:

- The Final EIR should revise Mitigation Measure Bio-5 (Protection of Osprey) to include an Osprey Management Plan for current and potential future nests. The Osprey Management Plan should include performance criteria such as no-net-loss of osprey breeding territories with sufficient alternative nest sites within the Project area, and that any created nest sites are of equal or higher quality than nests removed.

Alternatives Analysis

Comments: The Draft EIR includes an analysis of alternatives for the facility location, species farmed, and seawater sources. The only alternative facility locations that are briefly analyzed in the Draft EIR include other locations within the Humboldt Bay area. The Draft EIR mentions that twelve other west coast communities were considered in the initial search for a site but does not disclose the location of those sites or an explanation for why those sites are not considered further. Additionally, there are no alternatives related to a reduced size facility.

The alternative species analyzed include Steelhead in seawater, Rainbow Trout in freshwater, and Yellowtail Kingfish, in addition to the preferred species of Atlantic salmon. There are several sections of the species comparison table (Table 4-2) that lack citations, such as the feed conversion ratios, biological risks, and survivability and hybridization with local species in the event of escapement. The Draft EIR does not include an analysis of pathogens and parasites associated with the alternative species or discuss the volume of seawater and freshwater that would be used for alternative species and the environmental impacts associated with that water use. It is mentioned that the alternative species would result in higher production of nutrients and feces, but there is no analysis of impacts to receiving water quality or marine resources from the discharge. Local concerns regarding Steelhead are included, but Table 4-2 does not include local concerns regarding Atlantic salmon or the other alternative species. Additionally, the analysis does not include measures to minimize risks associated with the alternative species, such as cultivating triploid fish to avoid hybridization and reproduction.

The alternative seawater sources include slant wells, an oceanic seawater intake, and Humboldt Bay seawater wells. The analysis suggests that impacts from any of these alternatives would be less than significant with the incorporation of mitigation measures. However, the Draft EIR does not discuss the potential impacts to marine and terrestrial resources from constructing and operating the alternative seawater sources or the mitigation measures that would be implemented to offset potential impacts, such as entrainment and impingement.

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Recommendations:

- CDFW recommends the Final EIR analyze additional alternative Project locations that have less potential risk for fish and pathogens to escape into marine, estuarine, or freshwater habitats used by native salmonids. CDFW also recommends the Final EIR include a reduced facility size alternative.
- CDFW recommends Table 4-2 be revised to include citations and incorporate local concerns regarding cultivation of Atlantic salmon that have been provided during the public review.
- CDFW recommends the Final EIR include a comparative analysis of potential pathogens and parasites specific to Atlantic salmon and the alternative species.
- CDFW recommends the Final EIR include measures to reduce risks associated with the alternative species, such as cultivating triploid fish to minimize risk of hybridization and reproduction.
- CDFW recommends the Final EIR include a comparative analysis of entrainment and impingement impacts associated with each of the alternative seawater sources.

Mandatory Findings of Significance & Mitigation Monitoring and Reporting Program (MMRP)

Comments: The Draft EIR does not include a Mandatory Findings of Significance or MMRP table.

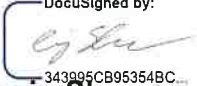
Recommendations:

- CDFW recommends the Final EIR include a Mandatory Findings of Significance and MMRP table.

CONCLUSION

We appreciate the opportunity to comment on the Nordic Aquafarms California, LLC Land-based Aquaculture Project Draft EIR to assist the County, Harbor District, and Nordic in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Corianna Flannery, Environmental Scientist at 707-499-0354 or Corianna.Flannery@wildlife.ca.gov.

Sincerely,

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Cade McNamara, Planner II
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Letter 511 – Response to Comments

Response to Comment 511-1 – Introductory Remarks

This is an introductory comment that notes concerns around the DEIR. Specific concerns raised in comment letter 511 are addressed in response to comments 511-2 through 511-7 below. No further response is required.

Response to Comment 511-2 – Continued Introductory Remarks

The comment notes concern regarding four specific issues, addressed individually below.

- Concerns regarding impacts to aquatic organisms – please see response to comment 511-4, which specifically addresses this concern
- Concerns regarding impacts to eelgrass - please see response to comment 511-5, which specifically addresses this concern
- Concerns regarding water quality related to the treated effluent discharge - please see response to comment 511-6, which specifically addresses this concern
- Concerns regarding sea level rise - please see response to comment 511-7, which specifically addresses this concern

Response to Comment 511-3 – Comments from CDFW incorporated by reference

This comment incorporates by reference comments submitted on the DEIR by the CDFW, dated February 18, 2022. All comments submitted by the CDFW have been directly addressed in Letter 302 in this FEIR. Please see responses to comments under Letter 302.

Response to Comment 511-4 – Water Intakes

This comment is concerned with the need for a more comprehensive understanding of potential biological effects related to water intake for the Project and requests a more detailed analysis of alternatively sourcing water from the Pacific Ocean. As described in the DEIR, the proposed facility would only remove 0.14% of the volume of water moving through the channel over a tidal cycle. The effect is not significant under CEQA. Other sources of salt water, including use of a slant well, oceanic seawater intake and Humboldt Bay seawater well are analyzed in DEIR Chapter 4. These alternatives would not have less environmental impact than the proposed water intakes. The proposed aquaculture facility will constantly recirculate and treat the water in the fish rearing tanks, with an estimated 99% of that water returned to the tank. The remaining 1% of the recirculated water is sent with the filtered solid matter to the onsite waste treatment plant for final treatment before discharge. It is this 1% that needs to be replaced by the proposed saltwater and freshwater sources respectively. Please see Master Response 7 (Intake Biological Productivity, Intake Salmonids) for additional information on the design and impact mitigation of the proposed saltwater intake. Given the information discussed and referenced above, no further modifications to the DEIR are proposed specific to this comment and no additional mitigations are warranted.

Response to Comment 511-5 – Water Intakes

The comment expresses concern that the Project does not include an eelgrass mitigation and monitoring plan or provide sufficient assurances to protect existing eelgrass habitat. As described in the DEIR, there is eelgrass near Red Tank Dock that will be avoided. Additionally, there is eelgrass at the proposed Fields Landing restoration site that will benefit from the removal of contaminated debris (creosoted piles). Project

components are in place to protect eelgrass habitat as described in DEIR Section 3.3.6). The objective of pile removal is to create additional sandy substrate to allow for increased eelgrass habitat. Given the information discussed and referenced above, no further modifications to the DEIR are proposed specific to this comment and no additional mitigations are warranted.

Response to Comment 511-6 –Discharge Modelling / HAB

This comment expresses concern over the wastewater treatment process, HAB development and eutrophication, and chronic toxicity. It specifically questions the capacity for the wastewater treatment plant to reduce pathogen risk and nitrogen loading, claims that the volume, content, and temperature of the proposed discharge would create localized HAB events, and argues for weekly testing for chronic toxicity. Please see Master Response 9 regarding the level of detail in an EIR and response to comments.

The proposed onsite wastewater treatment plant is designed to handle the full discharge capacity effectively and maintain the stated discharge water quality standards. Multiple equipment redundancies and a detailed operation and maintenance manual will ensure that normal operation can continue in the event of equipment malfunction or failure. Additionally, the facility will feature a substantial backup generation system that will be able to support operations in the event of an external power interruption.

Water quality impacts of discharge, including spatial and temporal impacts, were thoroughly evaluated in DEIR Appendix E (Numeric Modeling Report, Dilution Study) and deemed ‘very low risk.’ Increased ecosystem productivity, HABs, and eutrophication are not a concern because elevated nutrient levels are limited in spatial scale. The rate of effluent dispersal is high enough to avoid increased phytoplankton abundance and increased localized temperatures across all seasons. Please also see DEIR Appendix E, Section 7 (Conclusions), starting on page 36 for a summary of relevant numerical modeling results. Specific details on the methodology, modeling, and results leading to such conclusions are referenced in the following sections of DEIR Appendix E: 1) Section 5.3 (Near-Field Dilution Results), starting on page 14, 2) Section 6.8.1 (Defining the Zone of Potential water Quality Degradation), starting on page 26, 3) Section 6.9.2 (Summer Scenario – Zone of Potential Water Quality Degradation), starting on page 29, Figure 13, and 4) Section 6.10.2 (Winter High River Flow Scenario – Zone of Potential Water Quality Degradation), starting on page 33, Figure 15.

The DEIR explains how NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond any regulatory requirement. This monitoring is described in Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant), starting on page 3.9-12. Lastly, while State Water Resources Control Board may require monthly testing for non-stormwater facilities that discharges 5 MDG or greater to Inland Surface Water, Enclosed Bays, and Estuaries, the location of the Offshore Discharge is approximately 1.55 miles offshore of the Peninsula and approximately 3.5 miles north of the entrance to Humboldt Bay, as shown in Figures 2-1 and 2-2 referenced in Section 2.0 (Project Description), and thus outside of these geographic parameters. Please see Master Response 5 for additional information regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 511-7 – Sea Level Rise Concerns

This comment expresses concern regarding sea level rise and the inadequacy of the DEIR’s analysis specifically related to sea level rise, yet provides no substantial evidence in association with the comment. The comment requests completion of additional analysis specific to the potential impacts of sea level rise, including scenarios that incorporate king tides and large swells on the Project site and associated physical

structures, including transportation infrastructure. The comment also uses sea level rise and tsunami related hazards interchangeably, which confuses largely independent issues. Per page 3.9-39 of the DEIR, the site-specific tsunami hazard analysis (DEIR Appendix I) applied a value of 4.1 feet of sea level rise. An increase of 4.1 feet corresponds with the Ocean Protection Council's 2018 guidelines Likely Range (66% probability) of sea level rise for the 2100 high emissions scenario documented in the Ocean Protection Council's 2018 guidelines. The Project has been designed consistent with the recommendations of the site-specific tsunami hazard analysis at a 2,500-year return period (DEIR Appendix I), which account for sea level rise.

With the exception of the existing seawater intakes and waterline improvements along the Humboldt Bay shoreline, the footprint of the facility is located outside the 100-year FEMA flood zone and thus not vulnerable to impacts related to king tides or severe flooding. It is further noted that analysis of sea level rise is not required under the CEQA Appendix G environmental checklist. Given the information discussed and referenced above, no further modifications to the DEIR are proposed specific to this comment and no additional mitigations are warranted.

McNamara, Cade

From: Jeff Pauli <jeff@pauli-shaw.com>
Sent: Tuesday, February 15, 2022 4:06 PM
To: CEQAResponses; McNamara, Cade
Subject: Nordic Aquafarms letter of recommendation
Attachments: Nordic Aquafarms' letter of support.pdf

Hi Cade,

Please see the attached letter of support for Nordic Aquafarms'. This is great project with long term economic benefits for our community.

Thank you.

Jeff Pauli CLCS

Pauli-Shaw Insurance Agency

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627-7th St, Arcata, CA 95521

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Pauli-Shaw
INSURANCE AGENCY

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February 15th 2022

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501



Dear County of Humboldt Planning and Building Department,

On behalf of Pauli-Shaw Insurance Agency, I am pleased to write this letter in support of Nordic Aquafarms' project planned for the Samoa Peninsula. Nordic Aquafarms focuses on fish welfare and environmental sustainability, and they employ proprietary recirculating aquaculture systems (RAS) with patented technology. The end-results are modules ready for truly large-scale RAS farming – and a key solution in contributing to increasing seafood supply without leaving a material environmental footprint.

The Nordic Aquafarms' project will provide many community benefits, including clean-up of a long-abandoned site containing hazardous materials, abandoned buildings and industrial debris. The project will also stimulate economic activity and provide a wide range of employment opportunities. In addition to what Nordic will directly contribute to our local economy, the Nordic project will be a draw for other aquaculture businesses on the peninsula, thereby increasing economic prosperity and employment opportunities for our region.

512-1

Nordic Aquafarms has been actively engaging in our community through public meetings, site tours and targeted outreach to stakeholders. Nordic is working closely with College of the Redwoods to revitalize their aquaculture program and with HSU to ensure a steady pipeline of local qualified professionals. Nordic is also working with the Humboldt County Office of Education to introduce information to students about careers in aquaculture and to offer support in classroom educational programs.

The Nordic team has gone to great lengths to be transparent, inclusive, and comprehensive in their research and sharing results throughout the public process and we are confident that they will be a benefit to our local economy as well as to our community. The Pauli-Shaw Insurance Agency is pleased to support this project.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jeff Pauli', with a stylized flourish extending to the right.

Jeff Pauli
President
Pauli-Shaw Insurance Agency

Letter 512 – Response to Comments

Response to Comment 512-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Conroy, Mike <mike@ifrfish.org>
Sent: Friday, February 18, 2022 3:07 PM
To: CEQAResponses
Subject: PCFFA comments on Samoa Peninsula Land-based Aquaculture Project DEIR
Attachments: 2022.02.18_NORDIC_DEIR_FINAL.pdf

Dear Mr. McNamara,

Please find the comments submitted by the Pacific Coast Federation of Fishermen's Associations in the proposed DEIR for the Samoa Peninsula Land-based Aquaculture Project.

If you could confirm receipt of this email that would be very much appreciated.

Should you have any questions or concerns please do not hesitate to contact me directly.

Hope you have a great weekend!

--

Mike Conroy

[Pacific Coast Federation of Fishermen's Associations](#)
[Institute for Fisheries Resources](#)

PCFFA - PO Box 29370, San Francisco, CA 94129

IFR - PO Box 29196, San Francisco, CA 94129

Cell: 415-638-9730 | Office: 415-561-5080 | Fax: 415-561-5464



George Bradshaw
President
Larry Collins
Vice-President
Lorne Edwards
Secretary
Lori French
Treasurer



Mike Conroy
Executive Director
Glen H. Spain
Northwest Regional Director
Vivian Helliwell
Watershed Conservation Director
In Memoriam:
Nathaniel S. Bingham
Harold C. Christensen
W.F. "Zeke" Grader, Jr.

Please Respond to:

☒ **California Office**
P.O. Box 29370
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February 18, 2022

Cade McNamara, Planner II
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501



Submitted by email to CEQAResponses@co.humboldt.ca.us

RE: Samoa Peninsula Land-based Aquaculture Project DEIR

Dear Mr. McNamara:

The Pacific Coast Federation of Fishermen's Associations (PCFFA) is pleased to offer the following comments on the Draft Environmental Impact Report for a proposed Samoa Peninsula Land-based Aquaculture Project (DEIR) which plans to produce a non-native species – Atlantic Salmon. Alternative 3 (Sec 4.3.3) identifies Steelhead in seawater, Rainbow Trout in freshwater, and Yellowtail Kingfish (native to New Zealand) as potential alternative fish species. While we are very concerned about non-native species being farmed in the pristine marine and freshwater environment adjacent to the proposed location, our concerns are equally valid for native species as well.

PCFFA is the largest organization of commercial fishermen and women on the West Coast, many of whom own small businesses. For forty years, we have been leading the industry in protecting the rights of individual fishermen and fighting for the long-term survival of commercial fishing as a productive livelihood and way of life. PCFFA represents local fishermen's associations from Santa Barbara, California to Alaska.

513-1

We have been privy to some of the other public comments submitted on the DEIR and rather than repeating those points, we wish to start by fully endorsing, supporting and incorporating by reference the comments submitted by Alison Willy, the Pacific Fishery Management Council, and the Humboldt Fishermen's Marketing Association and adopt them as our own. In particular the statement by Ms. Willy,

"The newly-constrained "Study Area" is inconsistent with environmental laws and regulations, in particular the: Federal Endangered Species Act (ESA), California Endangered Species Act (CESA), California Environmental Quality Act (CEQA), and National Environmental Policy Act (NEPA). The problem with the truncated Study Area is that it does not allow for an informed understanding of the environmental baseline and Project effects that are needed for ESA, CESA, CEQA, and NEPA analyses."

513-1
Cont.

We write separately to provide detail and context that may supplement the materials provided by those commenters.

A primary concern is that local ecosystems, marine and freshwater, are not negatively impacted by the actions contemplated under the DEIR. While the project proponent has gone to great lengths to offer some assurances, we reiterate the concerns raised by a number of other commenters about the thoroughness of the evaluation of ecosystem impacts and impacts to commercially and recreationally important fish stocks.

Our members, along with many others, are dependent up those ecosystems for their livelihoods, their recreation, their cultural interests, etc. As explained in great detail in the comments submitted by Ms. Willy, there are a number of issues with the DEIR's failure to adequately identify and/or address potential impacts.

513-2

Commercial and recreational fishermen and women utilize the fishing grounds in and around the project area to harvest dungeness crab, salmon, groundfish, etc for benefit of all Californians. The Eureka port complex is indispensable to California's commercial fishing economy. In 2019, the most recent for which data is publicly available, the ex-vessel value¹ of all marine commercial fisheries landings within California were roughly \$150 million, the Eureka Port Complex (EPC) contributed roughly 39 million - 26 percent of the State's commercial fishing economy. The wild capture fisheries operating in the area support a number of jobs, small businesses, and families.

With west coast salmon stocks already suffering greatly from climate change induced droughts, proliferation of the *C. Shasta* virus in California's rivers systems, and misguided water policies which are not protective of anadromous fish stocks listed under the Endangered Species Act and/or the California Endangered Species Act, we need to strictly scrutinize projects and/or actions which could exacerbate the plight of California's iconic

¹ Ex-vessel revenues are those amounts paid directly to the harvester(s). It does not reflect down-stream economic impacts, nor does it reflect the economic benefits derived from the commercial fishing industry to the dependent community, which includes fuel docks, marine mechanics, gear and tackle shops, etc.

salmon runs. We are deeply concerned the DEIR doesn't appear to have mentioned *C. Shasta* in any of the roughly 1700 pages of documents.

Table 1-2 purports to identify, "by resource category, the significant Project impacts, proposed mitigation measures, and post-mitigation significance." BIO-1 discusses impacts "on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS or NMFS." Under Ocean Discharge the DEIR concludes that there will be less than significant impacts. On August 2, 2021, NMFS issued "a final rule to revise the critical habitat designation for the southern resident killer whale (*Orcinus orca*) distinct population segment (DPS) under the Endangered Species Act (ESA) by designating six additional coastal critical habitat areas along the U.S. West Coast."² One of these areas includes "U.S. marine waters from the OR/CA border (42°00'00" N) south to Cape Mendocino, CA (40°26'19" N), between the 6.1-m and 200-m isobath contours. This area covers 1,606.8 mi² (4,161.5 km²) and includes waters off Del Norte and Humboldt counties in California. The primary essential feature of this area is prey." It is unclear to us whether the expanded critical habitat was considered and whether the DEIR addresses potential impacts to prey of the southern resident killer whales.

513-2
Cont.

Others have commented on the impacts associated with the Humboldt Bay Water Intakes. Our concern is focused on the likelihood that smolt and/or fry salmonids or other protected/listed species³ will get stuck to the intake screen and be unable extricate themselves from the screen before dying.

BIO-4 asks, "Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?" Under Ocean Discharge, the DEIR concludes Less than Significant impacts. We believe more analysis is required to ensure the waste being released into the marine environment will not result in algal blooms of the *Pseudo-nitzschia* diatom. the diatom produces Domoic Acid. The start of the dungeness crab fishery has been delayed numerous times because the amount of Domoic Acid in test samples exceeded the applicable Federal Action level.

513-3

We fully agree with other commenters who have found BIO-C-1 conclusion that both the Ocean Discharge and the Humboldt Bay Water Intakes will have "less than significant impacts" is not supportable. If the Final EIR retains that conclusion, we ask that much more analysis and rational be provided to justify that finding.

There are many other items we are very concerned about; but as noted earlier, we incorporate the comments submitted by Alison Willy, the Pacific Fishery Management Council and Humboldt Fishermen's Marketing Association. They expressed the vast majority

² <https://www.govinfo.gov/content/pkg/FR-2021-08-02/pdf/2021-16094.pdf>

³ References to protected/listed species are to those species afforded protections under the Marine Mammal Protection Act, Endangered Species Act, California Endangered Species Act, and any other laws or regulations that afford special protections for that species.

of our concerns and wholeheartedly agree and repeat their suggestions, recommendations, and requests.

↑ 513-3
Cont.

We would be remiss if we did not mention the potential for cumulative impacts to our operations from the installation of the Samoa Peninsula Land-based Aquaculture Project in the geographic region as the recently designed Humboldt Wind Energy Area. Assuming there will be shore-based activities associated with a potential offshore wind farm in the area; there is a very real fear amongst fishermen and women homeported in Eureka and transient vessels who temporarily berth in Eureka who opportunistically target albacore, dungeness crab, groundfish, and other commercially and recreationally important fish stocks. The additional traffic, both on sea and on land, could impact our ability to operate; and result in loss of harbor space and/or associated shore-based infrastructure and areas designated for commercial fishing use.

513-4

Sincerely,



Mike Conroy
Executive Director
Mike@ifrfish.org
(562) 761-7176

Letter 513 – Response to Comments

Response to Comment 513-1 – General, Species

This is an introductory comment that notes concerns around the DEIR. Specific concerns raised in comment letter 513 are addressed in response to comments 513-2 through 511-4 below.

Response to Comment 513-2 – Biological Resources

The comment concerns several issues related to evaluation of ecosystem impacts and commercial and recreational fisheries. The comment also discusses *C. Shasta*, a parasite known to infect salmonoid fish, and critical habitat for the Southern Resident Killer Whale. Economic concerns related to commercial and recreational fisheries are not environmental issues as defined by the CEQA guidelines. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA.

The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on Chinook Salmon, Pacific Coast Salmon EFH, Coastal Pelagic Species EFH, and Groundfish EFH, as well as commercial and recreational fish species, in Section 3.3 (Biological Resources, Ocean Discharge) starting on pages 3.3-33 and 3.3-36, and Humboldt Bay Water Intakes starting on page 3.3-50. The Ocean Discharge would not result in significant impacts to coastal habitat or marine resources based on limited spatial area and organic loading, resulting in a low risk of adverse effects to marine species including EFH. The Humboldt Bay Water Intakes are specifically designed to meet NMFS screening criteria and avoid impingement or entrainment of juvenile salmonids.

Critical habitat was designated on August 2, 2021, for Southern Resident Killer Whale offshore between the 6.1-m and 200-m isobath contours and includes waters off Del Norte and Humboldt counties in California (86FR41668). Information pertaining to Southern Resident Killer Whale critical habitat has been added to the Errata in Section 4.

For six coastal areas identified in the critical habitat designation, essential features include 1) Water quality to support growth and development; 2) Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and 3) Passage conditions to allow for migration, resting, and foraging. However, the primary essential feature in proximity to the Project is prey, which is primarily Chinook Salmon, a species also listed under the Endangered Species Act and described and analyzed in Section 3.3 (Biological Resources), starting on page 3.3-33 and DEIR Appendix D (Marine Resources Biological Evaluation Report, Sections 5.2.2 and 5.4).

The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on Chinook Salmon and Pacific Coast Salmon EFH, which are the essential prey species for Southern Resident Killer Whale, in Section 3.3 (Biological Resources, Ocean Discharge) starting on pages 3.3-33 and 3.3-36, and Humboldt Bay Water Intakes starting on page 3.3-50. The Ocean Discharge would not result in significant impacts to coastal habitat based on limited spatial area and organic loading, resulting in a low risk of adverse effects to Chinook Salmon and Pacific Coast Salmon EFH. The Humboldt Bay Water Intakes are specifically designed to meet NMFS screening criteria and avoid impingement or entrainment of juvenile salmonids.

The infective stage of *C. shasta* occurs in freshwater habitats (Hendrickson 1989), and is therefore not affected by the Project, which involves only marine habitats. Infections with *C. shasta* are prevented at salinities greater than 15 ppt (Bartholomew 2012).

Please see Master Response 5 for additional information regarding the marine outfall, and Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for information regarding the Humboldt Bay Water Intakes.

Response to Comment 513-3 – Water Intakes

The comment is concerned with protected/listed species including salmonid fry and smolts may be impinged by the water intake screens and further includes concerns for the ocean discharge.

As described in the DEIR, the intake screens are designed with low approach velocities that will not impinge juvenile fish including salmonid fry and smolts. DEIR Section 3.3.6, Pages 3.3-46 through 3.3-48 describe potential effects of the intakes to protected/listed species and the proposed mitigation (Mitigation Measure Bio-6a) that will reduce effects to less than significant.

Impacts on ocean species are discussed in the DEIR sections 3.3, pages 3.3-27 through 3.3-39 and also in Master Response 5 (Marine outfall).

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 513-4 – Cumulative Impacts

Comment is concerned with cumulative impact from the Project and adjacent windfarm development creating additional traffic, both on sea and on land, could impact our ability to operate; and result in loss of harbor space and/or associated shore-based infrastructure and areas designated for commercial fishing use. Please see Pages 3-2 through 3-5 of the DEIR for description of the cumulative impacts analysis throughout the document. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

McNamara, Cade

From: Amy L'Manian - NOAA Federal <amy.l'manian@noaa.gov>
Sent: Friday, February 18, 2022 2:05 PM
To: CEQAResponses; McNamara, Cade; Marc Gorelnik; Merrick Burden
Cc: Amy Lubrano; Barry Thom - NOAA Federal; Bill Templin; Brad Pettinger; Brett Kormos; Briana Brady; Butch Smith; Caitlin Imaki; Caren Braby; Chris German; Chris Kern; Christa Svensson; Chuck Bonham; Corey Niles; Corey Ridings; Craig Shuman; Dani Evenson; David Hanson; David Hogan; David Teuscher; Denise Hawkins; Doug Vincent-Lang; Ed Schriever; Frank Lockhart; Heather Hall; Joanna Grebel; Joe Oatman; John Netto; John Ugoretz; Karla Bush; Kathryn Kempton - NOAA Federal; Keeley Kent; Kelly Ames; Kelly Susewind; Kyle Adicks; Kyle Hanson; LCDR Brett Ettinger; Lelea Lingo; Lyle Enriquez; Maggie Smith - NOAA Federal; Maggie Sommer; Marci Yaremko; Michael Clark; Peter Hassemer; Phil Anderson; Rachel Baker; RADM Melvin Bouboulis; Robert Dooley; Roger Root; Rose Stanley; Ryan Wulff; Sheila Lynch - NOAA Federal; Stephanie Johnson - NOAA Federal; Susan Bishop - NOAA Federal; Tom Sinclair; Troy Buell; Virgil Moore; Lance Hebdon; Correigh Greene - NOAA Federal; Eric Wilkins; Kerry Griffin - NOAA Affiliate
Subject: PFMC Letter RE: Comments on Draft EIR for Nordic Aquafarms California, LLC
Attachments: Nordic Aquafarms QR letter Feb 18 2022.pdf

Please see the attached letter addressed to Mr. Cade McNamara, Humboldt County Planning & Building Department, from Mr. Marc Gorelnik, Chair of the Pacific Fishery Management Council, regarding Council comments on the Draft Environmental Impact Report for the Nordic Aquafarms California, LLC Land-Based Aquaculture Project.

Should you have any questions, please contact [Mr. Kerry Griffin](#) at [503-820-2409](tel:503-820-2409) or toll-free at [1-866-806-7204](tel:1-866-806-7204).

Thank you,

--

Amy L'Manian
Administrative Specialist
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384
Amy.L'Manian@noaa.gov
503-820-2425



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Marc Gorelnik, Chair | Merrick J. Burden, Executive Director

18 February 2022

Cade McNamara, Planner II
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501
CEQAResponses@co:humboldt.ca.us



RE: *Draft Environmental Impact Report for Nordic Aquafarms California, LLC Land-Based Aquaculture Project*

Dear Mr. McNamara,

The Pacific Fishery Management Council (Council) submits the following comments in response to the Humboldt County Planning & Building Department Draft Environmental Impact Report (EIR) for the Nordic Aquafarms California, LLC Land-Based Aquaculture Project.

The Council is one of eight Regional Fishery Management Councils established by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA). The Council is charged with sustainably managing West Coast fisheries and the habitats upon which they depend and develops fisheries management actions for Federal fisheries of Washington, Oregon, California, and Idaho. The Council is required to achieve optimum yield for public trust marine fishery resources. Optimizing the yield of our nation's fisheries requires safeguarding these resources, their habitats, and the fishing communities that rely on their harvest.

514-1

Essential Fish Habitat

The Council is particularly focused on actions that may affect the essential fish habitat (EFH) of Council-managed species. EFH is defined in the MSA as:

"Those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" (16 U.S.C. §1802(10)). For the purpose of interpreting this definition of essential fish habitat: "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

514-2



The MSA authorizes the Council to designate habitat areas of particular concern (HAPC), a subset of EFH, and defines HAPC to be important for ecological function, sensitive to human-induced environmental degradation, stressed by development, or rare. HAPC for Pacific Coast Groundfish include estuaries, canopy kelp, seagrass, rocky reefs, and seamounts. HAPC for Pacific salmon include complex channels and floodplains, thermal refugia, spawning habitat, estuaries, and marine and estuarine submerged aquatic vegetation.

The MSA requires the identification, conservation, and enhancement of EFH for species managed under the Council's fishery management plans. The MSA authorizes the Council to comment on any Federal or state activity that may affect the habitat, including EFH of a fishery resource under its authority and requires the Council to comment and make recommendations on any action or activity that is likely to substantially affect the habitat of an anadromous fishery resource under its authority.

The proposed land-based aquaculture facility will be located on land adjacent to and within designated EFH for federally managed Pacific Coast groundfish species, coastal pelagic species, Chinook salmon, and Coho salmon. The Council is concerned that Nordic Aquafarms operations may adversely affect EFH and HAPCs for Pacific Coast groundfish and Pacific Salmon in the nearshore environment and in Humboldt Bay.

Potential Impacts of Nordic Aquaculture Operations

Land-based aquaculture has the potential to have fewer impacts on fish habitat and cause less disruption to the fishing and research community than ocean-based aquaculture. However, each project requires careful assessment to evaluate project-specific habitat effects, which can be magnified with large-scale projects such as the Nordic Aquafarms project. The Council is concerned about the direct, indirect, and cumulative impacts of Nordic aquaculture operations on habitat, commercial and recreational fisheries, and fishery-dependent coastal communities. Potential impacts to habitats and species from aquaculture operations include, but are not limited to:

- Effects on habitat features
- Establishment or proliferation of aquatic invasive species
- Impacts to surrounding waters at the facility intake structures
- Introduction of pathogens and parasites
- Impacts to water quality from wastewater discharge
- Impacts to eelgrass
- Unintended introduction of a non-native salmonid
- Potential to induce or exacerbate harmful algal blooms at the effluent release site
- Effects of extraction of water from Mad River and Humboldt Bay

The EIR should disclose and analyze all potentially significant effects on Endangered Species Act (ESA)-listed and sensitive species and habitats in and around aquaculture operations, including critical habitat for California Coastal Chinook salmon, Central California Coast Coho and Southern Oregon/Northern California Coast Coho Salmon, Southern Distinct Population Segment of North American green sturgeon, Southern Resident Killer Whale, other commercially and recreationally important fishes and invertebrates, and if appropriate, identify feasible mitigation

514-2
Cont.

514-3

514-4

measures to reduce those impacts. This analysis should address potential impacts to species and habitats adjacent to the aquaculture facility, related infrastructure, and outflow facilities.

↑ 514-4
Cont.

The Final EIR should describe the methods proposed for cleaning and maintaining the facility intake structures to avoid changes in approach velocity and risk of impinging Pacific salmonids. A Screen Operations & Maintenance Plan (Plan) should be prepared and included in the Final EIR.¹ The Plan should provide details on the proposed self-cleaning technology and how biofouling and/or non-native invasive species growing on this structure will be monitored and prevented from further proliferation beyond the infrastructure of this facility. Additionally, alternate cleaning systems should be analyzed to determine whether different approaches may be more effective at minimizing biofouling, changes in approach velocity, and the risk of impingement.

514-5

The Final EIR should describe the impacts of the ocean outfall wastewater discharge and potential impacts to the surrounding water quality. Water quality and biological monitoring that will be used to determine potential impacts from the wastewater discharge should be described with sufficient detail to evaluate proposed monitoring measures. The Council recommends that pre-discharge (prior to commencement of aquaculture operations) monitoring of the receiving waters occur for at least three years to establish the baseline necessary for monitoring discharges through time and take place at least quarterly to capture seasonal variation. Nordic is proposing to conduct post-discharge receiving waters monitoring twice per year, which is not adequate. A minimum frequency of quarterly monitoring is needed to determine the behavior of the discharge plume and to better capture the upwelling and marine heatwave events where the excess nutrients discharged could interact with upwelled or warm water, and potentially contribute to harmful algal blooms. In addition, continuous monitoring of the discharge (i.e., the water going into the discharge pipe) is needed. A complete, long term monitoring plan for determining water quality impacts from the facility is needed and must be developed in conjunction with the North Coast Regional Water Quality Control Board (and potentially with U.S. Environmental Protection Agency involvement), the main agency responsible for enforcing the Clean Water Act and the Porter-Cologne Water Quality Control Act in this area.

514-6

The Council appreciates that Nordic Aquafarms California, LLC recognizes that monitoring of both the discharge and the receiving waters is necessary to determine and alleviate any potential impacts of the proposed project on the environment. The Council also recommends that the dilution modeling study be re-analyzed using data collected during baseline monitoring at the discharge location to assess for impacts to water quality. For example, it is not clear that the nearshore current flows in a predominantly north to south direction as presented in the model, as sediments deposited at the mouth of Humboldt Bay have been shown to have originated from the Eel River, which is south of Humboldt Bay. Additionally, the Final EIR should include a detailed mitigation plan that can be immediately implemented if impacts to water quality or biological communities are observed during post-discharge monitoring.

514-7

Additionally, the Final EIR should discuss the potential for pathogens and parasites that may be present in the source hatcheries providing eggs to the Nordic aquaculture facility. We understand

514-8
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¹ NMFS 1997 California Fish Screening Criteria for Anadromous Salmonids can be found here:
https://media.fisheries.noaa.gov/dam-migration/southwest_region_1997_fish_screen_design_criteria.pdf

that the UV disinfection system is expected to neutralize pathogens before discharge from the facility. However, the Council recommends the EIR include additional information on the effectiveness of UV disinfection on target pathogens and include an analysis of the risk to native species from pathogens/parasites associated with the species intended to be raised in the facility. The Final EIR should also describe the proposed location(s) of fish waste disposal and assess the environmental impacts from the potential transfer of pathogens, high nitrogen load, etc. to fish habitats elsewhere.

514-8
Cont.

Effects of Extraction of Water from Mad River and Humboldt Bay

The Final EIR should discuss the potential effects of extracting large volumes of water from Mad River (up to 2.5 million gallons per day) and Humboldt Bay (10 to 12 million gallons per day), potentially exacerbating current and future hydrological drought conditions and amplifying its effect on managed species, including ESA-listed species, and particularly under climate change scenarios.

514-9

Impacts to Eelgrass from Proposed Mitigation

The EIR should describe the potential impacts to eelgrass habitat from the proposed mitigation measures described in the draft EIR. The removal of pilings to create additional eelgrass habitat may be an adverse impact to existing eelgrass habitat at the mitigation site. The EIR should describe in greater detail how impacts to existing eelgrass habitat will be avoided or minimized and how the creation of new eelgrass habitat will be achieved and monitored to meet the success criteria determined by approving agencies.²

514-10

Non-native Salmonids

The Council is concerned about the potential for unintended introduction of a non-native salmonid into coastal California watersheds and nearshore ocean. The Final EIR should include additional discussion on the potential impacts from accidental introduction of a non-native salmonids into Northern California watersheds and nearshore ocean and the impacts to salmonid habitat from potential introduction of new pathogens or parasites that these non-native salmonids may carry.

514-11

Cumulative Effects

The EIR should evaluate the potential cumulative effects of Nordic Aquafarms operations with other ongoing and foreseeable activities in the project area. Such activities should include but are not limited to navigational channel maintenance dredging, future renewable energy projects, in-bay mariculture operations, and subsea cable installation.

514-12

Future Engagement and Consultation with the Council

The Council values timely and effective communication and consultation regarding Nordic Aquafarms aquaculture operations. We encourage Humboldt Planning and Building Department and Nordic Aquafarms to work with us as this project moves forward, recognizing that the Council and advisory body agendas are set well in advance of each Council meeting, and that the Council's meeting schedule does not always align with public comment periods of other processes. The

514-13

² The NMFS California Eelgrass Mitigation Policy (CEMP) can be found here: <https://www.fisheries.noaa.gov/resource/document/california-eelgrass-mitigation-policy-and-implementing-guidelines>.

Council, National Marine Fisheries Service, state fishery management agencies, and fishery stakeholders must be provided sufficient opportunity to inform and engage in this process.

Thank you for your consideration of our comments. Please contact Mr. Kerry Griffin (Kerry.griffin@noaa.gov; 503-820-2409) at the Council office should any issues arise outside your public comment window, or if you have any questions.

Sincerely,



Marc Gorelnik
Chairman

Cc: Council Members
Lance Hebdon
Correigh Greene
Eric Wilkins

514-13
Cont.

Letter 514 – Response to Comments

Response to Comment 514-1 – Introduction

This is an introductory comment. Specific concerns raised in comment letter 514 are addressed in response to comments 514-2 through 514-13 below.

Response to Comment 514-2 – Essential Fish Habitat

This comment expresses concern that the Project (e.g., Ocean Discharge and Humboldt Bay Water Intakes) would result in significant adverse effects to EFH yet provides no evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

The DEIR evaluates the effects of the Ocean Discharge on EFH in Section 3.3 (Biological Resources), starting on page 3.3-35. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale and thus unlikely to contribute to EFH in the highly dynamic coastal waters potentially affected by the Project or in Humboldt Bay. Additionally, NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond any regulatory requirement. This monitoring is described in Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant), starting on page 3.9-12. Please see Master Response 5 (Marine Outfall) for additional information regarding nitrogen in the discharge.

The DEIR addressed effects of the Humboldt Bay Water Intakes on impacts to EFH, which included effects on invertebrate prey for fish as well as impacts to fish that are in turn prey for birds, in Section 3.3 (Biological Resources), starting on pages 3.3-50, and 3.3-61. The location of the intake is subject to strong tidal currents both on flood and ebb tides, and the intake volume is relatively low in comparison to the exchange rate in Humboldt Bay.

The Humboldt Bay Water Intakes would be screened with a slot size of 1.00 mm with a minimum open area across the screen of 36%, and a manifold system inside the screen modules to equalize pressure across the entire screen surface, as described in Section 3.3.3 (Biological Resources, Regulatory Setting), starting on page 3.3-47 and Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), page 2-52. These design features result in a low approach velocity of 0.2 fps (6 centimeters per second) to avoid impacts to most fish species. Please see Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for additional information regarding Humboldt Bay Water Intakes.

The Project Description (Section 2.4.7, pages 2-56 to 2-58) describes compensatory off-site restoration, which includes removal of creosoted piles along the Kramer Dock at Fields Landing to offset a small reduction in the Humboldt Bay's biological productivity as a result of entrainment of non-special status larval species during the operation of the two sea chests. The DEIR addresses effects of the compensatory off-site restoration on EFH in Section 3.3 (Biological Resources), on page 3.3-53. Pile removal will result in an improvement to EFH by removing up to 1,007 toxic, creosote piles from aquatic habitat. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 514-3 – Project-related Impacts

This comment lists multiple concerns related to potential Project impacts. Each specific point expressed in the comment is individually addressed below.

The comment expresses concern about the effects of the Project on habitat features. Section 3.3 (Biological Resources) provides an in-depth analysis of habitat-related effects on all Project components (Terrestrial

Development, Ocean Discharge, Humboldt Bay Water Intakes, and Off-Site Compensatory Restoration). Cumulative impacts to biological resources are discussed in Section 3.3.7 of the DEIR. The DEIR incorporates appropriate mitigation to reduce all potential significant impacts to habitat to a less than significant level.

The comment raises concern about the potential establishment or proliferation of aquatic non-native/invasive species, as well as potential introduction of pathogens and parasites. Biosecurity is protection of native species are thoroughly analyzed in the DEIR. Any potential impacts identified are mitigated to a less-than-significant level as discussed in DEIR Section 3.3.6. Please see Master Response 3 (Fish Escape) and Master Response 4 (Fish Health and Biosecurity).

The comment expresses concerns related to potential impacts to surrounding waters at the facility intake structures and discharge locations. Section 3.9 (Hydrology and Water Quality) thoroughly analyzes impacts to surrounding waters. Impact analysis related to the ocean discharge begins on page 3.9-16. Please also see DEIR Section 3.3 (Biological Resources / Water Quality Related to Special Status Marine Life) beginning on page 3.3-16. Impacts related to the seawater intake are addressed beginning on page 3.3-46 of Section 3.9 (Biological Resources). Please also see Master Response 5 (Marine Outfall) regarding the ocean effluent discharge and Master Response 7 (Intake Biologic Productivity, Intake Salmonids) regarding the seawater intake.

The comment also raises concern with potential impacts to eelgrass related to the Project. The Terrestrial Development and Ocean Discharge components of the Project do not involve eelgrass. Eelgrass is not involved in the Humboldt Bay Water Intakes component of the Project, as the affected waters exceed the depth criteria for the species. Compensatory off-site restoration, which includes pile removal at the Kramer Dock shoreline, is designed to benefit eelgrass, creating and enhancing eelgrass habitat in Humboldt Bay. Thus, there is no Project component that would be detrimentally impactful to eelgrass.

The comment expresses concern related to the Project's potential to induce HABs. Please see Master Response 5 (Marine Outfall) which includes evaluation of HABs.

The comment also raises concern regarding the effects of extraction of water from Mad River and Humboldt Bay. Impacts related to the seawater intake are addressed in the DEIR Section 3.3, beginning on page 3.3-46. Please see Master Response 7 regarding intake biologic productivity and intake salmonids. As discussed on page 3.3-65 of Section 3.3 (Biological Resources), water supplied to the Project from the Humboldt Bay Municipal Water District (HBMWD) is authorized under the following plans and permits, under which the HBMWD has allocated water rights to extract freshwater and supply to local customers:

- Humboldt Bay Municipal Water District 2021 Urban Water Management Plan (HBMWD 2021)
- Humboldt Bay Municipal Water District 2004 Habitat Conservation Plan (HBMWD 2004)
- Humboldt Bay Municipal Water District 2012 California Department of Fish and Wildlife Long-Term Lake and Streambed Alteration Agreement No. R1-2010-0093 (HBMWD 2012)

Additionally, the HBMWD operates under a Biological Opinion issued by NOAA Fisheries. The operations and withdrawal of water from the Mad River have already been vetted by appropriate regulatory agencies to ensure compliance with applicable state and federal lawmaking, thereby avoiding illegal impacts to waters and habitats of the Mad River.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 514-4 – Endangered Species Act (ESA) Listed Marine Species and Critical Habitat

This comment requests that the DEIR disclose all potentially significant effects on ESA-listed species and habitats. The DEIR evaluates the effects of the Ocean Discharge and the Humboldt Bay Intakes on ESA-listed Marine Species and other non-special status species in Section 3.3. (Biological Resources), starting on pages 3.3-26, and 3.3-39, and in DEIR Appendix D (Marine Resources Biological Evaluation Report), Section 5 (Results), starting on page 13. Mitigation is described for the Humboldt Bay Water Intakes in Section 3.3 (Biological Resources), where applicable. For all ESA-listed species and their critical habitat, all potential impacts were found to be less than significant.

The DEIR evaluates the effects of the Ocean Discharge on designated Critical Habitat for Green Sturgeon in Section 3.3 (Biological Resources), starting on page 3.3-35. Numerical modeling (DEIR Appendix E) clearly demonstrates that elevated levels of temperature and nutrients are limited in spatial scale in the highly dynamic coastal waters in the vicinity of the Project, and thus unlikely to cause significant adverse effects to designated critical habitat of Green Sturgeon.

Recently designated critical habitat for the Southern Resident Killer Whale and Humpback Whale are also discussed in Section 4 (Errata). Critical habitat was designated on April 21, 2021, for Humpback Whale (86FR21082). Critical habitat for two DPS's was designated off Humboldt, the Central America DPS and Mexico DPS. which extends offshore from the 50-m isobaths to a boundary drawn along the 2,000-m isobaths, and includes the marine waters off Del Norte County, CA, most of Humboldt County, CA, and borders a small portion of Curry County, OR. Unit 14 covers about 3,412 nmi² of marine habitat. Humpback Whale diet is primarily of krill and fish (e.g., anchovies), and essential features of critical habitat are prey species including euphausiids and forage fish e.g., sardine, anchovy, herring.

The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on Coastal Pelagic Species EFH, which includes the prey species for Humpback Whale, in Section 3.3 (Biological Resources), starting on pages 3.3-36 and 3.3-60. The Ocean Discharge would not result in significant impacts to coastal habitat based on limited spatial area and organic loading, resulting in a low risk of adverse effects to the Coastal Pelagic Species EFH. The Humboldt Bay Water Intakes would not cause populations of target species, including larval stages of Coastal Pelagic Species, to fall below self-sustaining levels or otherwise eliminate such species. Entrainment from the proposed project's intake would not result in a substantial decrease in marine populations that could be detected over natural variability. Impingement of organisms would be avoided with the low intake velocity and screen design proposed.

Critical habitat was designated on August 2, 2021, for Southern Resident Killer Whale (SRKW) offshore between the 6.1-m and 200-m isobath contours and includes waters off Del Norte and Humboldt counties in California (86FR41668). For six coastal areas identified in the critical habitat designation, essential features include 1) Water quality to support growth and development; 2) Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and 3) Passage conditions to allow for migration, resting, and foraging. However, the primary essential feature in proximity to the Project is prey, which is primarily Chinook salmon, a species also listed under the Endangered Species Act and described and analyzed in Section 3.3 (Biological Resources), starting on page 3.3-33 and DEIR Appendix D (Marine Resources Biological Evaluation Report) Sections 5.2.2 (Results, Marine Resources Evaluation Results, Special Status Wildlife), starting on page 27 and 5.4 (Critical Habitat, starting on page 38).

The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on Chinook Salmon and Pacific Coast Salmon EFH, which are the essential prey species for SRKW, in Section 3.3 (Biological

Resources, Ocean Discharge) starting on pages 3.3-33 and 3.3-36, and Humboldt Bay Water Intakes starting on page 3.3-50. The Ocean Discharge would not result in significant impacts to coastal habitat based on limited spatial area and organic loading, resulting in a low risk of adverse effects to Chinook Salmon and Pacific Coast Salmon EFH. The Humboldt Bay Water Intakes are specifically designed to meet NMFS screening criteria and avoid impingement or entrainment of juvenile salmonids.

Please see Master Response 5 (Marine Outfall) for additional information regarding the ocean discharge, and Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for information regarding the Humboldt Bay water intakes. The Project Description (Section 2.4.7, pages 2-56 to 2-58) describes compensatory off-site restoration expected to be required by the Project's Coastal Development Permit. for impacts to bioproductivity during the operation of the two sea chests. Mitigation Measure BIO-6a describes measures to mitigate take of larval longfin smelt (see Section 4 – Errata).

Response to Comment 514-5 – Intake Screen Maintenance

The comment is concerned with maintenance of the intake screens. The Harbor District will maintain the intake screens as necessary to meet the design criteria described in DEIR Appendix R (Sea Chest Screen Conceptual Design). It is not practical to develop an operations and maintenance plan until the system is designed in more detail.

Response to Comment 514-6 – Ocean Outfall Wastewater Discharge

This comment recommends baseline monitoring related to the ocean outfall wastewater discharge. Please see Master Response 5 for information regarding the marine outfall. NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond any regulatory requirement. This monitoring is described in Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant, page 3.9-12) and includes water quality monitoring. The monitoring program would be conducted during the summer/fall period of upwelling “relaxation,” when conditions are least energetic, and dilution of the discharge would thus be lowest. This approach prioritizes monitoring during a worst-case condition, when a problem would be most likely to occur. Absent indication of a problem occurring during the summer/fall period, voluntary quarterly monitoring, above and beyond NPDES monitoring requirements, is not justified. Please see Master Response 5 (Marine Outfall) which addresses monitoring and contingency protocols. Thus, the Project's discharge, and monitoring thereof, would be fully compliant with the Porter-Cologne Water Quality Control Act, US Clean Water Act, Ocean Plan, and Thermal Plan requirements. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 514-7 – Discharge-related Impacts and Modeling

This comment expresses concerns regarding the numeric modeling completed for the Project (DEIR Appendix E) and includes a request for a mitigation plan that can be immediately implemented if impacts to water quality or biological communities are observed. Please see Master Response 5 (Marine Outfall) which specifically addresses these issues. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 514-8 – Pathogens, UV Effectiveness, and Fish Waste Disposal

The comment states that the FEIR should include discussion of the potential effects of pathogens and parasites that may be present at source hatcheries, expresses concerns related to the effectiveness of UV disinfection, concerns about potential impacts to wild fish, and concerns about waste disposal locations.

Please see pages 2-35 and 2-36 of the DEIR for information on egg importation, biosecurity, and quarantine. Please see Master Response 4 regarding fish health and biosecurity. Please see Master Response 11 for information related to waste handling and disposal. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 514-9 – Water Use

The comment is related to fresh water use by the Project yet provides no substantial evidence. Per page 2-22 of the DEIR, The HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021). In place permits associated with freshwater allowable use far exceeding the needs of NAFC have been completed by HBMWD. Please contact HBMWD for information or documentation of environmental work associated with permitting.

The potential impact of the proposed saltwater intake is thoroughly analyzed throughout the DEIR, which should be referred to for specific concerns. Additional information regarding the saltwater intakes is provided in Master Response 7 (Intake Biological Productivity, Intake Salmonids).

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 514-10 – Water Intakes

The comment requests further detail regarding potential impacts to eelgrass from the proposed Fields Landing habitat restoration project. The DEIR recognizes that there could be temporary impacts to eelgrass during habitat restoration at the Fields Landing site (Section 3.3.6, Page 3.3-58) and that these temporary impacts will be mitigated due to the long-term benefits that the restoration will have for eelgrass. Development and implementation of an eelgrass mitigation and monitoring plan is not necessary to reduce impacts to less than significant.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 514-11 – Biosecurity and Fish Escape

The comment is related to biosecurity and risks related to potential fish escape. Please see Master Response 3 regarding fish escape. Please see Master Response 4 regarding fish health and biosecurity. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 514-12 – Cumulative Impacts

Comment is concerned with cumulative impact from the Project and adjacent unassociated projects. Please see Pages 3-2 through 3-5 of the DEIR for description of the projects considered for the cumulative impacts analysis throughout the document. Each resources Section, at the end of the Section, has a cumulative impacts assessment associated with that give resources category. No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

Response to Comment 514-13 – Request for Future Engagement

This comment requests the Humboldt County Planning and Building Department and NAFC to continue to coordinate with the PFMC as the Project moves forward. The request is noted.

McNamara, Cade

From: Humboldt Prosperity <humboldtprosperity@gmail.com>
Sent: Friday, February 18, 2022 4:58 PM
To: CEQAResponses
Cc: Ryan Rice
Subject: Nordic Aquafarm Comment
Attachments: 22-2-18 Nordic Aquafarms Comment.pdf

Dear Cade McNamara,

Please find the attached comment letter from Humboldt Prosperity Alliance regarding the Nordic Aquafarm Draft EIR.

Thank you.

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February 18, 2022

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501
via email: CEQAResponses@co.humboldt.ca.us

Dear County of Humboldt Planning and Building Department,

Humboldt Prosperity Alliance supports Nordic Aquafarms' land-based aquaculture project planned for the Samoa Peninsula. This project is an extraordinary example of economic development that provides both economic and environmental benefits to our community.

Humboldt Prosperity Alliance is a nonprofit organization dedicated to protecting and promoting the well-being, security, and success of Humboldt County's businesses and landowners.

As we progress through the Twenty-First Century, Humboldt County must take every opportunity to use our available resources to build a modern and sustainable economic future. By converting the old pulp mill site into a modern aquaculture facility, Nordic Aquafarms' is proposing what is really the ideal project.

The resources required for Nordic's operations - seawater, freshwater, industrial land, wastewater capacity, etc. - are readily available and even currently underutilized. In addition, Nordic's approach to aquaculture is carefully designed and tested to be environmentally sustainable. This means that not only will the abandoned mill site be cleaned up, but it will be replaced by a modern facility that will provide both direct and indirect economic benefits to our community. Directly from the jobs, purchases, and taxes this project can provide, and indirectly by creating a new aspect to the fishing and seafood industry of our community. The Nordic project will draw other aquaculture and related businesses into the community as well as potentially provide opportunities for Cal Poly Humboldt and College of the Redwoods students.

515-1



In reviewing the Draft EIR, it is clear that Nordic is very focused on the welfare of fish and the overall environmental sustainability of the aquafarm. By using new technologies to reduce the footprint of land-based aquafarms, and by ensuring that it is practically impossible for local fishery resources to be impacted, Nordic is proposing an environmentally sound project.

Throughout the long process of bringing the project to this point, Nordic has been very open to the community, explaining the project through numerous public meetings and site visits, and even attending informational events hosted by Humboldt Prosperity Alliance. The thoughtful consideration of community members' concerns is noteworthy. Every perspective was given careful and thorough consideration.

We encourage you to recognize the extraordinary opportunity the Nordic Aquafarms' project offers our community. This is the chance to take an abandoned mill site, which, while a valuable part of the Twentieth Century economy, is now more blight than asset, and turn it into an economically and environmentally sustainable part of Humboldt County's future economy.

Sincerely,

/s/ Ryan P. Rice

Ryan P. Rice
President, Humboldt Prosperity Alliance
humboldtprosperity@gmail.com

515-1
Cont.

Letter 515 – Response to Comments

Response to Comment 515-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Gail Kenny <gailkenny@gmail.com>
Sent: Monday, February 14, 2022 8:10 PM
To: CEQAResponses
Subject: Nordic Aquafarms Land-Based Aquaculture Project
Attachments: RRASNordicCommentsFinal.docx; Nordic Aquafarom DEIR comment letter 2-15-22.docx; Nordic Aquafarom DEIR comment letter 2-15-22.pdf

Dear Cade McNamara:

Attached is Redwood Region Audubon Society's comment letter on the Nordic Aquafarms project. One document is a pdf of our current comment letter with our previous two comment letters included. I have also included our first letter dated May 22, 2021 (because it was not included in the DEIR and which we refer to in our 7/3/21 letter which was included in the DEIR) and the current 2/15/22 letter in Microsoft Word format as requested.

Please confirm that you have received this email.

Let me know if you have any questions.

Thank you,

Gail Kenny
President
Redwood Region Audubon Society

REDWOOD REGION AUDUBON SOCIETY

A MEMBER OF THE NATIONAL AUDUBON SOCIETY
P.O. BOX 1054, EUREKA, CALIFORNIA 95502



February 15, 2022

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501

CEQAResponses@co.humboldt.ca.us

RE: Nordic Aquafarms California (NAFC) DEIR Statement on Page 2-47 in Draft
Environmental Impact Review (DEIR) Comments

Dear Cade McNamara:

Redwood Region Audubon Society (RRAS) has reviewed the DEIR with emphasis on the seawater intake in the Humboldt Bay Estuary and the sourcing of fish food. We are concerned that the potential environmental impacts of the proposed seawater intake have not been fully evaluated and that an environmentally preferred ocean intake alternative has not undergone a robust analysis as required by the California Environmental Quality Act (CEQA). We also find that the sourcing of fish food has neither been identified nor its environmental impact evaluated.

516-1

RRAS is a public benefit 501(c)(3) non-profit corporation dedicated to environmental protection and conservation, with an emphasis on birds. Ten million gallons per day of estuarine seawater intake and thousands of tons per year of small fish harvested to feed farmed fish have the potential to significantly harm the base food source for billions of sea birds. Although our focus is on birds, we realize that is also the basic food source for commercial fisheries worldwide that catch fish for direct human consumption.

Seawater Intake

RRAS recognizes the Humboldt Bay estuary as an important nursery for vertebrate and invertebrate life that is the beginning of the food chain which supports estuary and open ocean life, including birds and the commercial fishery.

- The NAFC DEIR statement on page 2-47 in §2.4 that the “modernization of saltwater intakes will add features that reduce environmental impacts” is false because the former saltwater intakes have not been in use for at least 14 years. There is currently no environmental impact from the withdrawal of seawater. Assumed relative impacts between a system installed nearly sixty years ago without environmental regulations and a new system proposed under current environmental standards is irrelevant.
- Appendix N is presented as potential mitigation for operation of the NEW saltwater intake structures, pumps, and pipelines proposed. The mitigation measures proposed are not adequate because they only consider specific adverse impacts to a listed species, Longfin Smelt. There is no consideration given to the impingement and entrainment of important

516-2

516-3

commercial marine species including Dungeness Crab and Herring. Herring are an important forage fish for other marine species and for an extensive array of avian species. No consideration is given to the significant adverse environmental impacts the saltwater intake will have on forage resources for avian species. This lack of analysis of significant adverse environmental impacts is not just unfortunate, it is one of several reasons that the DEIR is inadequate.

516-3
Cont.

- The discussion of addressing adverse environmental impacts on Longfin Smelt are based on assumptions that are not supported with data collected on site, or in Humboldt Bay. The DEIR mentions a “planned intake assessment study” but does not provide specifics. The planned assessment study is most likely a consulting contract with Tenera signed by Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD) on Dec. 15, 2021. The contract states that completion of work is not required until April 30, 2023. This critical information only addresses Longfin Smelt, and it will not be available to quantify impacts until after Humboldt Co. Planning Dept., the public and all interested parties are expected to provide a complete CEQA review of the subject DEIR. The lack of fundamental, site specific natural resource data and analysis makes the DEIR inadequate.
- The DEIR analysis of impacts to the aquatic biomass of Humboldt Bay is skewed because only those organisms large enough to be occluded from entrainment and/or able to swim away from the water intake were included in the evaluation. For example, the first instar of Dungeness Crab larvae is smaller than 1 mm and move with the current. In addition to sub-millimeter zooplankton, the DEIR fails to analyze the effects on phytoplankton.
- The DEIR states that due to strong tidal current, the impact of the seawater intake would not have a significant negative effect due to entrainment or impingement. During slack tides there is either no or minimal current for several hours per day. The DEIR must provide a full analysis of tidal flow at the proposed intake and mitigation if this option is to be pursued.
- The “planned intake assessment study” is a \$414,000 contract between HBHRCD and Tenera. However, results will not be available until early 2023. The failure to fully analyze the impacts of the shallow water intake from the Humboldt Bay estuary makes the DEIR inadequate.
- Appendix R is an August 6, 2021, letter from SHN engineering to HBHRCD. When describing design criteria, the letter cites a National Marine Fisheries Service (NMFS) 1997 document: “Fish Screening Criteria for Anadromous Salmonids (NMFS).” In the SHN letter there is clear guidance from the NMFS summary in item B. Structure Placement, subpart b. that “Where possible intakes should be located offshore to minimize fish contact with the facility.” Humboldt County Planning Dept. and NAFC should consider avoiding most, if not all Humboldt Bay entrainment and impingement issues by locating the saltwater intake offshore as recommended by the NMFS 1997 guidelines cited by SHN. The project description anticipates discharging 12 MGD of effluent water 1.5 miles offshore. Placing an intake structure offshore should be just as important as location of the discharge of polluted effluent water.

516-4

516-5

516-6

516-7

516-8

This DEIR is inadequate due to the absence of a full and robust analysis of providing necessary saltwater from an intake structure located offshore.

Piecemealing of Project

In several places the NAFC project DEIR indicate that they are relying on the HBHRCD to obtain permitting and provide saltwater intake facilities for the subject project. This is not an appropriate approach since the HBHRCD has not been able to permit the 10 MGD saltwater

516-9

intake system prior to release of the DEIR. Additionally, this approach is attempting to “piecemeal” the required saltwater intake as a separate project for the purpose of CEQA. This is a violation of CEQA and creates the “catch 22” situation described above of seeking public review prior to completion of an essential environmental analysis. Lastly, the HBHRCD has limited financial means to cover the costs of fully permitting and installing the conceptual design for the saltwater intake structures. In fact, without the funding and full participation of NAFC in covering the installation costs of the new saltwater intake, it will not be constructed. Based on the design criteria that the HBHRCD has used of a 10 MGD capacity in seeking consulting contracts to begin data collection on potential environmental impacts, and the fact that 10 MGD is also stated as the demand for saltwater supply after full development by Nordic, there is only one possible end user of the saltwater developed. Therefore, there are two projects being discussed, one by HBHRCD and one by NAFC. There is only one project for the purpose of CEQA, and the DEIR has not provided a full or complete analysis of the environmental effects of NAFC’s use of 10 MGD of saltwater taken from Humboldt Bay. For this reason, the DEIR is inadequate.

516-9
Cont.

Project Scheduling Conflict

Discussion in Section 2.1.6 reflects a construction schedule that appears to conflict with the fact that HBHRCD has not obtained any permits for Saltwater Intake structures. In fact, the required studies necessary for potential submission of permit application(s) have not been completed and completion is not expected for 1 to 2 years. It is possible that the HBHRCD submission of permit application(s) may not be possible until 2023 due to contract work having only recently been authorized. This creates a schedule where the DEIR indicates in Section 2.1.1 that the Harbor District would commence construction required for saltwater intakes before permits could possibly be issued. This is a substantial error based on an unreasonable speculation about the construction schedule. More importantly, the public is being asked to review this fish production facility project BEFORE the site-specific study or studies necessary to determine the anticipated environmental impacts are available. HBHRCD signed a contract agreement with the consulting firm Tenera on Dec. 15, 2021, to obtain data that has been requested by CA Coastal Commission staff before they (CA Coastal Comm.) will consider accepting a Coastal Development Permit (CDP) application as complete.

516-10

Since the CA Coastal Comm. CDP process may not be initiated before a detailed analysis of saltwater intake structures is performed, it is unreasonable to expect that the subject DEIR can be reviewed and approved by the public or public agencies in advance of data collection necessary for an informed decision.

The clear potential for conflicts in construction schedules provided in the DEIR is also a concern in Section 3.13.6. In a discussion of “utilities” a statement that seawater drawn from Humboldt Bay would be supplied by the Harbor District, via sea chest intakes...” assumes that permits which have not been submitted as applications, will assuredly be obtained. There is no way to be assured that the CA Coastal Commission, or other regulatory agencies will agree to the large (10 MGD) diversions of saltwater sought.

The confusion created by the conflict in several timelines stated in Section 2.1.6 for demolition work and permitting for the saltwater intake cause concern and reflect an inadequate DEIR.

516-11

Fish Food Sourcing

On page 2-28 of the Project Description NAFC states “NAFC will require that our feed supplier have a program of traceability for determining the origin of ingredients used in the feed. This is especially true with responsible sourcing of fish meal, fish oil, and soy ingredients.”

516-11
Cont.

Following the above statement two paragraphs describe, in general terms, how certification bodies and initiatives like the Marine Stewardship Council (MSC), Aquaculture Stewardship Council (ASC), International Fishmeal and Fish Oil Responsible Supply (IFFORS), and Fisheries Improvement Projects (FIP) set standards for responsible harvesting, processing, and sourcing of marine derived raw materials. These fishing industry membership organizations provide voluntary certification of various aspects of the fishing and fish farming industry. Although their sustainability certifications set standards, such certification for environmental review purposes needs to be verified.

516-12

- A revised DEIR should include a separate section that fully analyzes the potential negative impacts to the marine environment and how they will be avoided or mitigated.
- The revised DEIR should include specific details on how third-party certification organization standards will be incorporated onto the permit to operate.

Based on the above stated points, Redwood Region Audubon Society finds that the current DEIR is not compliant with CEQA and that a Revised DEIR must be written to provide adequate information for public review.

516-13

Sincerely,



Gail Kenny
President
Redwood Region Audubon Society

Attached: RRAS comment letters dated May 22, 2021, and July 3, 2021

Copy: Audubon California, Anna Weinstein

REDWOOD REGION AUDUBON SOCIETY

P.O. BOX 1054, EUREKA, CALIFORNIA 95502

May 21, 2021



Humboldt County Planning and Building Dept.
3015 H St.
Eureka, CA 95501

ATTN: Alyssa Suarez, Planner, "Submitted by email" to planningclerk@co.humboldt.ca.us

RE: Nordic Aquafarms Permits

Dear Mr. John Ford, Director, Humboldt Co. Planning Dept., and Planning Commissioners:

The following comments are submitted in review of the proposed Mitigated Negative Declaration (MND) (finding of no significant adverse environmental effect) for Nordic Aquafarms California, LLC (Nordic) Coastal Development Permit and Special Permit Project, Samoa area; Record number PLN-2020-16698 (filed 10/5/2020); Assessor Parcel Number 401-112-021.

Redwood Region Audubon Society (RRAS), a member of the National Audubon Society, is a 501(c) (3) public benefit corporation of about 500 members. We promote wise, balanced, responsible, and ethical use of natural systems on a local, national, and global scale, protecting the biotic and abiotic components of local, national, and global natural systems, with an emphasis on birds.

RRAS is opposed to the Nordic aquaculture project as described in the Initial Study (IS) and believe that the Mitigated Negative Declaration (MND) is inadequate. The IS and MND fail to meet the California Environmental Quality Act (CEQA) required level of documentation to "demonstrate with substantial evidence that, after incorporating mitigation measures, a proposed project will clearly not cause any significant effect on the environment." The IS fails to analyze numerous aspects of the project that could lead to significant impacts that would need to be mitigated. There is no analysis on impacts to recreational or commercial fishing. Humboldt Bay is an important nursery for economically valuable marine species, and the potential adverse impacts to avian species from fish larvae reduction caused by saltwater diversion pumping have not been addressed in the IS.

In 2021 Western Hemisphere Shorebird Reserve Network (WHSRN) announced Humboldt Bay Complex as its Outstanding WHSRN Site winner based on habitat restoration activities, monitoring projects, and outreach. The Humboldt Bay Complex serves as a model of what being a WHSRN sites should stand for. In 1998 Humboldt Bay Complex was recognized as a Site of International Importance; in 2018, the site was upgraded to Hemispheric Importance. Based on percentage of total population and numbers, Humboldt Bay is a key site for populations of western sandpipers, Alaska population of marbled godwits, and long-billed curlews. Annually

over 500,000 shorebirds pass through Humboldt Bay including most of the Alaska population of marbled godwits.

Not only is Humboldt Bay important for providing food directly to shorebirds and brant, but it is also a nursery for smaller fish that migrate to offshore waters and are an important source of food for sea birds such as common murre and marbled murrelet. Forage fish populations are currently declining in offshore waters along the Pacific Coast due to ocean warming and other factors, making it more important to assure that seabird food sources, such as Humboldt Bay, retain their productivity.

The MND finding of “no significant impact” is unfounded.

One of our members requested access to the “Draft Final Report” by Tenera to determine potential adverse environmental impacts and was informed by Adam Wagschal, HBHRCD staff, that it was not ready for public release prior to the May 24, 2021 comment deadline. The Initial Study and proposed MND are inadequate and should not be approved by the Humboldt County Planning Commission. The IS and MND are inadequate on several issues related to Water Intake Measures in Section 2.9 of the IS. The approach used in Section 2.9 that improving the two “Sea Chests” and increasing intake volume to 10 million gallons per day is a separate project being conducted independently by the Humboldt Bay Harbor, Recreation and Conservation Dist. (HBHRCD) is disingenuous and attempting to “piecemeal” an essential component part of the Nordic fish farm project. Suggesting that the HBHRCD “is in the process of permitting upgrades to the sea chests that will increase their water withdrawal capacity and add features that reduce environmental impacts, including intake screen that protect juvenile fish, meeting the standards for impingement” may not be correct. HBHRCD has not submitted a permit application as of 5-1-2021. Only recently were contractors hired to begin collecting resource data that would be necessary to apply for a permit.

After reviewing the IS, and contacting Humboldt County Planner A. Suarez, and Nordic Aquafarm representatives, we have been unable to determine how much saltwater the proposed Nordic fish farm will use on a routine basis. Reasonable deductions can be made from the description of discharge water composition in Section 2.10. The IS does not provide adequate detail in Section 2.9 Water Intake Measures.

The following statement in Section 2.9 could confuse readers; a description of “existing sea chests (water intake structures)” may cause people to think that these structures are currently in use. The statement that the HBHRCD is in the process of Permitting upgrades ... that “reduce environmental impacts,” including saltwater intake fish screens is not accurate, because there are no diversions of saltwater currently occurring. All indications are that the Sea Chests have been inoperable for years. New diversions would increase environmental effects, *not* reduce adverse impacts.

There is a concern that the separation of the saltwater intake to be used by Nordic into a separate project from the Nordic aquaculture project is a “piecemeal” approach that the CA Environmental Quality Act (CEQA) does not allow. Even if the approach that improving the sea chests is a separate project under CEQA were acceptable, it is essential that Humboldt Co. Planning staff and the public have an opportunity to review the fish screen design criteria and evaluate the adverse environmental impacts from fish kill due to a significant new saltwater

intake diversion from Humboldt Bay. The IS states that “juvenile fish” impingement standards will be met. Without access to the fish screen design criteria the public cannot evaluate the potentially significant adverse environmental affects that will occur from entrainment. The IS Section 2.10 Water Discharge Measures indicates. “Total water volume discharged at full operational capacity is estimated at a maximum of 12.5 million gallons per day. The discharge water will be comprised of 10 MGD seawater sourced from Humboldt Bay and 2.5 MGD freshwater sourced from Humboldt Bay Municipal Water District Mad River pumping station and river intake.”

The hypothetical HBHRCD saltwater diversion proposal is only large enough to meet the demands of one customer, if Nordic is given 10 MGD. This deduction would then conflict with statements made in section 2.9 that “upgrading the sea chests is to support growth of the aquaculture industry on Samoa Peninsula by Nordic Aquafarms and other entities.” For this reason, increased saltwater intake capacity at the sea chest sites and Nordic’s fish factory are *not* two projects. The expanded Humboldt Bay saltwater intake is a component part of the Nordic project proposal. There are no other “customers” at this time for the volume of water being proposed. Additionally, HBHRCD has not demonstrated the financial means to build a high quality (state of the art) fish screen without funding from Nordic Aquafarms. This is one project for the purpose of CEQA.

Cumulative impacts analysis does not address the saltwater intake improvements or the HBHRCD Samoa Terminal proposal to service the wind energy (which are NEW projects) on land adjacent to the Nordic lease.

There is another key topic completely missing from the IS/MND analysis: information on the type and quantity of food for the fish. This is the most important indirect impact of the project from our point of view, given that farmed salmonids are typically sustained by wild fishmeal and oil that is sourced from smaller “forage fish” which are key to seabird survival. In the same way that songbirds rely on insects, seabirds — including puffins, auklets, and murre — depend on oily, protein-rich forage fish to keep their chicks healthy and growing (<https://abcbirds.org/blog/saving-a-third-for-seabirds/>).

Fish food constitutes the vast majority of the fish farm industry’s overhead, and so far, the only commercially viable form is fish meal. About 70% of fishmeal and oil is produced from small, open-ocean fish such as anchovies, herring, menhaden, capelin, anchovy, pilchard, sardines, and mackerel (<https://www.fisheries.noaa.gov/insight/feeds-aquaculture>). Indeed, about 25% of all fish caught globally at sea are used to feed farmed fish. Researchers have identified some more sustainable potential food sources—including seaweed, cassava waste, fly larvae, single-cell proteins produced by fungi and bacteria—but none are being produced affordably at scale. (<https://www.newyorker.com/magazine/2021/03/08/fish-farming-is-feeding-the-globe-whats-the-cost-for-locals>).

RRAS surmises that fish utilized by Nordic may well be sourced from British Columbia because that coast already has a thriving Atlantic Salmon farming industry. The Pacific herring fishery has been deemed unsustainable and herring along Canada’s west coast is expected to “teeter on the edge of complete collapse” unless fishing is reduced. (<https://www.theguardian.com/environment/2021/apr/03/canada-herring-collapsing-moratorium-commercial-fishing>).

A DEIR is also required to provide the proposed project's food source and its potential cumulative impacts on North Pacific marine life. Nordic's Atlantic Salmon may well be consuming fish meal and oil sourced from the North Pacific, depleting food for numerous seabirds, marine mammals and coveted wild fish like Pacific salmon, cod, or tuna in the greater coastal region.

We believe that the IS study must be withdrawn, and a Draft Environmental Impact Report (DEIR) is required to meet CEQA requirements. The potential adverse effects of increasing saltwater diversions at two Humboldt Bay Harbor, Recreation, Conservation District's (HBHRCD) "Sea chests" up to a maximum of 10 million gallons per day (MGD) has not been analyzed by either the IS for Nordic or a permit proposal for HBHRCD.

A robust alternatives analysis is lacking in the IS and would be more appropriately conducted in a DEIR after the fish screen design is selected by HBHRCD and funding is committed to implement construction.

In Conclusion, we respectfully ask that the Humboldt Planning Commission refuse to approve any project based on the subject IS and MND. A more appropriate action is to require the preparation of a draft EIR.

Sincerely,

A handwritten signature in blue ink, appearing to read "Gail Kenny", with a stylized flourish at the end.

Gail Kenny, President
Redwood Region Audubon Society

Copies:
Audubon California, ATTN: Anna Weinstein

REDWOOD REGION AUDUBON SOCIETY

P.O. BOX 1054, EUREKA, CALIFORNIA 95502

July 3, 2021



Humboldt Co. Planning & Building Dept.
3015 H St.
Eureka, CA 95501
Attn: Alyssa Suarez, Planner II
Sent via email to asuarez@co.humboldt.ca.us

Re: Nordic Aquafarms Notice of Preparation

Dear Ms. Suarez:

Redwood Region Audubon Society is pleased to respond to the notice of preparation of an Environmental Impact Report (EIR). We submitted a letter of comment dated May 22, 2021, addressing the Initial Study (IS) and would like to suggest that all of the issues raised previously are still appropriate for consideration in the Nordic EIR.

We are especially concerned with the source and specific contents of the feed to be used by Nordic Aquafarms. Please refer to our Initial Study comments.

Additionally, we believe that there should be serious consideration given to alternative sources possible to provide the water necessary for the project. Humboldt Bay is a significant nursery for marine organisms and provides unique migratory bird habitats (again please refer to our IS comment letter). The EIR alternatives analysis should look for methods to replace the 10 million gallon per day (MGD) from Humboldt Bay with the Pacific Ocean, or other sources of water. Entrainment of important marine food sources may be less likely when deeper water sources are evaluated.

Lastly, cumulative impacts to the shallow waters and wetlands of Humboldt Bay must be fully considered. There are both current proposals for additional new projects on the Samoa peninsula, and recent oyster culture projects which may have cumulatively significant adverse impacts on birds and marine resources that depend on the globally significant resources currently available in Humboldt Bay.

Thank you for the opportunity to provide these comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Gail Kenny", with a stylized flourish at the end.

Gail Kenny, President
Redwood Region Audubon Society

Letter 516 – Response to Comments

Response to Comment 516-1 – Introductory Remarks

This is an introductory comment noting general concerns about the Humboldt Bay Water Intake and fish feed. Please see Master Response 7 (Intake Biologic Productivity, Intake Salmonids) regarding the Humboldt Bay Water Intakes and Master Response 10 (Fish Feed). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 516-2 – Water Intakes

The comment states that the seawater intakes proposed to be modernized for use have not withdrawn water for 14 years. As described in the DEIR, the water intakes are currently in situ within Humboldt Bay. The intakes are physically existing in the locations as described in the DEIR. There are existing withdrawal permits for these intakes for commercial uses at RMT II. It is correct that the water intakes are not currently in use. The exact last date of use is unknown. Please see Master Response 7 (Intake Biological Productivity, Intake Salmonids), for additional information regarding the proposed intake upgrades. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 516-3 – Water Intakes

The comment states that no consideration has been given to water intake entrainment or impingement of important commercial species including Dungeness crab and herring and related effects to avian species. Water intake effects to commercial species such as Dungeness Crab and Herring are analyzed in the DEIR (Section 3.3.6, Pages 3.3-61 to 3.3-62) and there would be a less than significant effect. Also see Master Response 7 (Intake Biologic Productivity, Intake Salmonids) with regards to Dungeness Crab effects. As described in the DEIR, the proposed facility would only remove 0.14% of the volume of water moving through the channel over a tidal cycle and would have a less than significant impact without mitigation. The comment requests further information regarding avian species but provides no substantial evidence as a basis. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 516-4 – Water Intakes

The comment is concerned with potential adverse impacts to Longfin Smelt, stating that the lack of fundamental, site specific natural resource data and analysis makes the DEIR inadequate. The comment requests further data but provides no substantial evidence as a basis for the need for this data. Please see Master Responses 8 and 9 regarding substantial evidence, speculation, and unsubstantiated opinion, and level of detail in an EIR and response to comments. Given the information discussed and referenced above, no further modifications to the DEIR are proposed specific to this comment and no additional mitigations are warranted. Further discussion and analysis of the proposed intake design and potential impacts can be found in Master Response 7 (Intake Biological Productivity, Intake Salmonids). Mitigation to reduce Longfin Smelt impacts to a less than significant level would be implemented per Mitigation Measure BIO-6a (see Section 4 – Errata).

Response to Comment 516-5 – Water Intakes

The comment posits that the DEIR does not evaluate the effect of the intakes on zooplankton or phytoplankton. This comment is inaccurate, as the DEIR assesses the effect of the intakes on zooplankton

and phytoplankton in multiple contexts (Section 3.3.6, Pages 3.3-50 to 3.3-53 and 3.3-61 to 3.3-62). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 516-6 – Water Intakes

The comment is concerned with effects to Dungeness crab specific to tidal impacts. Strong tidal currents are only one of several reasons the DEIR notes that there would not be a significant environmental effect on Dungeness Crab. The DEIR also notes that the strong currents are only during ebbing and flooding tides. Other reasons there would not be a significant environmental effect include the low volume of intake water and the swimming ability of megalope. Also see Master Response 7 (Intake Biologic Productivity, Intake Salmonids) with regards to Dungeness Crab effects. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 516-7 – Water Intakes

The comment concerns the adequacy of the DEIR as related to the Project study currently in development by Tenera Environmental. Numerical modeling was performed, and the model was calibrated using physical sampling as recommended by CDFW. Mitigation to reduce Longfin Smelt impacts to a less than significant level is to be implemented per Mitigation Measure BIO-6a (see Section 4 – Errata). Further discussion and analysis of the proposed intake design and potential impacts can be found in Master Response 7 (Intake Biological Productivity, Intake Salmonids). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 516-8 – Water Intakes

This comment states that environmental effects could be reduced by withdrawing water from the Pacific Ocean rather than Humboldt Bay. The use of a slant well, oceanic seawater intake and Humboldt Bay seawater well are analyzed in DEIR Chapter 4 (Fish Health and Biosecurity). These alternatives would not have less environmental impact than the proposed water intakes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 516-9 – Seawater Intakes

The comment states that the permits have not been obtained for the saltwater intakes by the HBHRCD and this approach is piecemealing. The DEIR is a dual applicant EIR that fully analyses potential impacts from the Harbor District Seawater intake modernization and the NAFC Project and does not result in any piecemealing of the DEIR. Please see Table 2-2 on pages 2-7 and 2-8 of the DEIR for a full list of permits and approvals needed for the two interrelated projects and the associated Regulatory Agencies. The analysis presented in the DEIR will be used by regulatory agencies for their permitting process. As stated on page 2-47 of the DEIR, modernizing the seawater intakes is part of the Harbor District multi-year aquaculture business park plan and would improve access to key water resources for current and future tenants. As stated on page 2-53 of the DEIR the total maximum intake flow rate for the two seawater intakes is 8,250 GPM, or approximately 11.9 MGD. NAFC would use a maximum of 10 MGD leaving excess capacity of approximately 1.9 MGD for current and future tenants of the Harbor District. Please see Master Response 9 level of detail in an EIR and response to comments

Response to Comment 516-10 – Timeline

The comment relates to timelines and permitting for the saltwater intake. The comment states that confusion is created by the conflict in potential timelines for construction work and permitting for the saltwater intakes reflecting an inadequate DEIR. This statement pertains to parallel permitting processes for the Harbor District Seawater intake modernization and the NAFC Project including aquatic sampling being conducted as guided by CCC recommendations for the Harbor District Seawater intakes. This includes a yearlong sampling effort to validate the numerical model used for the for the analysis in the DEIR and generate information needed for the Incidental Take Permit. Please see Table 2-2 on pages 2-7 and 2-8 of the DEIR for a full list of permits and approvals needed for the two interrelated projects and the associated Regulatory Agencies. No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

Response to Comment 516-11 – Opinion on Timeline and Fish Food

Comment states that the Project timelines presented in the DEIR are conflicting. Comment references DEIR section 2.1.6 regarding conflicting timelines but provides no example. It is important to note that CEQA submittals are not live documents, and as such can only reflect the Project status at the time of writing. This is particularly important to keep in mind in terms of projected timelines, which can be subject to change based on overall permitting timelines. Given that no specific example was noted in the comment, no response is warranted at this time. Feed standards are addressed in the response to comment 516-12. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 516-12 – Third-Party Certifications

This comment states that the standards associated with third-party certification organizations such as Marine Stewardship Council (MSC), Aquaculture Stewardship Council (ASC), International Fishmeal and Fish Oil Responsible Supply (IFFORS), and Fisheries Improvement Projects, should be incorporated into the permit to operate the NAFC facility. These standards cover many key aspects of farmed fish production likely to have a bearing on product quality or stock welfare or surrounding ecosystems from choice of raw materials to health management practices, environmental management, to packaging and delivery of fish at the point of sale. NAFC as a company is centered around sustainability and is committed to being a driving force within the industry in moving towards more environmentally friendly food production. These kinds of certifications, therefore, can offer credible and reliable means of achieving this. However, the incorporation of these third-party certification organization standards is not a requirement of the permits listed in Section 2 (Table 2-2, Anticipated Regulatory Permits and Approvals) of the DEIR. These certification standards also develop over time to adapt to current situations and challenges, it would therefore be premature to lock in the standards today; instead, NAFC will use the best available certification once in operation. Please see Master Response 6 for statements unrelated to environmental issues as defined under CEQA. No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

Response to Comment 516-13 – Concluding Remarks

This comment is a concluding statement reiterating the Redwood Regional Audubon Society finds the DEIR does not comply with CEQA and requesting a revised DEIR. Specific comments in comment letter 516 have been addressed in detail in above. Please see responses to comment 516-1 through 516-12. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

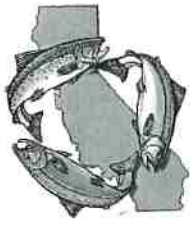
From: Dana Stolzman <srf@calsalmon.org>
Sent: Friday, February 18, 2022 11:41 AM
To: elliott.sunny@epa.gov; CEQAResponses; Planning Clerk; McNamara, Cade; Cassidy.Teufel@coastal.ca.gov; Corianna.Flannery@wildlife.ca.gov; Matt Goldsworthy; Alison Willy
Subject: SRF Public Comments re: NAF DEIR
Attachments: SRF NAF DEIR comments 2.18.22.pdf

Hello,

Please accept these public comments on SRF letterhead. These comments were sent yesterday but not on letterhead and I received a couple of bounce back emails.

Thank you for using these comments for the administrative record.

Dana Stolzman
Executive Director
Salmonid Restoration Federation
srf@calsalmon.org



Salmonid Restoration Federation

February 18, 2022

Cade McNamara
Planner II
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501



Submitted by email to CEQAResponses@co.humboldt.ca.us

RE: Nordic Aquafarms DEIS, Case Number PLN-2020-1669

Dear Mr. McNamara:

The Salmonid Restoration Federation (SRF) appreciates the opportunity to provide further comments on the proposed Nordic Aquafarms (Nordic) facility (Project) in Humboldt County. The Draft Environmental Impact Report (DEIR) did not respond to concerns we raised in our earlier comment letters. It is our hope that the data collection and modeling needed to quantify effects to wild salmonids is completed prior to finalization of the Environmental Impact Report (EIR). The mission of SRF is to promote restoration and stewardship of California's native salmon, steelhead, and trout populations and their habitat. In support of our mission, we urge the Humboldt County Planning & Building Department and the Planning Commission to reduce Project impacts on wild coho salmon, Chinook salmon, and steelhead.

517-1

On May 24, 2021 (May 24 comment letter), we commented on the Initial Study/Mitigated Negative Declaration (IS/MND) for the Project and raised concerns regarding: (1) Project impacts from treatment chemicals and cleansers to juvenile salmonid rearing habitat; (2) the effectiveness of the proposed biofilm reactors for removing viruses and bacteria; (3) effluent dispersal into salmonid critical habitat; (4) exposure of juvenile salmonids to effluent; (5) potential salmonid habitat impacts in the Mad River during drought events; (6) potential fish escapes, and (7) seismic concerns. Although SRF appreciates Nordic's attempt to reduce impacts to salmonid habitat and to build a project that has fewer aquatic impacts than traditional net pens, we are concerned that Project effects to juvenile salmonids continue to pose risk to wild salmonid populations.

517-2

On July 6, 2021 (July 6 comment letter), we commented on the Notice of Preparation (NOP) for the DEIR, and urged the Humboldt County Planning & Building Department and the Planning Commission to reduce Project impacts on wild coho salmon, Chinook salmon, and steelhead. The July 6 comment letter is not included in the DEIR, and none of the concerns that we raised in that letter have been addressed. The letter was filed in a timely manner according to the directions in the NOP. We are including our July 6 comment letter in this filing as a reference and for its inclusion in the Final EIR.

517-3

The DEIR has brought to our attention three emerging concerns regarding Project effects to wild salmonids: (1) a lack of biosecurity in preventing viruses from entering the facility, proliferating in the facility, and being discharged into wild salmonid habitat; (2) the seawater intakes in Humboldt Bay have the potential to significantly disrupt the food web and reduce food resources for juvenile salmonids through prey biomass reduction, and (3) the exposure time for juvenile salmonids migrating through the potentially lethal ammonia discharge at the sewage outfall pipe has not been fully investigated.

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Outfall Chemicals

In our July 6 comment letter, we urged the County to require enhanced treatment of the Project's effluent streams. Our concerns regarding the need to further reduce nutrient loading in the Project's effluent streams has not been addressed. Further removal of orthophosphate, ammonia, reduced inorganic nitrogen, oxidized inorganic nitrogen, fungicides, hormones, and oxidants should be undertaken to reduce impacts to wild salmonids and to conserve the remaining habitat for threatened and endangered species.

In our May 24 comment letter, we recommended that Nordic fully analyze the effect of their treatment chemicals on macroalgae and eelgrass in the marine environment and in Humboldt Bay. We continue to be of the position that the Project should include mitigation for loss of juvenile salmonid habitat caused by miscible cleaners, solvents, antibiotics, fungicides, or dissolved nutrients entering the marine and estuarine environment where smolts shelter and where they disperse.

The DEIR does not include any analyses on the effects of treatment chemicals on the local sugar kelp (*Laminaria saccharina*), rock weed (*Saccharina dentigera*), sea cabbage (*Saccharina sessilis*), sea lettuces (*Ulva* spp.), or on any other sensitive macroalgae or kelp species that may be chronically exposed to Project effluent. Without these analyses, generalized determinations about Project effects on macroalgae are unsupportable. The local kelps and macro-algae are important habitat for marine invertebrates that listed salmonids depend upon for their survival. Regarding the importance of kelp ecosystems to juvenile salmonids and the ongoing biodiversity risks to kelp ecosystems, we referenced: Haugland (2019), McPherson et al. (2021), Rogers-Bennett and Catton (2019), Shaffer (2002), Shaffer (2004), Shaffer et al (2019), Shaffer et al (2020). The DEIR did not make any references to the important issues raised in these papers. Instead, the discussion was on the distance of kelp communities from the outfall pipe and the 2000:1 dilution factor. The former position is not based on dispersal modeling, and the second position does not take into consideration the LD-50 for kelp and sea lettuce spores, gametophytes, or zoospores (the pelagic life-history stages of kelp and sea lettuces).

517-4

The DEIS posits that kelp communities are too far away from the Project Study Boundary to be affected by Project effluent, and therefore considered the risk to kelp communities to be negligible. Without the dispersal modeling and the upwelling modeling needed to ascertain the reach of Project effects, the DEIS conclusion that the Project would have a negligible risk to kelp communities is premature.

We would like to add that not only bull kelp should be addressed through monitoring. The bull kelp monitoring required by the NPDES (National Pollutant Discharge Elimination System) permit is a step in the right direction; however, the more vulnerable macroalgae that may be exposed to Project effluent should also be monitored. Selecting potentially more robust species for monitoring, such as bull kelp, can disguise impacts to fragile kelp ecosystems.

517-4
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Lack of Biosecurity

The DEIR does not offer to test broodstock or in-facility Atlantic salmon using the best available scientific methods. Atlantic salmon eggs continue to be “certified free of diseases or pathogens of concern” yet salmon viruses continue to infect salmon in fish farms around the globe. The DEIR does not commit to pathogen screening using modern molecular techniques that are shown to detect salmon pathogens before a diagnosis. (For in-depth descriptions of modern molecular screening techniques, see Bateman *et al.* 2021, Miller *et al.* 2017, Mordecai *et al.* 2019, Mordecai *et al.* 2020, and Mauduit *et al.* 2022). These methodologies detect pathogens earlier than can be made by a veterinarian familiar with external symptoms of salmonid diseases. Veterinary diagnostic labs, such as referred to in the DEIR, are not known to use these methods.

517-5

Failure to monitor for salmonid pathogens using molecular screening techniques, as described above, is a biosecurity risk. The lack of testing for salmonid pathogens in the fish processing effluent and waste, the lack of monitoring biofilter efficiency, the lack of a remediation plan for when the biofilters become degraded or fail, and the lack of spill protection for waste solids all add up to a lack of biosecurity. We recommend that the final EIR contains a commitment to screen for the 47 known pathogens that can infect farmed salmon (Mauduit *et al.* 2022).

Risk from Viruses

The risk of wild salmonid exposure to the viruses that originated in Atlantic salmon farms continues to be one of our greatest concerns. No measures were included in the DEIR to monitor for the high-risk viruses we identified in our July 6 comment letter. These viruses are likely to proliferate at Project facilities as they have in other salmonid high-density fish farming around the world (Kibenge 2019, Kibenge *et al.* 2019). The fish disease that we consider the greatest risk from Project operations are: Infectious Pancreatic Necrosis Virus, Infectious Salmon Anemia Virus, Salmonid Alphavirus, Piscine Orthoreovirus and its new variants, Novel Totivirus, and bacterial kidney disease. All of these diseases pose a risk to juvenile salmonids growing to adulthood in the marine habitat in the area of the outfall “diffuser” pipe and exposed to effluent during tidal cycles in Humboldt Bay, the Mad River estuary, and the Eel River estuary. As we stated in our July 6 comment letter, exposing young fish to disease can destabilize salmonid populations and lead to run and cohort failure in wild fish. This is a significant threat to salmonid survival and recovery that needs to be addressed through prevention, monitoring, mitigation, and remediation. We recommend that the final EIR contain a sophisticated screening program, such as used by Bateman *et al.* (2021), Mordecai *et al.* (2019), Mordecai *et al.* (2020) and Mauduit *et al.* (2022).

517-6

In our May 24 comment letter, we expressed concern regarding seismic stability of the Project and we also expressed concern regarding fish escapes. Although we considered disease as an issue with fish escapes, we did not limit our concern to disease being spread to wild salmonid populations from fish

517-7

escapes. In our July 6 comment letter, we expressed concern regarding effluent treatment in the fish processing area and we included a list of viruses that are known to proliferate in Atlantic salmon farms: Infectious Pancreatic Necrosis Virus, Infectious Salmon Anemia Virus, Salmonid Alphavirus, Piscine Orthoreovirus and its new variants, and Novel Totivirus. The DEIS has conflated the issue of fish escape (which has many risks to wild salmonids) with pathogen escape (which has a different set of risks and higher mortality factors).

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The DEIR has several confident statements regarding “zero probability of escape” but also includes an “Escape Response and Reporting Plan.” At a very minimum, the results of ongoing molecular screening of salmonid viruses should be included in the reporting section of this plan. While NMFS and CDFW should receive these reports, we request that SRF be included in reporting for any positive test results so that we can monitor our restoration populations for signs of infection.

Mad River Habitat

In both our May 23 and July 6 comment letters, we expressed concern regarding water withdrawal in the Mad River during a *low-flow event* such as the one that occurred in August 2008. We are fully aware that Ruth Reservoir, on the Mad River, has the capacity to supply water to the Project; however, it is not clear how the cumulative effect of an episodic low-flow event will be addressed. The DEIR discussion of the 1976-1977 drought does not address this concern.

It is not enough to reference the will-serve letter from the Humboldt Bay Municipal Water District—a letter that was referenced but not included in the DEIR. The cumulative impact of a low-flow event and Project withdrawal could be significant to salmonid cohort survival. The DEIR should address the potential impact of a low-flow event to the physical and biological features of critical habitat for coho salmon, steelhead, and eulachon (an important forage species). Specifically, how the physical and biological features will be affected by the cumulative effects of a low-flow event and Project withdrawal of 2.5 million gallons of water per day.

517-8

Rather than address the issue of how the Project may affect critical habitat, the DEIS makes an argument that eulachon are no longer found in the Mad River. We would like to point out that critical habitat does not need to be occupied in order to be protected under the ESA. The DEIS failed to address steelhead, coho salmon, and Chinook salmon critical habitat by limiting their analysis to within 1680 feet of the Project's outfall pipe and not including Project effects to critical habitat in the Mad River and Humboldt Bay. The DEIS did not address either dispersal of effluent under local flow conditions or the cumulative effect of upwelling that could impact salmonid habitat in the Mad River.

Effluent Modeling Needs

In our July 6 comment letter, we noted that the current modeling on the Project's effluent dispersal was incomplete and not sufficient to do a full analysis on the effluent effects on the Mad River and Eel River, critical habitat protected under the Endangered Species Act, as well as dispersal into the Samoa State Marine Conservation Area, Trinidad Head Area of Special Biological Significance, or the South Cape Mendocino State Marine Reserve. The preliminary modeling in the IS/MND was only based on a southbound current and did not include northward flows or marine upwelling. The DEIR now includes modeling of northward flows, but only for a distance of 1680 feet. Nutrients, pathogens,

517-9

and treatment chemicals will not stop at the Project Study Boundary described in the DEIR, but will continue to flow along local currents until they precipitate out of the water column.

On July 6 we recommended upwelling modeling to address the combined impact of effluent-laden sediments, marine upwelling, tidal surge, and daily south to north current changes. We specifically recommended the BEUTI model (**Biologically Effective Upwelling Transport Index**), because it is an appropriate model to determine the cumulative effect of upwelling and effluent dispersion. We continue to recommend that the BEUTI model be used to estimate upwelling and nutrient transport within the full dispersal area of Project effluent. The modeling results should be included in the final EIR.

In our May 24 letter, we also postulated that mitigation for habitat loss in Humboldt Bay, which is critical habitat for Chinook salmon, coho salmon, and steelhead should be included as part of the Project. We based our recommendation on the likelihood of prolonged exposure to dilute effluent. Juvenile salmonids that rear in Humboldt Bay for up to a year could be harmed or injured from chronic, long-term exposure as well as from impaired prey base. We discussed the tidal patterns and currents that could draw effluent into the Humboldt Bay estuary and noted that effluent entering the estuary is contrary to the recovery plan strategies for Chinook salmon, coho salmon, and steelhead. We included a reminder that with incoming tide and northward marine flows, effluent is likely to enter the Mad River estuary, and with incoming tide and southbound marine flows, effluent is likely to enter Humboldt Bay and the Eel River estuary.

We continue to recommend that upwelling and effluent dispersal modeling be included in the final EIR. We further recommend that the final EIR addresses the entire area likely to be affected by the Project and not just the smaller Project Study Boundary delineated by the DEIR.

Biomass Reduction

After reviewing Appendix P of the DEIR, it has become clear that impacts to the Humboldt Bay ecosystem were obscured by a modeling scenario that did not consider the loss of prey biomass from removing 10 to 12 million gallons per day of seawater from the ecosystem. The modeling effort in Appendix P did not consider biomass loss from impingement. It also used one of the larger invertebrates in the ecosystem, Dungeness crab megalopae, for analyzing invertebrate entrainment. Using megalopae introduced a modeling bias, in that the smaller Dungeness crab zoea would be easily entrained. Entrainment and impingement of micro-invertebrates removes the foundational biomass of the ecosystem, which in turn removed prey biomass for salmonids. In addition to our earlier position that mitigation for habitat loss should be included to address the effects of Project effluent, we now recommend that mitigation for loss of salmonid prey base in Humboldt Bay be included in the final EIR.

Reduced Study Area

In both our May 24 and July 6 comment letters, we expressed concern over Project impacts to critical habitat for listed salmonids. Now, the Project Study Boundary in the DEIR is constrained to an area that is less than eight percent of the dispersal area described in the IS/IMD. Without the upwelling

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517-10

517-11

modeling and a full dispersal model, the conclusion that “there would be no impact to critical habitat for salmonids” is premature.

We are very concerned that with a southbound current and incoming tide, critical habitat and listed juvenile salmonids will be exposed to nitrogen compounds, phosphorus, and miscible chemicals—including chemicals that are toxic to marine invertebrates. Loss of marine invertebrates in the eelgrass in Humboldt Bay, and in the full dispersal area of the effluent, would have a significant ecological impact on the Humboldt Bay ecosystem. The Project should include baseline monitoring of eel grass, baseline monitoring of the invertebrate community found on eelgrass, and long-term monitoring of the eelgrass beds and invertebrate community in the vicinity of the seawater intakes—based upon the impacted area from effluent that is determined after the BEUTI modeling.

517-11
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The DEIR has included a description of chemical containments, which we appreciate. It has come to our attention that sewage spill of the waste solids could be an issue. Please describe in the DEIR how waste solids will have a level of containment that is as protective as the chemical containment. Please also describe how a spill response for waste solids will be conducted. We are also concerned that the waste solids may impact aquatic ecosystems in other watersheds that support salmonids (e.g., Eel River, Mad River, Yuba River, Feather River). End-point disposal protection for salmonids should be described in the DEIR, and extra measures should be described for waste solids that are known to contain fish viruses.

Exposure to Toxic Levels of Ammonia

With the daily changes in currents in the area of the outfall pipe, juvenile salmonids could be repeatedly exposed to toxic levels of ammonia. Depending on current and outmigration timing, juvenile salmonids could be exposed to toxic levels of ammonia for a period of 15 minutes to several hours. The DEIR concludes this level of exposure to be less than significant. We are concerned that this potentially lethal exposure to Project effluent, combined with loss of prey base at the seawater intakes, risk of escape of salmonid viruses, potential dispersal of Project effluent into critical habitat, potential adverse effects to salmonid and eulachon critical habitat in the Mad River, and upwelling events leading to redistribution of nutrient and chemical laden effluent all pose the risk for listed salmonids to be harmed, harassed, injured, or killed as a result of Project operations. In our May 24 and July 6 comment letters, we requested that ESA and CESA consultation be completed prior to finalization of the Environmental Impact Report. We further request that the ESA and CESA consultations consider all of the potential Project impacts that we have described in our comments.

517-12

Conclusion

The DEIR makes determinations that the project will have less than significant impact on six sensitive salmonid species or runs: *Oncorhynchus kisutch* (Coho Salmon – southern Oregon / northern California Evolutionarily Significant Unit (ESU)), *Oncorhynchus clarkii clarkia* (Coastal Cutthroat Trout), *Oncorhynchus mykiss irideus* (Steelhead – northern California DPS), *Oncorhynchus mykiss* (Steelhead – summer run), *Oncorhynchus tshawytscha* (Chinook Salmon – California Coastal ESU), and *Oncorhynchus tshawytscha* (Klamath River Spring Chinook Salmon). These less than significant determinations for Project effects to these salmonids are made throughout the DEIR, but are not supported by the analyses described in the DEIR.

517-13

In our July 6 comment letter, we respectfully asked that the Humboldt County Planning Department ensure that the Project draft and final Environmental Impact Reports include measures to protect wild salmonids from exposure to Project effluent. We further requested that ESA and CESA consultation and modeling of Project impacts is completed prior to the final EIR. It is our continuing hope that impacts of the Project on salmonids and the sensitive ecosystems salmonids depend upon for their survival are fully addressed and mitigated.

Sincerely,



Dana Stolzman
Executive Director

Cc:

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Letter 517 – Response to Comments

Response to Comment 517-1 – Introductory Comment

This comment is introductory in nature, listing concerns that are detailed in comments 517-4 through 517-13. Please see responses to comments 517-4 through 517-13 for detailed responses specifically addressing each concern.

Response to Comment 517-2 – Introduction to Concerns

This comment is introductory in nature, providing an overview of concerns that are detailed in comments 517-4 through 517-12. Please see responses to comments 517-4 through 517-12 for detailed responses specifically addressing each concern.

Response to Comment 517-3 – Unaddressed Concerns from DEIR Scoping

This comment notes that a July 6, 2021 comment letter from the Salmonid Restoration Federation submitted during the scoping process was not included in the DEIR (Appendix M – NOP and Comments) and is concerned that associated comments were not addressed. Page 51 of DEIR Appendix M does include an undated comment submission from the Salmonid Restoration Federation.

The issues included in the July 6, 2021 letter were considered during development of the DEIR, including concerns related to fish escape, withdrawal of water from the Mad River, data sources for the numeric modeling, waste (sludge) treatment, and fish disease. The July 6, 2021 comment letter was inadvertently omitted from DEIR Appendix M and has been added to the FEIR as requested via Errata in Section 4. The July 6, 2021 comment letter is appended to the FEIR (Appendix B).

This comment further raises introductory concerns about biosecurity, impacts to biological productivity as a result of the seawater intakes, and the exposure of juvenile salmonids to ammonia in the treated effluent discharge. These issues are further detailed in comments 517-5 and 517-6 (biosecurity), comment 517-10 (impacts to biological productivity), and comment 517-12 (toxic ammonia exposure). Please see responses to referenced comments for detailed responses specifically addressing each concern.

Response to Comment 517-4 – Outfall Chemicals

This comment is addressing a number of concerns regarding chemicals present in the treated effluent discharge, specific to impacts to macroalgae/kelp species. The DEIR evaluated effects of the Ocean Discharge on kelp and macroalgae in Section 3.3. (Biological Resources), starting on page 3.3-29 and describes the draft NPDES order that includes chronic toxicity testing of effluent on giant kelp on page 3.3-27. Algal communities are not in proximity to the Ocean Discharge but are located 4 miles and farther away along the rock jetties to Humboldt Bay. As noted on page 3.9-20 of the DEIR (Hydrology and Water Quality Evaluation of Potential Impacts to Humboldt Bay from Effluent Discharge), the Project's discharge in the Pacific Ocean is not projected to impact Humboldt Bay. The dilution target of 200-fold for water quality degradation is not predicted to enter Humboldt Bay as described in Sections 6.9.2 and 6.10.2 of DEIR Appendix E. Given the above, there is no potential for treatment chemicals to impact macroalgae or eelgrass beds in Humboldt Bay. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale, and thus unlikely to result in significant impacts to kelp and other marine resources in the highly dynamic coastal waters potentially affected by the Project, or in Humboldt Bay (analyzed in Section 3.3, Biological Resources), starting on page 3.3-26.

Please see also Master Response 5 (Marine Outfall) which details information specific to the treated effluent discharge through the ocean outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 517-5 – Broodstock Health and Pathogen Surveillance

The comment expresses concern that broodstock will not be tested for pathogens using the best available scientific methods. The Project would not hold broodstock onsite. Instead, eggs are sourced outside the Project from professional breeding companies that can deliver biosecure and high-performance ova for farming in RAS. Pathogen screening and surveillance requirements are strictly managed by competent veterinarian authority and diagnostics are performed in accordance with validated diagnostic methods that are certified by the American Fisheries Society and the International Office of Epizootics. For further explanation, please see Master Response 4 subsection on Transmission of Pathogens Originating from the Source Hatchery.

The Project requires diagnostics to support three facets of the fish health monitoring program (1) routine fish health assessments occurring on the farm, (2) advanced diagnostics for veterinarian led investigations, and (3) regulatory fish health diagnostics to support biannual facility wide fish health inspections. For further explanation of these diagnostic methods, please see Master Response #4 subsection on Pathogen Screening, Sampling Frequency, and Diagnostic Methods.

The comment also expresses concern that the Project will not detect pathogens before they are diagnosed. The entire farm would undergo biannual fish health inspection as required by CDFW. During this process, specific organs and tissues of fish are taken that are known to harbor and/or be targeted by pathogens. Because of this, the health inspection becomes very effective for finding agents that may or may not be causing clinical symptoms of infection and when screening otherwise ‘healthy’ looking fish, these methods can be used to early detect pathogens in a sub-clinical state before amplification in the system can occur. Monitoring pathogens at the host is a more direct approach for pathogen detection rather than pathogen detection through environmental sampling. The comment requests that the Project maintain a pathogen surveillance program on waste discharge from fish processing. Pathogen monitoring is managed on the farm through responsible health monitoring of livestock. The project is not required to monitor pathogens in the effluent. because the effluent water treatment is robust enough to eliminate pathogens from discharge. Please see Master Response #4 subsection on Biosecurity Measures to Prevent the Transmission of Pathogens to the Environment and subsection on Monitoring of Effluent for Pathogens.

The comment requests that NAFC screen for 47 known pathogens that can infect salmon. Fish health monitoring at NAFC uses broad diagnostic screening methods to detect viable pathogens. This includes microscopy, histopathology, bacteriology, and virus isolation using cell culture. In some cases, molecular assays are used for surveillance of pathogens of concern that are not normally detected through culture techniques. Together these diagnostic tools will detect not only known viable pathogens of salmon, but also any novel agents that could be impacting the health status of the fish. CDFW and the California Aquaculture Disease Committee maintain a list of known pathogens of concern, and classifies the list based on periodic review and analysis of epidemiological data (Title 14, Ch 9, Sec 245). The diseases/pathogens of concern are categorized as “Significant,” “Serious” and “Catastrophic” based on their seriousness and the specific action to be taken when diagnosed. Biannual fish health inspections will include methods to detect these pathogens.

The comment states that the lack of monitoring biofilter efficiency and the lack of remediation plan for “when the biofilters become degraded or fail” contributes to ineffective biosecurity. Biofilter efficiency is

especially important to the success of the Project and is frequently monitored within the water quality management program. The work of the biofilter is to convert ammonia-nitrogen into nitrite and nitrate, and these constituents of the nitrogen cycle are frequently monitored in the Project's onsite water quality laboratory. Additionally, the Project would periodically monitor biofilter microbiome stability using external laboratory for metagenomics next-generation sequencing (NGS) analysis.

Response to Comment 517-6 – Risk from Viruses

This comment is concerned with potential wild fish exposure to pathogens as a result of the Project. Please see Master Response 4, which directly addresses this issue. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 517-7 – Fish Escape

This comment is concerned about fish escape related to a seismic event or other accidents. Please see Master Response 3, which addresses fish escape potential across a range of scenarios, including seismic events. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 517-8 – Mad River Habitat

The comment concerns potential impacts to the Mad River related to water withdrawal during low flow conditions. The Humboldt Bay Municipal Water District has provided NAFC with a will serve letter and has confirmed the industrial water needed for the Project is within the capacity of their existing water right. As discussed on page 3.3-65 of Section 3.3 (Biological Resources), water supplied to the Project from the Humboldt Bay Municipal Water District is authorized under the following plans and permits, under which the Humboldt Bay Municipal Water District has allocated water rights to extract freshwater and supply to local customers:

- Humboldt Bay Municipal Water District 2021 Urban Water Management Plan (HBMWD 2021)
- Humboldt Bay Municipal Water District 2004 Habitat Conservation Plan (HBMWD 2004)
- Humboldt Bay Municipal Water District 2012 California Department of Fish and Wildlife Long-Term Lake and Streambed Alteration Agreement No. R1-2010-0093 (HBMWD 2012)

Additionally, the Humboldt Bay Municipal Water District operates under a Biological Opinion issued by National Oceanic and Atmospheric Administration (NOAA) Fisheries. The operations and withdrawal of water from the Mad River have already been vetted by appropriate regulatory agencies to ensure compliance with applicable state and federal lawmaking, thereby avoiding illegal impacts to waters and habitats of the Mad River. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 517-9 – Effluent Modeling Needs

This comment addresses concerns related to the numeric modeling completed for the Project and related potential biological impacts. The comment posits modelling only covers a distance of 1,680 feet and expresses concern regarding the limited area of assessment. This is incorrect. The three-dimensional hydrodynamic model simulates the region shown in DEIR Appendix E, Section 6.2, which comprises a north-south distance of greater than 40 miles, and an east-west distance of greater than 15 miles at the southern boundary to greater than 30 miles at the northern boundary. The three-dimensional hydrodynamic model includes Humboldt Bay and the confluences of the Eel Rivers and Mad River. Section 6.9.2. of DEIR Appendix E shows that the 200-fold target dilution of the effluent within the marine waters is met in relative

proximity to the RMT II diffuser and does not encroach into Humboldt Bay and is much more distance from the Eel River and Mad River estuary locations.

The comment also expresses concern regarding the limited tidal and alongshore currents considered in the numeric modeling. The three-dimensional hydrodynamic model was run for typical summer and winter conditions over a range of tidal, wind, river inflow and large-scale currents (as inputted at the open ocean boundaries) conditions as described in Sections 6.3-6.5 of DEIR Appendix E. Additional concerns raised in this comment, including those specific to BEUTI, are specifically addressed in Master Response 5 (Marine Outfall). Please also see Master Response 9 regarding the level of detail required in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 517-10 – Water Intakes

The comment notes that different species should be used in modeling effects of entrainment by the water intakes and that mitigation should occur for impacts to the salmon prey base.

Species selection for the modelling is described in Master Response 7 (Intake Biologic Productivity, Intake Salmonids). Master Response 7 also discusses the issue of potential impingement from the proposed intake system as described in the DEIR, the effects to larval species as a result of entrainment is low relative to the volume of water in the bay and mitigation is not required to reduce effects to less than significant. Mitigation to reduce Longfin Smelt impacts to a less than significant level is to be implemented per Mitigation Measure BIO-6a (see Section 4 – Errata). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 517-11 – Critical habitat and Salmonids

This comment expresses concern that the Ocean Discharge would impact salmonid critical habitat in the Pacific Ocean and Humboldt Bay. Critical habitat for California Coast Chinook Salmon ESU and Northern California Steelhead does not extend into the open ocean (DEIR Appendix D, page 30) and thus would not be affected by the treated effluent discharged through the diffusers. Similarly, critical habitat for Coho Salmon does not extend into the open ocean as designated per 64 Final Rule (FR) 24049 under the ESA for the Central California Coast coho salmon ESU (NMFS 2022), thus would also not be affected by treated effluent discharged through the diffusers.

This comment also addresses concerns regarding impacts to marine flora (e.g., eelgrass) and fauna (e.g., invertebrates, juvenile salmonids) in Humboldt Bay. As noted on page 3.9-20 of the DEIR (Hydrology and Water Quality Evaluation of Potential Impacts to Humboldt Bay from Effluent Discharge), the Project's discharge in the Pacific Ocean will not enter Humboldt Bay. The dilution target of 200-fold for water quality degradation is not predicted to enter Humboldt Bay as described in Sections 6.9.2 and 6.10.2 of DEIR Appendix E. Thus, there is no potential for treatment chemicals or the discharge in general to impact marine species' critical habitat, macroalgae, or eelgrass beds in Humboldt Bay. Hence, monitoring of Humboldt Bay invertebrates and eelgrass is not necessary as the NAFC effluent will not impact/effect the Humboldt Bay ecosystem.

The Facility will be required to develop a Spill Prevention Containment and Countermeasures Plan (SPCC Plan) for all chemicals and hazardous material used or stored at the Facility. Please see page 3.9-6, under subsection 3.14 Industrial – Protection Against Spillage. Effective secondary containment and cleanup facilities and procedures shall be provided for accidental spills that may occur. Any potentially hazardous material would be properly stored and handled. Typical storage for these materials in the Project's facilities involve a double containment tank where the outer tank is 110% of the volume of the inner tank for

complete spill containment. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Given the information discussed above, no additional mitigations are warranted.

Response to Comment 517-12 – Toxic Ammonia and Salmonids

This comment addresses concerns regarding ammonia toxicity to salmonids yet offers no substantial evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). In Section 3.3 of DEIR Appendix E, the California Ocean Plan ammonia toxicity threshold of 0.6 mg/L was adopted. Further, per Section 3.2 of DEIR Appendix E, ammonia in the effluent will be two orders of magnitude lower than the toxicity threshold at 0.004 mg/L. Hence, ammonia toxicity to juvenile salmonids is not predicted to occur. This issue is specifically addressed on page 3.3-26 of the DEIR, which discusses the Project compliance with the Ocean Plan's Water Quality Objectives. Additionally, as also discussed on page 3.3-26, the Project will substantially dilute the ammonia otherwise discharged by the other two permitted users of the ocean outfall (DG Fairhaven and the Peninsula Community Services District). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Given the information discussed above, no additional mitigations are warranted.

Response to Comment 517-13 – Biological Resources

This comment expresses concern that the Ocean Discharge would result in significant adverse effects to salmonids yet provides no evidence. As stated in response to comment 517-12 above, the critical habitat for salmonids does not extend into the open ocean. Thus, the Project would not have the potential to impact marine critical habitat for salmonids. As noted on page 3.9-20 of the DEIR (Hydrology and Water Quality Evaluation of Potential Impacts to Humboldt Bay from Effluent Discharge), the Project's discharge in the Pacific Ocean is not predicted to impact Humboldt Bay. The dilution target of 200-fold for water quality degradation is not predicted to enter Humboldt Bay as described in Sections 6.9.2 and 6.10.2 of DEIR Appendix E. Thus, there is no potential for treatment chemicals or the discharge in general to impact critical habitat in Humboldt Bay.

The DEIR evaluates the effects of the Ocean Discharge on ESA-listed salmonids, their designated critical habitat, and Pacific Coast Salmon EFH in Section 3.3 (Biological Resources), starting on page 3.3-35 and DEIR Appendix D (Marine Resources Biological Evaluation Report, Section 5). Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of temperature and nutrients are limited in spatial scale and thus unlikely to contribute to negative effects to salmonids in the highly dynamic coastal waters potentially affected by the Project or in Humboldt Bay. Given the information discussed above, no additional mitigations are warranted.

McNamara, Cade

From: Dana Stolzman <srf@calsalmon.org>
Sent: Thursday, February 17, 2022 3:20 PM
Cc: CEQAResponses; Planning Clerk; McNamara, Cade; Cassidy.Teufel@coastal.ca.gov; Corianna.Flannery@wildlife.ca.gov; Matt Goldsworthy; Elliot.Sunny@epa.gov
Subject: SRF NAF public comments re: PLN-2020-1669
Attachments: SRF comment letter on NAF 2.17.22.pdf

Please accept Salmonid Restoration Federation's public comments re: Nordic Aquafarms DEIS for the administrative record.

Thank you.

Dana Stolzman
Executive Director
Salmonid Restoration Federation
srf@calsalmon.org

February 17, 2022

Cade McNamara
Planner II
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501



Submitted by email to CEQAResponses@co.humboldt.ca.us

RE: Nordic Aquafarms DEIS, Case Number PLN-2020-1669

Dear Mr. McNamara:

The Salmonid Restoration Federation (SRF) appreciates the opportunity to provide further comments on the proposed Nordic Aquafarms (Nordic) facility (Project) in Humboldt County. The Draft Environmental Impact Report (DEIR) did not respond to concerns we raised in our earlier comment letters. It is our hope that the data collection and modeling needed to quantify effects to wild salmonids is completed prior to finalization of the Environmental Impact Report (EIR). The mission of SRF is to promote restoration and stewardship of California's native salmon, steelhead, and trout populations and their habitat. In support of our mission, we urge the Humboldt County Planning & Building Department and the Planning Commission to reduce Project impacts on wild coho salmon, Chinook salmon, and steelhead.

On May 24, 2021 (May 24 comment letter), we commented on the Initial Study/Mitigated Negative Declaration (IS/MND) for the Project and raised concerns regarding:

(1) Project impacts from treatment chemicals and cleansers to juvenile salmonid rearing habitat; (2) the effectiveness of the proposed biofilm reactors for removing viruses and bacteria; (3) effluent dispersal into salmonid critical habitat; (4) exposure of juvenile salmonids to effluent; (5) potential salmonid habitat impacts in the Mad River during drought events; (6) potential fish escapes, and (7) seismic concerns. Although SRF appreciates Nordic's attempt to reduce impacts to salmonid habitat and to build a project that has fewer aquatic impacts than traditional net pens, we are concerned that Project effects to juvenile salmonids continue to pose risk to wild salmonid populations.

On July 6, 2021 (July 6 comment letter), we commented on the Notice of Preparation (NOP) for the DEIR, and urged the Humboldt County Planning & Building Department and the Planning Commission to reduce Project impacts on wild coho salmon, Chinook salmon, and steelhead. The July 6 comment letter is not included in the DEIR, and none of the concerns that we raised in that letter have been addressed. The letter was filed in a timely manner according to the directions in the NOP. We are including our July 6 comment letter in this filing as a reference and for its inclusion in the Final EIR.

518-1

The DEIR has brought to our attention three emerging concerns regarding Project effects to wild salmonids: (1) a lack of biosecurity in preventing viruses from entering the facility, proliferating in the facility, and being discharged into wild salmonid habitat; (2) the seawater intakes in Humboldt Bay have the potential to significantly disrupt the food web and reduce food resources for juvenile salmonids through prey biomass reduction, and (3) the exposure time for juvenile salmonids migrating through the potentially lethal ammonia discharge at the sewage outfall pipe has not been fully investigated.

518-1
Cont.

Outfall Chemicals

In our July 6 comment letter, we urged the County to require enhanced treatment of the Project's effluent streams. Our concerns regarding the need to further reduce nutrient loading in the Project's effluent streams has not been addressed. Further removal of orthophosphate, ammonia, reduced inorganic nitrogen, oxidized inorganic nitrogen, fungicides, hormones, and oxidants should be undertaken to reduce impacts to wild salmonids and to conserve the remaining habitat for threatened and endangered species.

In our May 24 comment letter, we recommended that Nordic fully analyze the effect of their treatment chemicals on macroalgae and eelgrass in the marine environment and in Humboldt Bay. We continue to be of the position that the Project should include mitigation for loss of juvenile salmonid habitat caused by miscible cleaners, solvents, antibiotics, fungicides, or dissolved nutrients entering the marine and estuarine environment where smolts shelter and where they disperse.

The DEIR and does not include any analyses on the effects of treatment chemicals on the local sugar kelp (*Laminaria saccharina*), rock weed (*Saccharina dentigera*), sea cabbage (*Saccharina sessilis*), sea lettuces (*Ulva* spp.), or on any other sensitive macroalgae or kelp species that may be chronically exposed to Project effluent. Without these analyses, generalized determinations about Projects effects on macroalgae are unsupportable. The local kelps and macro-algae are important habitat for marine invertebrates that listed salmonids depend upon for their survival. Regarding the importance of kelp ecosystems to juvenile salmonids and the ongoing biodiversity risks to kelp ecosystems, we referenced: Haugland (2019), McPherson et al. (2021), Rogers-Bennett and Catton (2019), Shaffer (2002), Shaffer (2004), Shaffer et al (2019), Shaffer et al (2020). The DEIR did not make any references to the important issues raised in these papers. Instead, the discussion was on the distance of kelp communities from the outfall pipe and the 2000:1 dilution factor. The former position is not based on dispersal modeling, and the second position does not take into consideration the LD-50 for kelp and sea lettuce spores, gametophytes, or zoospores (the pelagic life-history stages of kelp and sea lettuces).

518-2

The DEIS posits that kelp communities are too far away from the Project Study Boundary to be affected by Project effluent, and therefore considered the risk to kelp communities to be negligible. Without the dispersal modeling and the upwelling

modeling needed to ascertain the reach of Project effects, the DEIS conclusion that the Project would have a negligible risk to kelp communities is premature.

We would like to add that not only bull kelp should be addressed through monitoring. The bull kelp monitoring required by the NPDES (National Pollutant Discharge Elimination System) permit is a step in the right direction; however, the more vulnerable macroalgae that may be exposed to Project effluent should also be monitored. Selecting potentially more robust species for monitoring, such as bull kelp, can disguise impacts to fragile kelp ecosystems.

Lack of Biosecurity

The DEIR does not offer to test broodstock or in-facility Atlantic salmon using the best available scientific methods. Atlantic salmon eggs continue to be “certified free of diseases or pathogens of concern” yet salmon viruses continue to infect salmon in fish farms around the globe. The DEIR does not commit to pathogen screening using modern molecular techniques that are shown to detect salmon pathogens before a diagnosis. (For in-depth descriptions of modern molecular screening techniques, see Bateman *et al.* 2021, Miller *et al.* 2017, Mordecai *et al.* 2019, Mordecai *et al.* 2020, and Mauduit *et al.* 2022). These methodologies detect pathogens earlier than can be made by a veterinarian familiar with external symptoms of salmonid diseases. Veterinary diagnostic labs, such as referred to in the DEIR, are not known to use these methods.

Failure to monitor for salmonid pathogens using molecular screening techniques, as described above, is a biosecurity risk. The lack of testing for salmonid pathogens in the fish processing effluent and waste, the lack of monitoring biofilter efficiency, the lack of a remediation plan for when the biofilters become degraded or fail, and the lack of spill protection for waste solids all add up to a lack of biosecurity. We recommend that the final EIR contains a commitment to screen for the 47 known pathogens that can infect farmed salmon (Mauduit *et al.* 2022).

Risk from Viruses

The risk of wild salmonid exposure to the viruses that originated in Atlantic salmon farms continues to be one of our greatest concerns. No measures were included in the DEIR to monitor for the high-risk viruses we identified in our July 6 comment letter. These viruses are likely to proliferate at Project facilities as they have in other salmonid high-density fish farming around the world (Kibenge 2019, Kibenge et al, 2019). The fish disease that we consider the greatest risk from Project operations are: Infectious Pancreatic Necrosis Virus, Infectious Salmon Anemia Virus, Salmonid Alphavirus, Piscine Orthoreovirus and its new variants, Novel Totivirus, and bacterial kidney disease. All of these diseases pose a risk to juvenile salmonids growing to adulthood in the marine habitat in the area of the outfall “diffuser” pipe and exposed to effluent during tidal cycles in Humboldt Bay, the Mad River estuary, and the Eel River estuary. As we stated in our July 6 comment letter, exposing young fish to disease can destabilize salmonid populations and lead to run and cohort failure in wild fish. This is a significant

518-2
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518-3

518-4

threat to salmonid survival and recovery that needs to be addressed through prevention, monitoring, mitigation, and remediation. We recommend that the final EIR contain a sophisticated screening program, such as used by Bateman *et al.* (2021), Mordecai *et al.* (2019), Mordecai *et al.* (2020) and Mauduit *et al.* (2022).

In our May 24 comment letter, we expressed concern regarding seismic stability of the Project and we also expressed concern regarding fish escapes. Although we considered disease as an issue with fish escapes, we did not limit our concern to disease being spread to wild salmonid populations from fish escapes. In our July 6 comment letter, we expressed concern regarding effluent treatment in the fish processing area and we included a list of viruses that are known to proliferate in Atlantic salmon farms: Infectious Pancreatic Necrosis Virus, Infectious Salmon Anemia Virus, Salmonid Alphavirus, Piscine Orthoreovirus and its new variants, and Novel Totivirus. The DEIS has conflated the issue of fish escape (which has many risks to wild salmonids) with pathogen escape (which has a different set of risks and higher mortality factors).

518-4
Cont.

The DEIR has several confident statements regarding “zero probability of escape” but also includes an “Escape Response and Reporting Plan.” At a very minimum, the results of ongoing molecular screening of salmonid viruses should be included in the reporting section of this plan. While NMFS and CDFW should receive these reports, we request that SRF be included in reporting for any positive test results so that we can monitor our restoration populations for signs of infection.

518-5

Mad River Habitat

In both our May 23 and July 6 comment letters, we expressed concern regarding water withdrawal in the Mad River during a *low-flow event* such as the one that occurred in August 2008. We are fully aware that Ruth Reservoir, on the Mad River, has the capacity to supply water to the Project; however, it is not clear how the cumulative effect of an episodic low-flow event will be addressed. The DEIR discussion of the 1976-1977 drought does not address this concern.

It is not enough to reference the will-serve letter from the Humboldt Bay Municipal Water District—a letter that was referenced but not included in the DEIR. The cumulative impact of a low-flow event and Project withdrawal could be significant to salmonid cohort survival. The DEIR should address the potential impact of a low-flow event to the physical and biological features of critical habitat for coho salmon, steelhead, and eulachon (an important forage species). Specifically, how the physical and biological features will be affected by the cumulative effects of a low-flow event and Project withdrawal of 2.5 million gallons of water per day.

518-6

Rather than address the issue of how the Project may affect critical habitat, the DEIS makes an argument that eulachon are no longer found in the Mad River. We would like to point out that critical habitat does not need to be occupied in order to be protected under the ESA. The DEIS failed to address steelhead, coho salmon, and Chinook

salmon critical habitat by limiting their analysis to within 1680 feet of the Project's outfall pipe and not including Project effects to critical habitat in the Mad River and Humboldt Bay. The DEIS did not address either dispersal of effluent under local flow conditions or the cumulative effect of upwelling that could impact salmonid habitat in the Mad River.

518-6
Cont.

Effluent Modeling Needs

In our July 6 comment letter, we noted that the current modeling on the Project's effluent dispersal was incomplete and not sufficient to do a full analysis on the effluent effects on the Mad River and Eel River, critical habitat protected under the Endangered Species Act, as well as dispersal into the Samoa State Marine Conservation Area, Trinidad Head Area of Special Biological Significance, or the South Cape Mendocino State Marine Reserve. The preliminary modeling in the IS/MND was only based on a southbound current and did not include northward flows or marine upwelling. The DEIR now includes modeling of northward flows, but only for a distance of 1680 feet. Nutrients, pathogens, and treatment chemicals will not stop at the Project Study Boundary described in the DEIR, but will continue to flow along local currents until they precipitate out of the water column.

518-7

On July 6 we recommended upwelling modeling to address the combined impact of effluent-laden sediments, marine upwelling, tidal surge, and daily south to north current changes. We specifically recommended the BEUTI model (Biologically Effective Upwelling Transport Index), because it is an appropriate model to determine the cumulative effect of upwelling and effluent dispersion. We continue to recommend that the BEUTI model be used to estimate upwelling and nutrient transport within the full dispersal area of Project effluent. The modeling results should be included in the final EIR.

518-8

In our May 24 letter, we also postulated that mitigation for habitat loss in Humboldt Bay, which is critical habitat for Chinook salmon, coho salmon, and steelhead should be included as part of the Project. We based our recommendation on the likelihood of prolonged exposure to dilute effluent. Juvenile salmonids that rear in Humboldt Bay for up to a year could be harmed or injured from chronic, long-term exposure as well as from impaired prey base. We discussed the tidal patterns and currents that could draw effluent into the Humboldt Bay estuary and noted that effluent entering the estuary is contrary to the recovery plan strategies for Chinook salmon, coho salmon, and steelhead. We included a reminder that with incoming tide and northward marine flows, effluent is likely to enter the Mad River estuary, and with incoming tide and southbound marine flows, effluent is likely to enter Humboldt Bay and the Eel River estuary.

518-9

We continue to recommend that upwelling and effluent dispersal modeling be included in the final EIR. We further recommend that the final EIR addresses the entire area likely to be affected by the Project and not just the smaller Project Study Boundary delineated by the DEIR.

Biomass Reduction

After reviewing Appendix P of the DEIR, it has become clear that impacts to the Humboldt Bay ecosystem were obscured by a modeling scenario that did not consider the loss of prey biomass from removing 10 to 12 million gallons per day of seawater from the ecosystem. The modeling effort in Appendix P did not consider biomass loss from impingement. It also used one of the larger invertebrates in the ecosystem, Dungeness crab megalopae, for analyzing invertebrate entrainment. Using megalopae introduced a modeling bias, in that the smaller Dungeness crab zoea would be easily entrained. Entrainment and impingement of micro-invertebrates removes the foundational biomass of the ecosystem, which in turn removed prey biomass for salmonids. In addition to our earlier position that mitigation for habitat loss should be included to address the effects of Project effluent, we now recommend that mitigation for loss of salmonid prey base in Humboldt Bay be included in the final EIR.

518-10

Reduced Study Area

In both our May 24 and July 6 comment letters, we expressed concern over Project impacts to critical habitat for listed salmonids. Now, the Project Study Boundary in the DEIR is constrained to an area that is less than eight percent of the dispersal area described in the IS/IMD. Without the upwelling modeling and a full dispersal model, the conclusion that “there would be no impact to critical habitat for salmonids” is premature.

We are very concerned that with a southbound current and incoming tide, critical habitat and listed juvenile salmonids will be exposed to nitrogen compounds, phosphorus, and miscible chemicals—including chemicals that are toxic to marine invertebrates. Loss of marine invertebrates in the eelgrass in Humboldt Bay, and in the full dispersal area of the effluent, would have a significant ecological impact on the Humboldt Bay ecosystem. The Project should include baseline monitoring of eel grass, baseline monitoring of the invertebrate community found on eelgrass, and long-term monitoring of the eelgrass beds and invertebrate community in the vicinity of the seawater intakes—based upon the impacted area from effluent that is determined after the BEUTI modeling.

518-11

The DEIR has included a description of chemical containments, which we appreciate. It has come to our attention that sewage spill of the waste solids could be an issue. Please describe in the DEIR how waste solids will have a level of containment that is as protective as the chemical containment. Please also describe how a spill response for waste solids will be conducted. We are also concerned that the waste solids may impact aquatic ecosystems in other watersheds that support salmonids (e.g., Eel River, Mad River, Yuba River, Feather River). End-point disposal protection for salmonids should be described in the DEIR, and extra measures should be described for waste solids that are known to contain fish viruses.

518-12

Exposure to Toxic Levels of Ammonia

With the daily changes in currents in the area of the outfall pipe, juvenile salmonids could be repeatedly exposed to toxic levels of ammonia. Depending on current and outmigration timing, juvenile salmonids could be exposed to toxic levels of ammonia for a period of 15 minutes to several hours. The DEIR concludes this level of exposure to be less than significant. We are concerned that this potentially lethal exposure to Project effluent, combined with loss of prey base at the seawater intakes, risk of escape of salmonid viruses, potential dispersal of Project effluent into critical habitat, potential adverse effects to salmonid and eulachon critical habitat in the Mad River, and upwelling events leading to redistribution of nutrient and chemical laden effluent all pose the risk for listed salmonids to be harmed, harassed, injured, or killed as a result of Project operations. In our May 24 and July 6 comment letters, we requested that ESA and CESA consultation be completed prior to finalization of the Environmental Impact Report. We further request that the ESA and CESA consultations consider all of the potential Project impacts that we have described in our comments.

518-13

Conclusion

The DEIR makes determinations that the project will have less than significant impact on six sensitive salmonid species or runs: *Oncorhynchus kisutch* (Coho Salmon – southern Oregon / northern California Evolutionarily Significant Unit (ESU)), *Oncorhynchus clarkii clarkia* (Coastal Cutthroat Trout), *Oncorhynchus mykiss irideus* (Steelhead – northern California DPS), *Oncorhynchus mykiss* (Steelhead – summer run), *Oncorhynchus tshawytscha* (Chinook Salmon – California Coastal ESU California Coastal ESU), and *Oncorhynchus tshawytscha* (Klamath River Spring Chinook Salmon). These less than significant determinations for Project effects to these salmonids are made throughout the DEIR, but are not supported by the analyses described in the DEIR.

518-14

In our July 6 comment letter, we respectfully asked that the Humboldt County Planning Department ensure that the Project draft and final Environmental Impact Reports include measures to protect wild salmonids from exposure to Project effluent. We further requested that ESA and CESA consultation and modeling of Project impacts is completed prior to the final EIR. It is our continuing hope that impacts of the Project on salmonids and the sensitive ecosystems salmonids depend upon for their survival are fully addressed and mitigated.

518-15

Sincerely,



Dana Stolzman
Executive Director
Salmonid Restoration Federation

Cc:

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Letter 518 – Response to Comments

Response to Comment 518-1 through 518-15

Letter 518, submitted by the Salmonid Restoration Federation, is redundant with Letter 517. Comments received are identical, although Letter 518 is not on organizational letterhead. Please see responses to Letter 517, which addresses all issues raised in Letter 518.

McNamara, Cade

From: marthawalden@suddenlink.net
Sent: Sunday, February 13, 2022 8:13 PM
To: CEQAResponses
Subject: DEIR for Nordic Aquafarm proposal for Humboldt Bay

There is no such thing as a free lunch, but there is also such a thing as an excessively expensive lunch. I believe the aquaculture farm proposed for Humboldt Bay falls into that last category unless several vital modifications are made to the plan to curb its environmental cost. As a member of 350 Humboldt, a climate action organization, I will limit my comments to the climate impacts. 519-1

The electricity use for this project would rival that of the combined cities of Eureka and Ferndale. Right now we rely mostly on natural gas and biomass for our electricity even though our CCA, Redwood Coast Energy Authority, contributes to California's portfolio of renewable energy. We're all hoping that real decarbonization is going to happen in a few years when a proposed offshore wind project might become operational. Considering that there is no guarantee right now that this will even happen, Nordic's proposal seems premature. A large-scale, carbon-intensive enterprise at this point would certainly make Humboldt county's efforts to reduce its greenhouse gas emissions by fifty percent by 2030 all but impossible. The DEIR for this project should explicitly confirm Nordic's commitment to a hundred percent clean and renewable energy. The most realistic approach would be to make approval of the project contingent on offshore wind power. 519-2

To take my expensive lunch metaphor up again, salmon is a lot like steak in that cows must be fed well before landing on our plate. The amount of fish to feed salmon involves a high level of GHG emissions that aren't detailed in the DEIR. My understanding is that Nordic has the option of choosing a feeding method that has lowest certified carbon footprint possible. The obligation to do so should be spelled out in the DEIR. 519-3

Lastly, factory fish farming requires extensive refrigeration technology--both stationary and mobile. As a member of my organization's refrigerants committee, I'm familiar with the high global warming potential of refrigerant chemicals. Hydrofluorocarbons are being phased down to 15% of their baseline production but are still widely used at this point. The GWP of alternatives ranges from zero to 1288. The DEIR for Nordic's proposed aquafarm should stipulate using refrigerants with a GWP of no more than 150. 519-4

I hope Nordic Aquafarms will take this opportunity to model the type of enterprise that will help us and our descendants to live respectfully on our planet. Thank you.

Martha Walden

Editor of 350 Humboldt LookOut

Sent from Windows Mail

Letter 519 – Response to Comments

Response to Comment 519-1 – Introduction Remarks

This is an introductory comment. The comment is noting their comments will not be limited to climate impacts. Please see response to comments 519-2 through 519-4 for specific responses to issues raised in comment letter 519. No further response is required.

Response to Comment 519-2 – Energy, Emissions

This comment requests that the Project commit to 100% renewable and/or non-carbon energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 519-3 – Emissions, Feed

This comment requests use including of life-cycle emissions from the Project's anticipated use of fish foods. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the lifecycle analysis and appropriate emissions inventory methodology. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 519-4 – Refrigerants

This comment requests that the Project commit to using refrigerants with a global warming power (GWP) of no more than 150. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the refrigerants. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

2.4. Individual Comments Received During Circulation

This section includes copies of the comment letters and e-mails received during the 60-day public review period for the DEIR from individuals. Responses to each comment are provided after each letter.

McNamara, Cade

From: Katy Allen <tkallen@suddenlink.net>
Sent: Wednesday, February 16, 2022 11:07 AM
To: CEQAResponses
Subject: Nordic Aquafarms' proposed facility

We are writing to urge the county to require Nordic Aquafarms to utilize exclusively renewable energy for their proposed new facility in Samoa. At a time when global warming is at a tipping point and strong measures must be taken, a new facility using such a large amount of energy to run MUST not contribute further to global warming. They should be required to maximize on site solar arrays in every way possible, including installing panels over all parking areas. The time has past for renewable energy to be "optional".

Tom and Katy Allen
Bayside, CA

Sent from my iPad

Letter 601 – Response to Comments

Response to Comment 601-1 – Energy

This comment requests that the Project commit to exclusively renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Joy Caillouette <joy.caillouette@gmail.com>
Sent: Thursday, February 17, 2022 8:45 AM
To: CEQAResponses
Subject: Nordic Aquafarms project

To whom it may concern,

I am emailing today on behalf of my community and Humboldt Surfrider Foundation's call to action. I agree with their stance that many impacts have not been adequately assessed for the Nordic Aquafarms project. As they stated:

"Based on the DEIR, numerous impacts have not been fully assessed and mitigated, specifically increased electricity demands, greenhouse gas emissions, and the ocean discharge. We believe reasonable changes to reduce these impacts are achievable. To make sure Nordic commits to these changes, we are requesting the following modifications:

1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy.
2. The project maximizes its feasible onsite renewable energy production through more aggressive utilization of solar including over parking areas.
3. An adaptive management provision that requires Nordic to buy locally-produced renewable power as it is commercially available.
4. Modeling of ambient water quality using data from the mixing zone near the RMT II diffuser instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point).
5. Baseline monitoring and continuous monitoring of the effluent should be performed by experts and compared to a established threshold which would trigger protective actions.

This project would be the largest of its kind. It is unprecedented and could greatly impact our community, coastal areas, and Humboldt Bay."

I too am hopeful an agreement could be made that would have the least impact as possible to our bay, oceans, coastal areas, and community.

All the best,

Joy Anderson

Letter 602 – Response to Comments

Response to Comment 602-1 – Additional Mitigation

This comment is introductory in nature.

Response to Comment 602-2 – Local Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. As described in the DEIR, no additional mitigation measures are warranted. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 602-3 – Discharge

The comment requests baseline monitoring, continuous monitoring, and changes to the data used for discharge modeling. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 602-4 – Concluding Remarks

This comment is a concluding statement discussing the size of the Project and the Project's potential impacts. Please see responses to comments 602-3 and 602-4, which address the specific issues included in letter 602.

McNamara, Cade

From: mandre <mandre2391@gmail.com>
Sent: Friday, February 18, 2022 2:22 PM
To: CEQAResponses
Subject: RE: Draft EIR Nordic Aquafarms Land-Based Aquaculture Project

Cade McNamara
 County of Humboldt Planning and Building Department,
 Planning Division 3015 H Street
 Eureka, CA 95501
RE: Draft EIR Nordic Aquafarms Land-Based Aquaculture Project

To Whom it may concern

My questions are related to 3.7 Greenhouse Gas Emissions,

1. **Humboldt County is working on preparing a multi-jurisdictional Climate Action Plan with all jurisdictions within the County; however, the County does not have an adopted Climate Action Plan.**

Question(s): I am curious why the Yolo County CAP was used as the proxy CAP for evaluating consistency of GHG reduction goals. Yolo County is indeed a county with a large agricultural sector but it a very different agricultural sector that Humboldt County. Did the plan preparers consider CAPs from Butte, Sonoma, Monterey or other counties before selecting Yolo? Does the Humboldt County Draft Climate Action Plan that is currently under review by County staff state GHG reduction goals that are similar to Yolo County? Are there backup diesel generators that are expected to be used in the event of a power outage? Has that potential GHG emission source been added to the modeled GHG estimate?

603-1

The Yolo County CAP demonstrates an ability to achieve a 27 percent reduction below 1990 emissions levels by 2030. This reduction goal does not seem very ambitious or robust. Per the DEIR, the Nordic Aquafarm facility will represent 21% of the energy use in the county (Image 3.5-1: Annual electric use at full build out circa 2030 as a fraction of current total County load). The plan proposes only 3% onsite PV generation. If a project that generates 21% of the total county energy use creates a less than significant environmental effect requiring no mitigation, then what sized facility would create a significant adverse effect for Energy and GHG? 40%? 60%? 80%? The project should utilize the RCEA 100% renewable portfolio as a condition of approval.

2. **Table 3.7-1 Operational Greenhouse Gas Pollutant Emissions related to Sludge and Fish Waste Hauling**

Question(s): In the GHG section Table 3.7-1, which section consists of the sludge and fish waste hauling from the facility to an out of county processing facility? The "waste" category or 361 mT per year or the "mobile hauling" or 2471 mT per year? Is it known that the facility where this organic waste will be hauled has methane capture capability? Is the facility mentioned in the DEIR a long-term operational guarantee or is it possible that the waste could be landfilled at some point?

603-2

Regardless, this county is in need of a regional organic waste composting facility and the volume of material presented in the DEIR appears to show that this waste stream could be a catalyst for developing such a facility locally. And if such a facility was developed it would provide for a significant reduction of GHG emissions associated with the Nordic Aquafarm facility.

Regards



Mark Andre
 2246 Western Avenue
 Arcata, CA 95521
 707 845-5804

Letter 603 – Response to Comments

Response to Comment 603-1 – Energy, Emissions

This comment requests clarification the qualitative threshold of significance used in the DEIR's assessment of GHG emissions impacts; specifically, the use of the Yolo County Climate Action Plan (CAP) as a proxy CAP and the percent reduction goals of the proxy CAP. Additionally, the comment requests the Project commit to using a 100% renewable energy portfolio as a condition of approval. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the NAFC's commitment to 100% renewable and/or non-carbon energy, the enforceability of that commitment, and the selection of the Yolo County CAP as a proxy qualified CAP for qualitative analysis. As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project.

As described in Master Response 2, subsection Proxy Climate Action Plan Selection, 27 of California's 58 counties are identified as having either developed or adopted a CAP. However, many of those plans are either not adopted (such as in Humboldt County) or were determined to not meet the criteria for a 'qualified climate action plan' (such as Sonoma County). Additionally, the majority of developed or adopted county-level CAPs are for southern California counties, highly urban counties, or inland Sacramento Valley/Central Valley counties. After review of the potential qualified CAPs, Yolo County's CAP was selected as the Project's proxy Climate Action Plan because of similarities between Humboldt and Yolo Counties. Please see Master Response 2 for additional details.

DEIR Section 3.7, Greenhouse Gases, contains an evaluation and analysis of the Project's potential to generate GHG emissions that may have a significant impact on the environment, using 3 significance thresholds. See DEIR Section 3.7.4 (Evaluation Criteria and Thresholds of Significance), Section 3.7.5 (Methodology), and Section 3.7.6 (Impacts and Mitigation Measures) Impact GHG-a. As demonstrated in the DEIR, the Project would not exceed any of the identified thresholds of significance and, therefore, would generate a less than significant impact.

DEIR Section 3.5, Energy Resources, contains an evaluation and analysis of the Project's: potential to:

- Potential to result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation (Impact ENG-a), and
- Potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency (Impact ENG-b)

As determined in the DEIR, Project construction and operation would not result in inefficient, wasteful, or unnecessary consumption of fuels or other energy resources. Additionally, the DEIR determined that the Project will therefore not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The comment's request for identification of the level of energy consumption or demand that a hypothetical project would need to exceed in order to generate a significant adverse effect for energy or GHGs. As provided by CEQA Guidelines Section 15126.2 (Consideration and Discussion of Significant Environmental Impacts), an EIR shall identify and focus on the significant effects of the proposed project on the environment. CEQA does not require an EIR to discuss future developments which are unspecified or uncertain. Additionally, speculation is not considered substantial evidence under CEQA. See Master Response 8 regarding substantial evidence, speculation, and unsubstantiated opinion.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 603-2 – Emissions, Waste

This comment requests clarification on the identification of sludge and fish waste hauling from the facility, and if the disposal facility for the Project's organic waste has methane capture ability. Truck trips associated with waste hauling from the Project are included in the operational on-road mobile emissions-portion of the Project's GHG inventory.

DEIR Section 2, Project Description, on page 2-30, NAFC has a goal that all byproduct resources be recycled for secondary uses and details the handling of waste streams from the facility. Filtrate waste may be used in fertilizer/soil enhancement, biogas, or composting. Fish mortalities may be used in biogas, compost, and fertilizer. Processing coproducts (heads, racks, viscera, etc.), would be maintained as food-grade products and could be used in pet food, biotech, the supplements industry, and more. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Elaine Astrue <eastrue@protonmail.com>
Sent: Friday, February 18, 2022 12:28 PM
To: CEQAResponses
Subject: Public Comment on Nordic Aquafarms DEIR, 3.12 Transportation

The DEIR states (3.12.6) that the project impact TR-a is Less than Significant. However, the proposed project conflicts in multiple areas with the Humboldt Regional Bicycle Plan (Bike Plan) (1). Specifically, the project as defined conflicts with the Bike Plan's vision, primary goal, and near-term plans to provide a connected, safe transportation network for non-motorized road users.

While the primary goal stated in the Bike Plan is to create the safest conditions for bicyclists by providing bikeways and improving roadways to bicycle travel, the project's estimated increases in heavy truck and car traffic would significantly degrade safety for non-motorized road users in the Project vicinity. (2,3,4,5)

604-1

The referenced research finds that higher volumes of car and truck traffic increase the risk of injury collisions for cyclists. The lack of a formal cycle track (separated pathway) or formal bike lane also increases risk. For example (2):

...busy streets are associated with higher risks than quiet streets; and [...] bicycle-specific facilities are associated with lower risks.

This section and section 3.12.2 also omit the planned Class III bicycle route for SR 255 e/o New Navy Base Road, described in the Bike Plan (1: Figure 18, page 6-18). As SR 255 is the only ingress/egress route, no alternate exists for bicycles and pedestrians in the project vicinity. Further, this regional plan for a Class III bike route itself appears to be inadequate and outdated vs. current roadway standards. The latest NACTO design guidelines (6) indicate that a Class I protected bicycle lane is recommended for a high-speed limited access roadway such as SR 255.

604-2

Regarding existing conditions and roadway safety, the DEIR includes a brief mention of collision data along the New Navy Base Road on page 3.12-14. However, there is no corresponding analysis for SR 255. Since Highway 255 is contiguous with New Navy Base Road and required for nearly all travel to/from the project site, the DEIR must address collision data along SR 255 both n/o and e/o New Navy Base Road.

604-3

The DEIR states (3.12.6, page 3.12-14) "...Project access formerly served 500+ wood chip trucks per day" and because of this historical use, the project impact TR-c is Less than Significant. However until ~10 years ago SR 255 e/o New Navy Base Road (i.e. the Samoa Bridge) was defined as a freeway and Caltrans prohibited bicycle and pedestrian traffic on the bridge. Given the introduction of non-motorized access to SR 255 e/o New Navy Base Road, this historical use case is not relevant to the proposed project and its impacts.

604-4

The DEIR states (3.12.7) that the project impact TR-e is Less than Significant. However, the project vicinity is subject to extremely strong winds, which is why a significant offshore wind farm project is being proposed for the same location. In certain conditions, the vital connector SR 255 e/o New Navy Base Road (i.e. "the Samoa Bridge") is already marginal for bicycle and pedestrian use due to the combination of strong winds and substandard roadway design. The Samoa Bridge travel lanes are 11 feet wide, barely wide enough for heavy trucks under ideal driving conditions. It is currently routine for trucks to be blown out of their travel lane, either into the narrow shoulder or the oncoming traffic lane. Given these existing conditions, any increase in heavy truck traffic would represent a substantial increase in hazards to cyclists on this segment on SR 255. Thus the project would have a significant cumulative impact on non-motorized safety.

604-5

Regards,
 Elaine Astrue

References

1. https://hcaog.net/sites/default/files/final_bike_plan_update_2018_incl_maps.pdf
2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3519333/>
3. <https://injuryprevention.bmj.com/content/19/5/303>
4. <https://www.sciencedirect.com/science/article/pii/S0001457518301076>
5. <https://ehjournal.biomedcentral.com/articles/10.1186/1476-069X-8-47>
6. <https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/choosing-ages-abilities-bicycle-facility/>

Letter 604 – Response to Comments

Response to Comment 604-1 – Traffic, Transportation

This comment states that the Project conflicts with the Humboldt Regional Bicycle Plan’s vision, primary goal, and near-term plans because it doesn’t provide a connected, safe transportation network for non-motorized users and that the Project’s increases in heavy truck and car traffic would significantly degrade safety for non-motorized users. The comment cites several sources of research which finds that higher volumes of car and truck traffic, or “busy streets,” increase the risk of injury collisions for cyclists, yet the comment provides no substantial evidence that New Navy Base Road or SR 255 would be considered a busy street.

Based on FDOT 2020 Quality LOS Handbook (FDOT 2020) and the 6th Edition of the Highway Capacity Manual (TRB 2016), the average daily traffic of both New Navy Base Road and SR 255 with the Project would be estimated to operate well within its capacity (LOS C or better is at 14,000 vehicles per day). The Project itself is not responsible for improving the regional transportation system for non-motorized users, and in Section 3.12.6 of the DEIR (Transportation) on page 3.12-8 the DEIR states that the Project will not conflict with the planned projects from the Bike Plan in the vicinity of the Project. Additionally, the Bike Plan states on page 2-1 that,

“In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to travel.”

The Project is in a rural area, as opposed to an urban area like the City of Eureka, and the Project is not proposing to construct or reconstruct any portion of any County-maintained or Caltrans roadway; therefore, this comment does not even apply. Please see Master Response 1 (Truck Traffic & Road Safety). Please see Master Response 2 (Greenhouse Gas and Energy – On Road Truck Activity). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the alternative transportation strategies that NAFC has voluntarily committed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 604-2 – Traffic, Transportation

This comment states that Section 3.12.2 of the DEIR (Transportation Setting) omits the planned Class III bicycle route on SR 255 across the Samoa Bridge, per the Bike Plan, and suggests that the Plan itself is inadequate per NACTO guidelines and should instead be a Class I bikeway. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. The description of the planned Class III designation on SR 255 east of New Navy Base Road has been added in Section 4.0 (Errata).

Response to Comment 604-3 – Traffic, Transportation

This comment requests the DEIR have an analysis of collision data on SR 255 segments both north of and east of New Navy Base Road. The collision data and analysis has been added in Section 4.0 (Errata) and described in Master Response 1, truck traffic and road safety. The findings of Less Than Significant Impact for Impact TR-c remains the same as in the DEIR and no mitigation is warranted.

Response to Comment 604-4 – Traffic, Transportation

This comment posits that historical use of the Project access is not relevant as it relates to the proposed truck trips because non-motorized users have since been allowed access on SR 255 east of New Navy Base Road, as this portion of SR 255 used to be a limited access freeway. The DEIR Section 3.12 (Transportation) page 3.12-14 references the surrounding industrial zoning and the historical use of the Project Site access as it relates to truck traffic, not SR 255, although SR 255 is a designated truck route per the Caltrans Truck Networks Map for District 1 (Caltrans 2019). Additionally, please see Master Response 1 for additional information regarding truck traffic and safety. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 604-5 – Traffic, Transportation

This comment argues that any increase in heavy truck traffic from the Project would have a significant cumulative impact on non-motorized safety due to existing conditions of strong winds and narrow travel lanes and shoulder widths across the Samoa Bridge. Please see Master Response 1 and Section 4.0 (Errata) for additional information regarding truck traffic and safety. The findings of Less Than Significant Impact for Impact TR-c and Impact TR-e remain the same as in the DEIR and no mitigation is warranted.

McNamara, Cade

From: sbecker@reninet.com
Sent: Friday, February 11, 2022 12:51 PM
To: CEQAResponses
Subject: Please commit to modifications

Please commit to the following modifications to your existing plan. We value our local natural environment too much to risk. We believe the below 4 changes will also allow for positive industry developments by Nordic Aquafarms.

- 1. Potential effects should be modeled using ambient water quality data from ocean waters near the discharge point, rather than data taken in Humboldt Bay (approximately 3.5 miles south-southeast of the end of the ocean outfall pipe). 605-2
- 2. Levels of toxic algae should be monitored both pre- and post-project and compared to thresholds that would trigger protective actions before another toxic algae bloom leads to harmful levels of domoic acid. 605-3
- 3. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely by renewable energy. 605-4
- 4. Additional onsite renewable energy production through more aggressive utilization of solar, including over parking areas. 605-5

Thank, Stacy Becker
McKinleyville Resident

Letter 605 – Response to Comments

Response to Comment 605-1 – Changes to Project

The comment is introductory in nature and requests modification of the Project to reduce risks to the environment. Specific topics raised in Comment 605-1 are addressed in more detail in responses to comments 605-2 through 605-5. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 605-2 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 605-3 – Harmful Algal Bloom

The comment requests changes to the discharge sampling related to harmful algal blooms. The DEIR evaluates Harmful Algal Blooms (HAB), or “toxic algae,” in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9-23). HABs are driven by large-scale oceanic processes. Numerical modeling (Appendix E of the DEIR) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. It is important to note that monitoring of the Project effluent will be required by the Project’s NPDES permit, and NAFC has committed to additional monitoring above regulatory requirements. Details of these monitoring requirements and programs can be found within DEIR section 3.9 Hydrology and Water Quality. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 605-4 – Renewable Energy

The comment requests the Project only utilizes renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 605-5 – Additional Solar

The comment requests the Project increase onsite solar. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Friday 2/18/22

RE: NORDIC FRANKENFISH

To whom it may concern -

This project is way to out of control driven by money only
it is abominable.

606-1

TWO MILLION gallons of fresh water a DAY!
day after day year after year - that's insane!

606-2

EVERYTHING ABOUT IT IS BASED ON UNLIMITED GREED

606-3

WHAT ARE THE "OTHER INGREDIENTS" IN THE FISH FOOD?

606-4

THIS PROJECT IS DOOMED TO COLOSSAL FAILURE

606-5

TRANSPORTATION: BUILDING SUCH A MONSTROSITY
WILL TAKE 1000'S OF LOADS OVER
THE BRIDGES

606-6

DIS CHARGE: UTTERLY INSANE

606-7

WHEN WILL THE REALITY SET IN THAT WE CAN NOT
SUSTAINED. ~~MAKING~~ HORRENDOUS ATROSYTY SUCH AS THIS ^{SHOULD} BE
DISCREDITET AND ABANDONED.

606-8

I SAY NO TO FARMED FISH! HERE OR ANYWHERE - EVER

SINCERLY THOMAS G BELKER
BAYSIDE CA

Letter 606 – Response to Comments

Response to Comment 606-1 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or specific recommendations. Specific topics raised in Comment 606-1 are addressed in more detail in responses to comments 635-2 through 635-8. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 606-2 – Water Use

The comment is related to freshwater use by the Project yet provides no substantial evidence or recommendations. Per page 2-22 of the DEIR, the HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021 as cited in the DEIR). There are existing permits associated with freshwater allowable use far exceeding the needs of NAFC has been completed by HBMWD. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 606-3 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or specific recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 606-4 – Fish Food

The comment is related to ingredients used in the fish feed yet provides no substantial evidence or recommendations. Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 10 (Fish Feed). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 606-5 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 606-6 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master

Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 606-7 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 606-8 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Jennie Brown <jvbv61@gmail.com>
Sent: Friday, February 18, 2022 3:10 PM
To: CEQAResponses
Subject: nordic fish farm

As a long time Humboldt County resident a number of concerns come to mind. For now I will just mention a couple of them.

First off, regarding the enormous use of energy, it was not too long ago that most of the county experienced energy black outs twice. My understanding is that the old PGE plant was going to be able to keep basic energy needs going for vital services. Does the fish farm have plans for such events given the sad regularity of forest fires and the subsequent need for power shut offs? 607-1

Second, I find it disturbing that gazillions of gallons of water will be sucked in from the Bay each day. The Bay is a living ecosystem filled with a. I do not think that sucking in enormous amounts of water into the plant will not have an impact. Worse yet is the ongoing discharge of effluent, lots of it. I think this project is just waaaay to large and will affect one of our region's precious resources, Humboldt Bay. 607-2

I oppose the current plan as it currently stands.

Jennie Brown
Trinidad

Letter 607 – Response to Comments

Response to Comment 607-1 – Energy

This comment requests information on how the Project will operate during an electrical power shutoff. DEIR Section 2, Project Description, starting on page 2-27 provides details on the proposed onsite power backup systems. The emergency power backup systems would first use natural gas, and, if natural gas supply is interrupted, could run on diesel fuel. However, emergency power backup systems would only be utilized to power the Project facility if grid electrical power supply is shut down. As specified within the DEIR, the backup power generation system can run as long as necessary in the event of a prolonged power outage but would be permitted to be used a maximum 500 hours in a given year as its intended purpose is for emergency generation. Normal operations of approximately 10 run hours per year would be typical usage to confirm functionality and maintain lubrication outside of emergency use. Additional onsite power would be generated by the proposed 4.8 MW rooftop solar installation as described in DEIR Appendix O. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 607-2 – Water Intakes

The comment expresses general concern about the scale of the Project but provides no substantial evidence that the analysis is inadequate. Effects to planktonic species and marine species are assessed in the empirical transport model (DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53 and DEIR Appendix P). In summary, larvae entrainment would not result in a substantial decrease in marine populations that could be detected over natural variability. Additionally, the proposed facility would only remove 0.14% of the volume of water moving through the channel over a tidal cycle. Also see Master Response 7 for additional information on the seawater intake. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Bruce Campbell <madroneweb@aol.com>
Sent: Thursday, February 17, 2022 4:57 PM
To: CEQAResponses
Subject: re: Nordic Aquafarms application

To whom it may concern at the Humboldt County Board of Supervisors and beyond,

A project that consumes more energy than Arcata and Eureka combined is too big a scale for the Humboldt Bay area. Some believe the estimated truck trips per day during both construction and operation is less than is likely in the real world. Hey, if the Nordic Aquafarms proposal was cut by one-third, what would it be? It would still be a giant fish factory in a concentrated area. 608-1 608-2

And speaking of Arcata and Eureka, it would not be difficult for regular shuttles to transport workers from Eureka and then stop for some Arcata folks or head toward downtown Arcata for a few blocks and then back south again to Samoa, and then to the giant fish factory once again. A shuttle may make sense fairly ongoingly, and makes very obvious sense for the time of shift breaks for workers. 608-3

And because it is very concentrated and because they are living organisms in the real world, there may be a need to treat a mass number of fish with anti-biotics. While Nordic Aquafarms assures us that their operation will not need such, I do not trust their assurances. There must be major consequences for profiteers of this enterprise if antibiotics are used after all – since it impacts consumers, the Humboldt Bay environment, etc. 608-4

Another major problem with the major Nordic Aquafarms proposal is that it may increase demand to transport goods – some of which may attempt the reckless journey through the ancient sacred Richardson Grove State Park using giant trucks with 53’ trailer and large sleeper cab. The supplemental EIR needs to give better analysis on the region-wide impact of the NA proposed facility. 608-5

The EIR did not adequately account for what would happen if there is a major threat to the Humboldt Bay Municipal Water District water supply due to toxic plume spreading to the Mad River from which the area receives its water. 608-6

And speaking of Arcata and Eureka, it would not be difficult for regular shuttles to transport workers from Eureka and then stop for some Arcata folks or head toward downtown Arcata for a few blocks and then back on to Samoa – especially around shift breaks. 608-7

Please reject this out-of-scale N.A. facility which will have major inflow and outflows impacting numerous species. Call for serious mitigations which would limit the scale and deliver serious repercussions if antibiotics are used despite promises at the NA fish factory. 608-8

Thank you for your consideration of these comments. Also the toxic algae blooms in many parts of the West is not addressed – yet must be in a follow-up supplemental EIR. 608-9

Sincerely yours,
Bruce Campbell
10008 National Bl. # 163
Los Angeles, CA 90034

Letter 608 – Response to Comments

Response to Comment 608-1 – Traffic, Energy

This comment claims that the Project would consume more energy than Arcata and Eureka combined but provides no substantial evidence. The comment also speculates that the truck trips both during construction and operation is less than it would be in reality but provides no substantial evidence of these claims. Please see Master Response 1 and Section 4.0 (Errata) for additional information regarding truck traffic and road safety. Please see Master Response 2 with regard to GHG and energy. The findings of a less than significant impact for Impact TR-c remains the same as in the DEIR and no mitigations are warranted.

Response to Comment 608-2 – Facility Size

The comment notes the size of the facility and the possibility of a reduced footprint. A detailed analysis of Project alternatives is presented in section 4 of the DEIR and examines a wide range of considered options including alternate Project sites, fish species, and water sources. These options are analyzed according to overall project objectives and environmental impacts covered by CEQA. It was found that while the “No Project” option was the least environmentally impactful, it did still carry substantial impacts due to the existing environmental issues on the site that would have been remediated by the Project. Therefore, the only option that minimized impacts while still achieving project objectives is the currently proposed project, incorporating the mitigations detailed in the DEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 608-3 – Traffic, Transportation

This comment states that it would not be difficult to implement employee shuttles to and from Arcata, Eureka, and Samoa given the employee shifts. As documented in Section 3.12 (Transportation) and updated in Section 4.0 (Errata), no mitigation is required. However, as documented in Section 2.2 (Project Description), an Operation and Construction Transportation Plan will be developed as a condition of approval for the CDP.

As part of this plan, NAFC proposes to include ride sharing and van pools, and encourage and incentivize employees to use alternative modes of transportation for commuting. As noted in Section 4 (Errata), the Project Description has been updated to reference the alternative transportation strategies that NAFC has voluntarily committed to in association with the Project. Please see Master Response 1 (Truck Traffic & Road Safety). Please see Master Response 2 (Greenhouse Gas and Energy – On Road Truck Activity). As described in the DEIR, no additional mitigation measures are warranted. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 608-4 – Antibiotics

The comment expresses concern regarding the use of antibiotics by the Project. Please see page 2-37 of the DEIR for information on the use of antibiotics. The Project has established controls that would make exceedingly difficult for bacterial pathogens to enter and cause fish disease that would require treatment with antibiotics. Please see Master Response 4 (Fish Health and Biosecurity) regarding the impacts associated with antibiotic use. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 608-5 – Transportation

This comment expresses concern that the Project may have large trucks with 53' trailer and large sleeper cabs travelling on US 101 through Richardson Grove State Park. This portion of US 101 does allow 65' California Legal Route with a KPRA Advisory of 32. NAFC will employ licensed haulers who would be required to adhere to these travel limitations. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 608-6 – Water Supply

This comment expresses concern that effluent could result in contamination of the drinking water source in the Mad River. The Humboldt Municipal Water District sources its water from the Mad River above the tidal influence of the Ocean. Please see Appendix E of the DEIR for the Numerical Modeling Dilution Study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 608-7 – Transportation, Traffic

The comment states that employee shuttles to and from Arcata, Eureka, and Samoa would not be difficult due to the shift change. Please see response to Comment 608-3.

Response to Comment 608-8 – Scale, Impacts, Antibiotics

The comment expresses concern regarding the scale of the Project, potential impacts, and use of antibiotics by the Project. Please see page 2-37 of the DEIR for information on the use of antibiotics. The Project has established controls that would make it exceedingly difficult for bacterial pathogens to enter and cause fish disease that would require treatment with antibiotics. Please see Master Response 4 regarding fish health, biosecurity and the impacts associated with antibiotic use.

The comment expresses concern with impacts from inflow and outflow but offers no evidence to support. Please see Master Response 7 for information related to intake biologic productivity and intake salmonids, and Master Response 4 (Fish Health and Biosecurity) for effluent treatment. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 608-9 – Toxic Algae Blooms

This comment requests additional analysis specific to toxic algae blooms. Please see Master Response 5 (Marine Outfall) which specifically addresses this issue. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Patrick Carr <nedlud432@gmail.com>
Sent: Friday, February 18, 2022 3:03 PM
To: CEQAResponses
Subject: Nordic Aquafarm DEIR comments

February 18, 2022

Humboldt County Building and Planning Department

RE: Nordic Aquafarm DEIR comments

Thank you for the opportunity to provide comments on the Draft Environmental Impact Report (DEIR) prepared for the Nordic Aquafarm (NA) proposed salmon farm on the Samoa Peninsula.

As noted in the DEIR, this project will consume a vast amount of electricity, greater than that required to power every home, business, and governmental building in the cities of Eureka and Fortuna combined. When fully developed it will almost certainly demand the largest amount of electrical energy of any single industrial development in Humboldt County history.

609-1

In the context of rapidly growing impacts of climate change in the Humboldt County region (rising temperatures and increased periods of drought resulting in extraordinarily low streamflows in regional streams, and rapid increases in size and intensity of regional wildfires), the project's electrical demand and the nature of the resources that will be tapped to meet this demand deserve close attention. Further, Humboldt County experiences limited connectivity to the statewide power grid, meaning that without costly improvements to high voltage transmission lines, much of the electricity to power NA will be locally generated.

I really appreciate that NA developers propose an onsite solar PV array, but as the DEIR reports, this would contribute only 3% of the project's power at full build-out. Expanded use of solar PV at or near the project site is of limited value due to the high amount of coastal overcast at the project site and the lack of battery storage. It's highly likely that as the project expands to completion the vast majority of its power will come from PG&E's Humboldt Bay Generating Station (HBGS), which burns natural gas.

609-2

The DEIR assumes statutory requirements for electrical utilities to reduce GHG emissions in electricity production statewide as the main method of viewing the project as presenting no significant impact from the GHG emissions in producing its power. The assumption appears to be that even if natural gas provides most of NA's power, state requirements that PG&E and other utilities decarbonize will negate the regional fluke this represents.

609-3

Not considered is the fact that California faces serious challenges in "greening" its electrical power grid at the same time that PG&E's Diablo Canyon project is coming offline, and while industrial-scale renewable electricity sources statewide present significant environmental impacts which have led to delays in many of those projects coming online as planned. This must be taken into consideration as a part of the environmental review process for a project of this size, and developing contingency plans for how the project's power will be sourced from renewable or carbon-free resources -- at least to the extent required of California electrical utilities -- must be addressed. It may be that some diversity of power resources might be the "safest" plan for a project of this size and with a requirement of 24/7 power availability. This could be a "win-win" if a variety of smaller wind and solar projects took the place of 97% reliance on one high GHG-emitting plant, sited near an earthquake fault and only feet above a rising sea level.

609-4

Another issue in the area of GHG emissions is the use of huge amounts of refrigerants for NA. Obviously, cold water fish require cold water, constantly throughout the year. Refrigerants leak in small amounts through flaws in cooling systems as well as in larger amounts when maintenance is required or when a cooling system comes offline. Assiduous care to reduce leakage helps but even more important from the standpoint of reducing climate impacts is use of so-called "green" refrigerants that present lower Global Warming Potential (GWP). Given the extremely large amounts of refrigerants that will be used by NA, it would seem to be a reasonable mitigation to *require* use of the lowest GWP refrigerants feasible for this project.

609-5

An additional concern that I have about the DEIR are impacts caused by the large amount of vehicle traffic to and from NA's facility. There is no bus service to the NA site and with the large number of daily commute trips by employees, and truck traffic to service the project, this would seem to potentially reach "significant impact" status in terms of the Vehicle Miles Traveled (VMT) standard. It doesn't seem like it would be too much effort for NA to develop vanpools or other transportation assistance for its employees to reduce their single-occupant, ten trips per week use of their cars, and this would be a reasonable mitigation to be required both to reduce GHG impacts as well as increase safety on a highway that is often popular for bicyclists and pedestrians.

609-6

Patrick Carr
1704 Virginia Way
Arcata CA 95521

Letter 609 – Response to Comments

Response to Comment 609-1 – Energy

This comment provides general information about the electrical power context in Humboldt County. The comment does not raise issues pertaining to the content or adequacy of the DEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 609-2 – Energy

This comment provides opinions that the Project would purchase power from PG&E's Humboldt Bay Generating Station, which burns natural gas. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 609-3 – Energy

This comment provides an unsubstantiated narrative of the DEIR's GHG emissions analysis. The comment states that the DEIR GHG analysis is relying on statutory requirements of electrical utilities to reduce GHG emissions from electricity production statewide as a basis of determining that the Project would not generate a significant GHG impact; however, this is a misrepresentation of the DEIR's impact analysis. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and thresholds of significance utilized. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 609-4 – Energy, Emissions

This comment requests that the environmental review process include contingency plans for how the Project's power will be sourced from renewable or carbon-free resources. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. As shown in Master Response 2, PG&E and RCEA have demonstrated ability to provide 100% renewable and/or non-carbon energy portfolios; the Project's energy demands would not jeopardize or conflict with statewide or locally adopted energy plans. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 609-5 – Refrigerants, GHG

This comment requests mitigation to require the use of the lowest GWP refrigerants feasible for the Project. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding refrigerants. As detailed in Master Response 2 and DEIR Section 3.7, Greenhouse Gas Emissions, CARB's Refrigerant Management Program (RMP) requires facilities with refrigeration systems containing more than 50 pounds of high-GWP refrigerant to conduct and report periodic leak inspections, promptly repair leaks; and keep service records on site. Additionally, newly adopted regulations by CARB require new stationary refrigeration installations to use refrigerants with a global warming potential of 150 or less.

Consistent with new State law, the Project would be required to use refrigerants with a Global Warming Potential of 150 or less, and to comply with the RMP that will be in place prior to Project operations. Additionally, the Project will evaluate the feasibility of using recycled refrigerants. Greenhouse gas impacts

associated with the Project's use of refrigerants were evaluated in DEIR Section 3.7, Greenhouse Gas Emissions, Impact GHG-1a and Impact GHG-1b and were found to be less than significant.

Response to Comment 609-6 – Transportation, Greenhouse Gas

This comment expresses concern about the amount of vehicle traffic, stating that there is no bus service to the Project and speculates that the Project would reach a significant impact with VMT with the large number of daily commute trips and truck traffic, however, offers no substantial evidence. The comment also states that vanpools for employees would be a reasonable mitigation to both reduce GHG impacts as well as increase safety on the highway yet offers no substantial evidence that mitigation would be required.

As documented in Section 3.12 of the DEIR (Transportation) the Project does not result in a significant VMT impact, and in Section 3.7 of the DEIR (GHG) no mitigations are required. Please see Master Response 1 (Truck Traffic & Road Safety). Please see Master Response 2 (Greenhouse Gas and Energy – On Road Truck Activity). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the alternative transportation strategies that NAFC has voluntarily committed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Lina C Carro <lina.carro@humboldt.edu>
Sent: Friday, February 18, 2022 12:31 PM
To: CEQAResponses
Subject: Draft EIR Nordic Aquafarms Land-Based Aquaculture Project comments

February 18, 2022

Sent via email to address shown below

Planning Director John Ford
Humboldt County Planning & Building Department 3015 H Street
Eureka, CA 95501 CEQAResponses@co.humboldt.ca.us

Dear Planning Director Ford,

I am writing to express only some of my many concerns about the Nordic Fish Farm project's Draft Environmental Impact Report (DEIR). I agree with the findings of the coalition of our local environmental groups that significant impacts have not been fully assessed and mitigated. These impacts include, but are not limited to, increased electricity demands, greenhouse gas emissions, ocean discharge, and traffic disturbance and other impacts to our community and our quality of life. 610-1

At full build out, it would use 21% of the county's energy supplies - *as much as the cities of Eureka and Fortuna combined*. And yet the draft EIR concludes there would be no significant impacts from greenhouse gas emissions, truck traffic, bay intakes that will draw 10,000,000 gallons and an ocean discharge of 12,000,000 gallons of treated wastewater a day. 610-2

At minimum, the following changes will help to reduce some of the fish farm's impacts. To make sure Nordic commits to these changes, I am requesting the following modifications:

1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy. 610-3
2. The project maximizes its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas. 610-4
3. An adaptive management provision that requires Nordic to buy locally-produced renewable power as it is commercially available. 610-5
4. Modeling of ambient water quality using data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point). 610-6
5. Baseline monitoring and continuous monitoring of the effluent should be performed by experts and compared to an established threshold which would trigger protective actions. 610-7
6. Provide a better, more complete analysis of truck traffic impact. The DEIR says that the project will generate 95 new truck trips each week, but after reviewing the data the actual number is likely to be at least twice that. These trucks will travel long distances with heavy loads, producing a lot of climate-harming emissions and new hazards for people biking and walking as they pass through Eureka and Arcata, not to mention, produce serious wear and tear on our roads. The fish farm will also employ 150 610-8

employees in a location that has few alternatives to driving to work in our large, rural county. I think that the fish farm needs to provide or lend financial support to create transportation options for their employees as well as mitigate some of the damage their truck traffic will have on our county roads.	↑ 610-8 cont.
7. Provide a more complete detailing of mitigations for seabirds, Northern Harriers, and Short-Eared Owls.	610-9
8. Section 5.3- Non-Special status marine species: Provide details of protection for Non-Special status marine species that are listed as being impacted at moderate and high impact levels.	610-10
9. Correct erroneous information about the preparers of the DEIR document. Ken Mierzwa is listed as one of four preparers of the DEIR which is not correct. (In fact, Mr. Mierzwa stated that he would have refused to put his name on this DEIR because so many items require additional analysis and/or additional mitigation.)	610-11

Such an "oversight" demonstrates how little care and thoroughness went into the creation of the Draft EIR Nordic Aquafarms Land-Based Aquaculture Project document.

Thank you for considering my comments and for guiding our county through this planning process.

Sincerely,
Lina Carro
101 Misty Hill Ln.
Eureka, CA 95503

Letter 610 – Response to Comments

Response to Comment 610-1 – Introduction Remarks

This is an introductory comment. Specific issues raised are addressed in detail in responses comment 610-2 through 610-11. No further response is required.

Response to Comment 610-2 – Energy, Intake, Discharge

This comment is identifying the Project's anticipated energy demands and the DEIR's conclusion of no significant GHG emissions impacts. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the thresholds of significance used in the GHG emission impact analysis. DEIR Section 3.7, Greenhouse Gas Emissions, details the analysis methodology, emissions outputs, and significance determinations. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 610-3 – Energy

This comment requests that the EIR include an explicit requirement that the Project be powered solely through renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 610-4 – Energy

This comment requests that onsite solar energy be maximized. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. As detailed in the DEIR Section 2 (Project Description) on pages 2-1 and 2-19, the Project includes a 4.8 MW solar array, which would be located on approximately 657,000 square feet of facility roofs. As described in DEIR Section 3.5, Energy Resources, starting on page 3.5-3, a Conceptual Solar PV Array Layout Technical Memorandum was developed using the National Renewable Energy Laboratory's PVWatts Calculator to estimate the energy production of the Conceptual Solar Layout. Based on the conceptual system sizing and site-specific insolation data established in the tech memo, the total potential solar PV system size for a roof mounted system at the Project Site on Buildings 1, 2, and 3 is 4.845 MW, with an estimated annual production of 5,553 MWh. This technical memorandum is included in the DEIR as Appendix O. Energy impacts were evaluated in DEIR Section 3.5 (Energy) and were found to be less than significant. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 610-5 – Energy

This comment requests that the Project include an adaptive management provision to require NAFC to purchase local renewable power when local renewable becomes commercially available. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Energy impacts were evaluated in DEIR Section 3.5 (Energy) and were found to be less than significant. Greenhouse gas impacts were evaluated in DEIR Section 3.7 (Greenhouse Gas Emissions) and were found to be less than significant. Given the

information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 610-6 – Water Quality Modeling Data

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 610-7 – Discharge Monitoring

This comment requests that monitoring of the effluents should be performed by experts. Monitoring of the discharge will be performed and analyzed by qualified experts. Please see Master Response 5 (Marine Outfall) which addresses monitoring of the treated effluent discharge in greater detail. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 610-8 – Transportation, Traffic

This comment requests a better, more complete analysis of truck traffic due to review of the data showing it may be more, yet the comment does not specify or offer substantial evidence. The comment posits that the trucks will produce new hazards for people biking and walking in Eureka and Arcata and that NAFC should provide transportation options for employees and to mitigate damage from truck traffic on county roads. Please see Master Response 1 (Truck Traffic & Road Safety). Please see Master Response 2 (Greenhouse Gas and Energy – On Road Truck Activity). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the alternative transportation strategies that NAFC has voluntarily committed to in association with the Project. The findings of Less Than Significant Impact for Impact TR-c remains the same as in the DEIR and no mitigation is warranted. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 610-9 – Birds, Wildlife

The DEIR discusses and provides impact analysis on seabirds in Appendix D (Marine Resources Biological Evaluation). Table 5.1 starting on page 15 of the Marine Resources Biological Evaluation, summarizes potential occurrence of seabirds with the Project Study Boundary (PSB). Section 6 of this report discussed impacts to species, including birds, in the Pacific Ocean.

In addition, Appendix J (Construction Noise, Vibration and Hydroacoustic Assessment) discusses noise impacts to birds, specifically Marbled Murrelets, on Page 15 and in Table 8 on Page 15.

Noise impacts from the Project are not expected to occur on any species in the Pacific Ocean, given the distance from the Project to the ocean. No significant impacts are anticipated on seabirds from the effluent discharge or construction or operation of the Humboldt Bay intakes.

Discussion of special status and protected birds can be found in Section 3, pages 3.3-43 through 3.3-45 of the DEIR.

With regard to Northern Harriers and Short-Eared Owl, the DEIR contains Mitigation Measure BIO-5 on page 3.3-45, which is a robust measure to protect special status, migratory and nesting birds.

In general, this comment is vague and does not provide details nor substantial evidence on impacts associated with seabirds, Northern Harriers and Short-Eared Owls. Please see Master Response 8, substantial evidence, speculation, and unsubstantiated opinion.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigation is warranted.

Response to Comment 610-10 – Biological Resources

This comment expresses concern that non-special status marine species that have a high or moderate likelihood of being in proximity to the Ocean Discharge (as listed in DEIR Appendix D, Section 5.3, Table 5.2) require more detailed analysis. The DEIR Appendix D analyzed effects of the Ocean Discharge for all non-status species likely to occur in the vicinity of the Ocean Discharge site. The non-status species were at a low risk of adverse effects even if found near the Project, due to 1) their high mobility, distribution within the vicinity, and movement patterns and 2) limited exposure due to the rapid diffusion of effluent from the outfall, as described in the Numerical Modeling Report (DEIR Appendix E). Please see Master Response 5 (Marine Outfall) for additional information regarding the discharge. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 610-11 – Biological Resources

Ken Mierzwa did not contribute to the Marine Resources Biological Evaluation report associated with the DEIR. Including Ken's name as an author was an administrative oversight. Mr. Mierzwa's name has been removed from the report and documented in Section 4 (Errata) of this FEIR.

McNamara, Cade

From: Colleen Clifford <dunebean@gmail.com>
Sent: Friday, February 11, 2022 11:30 AM
To: CEQAResponses; McNamara, Cade; Jennifer Kalt
Subject: Nordic Aquafarms comment

Hello,

I would like to comment on the DEIR for the Nordic Aquafarms project.

I agree with Humboldt Baykeeper that some of the possible detrimental side effects of this project need to be addressed, namely using ocean water data from the site, rather than from Humboldt Bay; monitoring algae data to compare before and after effects; requirement that power used is 100% renewable; and extra onsite energy production from renewable sources.

| 611-1
| 611-2
| 611-3
| 611-4

Humboldt deserves nothing less than a large-scale project doing its absolute best to be environmentally respectful and responsible considering the sensitive habitat in which it will be built.

Thank you,
~Colleen Clifford
Manila, CA

Letter 611 – Response to Comments

Response to Comment 611-1 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 611-2 – Harmful Algal Bloom

The comment requests changes to the discharge sampling related to harmful algal blooms. The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9. HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 611-3 – Renewable Energy

The comment requests the Project solely utilize renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and the enforceability of that commitment. As shown in Master Response 2, PG&E and RCEA have demonstrated the ability to provide 100% renewable and/or non-carbon energy portfolios, and the Project is committed to 100% renewable and/or non-carbon energy. See also Response to Comment 503-4.

As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project.

Response to Comment 611-4 – Additional Solar

The comment requests the Project increase onsite solar. Please see Master Response 2 for information on the potential for including additional onsite solar in the Project.

McNamara, Cade

From: daniel coleman <dandaddyc@yahoo.com>
Sent: Monday, February 14, 2022 8:56 PM
To: CEQAResponses
Subject: Nordic Aqua Farms

- We're very happy to have Nordic as a neighbor and local employer. Welcome! | 612-1
- We believe Nordic should provide for their own electrical needs using wind and/or solar power. | 612-2
- We believe Nordic should provide a local composting facility to handle their own sludge. | 612-3
- We feel confident that Nordic wants to be a good neighbor. Welcome!

Letter 612 – Response to Comments

Response to Comment 612-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Response to Comment 612-2 – Self-Sourced Power

This comment states NAFC should provide for their own electrical needs using wind and/or solar power. Please see Master Response 2 for information on the potential for including additional onsite solar in the Project. It is not feasible for NAFC to generate all power onsite; however, the large solar panel array atop the building roofs would produce some onsite power. As detailed in the DEIR Section 2 (Project Description) on pages 2-1 and 2-19, the Project includes a 4.8 MW solar array, which would be located on approximately 657,000 square feet of facility roofs. NAFC remains committed to renewable energy and energy efficiency.

Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. As described in the DEIR, no additional mitigation measures are warranted. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project.

Response to Comment 612-3 – Waste

This is a comment requesting NAFC to build a compost facility in Humboldt County. Please see Master Response 11 for additional clarification regarding waste handling and disposal. The Project will not have an onsite composting facility. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Carol Somebody <carolcon25@gmail.com>
Sent: Wednesday, February 16, 2022 1:40 PM
To: CEQAResponses
Cc: Madrone, Steve
Subject: Humboldt County's Draft Environmental Impact Report (DEIR) for the Nordic Aquafarms project

Nordic Aquafarms and Public Safety Power Shutoff Events

Global warming's impact on Humboldt County is often depicted in terms of anticipated ocean rise—an important concern. But the most immediate effects for most residents are the threat of wildfires.

Coastal communities located in Humboldt County experience increased disruptions in electrical services as PG&E responds to fire threats with Public Safety Power Shutoff events. These shutoffs are occasioned not only by active fires, but by high winds, lightning storms, excessive heat, and drought. Given warming trends, we know these events, already common, will become more frequent.

The effects of these power disruptions have been minimized locally by “islanding” of the Humboldt Bay Generation Station, a 163 MW powerplant capable of servicing up to 67,000 customers during interruptions in service connections to the grid. The plant is able to do this via turbines designed to run on both natural gas (which is piped in overland) and low sulfur diesel. Thanks to islanding, many residents living along the coast in Humboldt County have experienced few regional power outages after the first year of implementation of PSPS.

According to the draft Environmental Impact Statement submitted by Nordic Aquafarms, the facility foresees an approximate 22.3 MW demand and expects to require 21% of annual electricity used by the county at full buildout – as much electricity annually as Eureka and Fortuna combined. This is to be somewhat compensated for by a rooftop mounted solar PV system that will produce, at most, 4.85 MW. It is as yet unclear precisely how much power can be produced on site.

Nordic Aquafarms will be allowed 500 hours, or about 21 days, of emergency power generation on site provided by a diesel generator. They expect to use this backup during power outages, but it is unclear if they intend to utilize generators during PSPS events. If so, it's not hard to imagine more than 21 days of service interruption.

On the other hand, if Nordic Aquafarms intends to use locally produced power during PSPS events, given the limited capacity of the Humboldt Bay Generation Station and the increasing need for islanding, it is difficult to imagine that PG&E would be capable of supplying the additional demands of Nordic Aquafarms during islanding without negatively impacting service to the community at large.

613-1

It is incumbent on representatives of our community to consider closely the impact of increased electricity demand during islanding as this project is under review.

↑613-1
cont.

Thank You,

Carol Conaway

2660 Kelly Ave

McKinleyville, CA 95519

Letter 613 – Response to Comments

Response to Comment 613-1 – Energy

This comment requests how the Project will operate during an electrical power shutoff. DEIR Section 2, Project Description, starting on page 2-27 provides details on the proposed onsite power backup systems. The emergency power backup systems would first use natural gas and, if natural gas supply is interrupted, could run on diesel fuel. However, emergency power backup systems would only be utilized to power the Project facility if grid electrical power supply is shut down. As specified within the DEIR, the backup power generation system can run as long as necessary in the event of a prolonged power outage but would be permitted to be used a maximum 500 hours in a given year as its intended purpose is for emergency generation. Normal operations of approximately 10 run hours per year would be typical usage to confirm functionality and maintain lubrication outside of emergency use. Additional onsite power would be generated by the proposed 4.8 MW rooftop solar installation. If requested by the power provider, for an emergency of for grid stability, NAFC could switch to backup power anytime at any time.

McNamara, Cade

From: Steve Cooksey <sbcooksey@yahoo.com>
Sent: Tuesday, February 15, 2022 1:22 PM
To: CEQAResponses
Subject: Proposed fish farm on Humboldt Bay

Hello,

I'm not against the project except for one concern. What species of fish will be raised? And what will be the consequences if and when someone scoops up a bucket of fingerlings and dumps them into Humboldt Bay, or Elk River, or other body of fresh water? We need to at least think about that.

Sincerely,
Steve Cooksey
Eureka, CA

Sent from [Mail](#) for Windows

Letter 614 – Response to Comments

Response to Comment 614-1 – Fish Escape

The comment requests information on the species and concerns around fish escape. Per page 2-13 of the DEIR, proposed species to be produced at the facility is Atlantic Salmon. Please see Master Response 3 regarding concerns around fish escape. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Gail Coonen <gailmail@reninet.com>
Sent: Friday, February 18, 2022 11:00 AM
To: CEQAResponses
Subject: Fwd: Fish farm EIR comment

To whom it may concern,

I am writing to voice my concern about issues that have not been adequately addressed by the EIR for the proposed fish farm on Samoa Peninsula.

I am not opposed to there being a fish farm, the biggest commercial undertaking in Humboldt County in years, but it needs to be done responsibly.

615-1

The Climate crisis is upon us and we live in one world. Therefore, I am in support of the mitigations being asked for in the list below. I am asking, along

with other concerned citizens of Humboldt County, that you change the requirements for the project to move forward .

An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy

615-2

The project shall maximize its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas.

615-3

The project shall use refrigerants with a global warming potential of under 150.

615-4

The food fed to the salmon shall be certified to have the lowest greenhouse gas footprint commercially available.

615-5

Modeling of ambient water quality shall use data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5

615-6

miles south-southeast of the discharge point).

Baseline monitoring and continuous monitoring of the effluent shall be performed by experts and compared to an established threshold which would trigger protective actions.

615-7

Thank you,

Gail Coonen

Letter 615 – Response to Comments

Response to Comment 615-1 – Changes to Project

The comment is introductory in nature and requests modification of the Project to reduce risks to the environment. Specific topics raised in Comment 615-1 are addressed in more detail in responses to comments 615-2 through 615-7. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 615-2 – Renewable Energy

The comment requests the Project only utilizes renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. As described in the DEIR, no additional mitigation measures are warranted. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 615-3 – Additional Solar

The comment requests the Project increase onsite solar. Please see Master Response 2 regarding GHG and energy for information regarding additional onsite solar. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 615-4 – Refrigerants

The comment requests the Project only use refrigerants with a global warming potential of under 150. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 615-5 – Fish Food

The comment is related to analysis of GHG and fish feed. Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 10 (Fish Feed). Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 615-6 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 615-7 – Discharge

The comment requests baseline monitoring and continuous monitoring of the Project discharge. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline

and ongoing sampling. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Lee Dedini <dedinilee@gmail.com>
Sent: Tuesday, February 15, 2022 10:20 PM
To: CEQAResponses
Subject: Nordic aquaculture DEIR

My comments.
Lee Dedini, Bayside, Ca.

Request to make sure Nordic commits to the following required mitigations:

- | | |
|--|-------|
| 1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy. | 616-1 |
| 2. The project shall maximize its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas. | |
| 3. The project shall use refrigerants with a global warming potential of under 150. | 616-2 |
| 4. The food fed to the salmon shall be certified to have the lowest greenhouse gas footprint commercially available. | 616-3 |
| 5. Modeling of ambient water quality shall use data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point). | 616-4 |
| 6. Baseline monitoring and continuous monitoring of the effluent shall be performed by experts and compared to an established threshold which would trigger protective actions. | 616-5 |

Letter 616 – Response to Comments

Response to Comment 616-1 – Energy

This comment requests that the EIR include an explicit requirement that the Project be powered solely through renewable energy, and also requests that onsite solar energy be maximized. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and the enforceability of that commitment. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 616-2 – Refrigerants, GHG

This comment requests that the Project commit to using refrigerants with a global warming power (GWP) of no more than 150. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the refrigerants. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 616-3 – Feed, GHG

This comment requests that the Project use fish food certified to have the lowest GHG footprint commercially available. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the lifecycle analysis of fish food, and appropriate emissions inventory methodology for CEQA analysis. Greenhouse gas impacts were evaluated in DEIR Section 3.7 (Greenhouse Gas Emissions) and were found to be less than significant. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 616-4 – Water Quality Modeling Data

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 616-5 – Discharge Monitoring

This comment requests that monitoring of the effluents should be performed by experts. Monitoring of the discharge will be performed and analyzed by qualified experts. Please see Master Response 5 (Marine Outfall) which addresses monitoring of the treated effluent discharge in greater detail. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Margaret Dickinson <ppotter1931@gmail.com>
Sent: Monday, February 14, 2022 9:27 PM
To: CEQAResponses
Subject: Aquafarm project

Initially I was very glad to hear about the possible development of the Nordic fish farm project.

After looking carefully at the proposal, and reading further about the development I do have some concerns, and a recommendation.

The demands on our clean water supply presented by the project raise problems of water supply and costs. Water prices jumped after the mill closures, and high demands from the Aquafarm project may force further cost increases. Can the prospects for recycling water be clarified so the rate-paying citizens know what may be demanded of us.

617-1

I think the compostable refuse from the aquafarm should be treated HERE, and used in Humboldt County. I think a composting plant should be built HERE, providing jobs, and income to the county through sale of the product. In my opinion Nordic Farms and Humboldt County should share the cost of plant construction.

617-2

Finally I recommend that Nordic Farms and Cal Poly Humboldt cooperate to create a teaching and research facility. It should be focused on improving and developing small industries based on marine development, ecology, and protection of marine resources.

617-3

Please give serious consideration to these issues, and this opportunity to combine industry and education.

Thank you for your attention,

Margaret P. Dickinson. Eureka

Sent from my iPhone

Letter 617 – Response to Comments

Response to Comment 617-1 – Water Rates

This is a comment expressing concern over water rate increases following the closure of the pulp mills. Water rates rose after the closure of the mills due to the HBMWD losing their largest customers. HBMWD gaining a large new water customer would not result in increased rates for residential customers. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 617-2 – Waste

This is a comment requesting NAFC to build a compost facility in Humboldt County. Please see Master Response 11 for additional clarification regarding waste handling and disposal. The Project will not have an onsite composting facility. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 617-3 – Collaboration

This is a comment requesting NAFC collaborate with Cal Poly Humboldt to create a teaching and research facility. Employees from NAFC with specific expertise in aquaculture science are in direct contact with Cal Poly Humboldt professors and students. Already several lectures have been given both in person and remotely to students, and NAFC continues to be a resource for learning and career development at Cal Poly Humboldt, as well as at the College of the Redwoods (CR). NAFC has been included in dialogue at both institutions as they assess the potential and needs for developing further infrastructure to support workforce education at their respective institutes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Maggi Draper <maggi@humboldt1.com>
Sent: Wednesday, February 16, 2022 4:34 PM
To: CEQAResponses
Subject: comments on Humboldt County's Draft Environmental Impact Report (DEIR) for Nordic Aquafarms

Dear Humboldt County Planning,

This constitutes my comments on Humboldt County's Draft Environmental Impact Report (DEIR) for the **Nordic Aquafarms** project for the record.

In general, though the DEIR follows the general pattern of such documents, it fails at succinctly comparing and contrasting the environmental impacts with associated mitigations in a fashion that the public can absorb. The result is potential obfuscation or omission of important environmental impacts and issues and appropriate citizen comments. (Climate change is a good example of this in the document.) Perhaps more graphs would simplify representation of mitigations for impacts discussed. Also, the way the document is organized makes it difficult to assess overlapping impacts in different sections to reveal cumulative effects.

618-1

How is it that DEIR concludes there would be no greenhouse gas effect? It is astonishing that the electricity use by the Nordic Aquafarms project is projected to use 21% of Humboldt County's load. I have heard it said that the amount is at least equivalent to the usage of Eureka and Fortuna put together! The failure to adequately address this major environmental impact and greenhouse gas assault in the DEIR is abject. The proposal indicates that the company has not done enough to plan for generating it's own power without greenhouse gas output, and it should be obligated to fully maximize onsite solar generation, offshore wind, the balance to be purchased renewable energy sources commensurate with Humboldt County's grid limitations... Mitigations should involve generation of **all** of project energy requirements via **maximum onsite solar**, **offshore wind**, and some **renewable** energy from a source that is demonstrably permanent in a revised EIR.

618-2

I find it very peculiar that Ken Mierzwa was listed as a preparer of the report, and yet says he was not involved. This error (though apologized for) is even more profound, given that Mr. Mierzwa has serious concerns with the DEIR's fish transport numbers and other elements; fish grown in Nordic's Samoa facility would still need to be trucked to markets up and down the West Coast. "That's not analyzed in the EIR but it ought to be," Mierzwa said.

618-3

There are issues with regard to report's greenhouse gas emissions analysis, which bases projections on PG&E's self-reported 2019 figures for carbon dioxide emissions per megawatt hour (possibly erroneous) , and the choice of an incorrect carbon emissions threshold from the Bay Area Air Quality Management District. The latest 2019 figures may not be a suitable benchmark either.

618-4

Fish feed may be a significant emissions source and is not properly addressed. Fish feed should maximize feed that has been tracked for greenhouse gas emissions with the lowest level possible. The DEIR could include a plan for the company to leverage their position as a market leader to drive innovation and further increase the amount of vegetable and insect content in fish feed.

618-5

The truck traffic effect was inadequately assessed.

618-6

The DEIR should spell out adequate mitigations for the impacts of hydrofluorocarbons and hydrochlorofluorocarbons,

618-7

Also, it seems absurd to conclude that intake of 10 million gallons, and output of 12 million in water would *not* be deemed significant impacts on the environment Assessment measures are deficient in that discharge

618-8

measurements should be taken *at* the discharge area, not several miles away from it-the two locations have potentially different temperatures, salinity and other conditions. Section 316(b) of the Clean Water Act, requires the EPA to issue regulations on the design and operation of intake structures for water flow - this has not been adequately addressed in the document.

618-8
cont.

Demoic acid affects should be addressed to solve any problems if toxic algae presence is amplified by this project, and a monitoring budget established therefore with appropriate mitigations included.

618-9

While the facility is set to be built in two phases, to allow Nordic to commission, operate and adjust the facility to local conditions (if necessary) before building the second half of the facility, I have seen nothing about what conditions need to be fulfilled before the second phase can be completed. The DEIR should have monitoring plans and analysis of methods to put the brakes on further development of the site if environmental goals are *not* met. No piecemealing to get things through the process unrecognized. This project holds promise for the community, but the scale is too much/too soon.

618-10

I was not born yesterday, and I have seen environmental documents become a paper parade in the path to further environmental destruction, blessed by momentum. As a Humboldt County taxpayer and citizen I take this seriously, and expect the County and the Company to continue working together to *refine* these planning documents BEFORE further administrative progress: it's much easier to tackle environmental consequences in the planning stage than find out later that unexpected consequences are costing the County financially and environmentally. This is not obstructionism, but rather good planning strategy for all concerned. I look forward to seeing an updated DEIR that reflects the cumulative impacts of various elements with regard to air and water emissions in a more comprehensive and thorough fashion.

618-11

Thank you for your work,

Margaret Draper



This email has been checked for viruses by Avast antivirus software.

www.avast.com

Letter 618 – Response to Comments

Response to Comment 618-1 – Changes DEIR Format

The comment requests changes to format and contents of the DEIR yet provides no substantial evidence or recommendations. The format of a DEIR document is dictated by CEQA and is not unique to these Project applicants. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-2 – GHG and Renewable Energy

The comment requests renewable energy and additional GHG analysis. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-3 – Authorship

The comment has questions regarding report authorship and Ken Mierzwa. Ken Mierzwa did not contribute to the Marine Resources Biological Evaluation Report associated with the NAFC DEIR. Including Ken's name as an author was an administrative oversight. Mr. Mierzwa's name has been removed as an author as documented in Section 4.0 of this FEIR in the Errata.

Response to Comment 618-4 – GHG

The comment requests additional GHG analysis. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-5 – Fish Food

The comment is related to analysis of GHG and fish feed. Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 2 regarding GHG. Please see Master Response 10 (Fish Feed). Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-6 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-7 – Refrigerants

The comment requests information related to refrigerants and GHG. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-8 – Water Use and Discharge Modeling

The comment is related to water use by the Project yet provides no substantial evidence or recommendations. Per page 2-22 of the DEIR, The HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021). Permitting associated with freshwater allowable use far exceeding the needs of NAFC has been completed by HBMWD. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-9 – Harmful Algal Bloom

The comment requests changes to the discharge sampling and monitoring related to harmful algal blooms. The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9. HABs are driven by large-scale oceanic processes. Numerical modeling (Appendix E of the DEIR) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-10 – Opinion

The comment is an opinion on the Project phasing yet provides no substantial evidence or recommendations. The DEIR analyses potential impact for all phases of the Project and, therefore, is not piecemealing the Project through phasing. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 618-11 – Opinion

The comment is an opinion on the Project and completeness of the DEIR yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Alice Finen
PO Box 676, Blue Lake, CA 95525
alicefinen@gmail.com

February 18, 2022

Mr. Cade McNamara, Planner II
Humboldt County Planning Commission
825 Fifth Street
Eureka, California 95521



Re: Public Comments on the Draft Environmental Impact Report (DEIR) for the Nordic Aquafarms California, LLC - Coastal Development Permit and Special Permit application (Case Number PLN-2020-16698)

Dear Mr. McNamara,

I am an elementary school educator in Bayside and a resident of Blue Lake. My husband, a firefighter, and I have lived in Humboldt County for over 20 years and have two children who were born in Eureka. We chose to live and raise our family here because of the beautiful environment and the close knit community. Since living here I have noticed extreme changes in the weather. Where our winters were once rainy continuously and summers often overcast we have seen far less rain and far more sun. Every year it feels as though the rivers have less and less water and FISH and our mountains are getting drier. I believe it is imperative to take every single precaution we can to limit our carbon footprint. To limit our water usage. To protect our rivers and watersheds and all of the keystone species in our environment.

619-1

Therefore, I stand with Save CA Salmon, the Northcoast Environmental Center, Humboldt Baykeeper, 350 Humboldt, EPIC, the Coalition for Responsible Transportation Priorities and the Humboldt Surfrider Foundation in calling for the following reasonable mitigations to the Nordic Aquafarms project.

1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy.
2. The project maximizes its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas.
3. An adaptive management provision that requires Nordic to buy locally-produced renewable power as it is commercially available.
4. Modeling of ambient water quality using data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point).
5. Baseline monitoring and continuous monitoring of the effluent should be performed by experts and compared to an established threshold which would trigger protective actions.

619-2

619-3

619-4

619-5

6. A sizable annual donation shared between the Wiyot Honor Tax AND local indigenous led organizations supporting efforts to restore and protect California salmon and rivers.

619-6

After reading the Draft Environmental Impact Review (DEIR) and the comments on the DEIR I am strongly opposed to the Aquafarms Project being allowed to move forward without the aforementioned mitigations being made. Patrick Higgins raised concerns about the potential for nutrient disposal from the facility to cause hazardous algae blooms. This must be mitigated. Genevieve Rozhon and Ken Mierwa were listed as preparers of Appendix D, Marine Resources. Both said they had not worked on the DEIR nor seen the document until just recently. This is a HUGE warning that further study must take place. Please take into consideration all statements being made by experts. Do not move forward with this project until we are 100% sure it will be sustainable and all mitigations are met.

619-7

619-8

619-9

With gratitude,

A handwritten signature in cursive script that reads "Alice Finen".

Alice Finen

Letter 619 – Response to Comments

Response to Comment 619-1 – General

This comment is introductory in nature. This comment states support of comments from the Northcoast Environmental Center (NCEC), Coalition for Responsible Transportation Priorities (CRTP), Environmental Protection Information Center (EPIC), and Humboldt 350. This comment is introductory in nature and provides a segue into Comments 619-2 through 619-6. Please see responses to comments 517-4 through 517-12 for detailed responses specifically addressing each concern. Please refer to Response to Comments 503-1 through 503-36 for responses addressing the comments from the organizations cited by the comment. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 619-2 – Energy

This comment requests that onsite solar energy be maximized. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Please see Master Response 2 for information on the potential for including additional onsite solar in the Project.

As detailed in the DEIR Section 2 (Project Description) on pages 2-1 and 2-19, the Project includes a 4.8 MW solar array, which would be located on approximately 657,000 square feet of facility roofs. As described in DEIR Section 3.5, Energy Resources, starting on page 3.5-3, a Conceptual Solar PV Array Layout Technical Memorandum was developed using the National Renewable Energy Laboratory's PVWatts Calculator to estimate the energy production of the Conceptual Solar Layout. Based on the conceptual system sizing and site-specific insolation data established in the technical memo, the total potential solar PV system size for a roof mounted system at the Project Site on Buildings 1, 2, and 3 is 4.845 MW, with an estimated annual production of 5,553 MWh. This technical memorandum is included in the DEIR as Appendix O. Energy impacts were evaluated in DEIR Section 3.5 (Energy) and were found to be less than significant. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 619-3 – Energy

This comment requests that the Project include an adaptive management provision to require NAFC to purchase local renewable power when local renewable becomes commercially available. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Energy impacts were evaluated in DEIR Section 3.5 (Energy) and were found to be less than significant. Greenhouse gas impacts were evaluated in DEIR Section 3.7 (Greenhouse Gas Emissions) and were found to be less than significant. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 619-4 – Water Quality Modeling Data

Master Response 5 (Marine Outfall) The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project.

Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 619-5 – Discharge Monitoring

This comment requests that monitoring of the effluents should be performed by experts. Monitoring of the discharge will be performed and analyzed by qualified experts. Please see Master Response 5 (Marine Outfall) which addresses monitoring of the treated effluent discharge in greater detail. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 619-6 – Donation

This comment requests a sizable annual donation from NAFC to the Wiyot Honor Tax and local indigenous led organizations. Please see Master Response 6, which considers statements unrelated to environmental issues as defined by CEQA.

Response to Comment 619-7 – General

This comment is a statement of opposition to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 619-8 – HABs

The comment expresses concern regarding nutrient discharge and HABs. Please see Master Response 5 (Marine Outfall) which specifically addresses nutrients and HABs.

Response to Comment 619-9 – General

This comment is related to Genevieve Rozhon and Ken Mierzwa listed as prepares of the Marine Resources report. With regard to Ken Mierzwa, please see response to Comment 610-11.

With regard to Genevieve Rozhon, and DEIR Appendix D, Marine Resources Biological Evaluation Report, Ms. Rozhon did charge time to this GHD task (4.4, Marine Resources Biological Evaluation) from December 8, 2020, to January 5, 2021, per GHD's financial reporting. Ms. Rozhon was not the main author, but GHD does not differentiate in biological reports, with multiple contributors, between "authors" and "co-authors." Instead, if an individual contributes to report, they are listed as an author. Mr. Rozhon remains as an author of the Marine Resources Biological Evaluation Report. No change had been made.

Comment Letter 620

From: [Russell, Robert](#)
To: [McNamara, Cade](#)
Subject: FW: EIR I could not access the address to send this, it came back twice-please accept this
Date: Wednesday, February 23, 2022 12:30:31 PM
Attachments: [Re Automatic reply EIR I could not access the address to send this it came back twice-please accept this.msg](#)

Please see below email from Friday...do you already have these from another means?
If not, please include them as public comment...see attached as well.

From: michael fennell <mfennell51@gmail.com>
Sent: Friday, February 18, 2022 3:22 PM
To: Russell, Robert <RRussell@co.humboldt.ca.us>
Subject: EIR I could not access the address to send this, it came back twice-please accept this

Dear members of the Humboldt County Planning Commission

I am writing to oppose the current proposed Nordic Farms project.

- | | |
|--|-------|
| 1. The traffic portion of the EIR seems to ignore the traffic issues of the community of Manila. The study that is quoted seems out of date. There has been a large increase in the amount of traffic passing through Manila on Highway 255. There are more and more chip trucks and now a company from Oregon is using Samoa to store the logs before they are moved north, and that company is sending finished lumber from Oregon to Samoa before it is sent to it's final destination. That means we see these trucks twice. While this alone doesn't create an intolerable situation, it's the accumulative impact that will become intolerable if all development keeps being approved for the Samoa peninsula. The Railroad museum has big plans to draw tourists and Danco still plans on building hundreds of new homes are just two examples. Manila is a low income community where Highway 255 bisects the town with NO safe way to cross to access our park and bay during high traffic periods (which are increasing). We are treated as collateral damage, or just a long driveway to the industrial zone. | 620-1 |
| 2. There is too much risk of these fish or bacteria being released to the natural world. The earthquake and tsunami study seems overly optimistic. Picture an 8.5 quake and thirty foot tsunami and tell us there will be no breaches of the tanks holding these captive fish and their bacteria? Hard to imagine! | 620-2 |
| 3. The ocean pollution that will come out of the outfall pipe doesn't seem fair to the surfer or the sturgeon. | 620-3 |
| 4. Nowhere in the document could I find out where the fish food will come from. If they plan to feed these tank fish with fish that are harvested from the ocean, that will be harmful to the natural fisheries. The oceans are already suffering from OVERHARVESTING and this will mean less food for the wild fish stocks. | 620-4 |

Michael Fennell

1. 1480 Peninsula Dr. Manila Ca 95521
2. Thank you for your consideration

Letter 620 – Response to Comments

Response to Comment 620-1 – Traffic

The comment is related to traffic on the peninsula for the Project yet provides no substantial evidence or recommendations. As summarized in DEIR Section 3.12.6 (Transportation Impacts and Mitigation Measures, Impact TR-C), starting on page 3.12-13, Project-related truck traffic does not present a significant intensification of use beyond what the road network currently experiences and accommodates. Please see Master Response 1 regarding truck traffic and road safety. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 620-2 – Biosecurity, Tsunami, and Earthquake

The comment is related to biosecurity and risks posed by tsunami and seismic events. Please see page 2-40 of the DEIR for information related to seismic and tsunami risk analysis. Please see Appendix I of the DEIR for the Probabilistic Site-Specific Tsunami Hazard Analysis. Please see Master Response 3 regarding fish escape. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 620-3 – Opinion

The comment is an opinion on the Project discharge. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 620-4 – Fish Food

The comment is related to the origin and ingredients used in the fish feed Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 10 (Fish Feed). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Humboldt Co. Planning and Building Dept.

3015 H St., Eureka, Ca 95501 (submitted via email to: cmcnamara@humboldt.ca.us)

Attn: Mr. Cade McNamara, Planner II

2-15-2022



Dear Mr. McNamara:

The following comments are submitted in response to Nordic Aquafarms CA, LLC project Draft Environmental Impact Report (DEIR), case # PLN-2020-16698.

The comments below document a conclusion that the DEIR is legally inadequate and fails to meet requirements of the CA Environmental Quality Act (CEQA).

The impacts of installing a new salt water intake which diverts 10 million gallons per day (MGD) is described in Section 2.4 according to the Project Description introduction on page 2-1. However, statements in Section 2.4 are misleading. Claims that the saltwater intakes installed nearly 60 years ago are being "modernized" are incorrect. All new materials are needed, except for concrete. A process described as a "retrofit of the sea chests" might sound like the majority of the existing wooden chests and attached metal component parts are simply being cleaned or repaired. The intake structure will require replacement with all new materials to provide a reliable system. The DEIR statements might lead an uninformed reviewer to believe that there are existing, functional saltwater diversion pumps currently in use. There are no existing saltwater diversions in operation on the project site. I appreciate Humboldt Co. Planning Dept. staff confirming that there is no existing intake pump located at the Red Tank dock, and that an all new pipeline is necessary.

621-1

Additionally, the statement "These modifications would increase water withdrawal capacity and add features that reduce environmental impacts of aquatic species entrainment and impingement with installation of new 1.0 mm wedge wire intake screens." on page 2-47 is incorrect.

The statement is wrong because there are no environmental impacts occurring from saltwater diversions currently, and saltwater intake diversions have not been made in over a decade. Therefore, the implementation of the proposed project does not reduce environmental impacts to marine resources, it will significantly increase adverse impacts.

621-2

A statement in Section 2.2.4 also indicates that "The capacity of the Harbor District sea chests on Redwood Marine Terminal II and Red Tank dock is being expanded and would provide saltwater supply to the site." The preceding statement in quotes could mislead a reviewer to think that the increase in saltwater supply was starting at a supply level much in excess of the ZERO supply currently available.

621-3

In several places the Nordic project DEIR indicates that the HBHRCD will obtain required permits and provide saltwater intake facilities for the subject project. Because the HBHRCD has not been able to permit the 10 MGD saltwater intake system prior to release of the DEIR, we have no assurance that permits will be obtained. This approach is considered as "piecemeal", meaning two projects are being



considered for the purpose of CEQA. This is a violation of CEQA. Without the funding Nordic provides for the installation costs of the new saltwater intake, it is not likely to be constructed.

↑ 621-3
cont.

The design criteria that the HBHRCD have used of a 10 MGD capacity, is identical to DEIR descriptions of 10 MGD saltwater needed by Nordic after full development. It is clear that there is only one end user of the saltwater developed. Therefore, there are not two projects being discussed, one by HBHRCD and one by Nordic. There is only one project for the purpose of CEQA. The DEIR has not provided required analysis of the environmental effects of Nordic's use of 10 MGD of saltwater taken from Humboldt Bay. For this reason, the DEIR is inadequate.

621-4

Section 2.1.6 contains inaccurate schedules. Studies necessary for potential submission of saltwater intake permit application(s) have not been conducted. A recent consulting contract signed by HBHRCD will not be completed until 2023. Submission of permit application(s) may not be possible until 2023 due to contract work having only been authorized on Dec. 15, 2021. This creates a schedule where the DEIR states in Section 2.1.1 that the Harbor District would commence construction required for saltwater intakes by 2022. This will not be possible. These errors are based on unreasonable construction schedules. More importantly, the public is being asked to review this fish production facility project before we can have access to the site specific study or studies necessary to determine environmental impacts.

621-5

CA Coastal Commission staff have required new site specific studies within Humboldt Bay as part of a Coastal Development Permit application process for HBHRCD saltwater intakes. Review of the subject DEIR is seriously hampered by lack of data on adverse environmental impacts.

621-6

Additional problems with construction schedules provided in DEIR Section 3.13.6 are clear. In a discussion of "utilities" a statement that seawater drawn from Humboldt Bay would be supplied by the Harbor District, via "sea chest intakes..." assumes that permits will be obtained. There is no way to be certain that the CA Coastal Commission, or other regulatory agencies will agree to permit large (10 MGD) diversions of saltwater.

621-7

The confusion created by the conflict in several timelines stated in Section 2.1.6 for demolition work, and permitting for the saltwater intake cause concern and reflect an inadequate DEIR.

Appendix R is a letter from SHN engineering to Adam Wagschal. The letter cites a National Marine Fisheries Service (NMFS) 1997 document that states in item B. Structure Placement "Where possible intakes should be located offshore to minimize fish contact with the facility." Consideration of Humboldt Bay entrainment and impingement issues should be addressed by locating the saltwater intake offshore as recommended by the NMFS 1997 guidelines cited by SHN.

621-8

This DEIR is inadequate due to the absence of a robust analysis of providing necessary saltwater from an intake structure located offshore.

Appendix N is presented as potential mitigation for operation of the saltwater intake structures, pumps, and pipelines proposed. The mitigation measures proposed are not adequate because they only address adverse impacts to a listed species, longfin smelt, and they are not actions that would improve reproduction of longfin smelt. There is no consideration given to the impingement and entrainment of important commercial fish species including Dungeness crab and Herring. Herring are consumed by many predatory fish and avian species. No consideration is given to the significant adverse

621-9
↓

environmental impacts that the saltwater intake will have on forage resources for birds. This lack of analysis of significant adverse environmental impacts produced an inadequate DEIR.

↑ 621-9 cont.

The discussion of addressing adverse environmental impacts on Longfin smelt are based on assumptions that are not supported with data collected on site, or in Humboldt Bay. The DEIR indicates that a “planned intake assessment study” will be conducted. This planned assessment will not be available for use in review of the subject EIR. Lacking this critical information will mean an adequate DEIR can not be produced at this time. The lack of site specific data and analysis has produced an “Inadequate” DEIR.

621-10

The DEIR does not provide adequate detail on how much forage fish protein will be derived from native Pacific ocean fish sources. Only vague offers to seek “sustainable” protein forage that does not deplete native forage fish stocks are provided in the DEIR. The lack of specific numbers, such as tons of food sources from specific ocean or alternative sources is needed. Depletion of native forage fish populations will have a significant impact on marine birds as well as predatory fish species. The lack of specific information that could reflect the likely depletion of native Pacific fish stocks results in an inadequate DEIR.

621-11

I attended the first public meeting sponsored by the HBHRCd where Nordic representatives described their proposed project and answered questions. At one point Mr. Erik Heim was asked what species of fish would be produced by Nordic. His answer was that they were considering several options, and that Nordic would consider producing “Pacific steelhead trout”. The DEIR does not provide a robust alternative analysis on the opportunity to produce native steelhead or salmon species. Failure to provide a robust alternative analysis that describes why native fish species were not selected results in an inadequate DEIR.

621-12

The DEIR informs readers that large percentage reductions in specific pollutants are being achieved by filtration and “recirculation”. However, the DEIR fails to state clearly how many pounds or tons of these same elements are being disposed of by discharge into the ocean. How is it possible to determine the significance and level of environmental impact without data providing concentration and total weight or volume of pollutants being released at a point offshore This point source discharge should be stated plainly and specifically.

621-13

The DEIR indicates that monitoring of waste water discharges will begin only after the fish production facility reaches “full development”. Monitoring must be required to begin as soon as Nordic begins waste water discharges. Failing to require monitoring, and public release of monitoring data on a regular schedule starting concurrently with initial fish production would result in an inadequate EIR.

621-14

Thank you for the opportunity to provide comments on this important proposal.

Sincerely,
Scott Frazer

P. O. Box 203

Blue Lake, CA 95525

Letter 621 – Response to Comments

Response to Comment 621-1 – Water Intakes

The comment states that water intakes which are proposed to be modernized for use by the Project will require replacement of nearly all intake components. There are substantial parts of the existing intakes that can be used, such as the in-water structure or sea chests. New pumps, screening systems, and pipelines are all included in the DEIR analysis for the proposed Project. Please see Master Responses 8 and 9 regarding substantial evidence, speculation, and unsubstantiated opinion. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-2 – Water Intakes

The comment states that the proposed 1.0 mm wedge wire screens on the existing water intakes would not reduce environmental effects because water is not currently being drawn from the intakes. The comment is correct that water is not currently being drawn through the intakes; however, the installation of 1.0 mm wedge wire screens will reduce environmental effects from what historically occurred, or what would occur now or in the future using the existing infrastructure. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-3 – Seawater Intakes

This comment is related to perceived piecemealing of intake permits. The DEIR is a dual applicant EIR that fully analyses potential impacts from the Harbor District Seawater intake modernization and the NAFC Project and does not result in any piecemealing of the DEIR. Please see Table 2-2 on pages 2-7 and 2-8 of the DEIR for a full list of permits and approvals needed for the two interrelated projects and the associated Regulatory Agencies. The analysis presented in the DEIR will be used by regulatory agencies for their permitting process. As stated on page 2-47 of the DEIR, modernizing the seawater intakes is part of the Harbor District multi-year aquaculture business park plan and would improve access to key water resources for current and future tenants. As stated on page 2-53 of the DEIR the total maximum intake flow rate for the two seawater intakes is 8,250 GPM, or approximately 11.9 MGD. NAFC would use a maximum of 10 MGD leaving excess capacity of approximately 1.9 MGD for current and future tenants of the Harbor District. Please see Master Response 9 level of detail in an EIR and response to comments

Response to Comment 621-4 – Water Intakes

The comment states that the design criteria that the Harbor District has used of 10 MGD capacity is identical to DEIR descriptions of 10 MGD saltwater needed by NAFC after full development. The comment further states that the DEIR is inadequate because it treats the water intakes and NAFC project as two separate projects. These statements do not accurately reflect the contents of the DEIR. The design for the proposed water intakes allows for diversion of 11.9 MGD; 1.9 MGD greater than the requirements of the NAFC project (see DEIR Section 2.44, Page 2-53). This water would be available to other Harbor District tenants for commercial purposes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-5 – Water Intakes

The comment suggests that project schedules are not accurate and that the results of more site-specific studies are needed to understand the Project's environmental effects. The comment does not provide information on which additional site studies would be necessary. Please see Master Responses 8 and 9

regarding substantial evidence, speculation, and unsubstantiated opinion, level of detail in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-6 – Water Intakes

The comment states that review of the subject DEIR is hampered by lack of data on adverse environmental effects and states a need for more site-specific studies. Please see Master Responses 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion) and Master Response 9 (Level of Detail in an EIR and Response to Comments). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 621-7 – Water Intakes

The comment states that the DEIR is inadequate because construction schedules are not accurate. Variation in construction schedules would not make the DEIR inadequate. Please see Master Responses 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion) and Master Response 9 (Level of Detail in an EIR and Response to Comments). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-8 – Water Intakes

The comment suggests that environmental effects could be reduced by withdrawing water from the Pacific Ocean rather than Humboldt Bay. The use of a slant well, oceanic seawater intake and Humboldt Bay seawater well are analyzed in DEIR Chapter 4. These alternatives would not have less environmental impact than the proposed water intakes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-9 – Water Intakes

The comment states that different species should have been used for modeling effects of entrainment by the water intakes and that migration should occur for impacts to the salmon prey base. Species selection for the modelling is described in Master Response 7 (Intake Biologic Productivity, Intake Salmonids). As described in DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53, larvae entrainment would not result in a substantial decrease in marine populations that could be detected over natural variability. This includes for prey species. Please also see Master Responses 8 and 9 regarding substantial evidence, speculation, and unsubstantiated opinion, level of detail in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-10 – Water Intakes

The comment states that further site-specific information is required to assess effects to Longfin Smelt and that the DEIR is inadequate without such information. The comment states that the DEIR is inadequate but provides no substantial evidence as a basis for this. Please see Master Responses 8 and 9 regarding substantial evidence, speculation, and unsubstantiated opinion, level of detail in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 621-11 – Fish Feed

The comment requests more information pertaining to the source of fish meal used in feed. The comment expresses concern that native Pacific Ocean fish will be used in making feed for the Project and request specific information on sources of forage fish and volume of feed required by the Project. Please see Master Response 10 (Fish Feed). No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

Response to Comment 621-12 – Species Analyzed Under Alternatives

This comment is concerned that native steelhead and other native salmonid species were not further considered. As noted on page 4-14 of the DEIR (Alternatives), the Yurok Tribe expressed strong objections to farming steelhead. Thus, steelhead were not considered feasible and dismissed from further consideration. Similar concerns were expressed by numerous parties regarding other native salmonid species (Southern Oregon/Northern California Coho Salmon and Central California Coast Chinook Salmon), and these species were also dismissed from further consideration.

This alternatives analysis included an evaluation of alternative fish species, including Rainbow Trout, Steelhead, and Yellowtail Kingfish (see subsection 4.3.3 Alternative 3: Fish Species and Water Source). Rainbow Trout and Yellow Trail Kingfish were dismissed as the preferred species due to higher feed conversion ratio, which would decrease the volume of fish produced to stay within the nutrient thresholds for the discharge. Steelhead was considered an inferior alternative based on less market demand and also input from local stakeholders. For each analyzed factor, Atlantic Salmon was the least environmentally impactful species. Yellowtail Kingfish also do not have a commercial egg supply, which limits feasibility of farming the species locally. Other factors evaluated in the DEIR included CO₂ impact, freshwater use, seawater use, biologist risk, survivability and hybridization following escape, and feed conversion / ingredients. For each analyzed factor, Atlantic Salmon was the least environmentally impactful species. As a result of these considerations, Rainbow Trout, Steelhead, and Yellowtail Kingfish were considered as less viable alternatives. As discussed in the DEIR, an alternative species would not result in a substantive environmental benefit (see DEIR page 4-21).

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-13 – Discharge Constituents

This comment notes the DEIR fails to disclose the pounds or tons of discharge constituents. That information can be found in Table 2-9 of the Project Description, on page 2-46. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 621-14 – Imitation of Discharge Monitoring

This comment requests that monitoring of the discharge should commence when the discharge begins. This is correct. Monitoring of the discharge is required to commence at the same time discharge from the facility begins, even if the facility is not fully operational. Baseline (pre-discharge) monitoring will also occur, which is described in greater detail in Master Response 5 (Marine outfall).

McNamara, Cade

From: Daniel Grantz <grantzproperties@gmail.com>
Sent: Saturday, February 12, 2022 3:21 PM
To: McNamara, Cade
Subject: Nordic fish farm

Hello, as a born and raised local Arcata resident I would like the following requirements for the proposed Nordic fish farm. Thank you

- | | |
|--|-------|
| 1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy. | 622-1 |
| 2. The project maximizes its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas. | |
| 3. An adaptive management provision that requires Nordic to buy locally-produced renewable power as it is commercially available. | 622-2 |
| 4. Modeling of ambient water quality using data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point). | 622-3 |
| 5. Baseline monitoring and continuous monitoring of the effluent should be performed by experts and compared to an established threshold which would trigger protective actions. | 622-4 |

Letter 622 – Response to Comments

Response to Comment 622-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see Master Response 2 for information on the potential for including additional onsite solar in the Project. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and the enforceability of that commitment. As shown in Master Response 2, PG&E and RCEA have demonstrated the ability to provide 100% renewable and/or non-carbon energy portfolios, and the Project is committed to 100% renewable and/or non-carbon energy.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 622-2 – Local Renewable Energy

The comment requests the Project only utilize local renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 622-3 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 622-4 – Discharge

The comment requests baseline monitoring, continuous monitoring, and changes to the data used for discharge modeling. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Sallie Grover <sallieg15@gmail.com>
Sent: Friday, February 18, 2022 4:46 PM
To: CEQAResponses
Subject: Fwd: Concerns regarding Samoa Peninsula Fish Farm

----- Forwarded message -----

From: **Sallie Grover** <sallieg15@gmail.com>
Date: Fri, 18 Feb 2022 at 06:07
Subject: Concerns regarding Samoa Peninsula Fish Farm
To: <CEQAResponse@humboldt.ca.us>

Hello Planners,

I'm deeply concerned about a number of aspects of the proposed fish farm on the Samoa Peninsula due to the scale of the project, energy use and potential for damage. To be concise, I've listed some of my concerns:

The amount of energy used to run the facility compared to the number of jobs created is unsustainable.

623-1

The amount of energy used will contribute significantly to pollution and problems associated with climate change.

Locally produced wind energy to offset energy use isn't in place and faces many obstacles.

623-2

The effects of suctioning water out of the bay on wildlife and current businesses on the proposed scale hasn't been previously experienced and is an unknown. More information is needed.

623-3

Pumping warm water and any level of pollution into the ocean contributes to environmental damage of natural fish habitat. Does the information presented about safety address this?

623-4

Consumers prefer and seek out wild-caught fish.

623-5

Transporting many agricultural commodities out of the area has limited production and success. It also contributes to the environmental cost of the product.

623-6

The location of the plant is in a Tsunami zone.

623-7

Building an oversized facility on top of the existing mill site repeats the mistake of developing industry in a sensitive area that can be used for recreation.

623-8

Governments don't have a track record for mitigating the existing damage to the site.

623-9

So much work is left to be done to make our rivers and bay hospitable to natural populations of fish and other aquatic life and to keep it hospitable for our community. Please support development that enhances and preserves the area's ecology, open spaces, natural systems and sustainable businesses.

623-10

Thank you for taking public comment.

Sincerely,

Sallie Grover

Letter 623 – Response to Comments

Response to Comment 623-1 – Energy

This comment states that the Project's anticipated energy use would result in a significant contribution to pollution and climate change impacts but provides no substantial evidence. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 for information on the potential for including additional onsite solar in the Project and Project renewable energy commitments.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 623-2 – Energy

This comment is providing general narrative and opinions about the status of local wind energy. The comment does not raise issues pertaining to the content or adequacy of the DEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 623-3 – Water Intakes

The comment states that more information is needed but provides no substantial evidence as a basis for this claim. Please see Master Response 7 for information on intake biologic productivity. Please see Master Responses 8 and 9 regarding substantial evidence, speculation, and unsubstantiated opinion, level of detail in an EIR and response to comments.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 623-4 – Discharge Water Temperature

This comment is concerned about warming ocean waters as a result of the treated effluent discharge. The Project's discharge would be compliant with the California Thermal Plan, which limits a change in temperature from any given discharge to 4 °F. The Project's conformance with the California Thermal Plan is discussed in the DEIR in Section 3.3 (Biological Resources), Section 3.9 (Hydrology and Water Quality), and DEIR Appendix E (Numeric Modeling). As summarized in Master Response 5, the relatively low target dilutions for temperature (five-fold) are readily met within five feet of each of the RMT II diffuser nozzles (see DEIR Appendix E, Section 5.3). The near-field model (DEIR Appendix E) predicts that the distance from the RMT II diffuser in which temperature impacts/effects on the marine environment will occur is limited to within five feet of the diffuser ports. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 623-5 – Opinion

The comment is an opinion on wild and farmed fish yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information provided in Master Response 6, no further analysis is necessary and no modifications to the DEIR are proposed specific to this comment.

Response to Comment 623-6 – Opinion

The comment is an opinion on transportation and environmental impact yet provides no substantial evidence or recommendations. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 623-7 – Tsunami Zone

This comment notes the Project is located in a tsunami zone. This is correct. The facility has been designed to safely accommodate a very large tsunami. Please see page 2-40 of the DEIR for information related to seismic and tsunami risk analysis. Please see Appendix I of the DEIR for the Probabilistic Site-Specific Tsunami Hazard Analysis. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 623-8 – Redevelopment

This is a comment on the Project size and redevelopment. The Project site currently contains hazardous materials, is in a state of disrepair, and there is no public funding mechanism available to complete remediation and building demolition. The first step of the Project is for NAFC to fully remediate and demolish all pulp mill structures within the lease area. This effort, fully funded by NAFC, would provide significant benefit to the region. Please see pages 2-2 and 2-3 of the DEIR for project benefits. Please see Master Response 6 for statements unrelated to environmental issues as defined under CEQA.

Response to Comment 623-9 – Existing Site

The comment is an opinion on previous site operations and previous regulatory oversight yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Please see Master Response 9 level of detail in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 623-10 –Opinion

The comment is an opinion on the environment and not related to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Sharon <srhafner@suddenlink.net>
Sent: Thursday, February 17, 2022 7:18 PM
To: CEQAResponses
Subject: Nordic Aquafarm Project

I would far rather see the Nordic Aquafarm Project rejected from it intended site on Humboldt Bay, but at the very least it must be responsible to the potential damage it may cause environmentally, as follows:

1. Potential effects should be modeled using ambient water quality data from ocean waters near the discharge point, rather than data taken in Humboldt Bay (approximately 3.5 miles south-southeast of the end of the ocean outfall pipe).

624-1

2. Levels of toxic algae should be monitored both pre- and post-project and compared to thresholds that would trigger protective actions *before* another toxic algae bloom leads to harmful levels of domoic acid.

624-2

3. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely by renewable energy.

624-3

4. Additional onsite renewable energy production through more aggressive utilization of solar, including over parking areas.

Thank you -

Sharon Hafner

Letter 624 – Response to Comments

Response to Comment 624-1 – Discharge Modeling

The comment requests changes to the data used for discharge modeling. Please see Master Response 5. The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 624-2 – Harmful Algal Bloom

The comment requests changes to the discharge sampling related to harmful algal blooms. The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9. HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 624-3 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and the enforceability of that commitment. Please see Master Response 2 for information on the potential for including additional onsite solar in the Project. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Patrick Higgins

Humboldt Bay Harbor, Recreation and Conservation District, 5th Division Commissioner
4649 Aster Avenue
McKinleyville, California 95521

January 13, 2022

Mr. Cade McNamara, Planner II
Humboldt County Planning Commission
825 Fifth Street
Eureka, California 95521

Re: Comments on the Draft Environmental Impact Report (DEIR) for the Nordic Aquafarms California, LLC – Coastal Development Permit and Special Permit application (Case Number PLN-2020-16698)

Dear Mr. McNamara,

Although I am the 5th Division Commissioner for the Humboldt Bay Harbor, Recreation and Conservation District, my comments below on the Draft Environmental Impact Report (DEIR) for the Nordic Aquafarms are mine as an individual and not meant to represent the position of the Commission. I am a fisheries and watershed scientist and I am concerned about the potential for nutrient disposal from the facility to cause hazardous algae blooms (HABs) and I am hoping that Nordic Aquafarms will consider repurposing the nitrogen that will be pumped into the ocean through the District's outfall daily. My concerns were heightened by the comments of the National Marine Fisheries Service (NOAA 2021) to the North Coast Regional Water Quality Control Board regarding the National Pollution Discharge Elimination System (NPDES) permit. Much of the information on ocean conditions I provide for context is from annual *Ecosystem Status Reports of the California Current* (NOAA 2018, 2019, 2020).

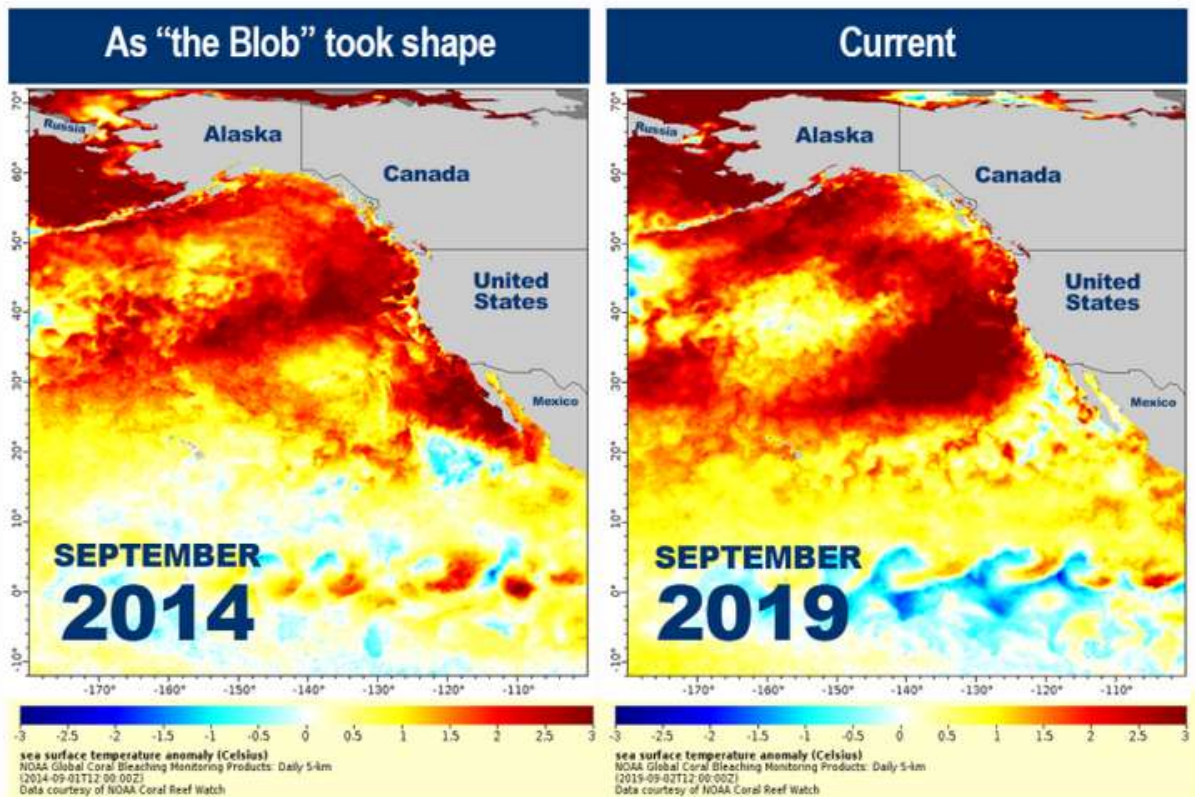
The DEIR points out that the Nordic facility has many mechanisms to avoid nutrient pollution, but still plans to pump 1484 pounds of nitrogen daily into the ocean just offshore through the District's outfall. While this nitrogen is in a relatively inert form, it will mix into the environment and poses some risk of stimulating algae blooms, including HABs. Some additional green algae blooms could be aided, but there is also the potential to stimulate undesirable species that could have ripple impacts on the environment and the near-shore ocean ecosystem.

NMFS (2021) comments mentioned above state that “the perennial discharges of nutrients will support increases in the local population of algae species and likely contribute to increased frequency of future harmful algal blooms and corresponding toxins and depressed dissolved oxygen conditions.”

In my work on the Eel River, I have had cause to pay attention to ocean conditions because changes in the nearshore ocean off of northern California have triggered salmon decline. The 2015 warm water mass that transited the coast here, known as the Blob, caused major problems for cold-adapted fish species and also caused massive toxic algae blooms along the entire California coast. Unfortunately, warm conditions have persisted, as have noxious algae blooms.

NOAA annual California Current reports have noted that nearshore ocean waters failed to return to normal cold-water regimes, with a recurrence of high-water temperatures in 2019. In 2020 and 2021, we have had nearshore cooling and moderate upwelling, but the California Current is not being fed by cold water from the Arctic because the Gulf of Alaska has warmed and blocks the connection.

625-1



625-1
Cont.

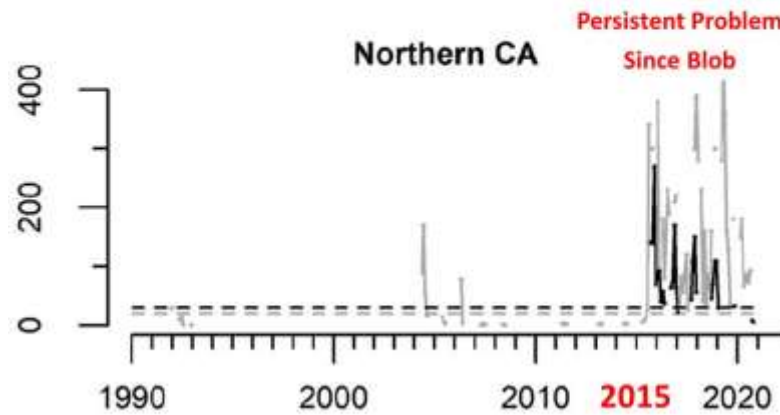
NOAA maps show “the Blob” setting up in 2014, but ocean warming recurring in 2019

In addition, the Pacific Decadal Oscillation Cycle that has driven ocean productivity and wet and dry conditions on land has broken down. It looks like persistent warming is likely, which elevates the risk of algae blooms.

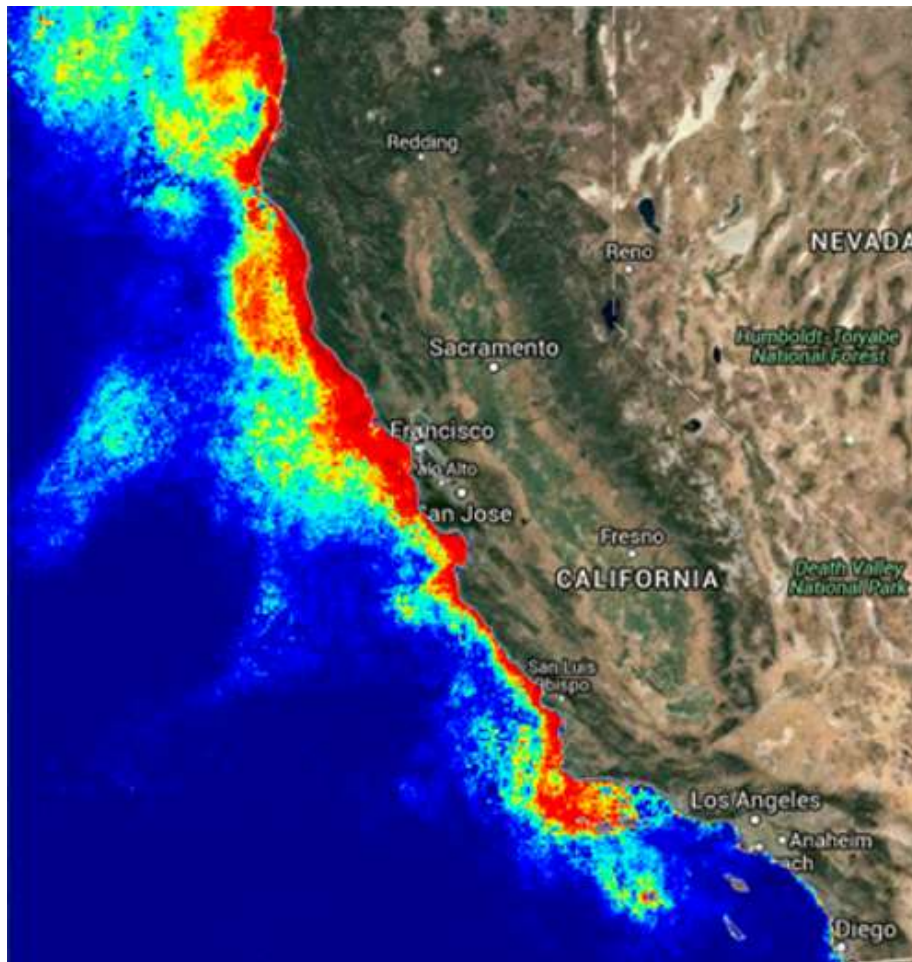
Hazardous algae blooms (HABs) have become more frequent and an example is the diatom *Pseudo-nitzschia australis*, which produces domoic acid that is responsible for well documented toxic events to marine mammals and birds and a cause of amnesiac shellfish poisoning in humans. Persistent blooms of this noxious species began producing high levels of domoic acid in 2015 and the blooms and the toxins have remained elevated in Oregon and northern California. While the crab fishery was only impacted for two seasons, all mussel and clam fisheries are closed as a result of persistent domoic acid. No clams from the legendary Clam Beach since August 2016. Toxic algae blooms are becoming more frequent and likely to occur even without further nearshore ocean enrichment. If we push the system past a “tipping point”, domoic acid problems could become more acute and persistent.

During the 2015 period of ocean warming HABs occurred along the entire California coast, and it is likely that this will occur periodically in the future.

Domoic Acid Levels off Northern California 1990-2022



NOAA (2020) chart from California Current Report. Red annotation added.



UC Santa Cruz forecasting model of harmful algal bloom conditions along the California coast shows the bloom of toxic *Pseudo-nitzschia* diatoms (red) covering the entire coastline north of Santa Barbara in August 2015.

I believe it is appropriate for Nordic Aquafarms to explore an Alternative where the nitrogen waste is repurposed for some beneficial or commercial use on land and the addition of nutrients to the ocean off of Humboldt Bay is avoided. In the event that the project goes forward as planned, I would support mandatory monitoring of the fate of nutrients released by the facility, as recommended by NMFS (2021), and a mandatory reduction in outfall nutrients, if a linkage to HABs is confirmed.

↑
625-1
Cont.

Sincerely,



Patrick Higgins

References

NMFS. 2021. Re: Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Recommendations for the North Coast Regional Water Quality Control Board regarding NPDES Permit for Nordic Aquafarms California, LLC. Comment letter to Matt St. John, NCRWQCB Executive Officer from Jeffrey Jahn South Coast Branch Chief, NMFS, Arcata, CA

NOAA. 2019. Ecosystem Status Report of the California Current for 2019: A Summary of Ecosystem Indicators Compiled by the California Current Integrated Ecosystem Assessment Team (CCEIA). U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-149.

Letter 625 – Response to Comments

Response to Comment 625-1 – HAB risk monitoring

This comment is concerned about the potential for the Project's treated effluent discharge to contribute to a HAB. Please see Master Response 5 (Marine Outfall) which specifically addresses HABs and monitoring. Effluent discharge to the Pacific Ocean is thoroughly discussed in the DEIR in Section 3.9, pages 3.9-16 through 3.9-25 which is supported by DEIR Appendix D (Marine Resources Biological Evaluation Report) and Appendix E (Numeric Modelling Report). Please also see Master Response 9 regarding the level of detail required in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Given the information discussed above, no additional mitigations are warranted.

McNamara, Cade

From: kelly hoggan <tsaviolatescivilrights@gmail.com>
Sent: Thursday, February 17, 2022 11:08 PM
To: CEQAResponses
Subject: Humboldt County Planning and Building Department Nordic farms

To whom it may concern,

I wanted to take a few minutes to express my thoughts on the proposed Nordic farms. First off let me say that I've never taken the time to comment or share my thoughts involving our community. Not that I think this will make a difference, but let me be heard.

I can't see what I or our community has to gain from this. What, some tax revenue and 150 jobs?! This is insulting. We as a community only stand to lose, and for what? So that a multi-hundred million dollar company can deepen their pockets by millions and millions of dollars at the expense of the resources of our community?

626-1

Every day you can read about droughts, the lowest water levels in recorded history, and depleted water sheds. Last year was the first year that the Eel river ran dry and stopped flowing to the ocean. I guess these sorts of things don't set off red flags, and I guess money talks. I have to ration watering my garden or my lawn, but Nordic farms can take 2 millions gallons of fresh water a day?! The audacity to take 730,000,000 gallons of our water every year and then to sell us back the fish that our water farmed. Fortunately we happen to be sitting the best up here in Humboldt with our water shed so why not piss it away! Meanwhile, my water bill increased by 50% last year.

626-2

Then we have the power consumption. What is green about this operation other than throwing around phrases like carbon neutral and green energy? They're going to use as much Eureka and Fortuna combine. That is absurd. My power bill has also gone up, but I'm sure Nordic farms is going to be getting electricity much creamer than yours and my power rates. My power gets cut for weather emergencies. Is that going to happen to Nordic farms? Probably not. Can you imagine tens of thousands of fish dying because their power stops? Then we complain about marijuana grows for using too much power and too much water, but this is insane. At least the marijuana industry supports countless jobs in our community, way more than 150.

626-3

626-4

What about their waste water? Let's just pump it out a mile into the ocean. The same ocean that big industries have been dumping their waste into for years, but don't worry because it'll be at safe levels. I happen to go into the ocean almost on a daily basis. Just one more thing to worry about.

626-5


Now I'll admit that I haven't ready the 1800 page report, but you don't need to throw a phone book size report at me to try to sell me on this. This makes the rich richer and makes or community suffer. I guess if you're a foreign company and have a ridiculous amount of money and want to take advantage of a foreign country rich in resources for your own personal gain in the name of capitalism, then what's to lose. Big companies go all around the world taking advantage of community's resources, offer slave jobs in return, and sell them back the resources they took. I know that's how the world works, but I don't want it in my community.

626-6

I care about what I eat and put into my body. I know our community does too. We have co-ops, natural food stores, farmer's markets. The people here care about what they eat. I for one do not eat farmed fish. I eat wild caught fish and am aware how less healthy farmed fish is. I know I'm not the only one in this community that feels that way so it again just leaves me scratching my head wondering why we need this here.

We also have a lot of local fishermen here. How is this going to impact their lively hood? I mean, I know I still want wild caught, healthier fish, but how is Nordic farms going to impact Humboldt's fishing industry.

626-7

Well, or community has lots to lose and 150 jobs to gain. If I had more time I'm sure I could point out more negative things, but like I said at the beginning, I already feel I'm wasting my breath. I just wanted to take the time to put this out there so at least I can say that I did that.  626-7
cont.

Thank you for your time.

Letter 626 – Response to Comments

Response to Comment 626-1 – Statement of Opposition

This comment is expressing opposition to the Project. Please see Master Response 6, which statements unrelated to environmental issues as defined under CEQA.

Response to Comment 626-2 – Freshwater Supply

The comment is related to freshwater use by the Project. Per page 2-22 of the DEIR, the HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021). HBMWD's 'In Place' permits associated with freshwater allowable use far exceed the combined needs of NAFC and current users. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 626-3 – Energy

This comment is providing an unsubstantiated narrative of the Project's anticipated energy consumption. The comment does not raise issues pertaining to the content or adequacy of the DEIR. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 626-4 – Energy

This comment requests how the Project will operate during an electrical power shutoff. DEIR Section 2, Project Description, starting on page 2-27 provides details on the proposed onsite power backup systems. The emergency power backup systems would first use natural gas and, if natural gas supply is interrupted, could run on diesel fuel. However, emergency power backup systems would only be utilized to power the Project facility if grid electrical power supply is shut down. As specified within the DEIR, the backup power generation system can run as long as necessary in the event of a prolonged power outage but would be permitted to be used a maximum 500 hours in a given year as its intended purpose is for emergency generation. Normal operations of approximately 10 run hours per year would be typical usage to confirm functionality and maintain lubrication outside of emergency use. Additional onsite power would be generated by the proposed 4.8 MW rooftop solar installation.

Response to Comment 626-5 – Ocean Discharge

Effluent discharge to the Pacific Ocean is thoroughly discussed in the DEIR in Section 3.9, pages 3.9-16 through 3.9-25 which is supported by DEIR Appendix D (Marine Resources Biological Evaluation Report) and DEIR Appendix E (Numeric Modelling Report).

This comment is non-specific and does not provide substantial evidence, please see Master Response 7 on intake biologic productivity and intake salmonids.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 626-6 – Statement of Opposition

This comment expresses opposition to the Project. Please see Master Response 6, which addresses statements unrelated to environmental issues as defined under CEQA.

Response to Comment 626-7 – Impacts to Local Fisherman

This comment is concerned about impacts to the local fishing industry. As evaluated in Section 3.3 (Biological Resources), the Project would not significantly impact commercial fish species and thus would not impact local fisherman. Consideration of financial impacts to the fishing industry is not an environmental issue required to be analyzed under CEQA. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA.

McNamara, Cade

From: Rosemary Holifield <rmhapp46@gmail.com>
Sent: Sunday, February 13, 2022 11:22 AM
To: CEQAResponses
Subject: Fish farm scrutiny report

Totally agree this project should only be developed with renewable energy to be used in day to day operations. Any new construction of this size and impact on land, harbor and ocean would be devastating to think otherwise. | 627-1

Agree with all the points in article to be more fully discussed with answers. | 627-2

Yes, this area needs more well paying jobs but not at the expense of the environment which was devastated by thoughtless redwood barrons in the past and pot farms in present. | 627-3

Thank you
Rosemary Holifield

Letter 627 – Response to Comments

Response to Comment 627-1 – Renewable Energy

The comment requests the Project only utilizes renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 627-2 – Opinion

The comment is an opinion on an unreferenced article yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 627-3 – Opinion

The comment is an opinion on the environmental impact of the Project yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Mary Hurley <hurleymch@gmail.com>
Sent: Tuesday, February 15, 2022 10:07 AM
To: CEQAResponses
Subject: Comments on Humboldt County Proposed Nordic Fish Factory

I am submitting the following comments on the proposed Nordic Aquaculture Permit for a fish factory:

- Due to Nordic increasing the county's electricity load by 21-24%, Nordic needs to meet its energy usage from renewable energy sources only. This includes using solar, including placement over parking lots and using refrigerants with a global warming potential of under 150. 628-1
- Require Nordic to build a local compost facility for their waste to sequester the carbon created from the 730,000 tons of sludge. Build it locally instead of trucking it 300 plus miles to compost elsewhere to reduce fuel usage and emissions. 628-2
- Require Nordic to plan for other methods of reducing transportation emissions by planning for other forms of transit including vanpools for employees and reduced parking. 628-3
- Evaluate the draft environmental report (DEIR) for truck traffic to ensure there has been adequate review of the impact of such traffic and the incompatibility of such traffic with foot and bike traffic. 628-4
- Additional analysis of the impact on the ocean from Nordic's discharge of 12.5 million gallons a day of wastewater. The additional analysis includes looking further at the impacts of adding nitrogen and increased water temperature on the potential of toxic algae blooms. The DEIR review of this was for discharge 3.5 miles out of Humboldt Bay but Nordic would discharge its wastewater 1.5 miles out. 628-5
- Requiring ongoing professional monitoring of effluent to compare to an established threshold and requiring protective actions. 628-6

Thank you.

Mary Hurley
5098 Mitchell Road
Eureka, CA 95503
hurleymch@gmail.com

Letter 628 – Response to Comments

Response to Comment 628-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the enforceability of that commitment, as well as information on the potential for including additional onsite solar in the Project. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 628-2 – Waste

The comment regards waste and composting. Please see Master Response 11 (Waste Handling and Disposal). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 628-3 – Reduction of Transportation Emissions

This comment requests van pools and other measures to reduce transportation emissions. Van pools and other similar measures to promote employee carpooling and other ridesharing and commute alternatives have been included in the Project's Operation and Construction Transportation Plan to reduce potential impacts related to transportation emissions. Please see Master Response 1 (Truck Traffic & Road Safety). Please see Master Response 2 (Greenhouse Gas and Energy – On Road Truck Activity). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the alternative transportation strategies that NAFC has voluntarily committed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 628-4 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 628-5 – Harmful Algal Bloom

The comment requests additional analysis of discharge related to HAB. The DEIR evaluates toxic algae HAB in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see

Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 628-6 – Discharge

The comment requests changes to the monitoring requirements of the Project discharge. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Nancy Ihara <nancyihara@gmail.com>
Sent: Monday, February 14, 2022 10:05 AM
To: CEQAResponses
Subject: Comments on Nordic Aquafarms DEIR

Thank you for the opportunity to comment on the Nordic Aquafarms DEIR.

The biggest deficiency of the Nordic Aquafarms' DEIR, I believe, is how it addressed the project's energy use. Climate change is dramatically changing the lives of people throughout the world and no project should be permitted that does not provide measures that significantly and greatly reduce greenhouse gas emissions.

It is not acceptable that the Aquafarms' DEIR uses carbon intensity in lb CO₂eMWh data from 2019. Were the data not based on this year significant impacts would be evident and mitigations required under law. Consequently the DEIR should not be approved without requiring mitigations, some of which I propose below.

First, the approval of the project should depend on a commitment by Nordic in the final EIR that the Aquafarms will be powered b 100% renewable energy. Because this cannot be achieved without the development of off-shore wind, the project's approval needs to be conditioned upon the approval of the off-shore wind project.

Two, Nordic Aquafarms should be required to develop the maximum feasible power onsite through the incorporation of solar panels on all buildings and parking areas.

Three, using refrigerants with less than 150 GWP should be required. (HFC's produce GHG' hundred to several thousand times more than CO₂.)

Four, in Humboldt County transportation is the largest contributor to greenhouse gases so Aquafarms should be required to provide van pools for its 150 plus employees to reduce vehicle emissions.

On a different note, the low-income community of Manila north of the project is presently severely impacted by California state expressway 255 which bisects the community. The over 95 estimated truck vehicles servicing the project will add additional hazards to the residents of this community. All Aquafarms truck traffic should be required to access 101 via the Samoa Bridge.

Nancy R. Ihara

629-1

629-2

629-3

629-4

Letter 629 – Response to Comments

Response to Comment 629-1 – Energy

This comment states that PG&E's 2019 third-party verified carbon intensity is incorrect. Additionally, the comment requests that onsite solar energy be maximized. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and the energy intensity factor applied. As shown in Master Response 2, PG&E and RCEA have demonstrated the ability to provide 100% renewable and/or non-carbon energy portfolios. See also Response to Comment 503-3. As shown in Master Response 2 and Response to Comment 503-3, it would be inappropriate to apply an LSE's system-wide or 'base plan' carbon intensity to the Project. A more appropriate carbon intensity factor would be zero pounds of carbon dioxide equivalent per megawatt hour (0 lbs. CO₂e/MWh).

Please see Master Response 2 for information on the potential for including additional onsite solar in the Project. As detailed in the DEIR Section 2 (Project Description) on pages 2-1 and 2-19, the Project includes a 4.8 MW solar array, which would be located on approximately 657,000 square feet of facility roofs. Energy impacts were evaluated in DEIR Section 3.5 (Energy) and were found to be less than significant. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 629-2 – Refrigerants

This comment requests that the Project commit to using refrigerants with a global warming power (GWP) of no more than 150. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the refrigerants. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 629-3 – Reduction of Transportation Emissions

This comment requests van pools and other measures to reduce transportation emissions. Van pools and other similar measures to promote employee carpooling and other ride-sharing alternatives have been included in the Project to reduce potential impacts related to transportation emissions. The Project also includes a commitment to purchase 100% renewable and/or non-carbon energy, thereby further contributing to the reduction of GHG emissions. Please see Master Response 1 (Truck Traffic & Road Safety). Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the alternative transportation strategies and the renewable and/or non-carbon energy sources that NAFC has voluntarily committed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 629-4 – Transportation, Traffic

This comment posits that Manila is severely impacted by SR 255, that the Project truck trips will add additional hazards to these residents, and that all Project truck traffic should be required to access US 101 via the Samoa Bridge. Please see Master Response 1 and Section 4.0 (Errata) for additional information regarding truck traffic and road safety. The findings of Less Than Significant Impact for Impact TR-c remains the same as in the DEIR and no mitigation is warranted.

McNamara, Cade

From: Joe James <jamesjoe555@gmail.com>
Sent: Sunday, February 13, 2022 7:29 AM
To: CEQAResponses
Subject: Aquafarms water usage

I'm a little bit concerned about the amount of water out of the Mad River watershed that the aqua farms is going to be using per day which is quite a bit more than what the municipalities use. Two or three times as much if I remember right. if this drought continues and intensifies over the years which may well happen are the municipalities going to have their rights to the water protected as a priority over the demands of aqua farms?

630-1

Letter 630 – Response to Comments

Response to Comment 630-1 – Freshwater Supply

The comment is related to fresh water use by the Project. The comment provides no substantial evidence or recommendations. Per page 2-22 of the DEIR, the HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021). The HBMWD in place permits associated with freshwater allowable use far exceed the combined needs of NAFC and current users.

McNamara, Cade

From: pajaro@juno.com
Sent: Thursday, February 17, 2022 6:52 AM
To: CEQAResponses
Subject: Nordic Aquafarm Comments
Attachments: Fish Farm Comments.docx

Michele Kamprath

1882 Blake Road
McKinleyville, CA 95519

Dear Humboldt County Planning and Building Department,

This is in response to the proposed Nordic-Aquafarms-Project. This project seems like a good overall fit for Humboldt County as it makes use of the old pulp mill site, supplies local jobs, and financially serves our community. I have been impressed by the Nordic Aquafarm's intentions for their project in our community. For the most part, I am all for it happening here.

The biggest concerns for me would be the discharge from the process and making sure that it produces minimal pollutants and the fish farm energy use. When viewing the graphs of the tremendous energy use that the farm would require, it's a reminder of how vital it is for clean energy sources to be utilized. It is very important to me that the energy used from day one maximizes clean energy, preferably produced locally. This should be a priority.

The Nordic –Aquafarm has great potential and I am excited to see this business be successful in Humboldt County. My hope is that we see the fish farm develop into an excellent model of a local business using clean energy and supplying jobs and fish to Pacific Coast communities.

Thank You,
Michele Kamprath

631-1

Michele Kamprath
1882 Blake Road
McKinleyville, CA 95519

Dear Humboldt County Planning and Building Department ,

This is in response to the proposed Nordic-Aquafarms-Project. This project seems like a good overall fit for Humboldt County as it makes use of the old pulp mill site, supplies local jobs, and financially serves our community. I have been impressed by the Nordic Aquafarm's intentions for their project in our community. For the most part, I am all for it happening here.

The biggest concerns for me would be the discharge from the process and making sure that it produces minimal pollutants and the fish farm energy use. When viewing the graphs of the tremendous energy use that the farm would require, it's a reminder of how vital it is for clean energy sources to be utilized. It is very important to me that the energy used from day one maximizes clean energy, preferably produced locally. This should be a priority.

The Nordic -Aquafarm has great potential and I am excited to see this business be successful in Humboldt County. My hope is that we see the fish farm develop into an excellent model of a local business using clean energy and supplying jobs and fish to Pacific Coast communities.

Thank You,
Michele Kamprath



Letter 631 – Response to Comments

Response to Comment 631-1 – Local Renewable Energy

The comment requests the Project solely utilize local renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: kathleenkelcey <kathleenkelcey@att.net>
Sent: Wednesday, February 16, 2022 9:30 AM
To: CEQAResponses
Subject: Nordic farms

They must generate own power. Impact on ocean ecosystems needs more study. Compost facility needed for own
sludge. No transport to elsewhere. I think they will overtax all our systems and that must not happen. Let them pay for
all impacts locally. No easing of restrictions for that 4 letter word Humboldt usually genuflects for. Jobs that despoil our
environment and way of life are a problem to all of us. Kathleen Kelcey
1090 Murray rd space 45
Mckinleyville, ca

Sent from my Galaxy Tab A

Letter 632 – Response to Comments

Response to Comment 632-1 – Impact Assessment

The comment is regarding inadequacy of impact assessment yet provides no substantial evidence or recommendations. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and renewable energy. Please see Master Response 11 (Waste Handling and Disposal). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 632-2 – Waste

The comment relates to waste and composting yet provides no substantial evidence or recommendations. Please see Master Response 11 (Waste Handling and Disposal). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 632-3 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or recommendations. Please see Master Response 11 (Waste Handling and Disposal). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 632-4 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or recommendations. Please see Master Response 11 (Waste Handling and Disposal). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Naomi Klass <naomieklass@gmail.com>
Sent: Saturday, February 12, 2022 4:57 PM
To: CEQAResponses
Subject: Humboldt County's draft Environmental Impact Report (DEIR) for Nordic Aquafarms

To Whom It May Concern:

Nordic AquaFarms' proposed aquaculture facility in Samoa would be the largest project in Humboldt County in decades. At full build-out, It would use 21% of the county's energy supplies. And yet the draft EIR concludes there would be no significant impacts from greenhouse gas emissions, truck traffic, bay intakes that will draw 10,000,000 gallons and an ocean discharge of 12,000,000 gallons of treated wastewater a day.

633-1

Numerous significant impacts have not been fully assessed and mitigated in the DEIR, specifically increased electricity demands, greenhouse gas emissions, and the ocean discharge. We believe reasonable changes to reduce these impacts are achievable. To make sure Nordic commits to these changes, we are requesting the following required mitigations:

1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy.
2. The project shall maximize its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas.
3. The project shall use refrigerants with a global warming potential of under 150.
4. The food fed to the salmon shall be certified to have the lowest greenhouse gas footprint commercially available.
5. Modeling of ambient water quality shall use data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point).
6. Baseline monitoring and continuous monitoring of the effluent shall be performed by experts and compared to an established threshold which would trigger protective actions.

633-2

633-3

633-4

633-5

633-6

This project would be the largest of its kind, unprecedented and could greatly impact community, coastal areas, and Humboldt Bay; it has very large greenhouse gas implications. As environmentalists, climate activists, and stakeholders we support actions to reduce emission of greenhouse gasses as quickly as we can while preserving as much of our natural world as we can.

633-7

I join 350 Humboldt, Humboldt Baykeeper, EPIC, Humboldt Surfrider Foundation, Coalition for Responsible Transportation Priorities and the Northcoast Environmental Center in calling for these reasonable mitigations to the Nordic Aquafarms project.

Thank you for your consideration and cooperation in this matter.

Naomi Klass

Letter 633 – Response to Comments

Response to Comment 633-1 – Additional Mitigation

This is an introductory comment. Specific issues raised are addressed in detail in responses comment 633-2 through 633-7. The comment requests additional mitigation to reduce impacts to energy, GHG emissions, truck traffic and bay intakes yet provides no substantial evidence or recommendations. Please see Master Response 2 (Greenhouse Gas and Energy). Please also see Master Response 5 regarding marine outfall and Master Response 1 regarding transportation. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 633-2 – Renewable Energy

The comment requests the Project only utilize renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and the determination that the Project would not result in a significant GHG impact. Please see Master Response 2 for information on the potential for including additional onsite solar in the Project. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 633-3 – Refrigerants

The comment requests information related to refrigerants and GHG. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 633-4 – Feed and GHG

The comment requests the Project only use feed with the lowest GHG footprint. Please see Master Response 10 with regard to fish feed. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 633-5 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 633-6 – Discharge

The comment requests baseline monitoring, continuous monitoring, and changes to the data used for discharge modeling. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit

requirements including baseline and ongoing sampling. Please see Master Response 5 regarding marine outfall. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 633-7 – GHG

The comment requests additional GHG consideration. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: RANDY D KLEIN <rdklein@sbcglobal.net>
Sent: Tuesday, February 15, 2022 8:48 AM
To: CEQAResponses
Subject: Comments on Nordic Aquafarm EIR

I submit the comments below on the draft EIR on Nordic AquaFarms proposed fish farm on the Samoa Peninsula:

1. Nordic AquaFarms should be required to invest in enough local clean energy production and storage to meet their own power needs. As proposed, the project will increase the county's electricity load by 24%. This will mean burning more natural gas and biomass, increasing greenhouse gas emissions and pollution. With climate change proceeding rapidly, the goal of net zero emissions should be a priority for this and all other new development projects in Humboldt County. 634-1
 2. The project proposes to transport a massive volume (over 700,000 tons) of sludge a long distance for composting. The carbon footprint of this would be enormous. Nordic AquaFarms should be required to build a local compost facility for their waste. 634-2
 3. The draft EIR is seriously flawed in several ways, but perhaps the most important is the analysis of ocean impacts. The modeling of wastewater discharge was based on impacts at the mouth of Humboldt Bay, not the location of the existing wastewater pipe outfall, located 1.5 miles offshore, that will be utilized by the project. Thus, the analysis of impacts in the draft EIR cannot be trusted. With the project discharging 12.5 million gallons a day of wastewater into the ocean, there is a significant likelihood that the practice will add enough nitrogen, and raise water temperature sufficiently, to cause toxic algae blooms. This would be a major threat to our local fishing fleet and cannot be allowed. 634-3
- I am not absolutely opposed to the Nordic AquaFarms project, but the draft EIR is insufficient, and the project elements too impactful as proposed, to be accepted in their present forms. As attractive as job creation and tax base increases are, we cannot embrace large developments that fail to address not only local concerns, but global issues as well. 634-4

Randy Klein
Hydrologist
Arcata, CA

Letter 634 – Response to Comments

Response to Comment 634-1 – Energy

This comment requests the Project invest in local clean energy. Please see Master Response 2 GHG and energy for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 634-2 – Waste

This is a comment requesting NAFC to build a compost facility in Humboldt County. Please see Master Response 11 for additional clarification regarding waste handling and disposal. The Project will not have an onsite composting facility. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 634-3 – Numeric Modeling Input Data

This comment is expressing concern that water quality data from the entrance of Humboldt Bay was inappropriately used to support the numeric modeling completed for the Project (DEIR Appendix). The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. This issue is specifically clarified in Master Response 5 (Marine outfall). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Given the information discussed above, no additional mitigations are warranted.

Response to Comment 634-4 – Opinion

Comment expresses concerns, but not complete opposition to the Project. The comment further posits that the DEIR is insufficient, and the Project is too impactful in its current form. The comment is a concluding statement that states the overall opinion of the Project. Please see responses to comments 643-1 through 634-3 for information and references addressing the specific concerns expressed in the letter. No further response is provided here.

Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

McNamara, Cade

From: jen knight <instructorknight@yahoo.com>
Sent: Friday, February 18, 2022 3:33 PM
To: CEQAResponses
Subject: DEIR for Nordic Aquafarm
Attachments: Dear County Representative.docx

Dear County Representative,

I am writing in regards to the draft environmental impact report (DEIR) that Nordic Aquafarms (Nordic) is proposing to build on the Samoa Peninsula. **I am opposed to this project** for many reasons. **It is too big**, poses too much **risk for negative environmental consequences** and will continue to **erode the quality of life here in Humboldt county**. The following is some of my concerns and conditions that should be added if this project were to happen.:

635-1

The proposed tremendous consumption of energy by the project is not viable. Unless Nordic invests in LOCAL clean energy and storage to meet their own energy needs, the impact on our community will be disastrous. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely by renewable energy should be added. A suggestion has been additional onsite renewable energy production through more aggressive utilization of solar, including over parking areas.

635-2

The EIR should require Nordic to build a local compost facility for their waste. Trucking their compost elsewhere is wear and tear on our roads and will have a heavy carbon footprint. It will cause a lot more traffic and accidents.

635-3

The EIR should require Nordic to perform a better analysis of ocean impacts. For example, Potential effects should be modeled using ambient water quality data from ocean waters near the discharge point, rather than data taken in Humboldt Bay (approximately 3.5 miles south-southeast of the end of the ocean outfall pipe). And levels of toxic algae should be monitored both pre- and post-project and compared to thresholds that would trigger protective actions *before* another toxic algae bloom leads to harmful levels of domoic acid.

635-4

The Bay intakes may risk sea life. Why should that risk be taken? Why risk an accident that would release the farmed fish, sludge and untreated wastewater into the ocean? Does sea life get to weigh in on this project? It's not necessary to build a fish farm. What is necessary is to change the way humans impact the environment. Humboldt County is one of the few underdeveloped parts of California coastline. It has and has had its share of environmental disasters. We have to protect what is left of it.

635-5

I am against this project because it feels as if it will sacrifice the lives of sea and land animals and poses a threat to our fragile and rare environment. The collective loss of our environment and quality of life in Humboldt should not be given to private gain. Privatizing profits and socializing the losses puts our planet at risk.

Thank you,

RECEIVED

FEB 18 2022

Humboldt County
Planning Division

Dear County Representative,

I am writing in regards to the draft environmental impact report (DEIR) that Nordic Aquafarms (Nordic) is proposing to build on the Samoa Peninsula. **I am opposed to this project** for many reasons. **It is too big**, poses too much **risk for negative environmental consequences** and will continue to **erode the quality of life here in Humboldt county**. The following is some of my concerns and conditions that should be added if this project were to happen.:

The proposed tremendous consumption of energy by the project is not viable. Unless Nordic invests in LOCAL clean energy and storage to meet their own energy needs, the impact on our community will be disastrous. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely by renewable energy should be added. A suggestion has been additional onsite renewable energy production through more aggressive utilization of solar, including over parking areas.

The EIR should require Nordic to build a local compost facility for their waste. Trucking their compost elsewhere is wear and tear on our roads and will have a heavy carbon footprint. It will cause a lot more traffic and accidents.

The EIR should require Nordic to perform a better analysis of ocean impacts. For example, Potential effects should be modeled using ambient water quality data from ocean waters near the discharge point, rather than data taken in Humboldt Bay (approximately 3.5 miles south-southeast of the end of the ocean outfall pipe). And levels of toxic algae should be monitored both pre- and post-project and compared to thresholds that would trigger protective actions *before* another toxic algae bloom leads to harmful levels of domoic acid.

The Bay intakes may risk sea life. Why should that risk be taken? Why risk an accident that would release the farmed fish, sludge and untreated wastewater into the ocean? Does sea life get to weigh in on this project? It's not necessary to build a fish farm. What is necessary is to change the way humans impact the environment. Humboldt County is one of the few underdeveloped parts of California coastline. It has and has had its share of environmental disasters. We have to protect what is left of it.

I am against this project because it feels as if it will sacrifice the lives of sea and land animals and poses a threat to our fragile and rare environment. The collective loss of our environment and quality of life in Humboldt should not be given to private gain. Privatizing profits and socializing the losses puts our planet at risk.

Thank you,

Jennifer Knight

844 4th Ave

Westhaven, CA 95570

Letter 635 – Response to Comments

Response to Comment 635-1 – Opposition to Project

This comment is introductory in nature and a statement of opposition to the Project. Specific topics raised in Comment 635-1 are addressed in more detail in responses to comments 635-2 through 635-5. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 635-2 – Local Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 635-3 – Waste

The comment regards waste and composting yet provides no substantial evidence or recommendations. Please see Master Response 11 (Waste Handling and Disposal). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 635-4 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 635-5 – Opposition to Project

This comment is a statement of opposition to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 3 regarding concerns around fish escape. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

From: [steve luttig](#)
To: [CEQAResponses](#)
Subject: Nordic Fish Farm
Date: Friday, February 18, 2022 8:08:27 PM

A few recommendations:

- Concerning GHG due to employee vehicles :
- Require Nordic to INSTALL on site EV car chargers
For at LEAST 50% of employee parking spaces.
[require at least half of these chargers to be Level 2
Capacity ---at least 18 miles of charge per hour.
[So, if they plan on 100 employees, 50 parking spaces
Would have Level 2 chargers, & 50 Level 1 chargers]
- Require that these chargers dispense electricity for
- FREE to employees.
[side note: There is currently a 30% Fed. Tax rebate for
Installing EV car chargers]
- Install these chargers in preferential parking spots
- i.e.: Close to job site/buildings
- Require Nordic provide up to date info. On EV ownership:
-Including EV options / EV total cost of ownership/
EV purchase incentives & rebates [Fed. / State / Local]
- Require Nordic to use EV TRUCKS where possible for shipping
As these become available [Note: They already are!]
- Also: Besides rooftop solar [building / parking]
- Consider ground mounted TRACKING solar as well.
- Not sure how practical, but if fish waste would be possible
- For onsite Biodigesters to harvest and burn methane for
- Onsite power production [also reduce trucking of waste.....]

Sent from [Mail](#) for Windows

636-1

Letter 636 – Response to Comments

Response to Comment 636-1 – Energy, Transportation

This comment is providing a list of measures that may reduce GHG emissions from employee vehicles, as well as measures to reduce GHG emissions from energy consumption and operations. The comment does not raise issues pertaining to the content or adequacy of the DEIR. As detailed in the DEIR Section 3.7.6, starting on page 3.7-10, the Project's GHG impacts were determined to be less than significant, and mitigation is not required. Please see Master Response Please see Master Response 11 (Waste Handling and Disposal). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Kkh M <73khmom73@gmail.com>
Sent: Friday, February 18, 2022 9:19 AM
To: CEQAResponses
Cc: Karen Mayer
Subject: Comment on projected Nordic Aquafarm Project

Without vital modifications, Nordic Aquafarms, must not be permitted to proceed!

The projected size of Nordic, with its huge impact on the Humboldt Bay water and land ecosystems is the basis of the objections to this projected business: Even though cleaning up toxic waste is very beneficial, the negative effects of Nordic greatly outweigh the potential benefits: | 637-1

Electricity consumption would overburden the entire county's electrical needs, using 21% of its entire energy needs, creating CO2 emission increases by producing needed electricity, extreme increase of materials to produce electricity preventing future growth of other businesses and housing! | 637-2

Other problems, not yet well-addressed are: truck traffic, bay intakes that will draw 10,000,000 gallons and an ocean discharge of 12,000,000 gallons of treated wastewater each day, adding to the nutrient level of the bay, as well as warmth, plus decreasing the pH and salinity, thus upsetting bay water healthy balances. | 637-3
| 637-4

Objections to their planned energy demands, greenhouse gas emissions, the ocean discharge, and impacts to wildlife related to the bay intakes. | 637-5

Modifications needed:

1. Power the Nordic entire business area with Only renewable energy! | 637-6
2. Monitoring water quality to prevent toxic algae blooms.
3. Difficulty with projected water quality impact. | 637-7

As a citizen resident, I urge denial of the Nordic arms project, until the above plan problems are corrected!

Karen K. Mayer, Eureka

Letter 637 – Response to Comments

Response to Comment 637-1 – Opposition to Project

This comment is introductory in nature and a statement of opposition to the Project. Specific issues raised are addressed in detail in responses comment 637-2 through 637-7. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 637-2 – GHG and Energy

The comment expresses concern over energy use and GHG impacts. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 637-3 – Truck Traffic and Water Use

The comment is related to truck traffic and water use for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Per page 2-22 of the DEIR, The HBMWD has significant excess allowed capacity of industrial untreated fresh water from the Mad River (HBMWD 2021). Permitting associated with freshwater allowable use far exceeding the needs of NAFC has been completed by HBMWD. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Updated information on truck trips is provided in Section 4, Errata, of the FEIR.

Response to Comment 637-4 – Discharge

The comment expresses concern over the discharge impacting the bay yet provides no substantial evidence or recommendations. Please see Appendix E of the DEIR for information on the outfall dilution study. Please see Master Response 5 regarding marine outfall. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 637-5 – Opposition to Project

This comment is introductory in nature and a statement of opposition to the Project. Specific issues raised are addressed in detail in responses comment 637-6 and 637-7 GHG. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 637-6 – Renewable Energy

The comment requests the Project only utilizes renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 637-7 – Harmful Algal Bloom

The comment requests changes to the discharge sampling related to harmful algal blooms. The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9. HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Bob McCombs <bobmcc@humboldt1.com>
Sent: Monday, February 14, 2022 3:16 PM
To: CEQAResponses
Subject: Nordic Fish Factory

We really don't need another transnational corporation extracting out resources and leaving when something goes wrong or their attention shifts elsewhere. That's exactly what will happen - when is the only question. | 638-1

Robert McCombs
PO Box 4175
Arcata, CA
95518

Letter 638 – Response to Comments

Response to Comment 638-1 – Statement of Opposition

This comment expresses opposition to the Project. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Please see Master Response 6, which addresses statements unrelated to environmental issues as defined under CEQA.

From: [Kimiko McNeill](#)
To: [CEQAResponses](#)
Subject: Concerns about Nordic AquaFarms
Date: Monday, February 14, 2022 3:03:54 PM

Hello,

I am a Manila resident, and I am opposed to the Nordic AquaFarms business that is being proposed for Samoa, CA.

Here are my concerns:

- | | |
|---|-------|
| 1. Clean energy: Nordic plans to use an immense amount of power (equal to the city of Eureka!), and they have no plans to invest in clean energy alternatives. This immense amount of energy for a place that is going to create less than 200 jobs does not benefit the county at all. | 639-1 |
| 2. Increased traffic on the 255 through Manila: Nordic is predicting 95 more truck loads per week passing to Samoa. If the company chooses to take the 255 route to drive north along Manila, this will add more traffic to a road that is already dangerous for pedestrians, in addition to the workers who will be commuting to work. | 639-2 |
| 3. Sludge waste: Nordic is planning to drive trucks over 300 miles to compost the sludge that is produced by the facility. This is a huge waste of energy and resources. | 639-3 |
| 4. Wastewater into the ocean: 12.5 million gallons of wastewater into the ocean every day could have a dire impact on our oceans, especially if this waste water contributes to toxic algae blooms. | 639-4 |

Ultimately, the cons outweigh the pros to support this project. I cannot fathom that we will accept such a huge environmental impact from a company that is barely contributing to the Humboldt County economy-just so farmed fish can be more affordable? I know many residents who are opposed to this and it does not match the environmental justice that so many residents subscribe to.	639-5
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Thank you,
Kimiko McNeill

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Kimiko McNeill, OTR/L, MS

208 596-9360
kimiko.mcneill@gmail.com



"We rise by lifting others" ~Robert Ingersoll

Letter 639 – Response to Comments

Response to Comment 639-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 639-2 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Updated information on truck trips is provided in Section 4, Errata, of the FEIR.

Response to Comment 639-3 – Waste

The comment regards waste composting and GHG yet provides no substantial evidence or recommendations. Please see Master Response 11 (Waste Handling and Disposal). Please see Master Response 2 (Greenhouse Gas and Energy). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 639-4 – Harmful Algal Bloom

The expresses concern over discharge and harmful algal blooms. The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 639-5 – Opposition to Project

This comment is a statement of opposition to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

From: [Ken Mierzwa](#)
To: [CEQAResponses](#)
Subject: Nordic Aquafarms Project EIR comment
Date: Thursday, February 03, 2022 8:26:52 PM

February 3, 2022

I had not originally intended to comment on the Nordic Aquafarms EIR, and do not feel that it is appropriate for me to take a position on the Project because until about eight months ago I was employed at GHD, and have since moved to another consulting firm.

However, last night it was brought to my attention that I am listed as one of four preparers of EIR Appendix D, Marine Biology. This is not true.

In fact, I had never seen Appendix D until last night. I did not contribute to it or any other part of the EIR. I billed no time to the Project. During the entire week that Appendix D was issued (February 20, 2020 according to the date on the document) I was in client meetings in Tallahassee. For 90 days prior to that I was engaged full time leading and writing a statewide Programmatic Biological Assessment for the State of Florida.

Without going into detail, I wish to make it clear that I disagree with a number of the statements made in the results and conclusions of Appendix D and carried forward into the EIR. Many items require additional analysis and/or additional mitigation, and I would have refused to put my name on the document as written had I known that it existed.

I request that the Appendix D page listing preparers be updated to strike my name and identify the actual author or authors, since I'm fairly certain that at least one other individual listed also was not actually involved in writing the document. The updated page should be specifically included in the final CEQA record of whatever decision you ultimately make on this EIR.

Thank you,

Ken Mierzwa
ken.mierzwa@gmail.com

640-1

Letter 640 – Response to Comments

Response to Comment 640-1 – General

This comment concerns the listing of Ken Mierzwa as a preparer of the Marine Resources Biological Evaluation report appended to the DEIR. Please see response to comment 610-11.

McNamara, Cade

From: dan morgan <nasaduck@gmail.com>
Sent: Saturday, February 12, 2022 6:48 PM
To: CEQAResponses
Subject: Comments on the NAFC DEIR

Nordic AquaFarms' proposed aquaculture facility draft EIR has a number of problems that need to be corrected, In order to mitigate these problems I request that the EIR be modified as follows:

1. Because of the large energy consumption projected for the project, an explicit requirement needs to be added in the EIR that the project will, from day one of operations, be powered solely through renewable energy. 641-1
2. Feasible onsite renewable energy production must be maximized through more aggressive utilization of its solar, including over parking areas. 641-1
3. Refrigerants with a global warming potential of under 150 must be used throughout the project. 641-2
4. The salmon must be fed using food certified to have the lowest greenhouse gas footprint commercially available. 641-3
5. To be meaningful, data used in modeling of ambient water quality must be be taken from the mixing zone near the RMT II diffuser, rather than data taken from Humboldt Bay, which is approximately 3.5 miles south-southeast of the discharge point. 641-4
6. Protective actions must be specified in the EIR that are triggered by monitoring thresholds to be established by local, state and Federal agencies. To facilitate this the EIR must also specify that baseline monitoring and continuous monitoring of the effluent shall be performed by experts and compared to the thresholds. 641-5

Thanks for the opportunity to comment.

Dan Morgan

3601 Gold Crest Ln

Rosamond, CA 93560

Letter 641 – Response to Comments

Response to Comment 641-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 641-2 – Refrigerants

The comment requests the Project only use refrigerants with a global warming potential of under 150. Please see Master Response 2 regarding refrigerants, GHG and energy. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 641-3 – Fish Food

The comment is related to analysis of GHG and fish feed. Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 10 (Fish Feed). and Master Response 2 regarding refrigerants, GHG and energy. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 641-4 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 641-5 – Discharge

The comment requests baseline monitoring and continuous monitoring of the Project discharge. Please see pages 2-45 – 2-46 of the DEIR and Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: pebbles@humboldt1.com <pebbles4@sonic.net>
Sent: Saturday, February 12, 2022 3:32 PM
To: CEQAResponses
Subject: Nordic Fish Farms

Dear Folks, we agree with the Northcoast Environmental Center and others regarding concerns about the Nordic Fish Farms DEIR. Please consider addressing these issues:

- An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy. 642-1
- The project maximizes its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas.
- An adaptive management provision that requires Nordic to buy locally-produced renewable power as it is commercially available. 642-2
- Modeling of ambient water quality using data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point). 642-3
- Baseline monitoring and continuous monitoring of the effluent should be performed by experts and compared to an established threshold which would trigger protective actions. 642-4

Sincerely,

Nancy Keleher

Sam Morrison

Letter 642 – Response to Comments

Response to Comment 642-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information related to additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 642-2 – Local Renewable Energy

The comment requests the Project only utilize local renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 regarding GHG energy, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 642-3 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 642-4 – Discharge

The comment requests baseline monitoring and continuous monitoring of the Project discharge. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling and Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Sue Y Lee <sue.lee@humboldt.edu>
Sent: Thursday, February 10, 2022 4:35 PM
To: CEQAResponses
Subject: Comments re: Nordic AquaFarm DEIR

Dear CEQA Planning Commissioners,

I am concerned about the environmental impact of the proposed Nordic AquaFarm on our area as there will be a great increase in electricity demands, an increase in greenhouse gas emissions, and increased effluent discharged into the ocean with undeniable effects on water quality. I understand reasonable changes to reduce these impacts are achievable.

643-1

Because the Nordic Aquafarm will be the largest facility of its kind in this area, and will greatly impact our community, coastal areas, and Humboldt Bay. Relative to the Nordic Aquafarm DEIR, I request that:

1. an explicit requirement be stated in the EIR that the project will be powered solely through renewable energy from the very start;
2. the project maximizes its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas;
3. an adaptive management provision be added to require Nordic to buy locally-produced renewable power as it is commercially available;
4. in the modeling of ambient water quality, data from the mixing zone near the RMT II diffuser, and NOT the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point) be used;
5. baseline monitoring and continuous monitoring of the effluent be performed by experts and compared to an established threshold which would trigger protective actions;
6. an adaptive management plan be in place to require adoption of zero emission trucks and other vehicles as they become commercially available.

643-2

643-3

643-4

643-5

643-6

I also request that a more in depth analysis of truck traffic safety impacts be made, and a strong clear commitment to provide alternative transportation options for employees for commuting.

643-7

Thank you for taking my comments.

Sincerely,

Archie S. Mossman
 PO Box 223
 Arcata, CA 95518
 707.677.3669

Letter 643 – Response to Comments

Response to Comment 643-1 – Introduction

The comment is an introduction to the comments which follow.

Response to Comment 643-2 – Renewable Energy

The comment requests the Project only utilize renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 643-3 – Local Renewable Energy

The comment requests the Project only utilize local renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 regarding GHG, energy, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 643-4 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 643-5 – Discharge

The comment requests baseline monitoring and continuous monitoring of the Project discharge. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements and voluntary sampling by NAFC including baseline and ongoing sampling. Please see Master Response 5 regarding project effluent and marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 643-6 – Trucks

The comment is related to use of electric trucks for the Project. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. The NCUAQMD has not adopted regulations regarding the evaluation of GHG emissions in a CEQA document and has not established CEQA significance criteria to determine the significance of impacts with regard to GHGs (J. Davis. pers. comm. 2019). NAFC has not yet determined if they will operate their own trucks or contract a trucking company. Trucking will remain consistent with CEQA guidelines as outlined in the DEIR. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 2 (Greenhouse Gas and Energy) for GHG analysis relevant to transportation. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.”

Response to Comment 643-7 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Updated information on truck trips is provided in Section 4, Errata, of the FEIR.

McNamara, Cade

From: gregmovsesyan <gregmovsesyan@gmail.com>
Sent: Tuesday, February 15, 2022 3:36 PM
To: CEQAResponses
Subject: Nordic Aquafarms

An EIR on this project is like lipstick on a pig. ↓⁶⁴⁴⁻¹

McNamara, Cade

From: gregmovesyan <gregmovesyan@gmail.com>
Sent: Friday, February 11, 2022 10:48 AM
To: CEQAResponses
Subject: Surely you're kidding, right?

A fish farm 200 yards from the ocean using 20% of the available generated energy. I don't think so. This is breathtaking environmental arrogance. Can you say "boondoggle"?

↑
644-1
cont.

Letter 644 – Response to Comments

Response to Comment 644-1 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Andrew Murphy <andrewhmurphy@gmail.com>
Sent: Tuesday, December 21, 2021 3:25 PM
To: CEQAResponses
Subject: No fish farms

Hi,

I'm writing to express my opposition to the Nordic Aquafarm fish farm. Whatever short-term financial benefits that will come of this project fail in comparison to the environmental harm it will cause. Specifically, fish farms are harmful to wild fish. For starters, more fish will be required to feed the fish in the 'farm' than will be successfully produced by the 'farm.' More importantly, the threatened wild salmon that try to make their way upstream to spawn in Humboldt County will be competing for resources with the farm fish. The farm fish will also lure more predators, putting wild fish at more risk.

Last year Mark Kurlansky wrote a wonderful book simply called *Salmon* (published by Patagonia) and I implore you to read it and become better informed about the threats that wild salmon face. If you can't commit to that, please watch the documentary film, also released last year, called *Artifishal*. As it happens, the fish farm operated by Nordic Aquafarm in Norway is featured in the film. I am confident if you take a peek at what their fish farm in Norway looks like, then you won't want it in your backyard.

Thanks,
Andrew

645-1

Letter 645 – Response to Comments

Response to Comment 645-1 – General

This comment is a statement of opposition to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. This comment expresses concern regarding impacts to wild salmon in the region but offers no rationale to support this concern and does not cite information contained in the DEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Ellen Murphy <ellmurphycal@gmail.com>
Sent: Thursday, February 17, 2022 2:12 PM
To: CEQAResponses
Subject: Nordic Aquafarms Land-Based Aquaculture Project Input
Attachments: Nordic Aquafarms Input Ellen Murphy.dot

Word doc attached as instructed. Thank you for your time. *Ellen Murphy*

Input regarding the Nordic Fish Farm

aka: Nordic Aquafarms Land-Based Aquaculture Project

February 12, 2022

- 1). I do not believe that the Nordic Fish Farm is a good fit for our community | 646-1
- 2). I am very sad that we cannot think of a better use of acres of waterfront property, than to build a fish farm. And only employ 150 people. | 646-2
- 3). Consider the trucks coming and going, not only through our town, but it is a long way to travel to get to any large city or shipping facility. How often do east/west 199 and north/south 101 have travel restrictions. | 646-3
- 4). All that electricity. | 646-4
- 5). Massive amounts of ocean water "scrubbed" of all life form, and then with added chemicals, returned to the ocean. | 646-5
- 5a). This is just a small snip of generic promises relating to the temperature of the water being returned to the ocean: *"The California Thermal Plan provides temperature standards for territorial seas off California. New discharges in coastal waters should be discharged away from the shoreline to achieve dispersion through the vertical water column, Biological Resources GHD | County of Humboldt, Planning Department | 11205607 | Draft Environmental Impact Report 3.3-5 and not exceed the natural temperature of receiving waters by more than 20 degrees Fahrenheit (°F). In addition, the discharge shall not result in increases in natural water temperature exceeding 4°F above ambient at the shoreline or beyond 1,000 feet from the discharge. The goal is to assure protection of beneficial uses."* | 646-6
- 6). Where do we find a sample of the waste water that will be discharged? |
- 7). Provisions for waste? | 646-7
- 8). It appears as though that seemingly extensive report is merely filled with cut and paste documents from other agencies. | 646-8

Ellen Murphy [Ellen Murphy]

ellmurphycal@gmail.com

510-725-0549

P.O. Box 6952

Eureka, CA 95502



Letter 646 – Response to Comments

Response to Comment 646-1 – Opinion

The comment is an opinion on the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 646-2 – Opinion

The comment is an opinion on the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 646-3 – Truck Traffic

The comment is related to truck traffic for the Project. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA and Master Response 1 regarding truck traffic and road safety. Updated information on truck trips is provided in Section 4, Errata, of the FEIR.

Response to Comment 646-4 – Energy Use

The comment is a statement on “all that electricity”. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 646-5 – Discharge

The comment expresses concern about release of chemicals into the ocean. Please see Master Response 5 regarding marine outfall. Please see Master Response 7 regarding the Baywater Intake System. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 646-6 – Discharge

The comment requests information on Project discharge as it relates to temperature. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Please see Master Response 5 (Marine Outfall) regarding temperature and mixing. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 646-7 – Waste

The comment regards concern over waste handling and disposal. Please see Master Response 11 (Waste Handling and Disposal). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 646-8 – Opinion

The comment is an opinion adequacy of the DEIR for the Project yet provides no substantial evidence or recommendations Please see Master Response 9 level of detail in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Peggy Murphy <pamurphy5037@gmail.com>
Sent: Thursday, February 17, 2022 11:19 AM
To: CEQAResponses
Subject: Nordic Fish Farm in Samoa

To Whom It May Concern:

As a resident of Eureka, a consumer and a supporter of commercial fishermen and the healthy product they provide, I wholeheartedly reject any support for this project.

Massive in scale, untested in size and place, sketchy (at best) data from Nordic, increased truck and vehicle traffic, and the very real potential of destroying what makes this beautiful area a pleasure to live in, I say a very loud and firm NO. I 647-1
647-2

The world does not need anymore frankenfish. It's a slap in the face to the local commercial fishing industry that our representatives have let the project get this far.

Tell Nordic to go back to their own beautiful country and test the project. They are looking here because their citizens won't allow it. They have already seen the failure of farmed fish and the harm it causes so corporations like Nordic can make a buck. Anyone with a brain does not eat farmed fish - it's a highly-processed, impure product that degrades the environment. It's a crime against nature and humanity, not progress. 647-3

PLEASE do not let this project move forward. Hopefully my voice will be viewed as a letter to any congressional representative, as 6,000 voices who ultimately feel the same way.

Thank you,

Peg Murphy
Eureka, CA

Letter 647 – Response to Comments

Response to Comment 647-1 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Updated information on truck trips is provided in Section 4, Errata, of the FEIR.

Response to Comment 647-2 – Opposition to Project

This comment is a statement of opposition to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 647-3 – Opposition to Project

This comment is a statement of opposition to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Nikki Nash <nikkinashmusic@gmail.com>
Sent: Saturday, February 12, 2022 4:19 PM
To: CEQAResponses
Subject: Just say NO

The nordic aquaculture facility is too environmentally damaging/unsustainable. Aquaculture altogether, to start out with, is environmentally damaging and unsustainable. All aquaculture must be BANNED and phased out quickly; NOT EXPANDED. It's waste of resources, pollution to water and excessive demands on electricity are unacceptable. There are no changes/modifications that would make it acceptable. Aquaculture is sadistic Satanic and sociopathic. INSTEAD OF EXPANDING, YOU NEED TO BE OUTRIGHT BANNING!

648-1
648-2

Letter 648 – Response to Comments

Response to Comment 648-1 – Opposition to Project

This comment is a statement of opposition to the Project because it is environmentally damaging and unsustainable but does provide supporting evidence for these statements. Comment Noted. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 648-2 – Opposition to Project

This comment indicates that there is nothing which can be done to make the Project acceptable. This comment is not based upon any information but is a statement of opinion. Comment Noted. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Lorna Nys <lornanys@yahoo.com>
Sent: Friday, February 11, 2022 10:45 AM
To: CEQAResponses
Subject: This environmental disaster must not happen!

Fish farming should not be in Humboldt County for many reasons. We are recovering from excessive fishing and logging. There does not need to be another threat to our ecosystem. Incidents happen. There will be effects on our local salmon dna? Just no! We are a natural place full of folks who do not want big factory anything! Keep improving our environment!

| 649-1

| 649-2

Letter 649 – Response to Comments

Response to Comment 649-1 – Opposition to Project

This comment is a statement of opposition to the Project as the area is recovering from excessive fishing and logging and another threat to the ecosystem is not needed. The comment provides no information to support that the Project is a threat to the ecosystem and thus this is an opinion about the Project and not a comment on the DEIR. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 649-2 – Opposition to Project

This comment is a statement of opposition to the Project due to effects on salmon DNA and Humboldt being a natural place and the local population does not want big factories. This is an opinion on the Project and not a comment on the DEIR. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Juliet O'Barr <juliet.jg56@gmail.com>
Sent: Monday, February 14, 2022 7:13 PM
To: CEQAResponses
Subject: Nordic Aquafarms Comments

To Whom it May Concern,

I am writing to express my concern about the current plan for the Nordic Aquafarms aquaculture in Samoa. I believe that numerous significant impacts have not been fully assessed and mitigated, specifically concerning energy demands, greenhouse gas emissions, and ocean discharge. I am hopeful that reasonable changes could be made to reduce the impacts that this farm will have. It is imperative that Nordic Aquafarms commits to certain changes to their current plan. To make sure Nordic commits to these changes, I am requesting the following modifications:

1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy. | 650-1
2. The project maximizes its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas.
3. An adaptive management provision that requires Nordic to buy locally-produced renewable power as it is commercially available. | 650-2
4. Modeling of ambient water quality using data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point). | 650-3
5. Baseline monitoring and continuous monitoring of the effluent should be performed by experts and compared to an established threshold which would trigger protective actions. | 650-4

The health of our ocean, our air and our planet should be the absolute number one priority. It is our responsibility and our privilege to make sure that any new project impacts the environment as minimally as possible. To allow this project to go forth without these changes would be indefensible, wrong, and a grave disservice to our collective future. We must make all decisions with the health and wellness of all life and this planet at the forefront of our minds. I thank you for your time and for doing all in your power to ensure a sustainable future for us all. Thank you, | 650-5

Juliet O'Barr

Letter 650 – Response to Comments

Response to Comment 650-1 – Renewable Energy

The comment requests the Project only utilizes renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 regarding GHG, energy, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 650-2 – Renewable Energy

The comment requests the Project only utilize local renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 650-3 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 650-4 – Discharge

The comment requests baseline monitoring and continuous monitoring of the Project discharge. Please see Master Response 5 regarding marine outfall and DEIR pages 2-45 and 2-46 for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 650-5 – Closing

This comment expresses an opinion about protecting the environment but does not provide comment on the DEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Sharon Paltin <bluetoothfairy18@gmail.com>
Sent: Saturday, February 12, 2022 4:31 PM
To: McNamara, Cade
Cc: CEQAResponses
Subject: Fwd: Humboldt County's draft Environmental Impact Report (DEIR) for the Nordic Aquafarms project.

(Sorry, somehow the first email did not have my name correct, this is the corrected email.)

I am writing as a Family Physician, who has worked for 34 years serving Humboldt and Mendocino Counties, and as a graduate of UC Berkeley with a B.S. in Conservation of Natural Resources, class of 1975.

Concerning **Humboldt County's draft Environmental Impact Report (DEIR) for the Nordic Aquafarms project:**

I am requesting the following required mitigations:

- | | |
|--|-------|
| 1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy. | 651-1 |
| 2. The project shall maximize its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas. | |
| 3. The project shall use refrigerants with a global warming potential of under 150. | 651-2 |
| 4. The food fed to the salmon shall be certified to have the lowest greenhouse gas footprint commercially available. | 651-3 |
| 5. Modeling of ambient water quality shall use data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point). | 651-4 |
| 6. Baseline monitoring and continuous monitoring of the effluent shall be performed by experts and compared to an established threshold which would trigger protective actions. | 651-5 |

Thank you for your kind attention,
Sharon Paltin, M.D.

--
Sharon Paltin
Note: I'm retiring shsharealike@saber.net
Please update your addressbook to: bluetoothfairy18@gmail.com
Thank you!

Letter 651 – Response to Comments

Response to Comment 651-1 – Renewable Energy

The comment requests the Project only utilize renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 651-2 – Refrigerants

The comment requests the Project only use refrigerants with a global warming potential of under 150. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 651-3 – Fish Food

The comment is related to analysis of GHG and fish feed. Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 10 (Fish Feed). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 651-4 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 651-5 – Discharge

The comment requests baseline monitoring and continuous monitoring of the Project discharge. Please see Master Response 5 regarding marine outfall and pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Comment Letter 652

From: [Mara Parker](#)
To: [Planning Clerk](#); [PlanningBuilding](#)
Subject: Comment on Proposed Fish Farm
Date: Tuesday, February 08, 2022 8:52:48 AM

Dear Humboldt County Planning Commission:

I am very concerned about the very possible negative environmental impacts the proposed fish farm will have if it's allowed to be built.

I've asked this entity to prove that their water intake system will not suck in wildlife and suction them onto the grates of the water intake system. They have yet to provide evidence that this will not happen.

652-1

I'm also very concerned about the impact this proposed machination will have on wild fish populations if waste from this plant is expelled or seeps into the ocean through contaminated water or soil. (This is a common occurrence with fish farms.) Our wild salmon populations are suffering and introducing diseases into the water will further devastate this species' population.

652-2

This proposed business will create very little local jobs. It's not worth the risk to the health of our environment and the vulnerable species within it to allow this proposed project to be constructed.

652-3

Thank you for your time.

Sincerely,
Mara Parker
111 Haven Way
Trinidad, Ca 95570

[Sent from the all new AOL app for iOS](#)

Letter 652 – Response to Comments

Response to Comment 652-1 – Intake

This comment is a statement of concern over the impact of the water intake. The DEIR includes thorough analysis of the impact from the seawater intake in each resource section. Please see Master Response 7 regarding the Baywater Intake System. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 652-2 – Biosecurity

This comment is a statement of concern about the impact to wild fish populations due to waste from the farm seeping into the ocean. Please see Master Response 4 regarding fish health and biosecurity and Master Response 5 regarding marine outfall. Please see Master Response 11 (Waste Handling and Disposal). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 652-3 – Opposition to Project

This comment is a statement of opposition to the Project that produces very little local jobs and it not worth the risk to our environment. The comment is not supported by reasons of evidence and thus expresses opinion and does not provide a comment on the DEIR. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Lisa R Pelletier <lrp13@humboldt.edu>
Sent: Thursday, February 17, 2022 9:36 PM
To: CEQAResponses
Subject: Please deny this project

To Whom It May Concern,

Please deny the permit for the Nordic Aqua Farm project, as Humboldt Baykeepers notes that "numerous impacts have not been adequately assessed in the DEIR, including energy demands, greenhouse gas emissions, the ocean discharge, and impacts to wildlife related to the bay intakes." 653-1

I support Humboldt Baykeeper's request for the following modifications to the DEIR:

1. Potential effects should be modeled using ambient water quality data from ocean waters near the discharge point, rather than data taken in Humboldt Bay (approximately 3.5 miles south-southeast of the end of the ocean outfall pipe). 653-2
2. Levels of toxic algae should be monitored both pre- and post-project and compared to thresholds that would trigger protective actions *before* another toxic algae bloom leads to harmful levels of domoic acid. 653-3
3. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely by renewable energy. 653-4
4. Additional onsite renewable energy production through more aggressive utilization of solar, including over parking areas.

Overall, I believe this project will do more harm than good due to its energy demands, greenhouse gas emissions and harms to the bay/ocean, wildlife and the environment. Please deny this project, or at the very least, demand a new DEIR with the above-mentioned modifications. Thank you. 653-5

Sincerely,
Lisa Pelletier
Arcata, CA

Letter 653 – Response to Comments

Response to Comment 653-1 – Opposition to Project

This is an introductory comment and request to deny the Project. Specific issues raised are addressed in detail in responses comment 653-2 through 653-4. The comment does not provide rationale as to why the DEIR is inadequate and the discussions on these topics are well developed. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 653-2 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 653-3 – Harmful Algal Bloom

The expresses concern over discharge and harmful algal blooms. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 653-4 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 653-5 – Closing

Comment that the Project will do more harm than good due to impacts cited above in 653-1. Consistent with comment 653-1 nor reason or rationale is given other than an opinion the Project should be denied. The DEIR and FEIR thoroughly address areas identified as being a concern.

McNamara, Cade

From: Eugene Perricelli <ceperr@sbcglobal.net>
Sent: Saturday, February 12, 2022 12:51 PM
To: CEQAResponses
Subject: Regarding Nordic Aquafarm

Let's mandate doing something about that energy use. We need to mitigate the climate effects. Thanks, Claire Perricelli | 654-1

Letter 654 – Response to Comments

Response to Comment 654-1 – Energy Use

The comment is a statement on energy use. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Tom peters <tpete@reninet.com>
Sent: Saturday, February 12, 2022 4:35 PM
To: CEQAResponses
Subject: comments on Nordic impact

These are my additional comments on the DEIR for the Nordic Farms proposed fish farm on the Samoa Peninsula. I have lived and fished in Humboldt bay for over 50 years and have a good idea of what lives there and what it requires. The following are only some of my major concerns.

1. The effluent pipe at Somoa is shared with several other entities for their treated sewage water. There must be a plan in case any of the pipeline users has trouble and exceeds limits. What happens to the fish if, for example, the Manila sewage treatment facility fails and contaminates the pipeline discharge? Does Nordic have to shut down? What happens to the fish? 655-1
2. What happens to the Manila sewage outfall if the Nordic operation fails or exceeds its limits. Does Manila have to shut down? 655-2
3. If the Nordic operation exceeds discharge limits, what happens to the fish while repairs are underway? Do they just kill them or try to use them in some way? What is the plan? 655-3
4. The same question applies to any serious power failure. True there are backup generators but what happens to the fish if they fail, possibly in an earthquake or serious tsunami? 655-4

There MUST be a plan for the fish.

Humboldt Bay is a nursery area for a wide variety of creatures, many quite small. Eggs, larvae. Various stages of miniscule growths are swimming all through the bay water. Many of these organisms filter bay water for their food (oysters!)

I am VERY concerned about the HUGE inflow from pumps drawing water from the bay and its impact on those creatures. True, many can be filtered, although what impact filtering has on them is unknown. But an example comes to mind that I am very familiar with. Herring spawn in Humboldt Bay in large numbers. Herring lay their eggs attached to available structures or eel grass. The males then broadcast their sperm into the water where it contacts the eggs. The sperm is extremely fine and looks like smoke in the water. There is no way to filter it out in any useful manner any more than you could filter cups of coffee out of the bay. If sperm laden water was being pulled out of the bay it could not fertilize the eggs and the herring would disappear. The same holds true for many other marine organisms. This must be closely studied BEFORE Nordic attempts to replumb our bay. 655-5

It is one thing to say you will closely monitor the outfall, it is quite another to be willing and able to do something about it if problems occur. Sorry to sound doubtful, but I've seen numbers fudged too many times when dollars are at stake. The consequences of problems with illegal or out of compliant discharge MUST be immediate and carefully monitored by independent agencies. 655-6

I believe the Nordic operation will have many unforeseen impacts on our bay and ocean. I've spelled out a few above. It is too large in scale and potentially too disruptive to the local waters. I do appreciate all their efforts to assure that fish do not escape but many other consequences can and probably will occur from their operation. Once this thing is built and in operation, the chance of making any significant changes are nil. Like the pulp mills before it, once it becomes a major economic force in the community it becomes difficult or impossible to control or stop. 655-7

Humboldt Bay is a precious and delicate resource. It has suffered much from development over the years. If this project is completed at the scale proposed, The Bay will only suffer more, along with the plants, animals, and birdlife that call it home.

I ask this project to at least scale back. Start with a smaller, less disruptive facility. Prove it works or does not and prove that it is compatible with the Bay environment BEFORE building a huge project that can't be controlled.

I have many more concerns but I have neither the time or energy here in my later years to digest and comment on the entire 1800 page document. In fact, creating such a lengthy document without good summaries appears to be a way to limit meaningful comment itself.

Hopefully that is not the case but it does make it difficult for the public to respond.

That concludes my remarks.

Thank You.

Thomas H. Peters

221 Dollison St.

Eureka, CA 95501

tpete@reninet.com

655-8

Letter 655 – Response to Comments

Response to Comment 655-1 – Discharge

The comment is a question as to what happens when there is a water quality violation from one of the dischargers using the outfall pipe. Each discharger maintains a National Pollution Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB). Each discharger is responsible for meeting the conditions in their permit. If another user is in violation of their permit, it will not affect NAFC's operation, ability to discharge, or risk the health of the fish. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 655-2 – Discharge

The comment is a question about what happens to the other dischargers if NAFC has a water quality violation. As noted above, each permitted user of the outfall pipe is responsible for meeting the conditions in their permit. If NAFC were to have a violation it would not affect the other dischargers and NAFC would need to modify their process of operation to bring the discharge into compliance. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 655-3 – Discharge

The comment asks what happens to the fish while repairs are underway. As described in Section 2 (Water Treatment), starting on page 2-23 of the DEIR, NAFC will establish Best Management Practices (BMP), Standard Operating Procedures (SOPs) to ensure permit requirements are met. Inspection for defects in water treatment equipment would be part of NAFC's regular facility maintenance program and the design includes redundancy on essential mechanical equipment such that the effluent continues to be treated in the event of a mechanical breakdown or if equipment is offline for maintenance. Emergency situations are also discussed on page 2-23 of the DEIR, noting the facility would be able to operate for several weeks without an operational saltwater intake but would be unable to process fish without potable water supply (potable water is supplied by Humboldt Bay Municipal Water District). In emergencies, focus will be on fish welfare or best use of the biomass if fish health cannot be maintained. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 655-4 – Power

The comment requests information on operational contingencies related to grid power failure. As described on page 2-27 and 2-28 of the DEIR, NAFC will install backup generators sufficient to maintain all critical functions for the fish and wastewater treatment systems in a grid power failure. This includes a backup fuel source if both grid power and natural gas supplies are not available for extended periods. Please see page 2-40 of the DEIR for information related to seismic and tsunami risk analysis. Please see Appendix I of the DEIR for the Probabilistic Site-Specific Tsunami Hazard Analysis. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 655-5 – Water Intakes

The comment suggests that further studies should be undertaken prior to water withdrawal. As demonstrated in the DEIR analysis, there is adequate information to make CEQA determinations with existing data. Effects to planktonic species and marine species are assessed in the empirical transport model (DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53 and DEIR Appendix P). In summary, larvae entrainment would not result in a substantial decrease in marine populations that could be detected over natural

variability. Additionally, the proposed facility would only remove 0.14% of the volume of water moving through the channel over a tidal cycle. Also see Master Response 7. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 655-6 – Discharge

The comment expresses an opinion that the monitoring requirements are good but too often making an industry comply with the requirements is not enforced for financial reasons. This is an opinion and does not identify any concerns with the information in the DEIR. There will be many agencies responsible for overseeing the operation of this facility and to say that any of them will not enforce permit conditions is speculative and not supported by any information. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 655-7 – Opinion

The comment expresses an opinion the Project will have unforeseen impacts yet does not support this with any information. This comment does not provide any comment on the adequacy of the DEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 655-8 – Opinion

The comment expresses an opinion that the DEIR and appendices is 1,800 pages long making it hard to read without good written summaries. It is important to note that the DEIR text is a summary of all the technical data that supports the findings in the DEIR. Providing the background information is a means to allow the public to engage in understanding the Project and potential environmental effects. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: erik peters <erikpeterso@yahoo.com>
Sent: Wednesday, February 16, 2022 8:35 PM
To: CEQAResponses
Subject: Nordic Aquafarm

Hi I'm a 20 year resident of Humboldt County recently moved to Eureka from McKinleyville, I'm still sad that this project was approved, but I am hopeful that it can be done as responsibly as possible. The Draft Environmental Impact report seems flawed in some of its methods and measurements. We need to do better. As some one that cares about the long term health of Humboldt Bay and the quality of all life in the region I join Humboldt Baykeeper, 350 Humboldt, EPIC, Humboldt Surfrider Foundation, Coalition for Responsible Transportation Priorities, and the Northcoast Environmental Center in requesting the following modifications:

- 1. Potential effects should be modeled using ambient water quality data from ocean waters near the discharge point, rather than data taken in Humboldt Bay (approximately 3.5 miles south-southeast of the end of the ocean outfall pipe). 656-1
- 2. Levels of toxic algae should be monitored both pre- and post-project and compared to thresholds that would trigger protective actions before another toxic algae bloom leads to harmful levels of domoic acid. 656-2
- 3. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely by renewable energy. 656-3
- 4. Additional onsite renewable energy production through more aggressive utilization of solar, including over parking areas.

Thank you for considering my thoughts.

Sincerely,
Erik Peterson

Letter 656 – Response to Comments

Response to Comment 656-1 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 656-2 – Harmful Algal Bloom

The comment requests changes to the discharge sampling related to harmful algal blooms. Please see Master Response 5 regarding marine outfall and HAB. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 656-3 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

To: Fhyre Phoenix
Subject: RE: Nordic Aquafarms

Fhyre,

Thank you for your comment on the Nordic Aquafarms project. It was nice discussing the outfall over the phone today with you. Per your request, I will ensure that your comment is on the record and included in the FEIR.

Best wishes,



Cade McNamara

Planner II

[Planning and Building Department](#)

3015 H Street | Eureka, CA 95501

Phone: 707-268-3777 | Fax: 707-445-7446

Email: cmcnamara@co.humboldt.ca.us

From: Fhyre Phoenix <fhyrephoenix@gmail.com>
Sent: Thursday, February 10, 2022 6:24 PM
To: McNamara, Cade <cmcnamara@co.humboldt.ca.us>
Subject: Nordic Aquafarms

Hi! I have a question. The aquafarm will be producing effluent daily which will be piped out to sea, correct? Will there be any heavy metal or other toxins in this effluent? The reason I ask is that if the effluent is not toxic, then I'd like to know if it would be effective as a liquid fertilizer for vegetable and other gardens. If this effluent would be suitable for gardens, then I wonder if there couldn't be a small, spin-off business that sells that effluent by the gallon, or even gives it away (for tips/donations.)

657-1

Can you give me the information on the quality of the effluent that I am looking for? If not, where would I find this information?

Thank you.

Fhyre Phoenix
601 Hiller Road
McKinleyville, CA
95519

707.572.9823
fhyrephoenix@gmail.com

Letter 657 – Response to Comments

Response to Comment 657-1 – Effluent

The comment requests information on whether Project effluent contains toxic materials or whether it could be used as a liquid fertilizer. The only potential toxicity in the effluent is with regard to temperature and salinity as compared to the receiving waters. The effluent would not be a suitable plant fertilizer due to the salinity. However, other coproducts produced by the facility do have value as a fertilizer and NAFC is working to find local solutions for secondary uses for this material. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: leslie quinn <coyotewind15@gmail.com>
Sent: Friday, February 18, 2022 1:30 PM
To: CEQAResponses
Subject: EIR draft for Nordic farms

i have several questions about the EIR. why does nordicFarms use 21% of Humboldt county's total energy output, more than both cities of Eureka and Fortuna combined? what about greenhouse gas emissions? As for as the wastewater ocean discharge, it will add to the existing nutrient load and lower the Ph and salinity, which in turn exacerbates the toxic algae load. i ask for ambient water quality data, not Humboldt Bay data. how will this project be powered solely by renewable energy from day One? there should be more aggressive onsite renewable energy and utilization of solar energy, including the parking lot. the EIR is very incomplete and troubling to me. Thank you for considering these salient points.

Leslie Quinn

Letter 658 – Response to Comments

Response to Comment 658-1 – GHG

The comment expresses concern with the total energy use and resultant GHG emissions. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 658-2 – Harmful Algal Bloom

The comment asks whether the ocean discharge will add to the existing nutrient load and lower Ph and salinity which exacerbates the toxic algae load. The DEIR evaluates toxic algae HAB in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9. HABs are driven by large-scale oceanic processes. Numerical modeling(DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 658-3 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Joanne Rand <shortiesmallfoot@gmail.com>
Sent: Monday, February 14, 2022 5:17 PM
To: CEQAResponses
Subject: Re: Nordic AquaFarms

Require Nordic to invest in enough local clean energy and storage to meet their own power needs.

Why? Nordic will increase the county's electricity load by 24%. This will mean burning more natural gas and biomass, increasing greenhouse gas emissions and pollution.

659-1

Require Nordic to build a local compost facility for their waste.

Why? The fish farm would create over 730,000 tons of sludge which they plan to truck nearly 300 miles to compost somewhere else. We need a compost facility and we need compost so our farmers and ranchers can sequester carbon.

659-2

Require a better analysis of ocean impacts

Why? Nordic will discharge 12.5 million gallons a day of wastewater into the ocean, adding nitrogen and raising water temperature, which can increase toxic algae blooms.

659-3

Joanne Rand
PO 586, Arcata, CA 95518
[Official website](#)



Letter 659 – Response to Comments

Response to Comment 659-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 659-2 – Waste

The comment regards waste and composting. Please see Master Response 11 (Waste Handling and Disposal). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 659-3 – Harmful Algal Bloom

The expresses concern over discharge and harmful algal blooms. Please see Master Response 5 regarding marine outfall and HAB. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: wring123@gmail.com
Sent: Monday, February 14, 2022 12:21 AM
To: CEQAResponses
Subject: Nordic AquaFarms DEIR Comment
Attachments: DEIR Comment Nordic.doc

Please see attached comment. Thanks.

Wendy Ring

*Stories of climate action from the bottom up
with [Cool Solutions Podcast](#)*

Wendy Ring MD, MPH
2322 Golf Course Rd
Bayside, CA
(707) 845-2466



I think this project has some merits but

ENERGY

The Nordic AquaFarms project will increase the county's electricity load by 24%. In a county whose actual electricity is generated by natural gas and biomass power plants, this would significantly increase greenhouse gas emissions. The DEIR bases its claim of no significant impact on RCEA's RePower Plan which was developed to meet a projected electricity demand which did not include the fish farm, CalPoly, or new data centers attracted by the trans-Pacific fiberoptic cable. There are more reasons why leaning on RCEA's plan is unacceptable.

When evaluating the emission impact of increased electricity demand, the appropriate metric to use is the marginal emission factor, the additional carbon emitted to meet that electricity demand **where and when it occurs** (Mandel, 2016, Watt Time, 2021). The carbon intensity of Humboldt's PGE natural gas plant is 1129 lb CO₂e/MWh, more than double the California average, and the carbon intensity of the biomass plant (based on emissions reported to NCUAGMD) is 6018 lb CO₂e/Mwh or 12 times the California average. While biomass is currently considered renewable, on a timescale meaningful to addressing the climate crisis it emits more carbon than coal. Combustion of either fuel will increase local greenhouse gas emissions.

It is very likely that without substantial mitigation, more fuel combustion would be necessary. RCEA's plans to reach 100% local renewable energy in 2025 and become an energy exporter by 2030 are aspirational goals on which there has been little progress to date. Offshore wind, while promising, is not a fait accompli, and will not likely be installed, much less expand to commercial scale by 2025. A Schatz Energy Lab/BOEM analysis found that offshore wind in Humboldt cannot provide the continuous power which Nordic AF says it needs, and will produce no power at all for 19% of each year. The analysis also found that only a very large wind farm (1,836 MW) will be economically viable. Since only a small pilot installation is currently contemplated, it will probably take many years to reach this level of output.

RCEA's renewable energy portfolio is currently almost entirely comprised of power purchase agreements outside the region. When measuring how much power purchase agreements in other places can compensate for local increased carbon emissions, we must compare emissions here with emissions displaced by purchased energy **where and when it is added to the grid** (Chalendar, 2019; Oates, 2021; Xia, 2019). RCEA buys solar power from the Central Valley and large hydro from Washington where the carbon intensity of electricity is much lower, so the marginal emissions reduction (dirty emissions displaced there) is much smaller than the marginal emissions increase (dirty emissions added here).

Time of day is also important. Mid day solar generation, unless it is stored, doesn't displace emissions from power used at night, and, to the extent that solar production exceeds demand, it is curtailed and not used at all. To quote Sally Benson, Director of Stanford's Precourt Institute for Energy, "Just

purchasing more solar energy in a grid that already has lots of solar generation will not result in zero emissions.” (Xia, 2019). Nordic reports its electricity demand will be level 24/7, so it will be using much of its power when solar energy is not generated.

The current project proposal includes rooftop solar that would supply only 3% of the company's electricity use. In order to prevent an increase in greenhouse gas emissions, Nordic should be required to invest in local clean energy and storage sufficient to meet 100% of its electricity needs. Such an investment would benefit the company by producing large savings in demand charges and providing emergency backup.

660-1
cont.

UTILITIES

The DEIR states that the project would not generate solid waste “in excess of the capacity of local infrastructure” and states impact would be Less Than Significant. It then describes how the substantial amount of operational waste it would create would be “outshipped”. If the local capacity existed, there would not be a need to ship waste elsewhere. The DEIR alludes to “secondary use opportunities” that could remove this material from the waste stream, but there is no guarantee these would occur.

The project would create 730,000 tons of sludge per year which it plans to ship 280 miles to a composting facility in Ormond. This is around fourteen times more organic waste than HWMA handles for the entire county. It is not clear whether the long distance trucking emissions are accounted for in the report's transportation section, which appears to be limited to local truck traffic and employee commutes, but that is not even the major issue.

660-2

Humboldt County needs an industrial scale composting facility, not only to comply with SB 1383, but also to fulfill its potential for carbon sequestration on agricultural land. Compost application is low cost, low tech carbon removal. With 67,000 acres of crop land and pasture and 605,000 acres of grazing land, Humboldt has a very large unrealized potential as a soil carbon sink. With compost application Humboldt's ag lands have the capacity to sequester 4 metric tons of CO₂e per acre. Applying compost to even a fraction of this land would require large amounts of compost, and farmers and ranchers can't afford to pay the trucking fees for “outshipped” organic waste to be “backshipped” after it is composted. The large amount of nitrogen rich waste Nordic would produce would complement our abundant supply of carbon rich mill waste to make a complete recipe for compost on a scale that matches the need. Construction and operation of a large local composting facility would be a major community benefit.

REFERENCES

Chalendar, J and Benson, S. Why 100% Renewable Energy Is Not Enough. Joule 3(6) 1389-1393. doi 10.1016/j.joule.2019.05.002

Mandel, J. Combating Climate Change by Measuring Carbon Emissions Correctly RMI 2016
<https://rmi.org/combating-climate-change-measuring-carbon-emissions-correctly/>

Oates, D and Spees, K White Paper: Locational Marginal Emissions. May 2021
<https://resurety.com/2021/05/12/locational-marginal-emissions-a-force-multiplier-for-the-carbon-impact-of-clean-energy-programs/>

Schatz Energy Research Center /BOEM. Northern California Offshore Wind Generation and Load Compatibility Assessment with Emphasis on Electricity Grid Constraints, Mitigation Measures and

Associated Costs Final Synthesis Report September 2020

<https://www.boem.gov/sites/default/files/documents/regions/pacific-ocs-region/environmental-science/BOEM-2020-045.pdf>

Watt Time, A vision for how ambitious organizations can accurately measure electricity emissions to take genuine action. 2021. <https://www.watttime.org/app/uploads/2021/08/GHG-Frameworks-WhitePaper-Tomorrow-WattTime-202108.pdf>

Xia, V. When 100% renewable energy doesn't mean zero carbon: As power grids move away from fossil fuels, companies seeking to cut out carbon emissions will have to go beyond commitments to renewable energy. 2019 Stanford Earth Matters Magazine <https://earth.stanford.edu/news/when-100-renewable-energy-doesnt-mean-zero-carbon#gs.fvwhy9>

Letter 660 – Response to Comments

Response to Comment 660-1 – Energy

This comment states PG&E's 2019 third-party verified carbon intensity is incorrect, and that the Project's analysis should account for time of use and marginal emission factors. The comment posits that additional fuel combustion would be necessary for RCEA to reach 100% local renewable energy by 2025 but does not substantiate the claim with evidence.

Additionally, the comment requests that the Project commit to investing in local clean energy and storage and expand onsite renewable energy. As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project.

Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the enforceability of that commitment, and information on including additional solar. As shown in Master Response 2, PG&E and RCEA have demonstrated the ability to provide 100% renewable and/or non-carbon energy portfolios, and the Project is committed to 100% renewable and/or non-carbon energy.

Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding the emissions analysis and appropriate emissions inventory methodology. As detailed in Master Response 2, the Project's GHG impacts were analyzed pursuant to the CEQA, subject to CEQA Statute, CEQA Guidelines, and case law, as well as common practice. There are multiple different approaches to developing an emissions inventory for projects, industries, products, or other sector of GHG generation; the different emissions methodology approaches have differing uses, applications, limitations, and benefits. The current guidance from air districts within California regarding estimation of GHG emissions, as well as recommended emissions modeling program (CalEEMod) developed by CAPCOA, BAAQMD, SMAQMD and others, is to estimate the total annual energy demand (electricity and natural gas consumption) and the electricity intensity factors of the selected utility. There is not guidance or precedent within CEQA for utilizing a 'marginal emission factor' for CEQA analysis.

As shown in Master Response 2, PG&E and RCEA have demonstrated ability to provide 100% renewable and/or non-carbon energy portfolios, and as the Project is committed to 100% renewable and/or non-carbon energy, it would be inappropriate to apply an energy provider's system-wide carbon intensity or 'marginal emission factor' to the Project. A more appropriate carbon intensity factor would be zero pounds of carbon dioxide equivalent per megawatt hour (0 lbs. CO₂e/MWh).

See Response to Comments 503-19, 503-20, 503-21, and 503-22 for more information regarding the Project's potential to jeopardize the energy provider's ability to meet state-mandated and locally adopted clean energy goals, potential to conflict with SB 100 and RCEA's RePower Plan, historical and forecasted energy consumption in Humboldt County, and the capacity of the existing transmission system.

The comment mischaracterizes the RCEA's 2030 goal as "100% local renewable energy by 2025 and an energy exporter by 2030." The RCEA's goal states:

By 2025 100% of RCEA's power mix will be from a combination of state-designated renewable energy sources—solar, wind, biomass, small hydroelectric, and geothermal—and state-designated net-zero-carbon-emission from existing large hydroelectric facilities.

By 2030 Humboldt County will be a net exporter of renewable electricity and RCEA's power mix will consist of 100% net-zero-carbon-emission renewable sources.

As shown above, the RCEA's goals do not include the word 'local' in either 2025 or 2030 goal.

Additionally, the comment posits that because the RCEA's energy portfolio includes power purchase agreements from outside the region, the Lead Agency must compare emissions generated within the region with emissions displaced by purchased energy. However, the commenter's position that the Lead Agency must estimate emissions from energy displaced by the purchase of clean power enters into speculation and unsubstantiated opinion. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

Energy impacts were evaluated in DEIR Section 3.5 (Energy) and were found to be less than significant. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 660-2 – Waste GHG

This comment highlights the high volume of nutrient rich waste generated from the Project for use in composting. The comment requests that a large, local composting facility be constructed to benefit the community. The Project will not have an onsite composting facility. Please see Master Response 11 under the subheading Local Solutions to Disposal of Organic Waste for additional information regarding local composting opportunities. The comment states an annual weight of sludge that is not contained in the DEIR, and it is unclear how the comment arrived at that number. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

The comment also states that it is unclear whether offsite trucking of waste is accounted for in the trucking emissions of the transportation report of the DEIR. Facility Truck Traffic subsection of the Project Description on page 2-27 identifies "32 outgoing trucks weekly carrying waste streams". Table 3.12-4 Project and Existing with Project Traffic and Heavy Vehicles on page 3.12-14 of the Transportation section also lists these trucks as part of the cumulative traffic from the Project. GHGs are evaluated under section 3.7 of the DEIR including emissions for trucking.

McNamara, Cade

From: Jim Rizza <vinnrizza13@gmail.com>
Sent: Wednesday, February 16, 2022 8:28 AM
To: CEQAResponses
Subject: Nordic AquaFrams

Hello,

I am writing this letter to ask you to stop the Nordic AquaFarm from happening in Humboldt County. Here are my reasons:

1.We are in a climate crisis, as we all know. This proven fact. How can you reasonably believe that this 'acquafarm' will not contribute to climate change. They will be putting chemical waste into the ocean which is already warmer than it should be. They will disrupt the natural life cycle and habitat of REAL fish. The economic impact to our local fisheries, which is already in trouble, will be affected. AND the fuel that will be used to transport these 'fish' is another climate concern.

661-1

2.Here on the North Coast we talk about the unique beauty of our rivers and coastline. We need to see more water in our rivers so the fish whose natural cycle to spawn in the rivers is not being more threatened. Spilling tons of fish waste into the ocean will not help these fish or the rivers. The ocean and the rivers one and they are their homes. They don't swim in circles, they don't eat chemical food, and they don't need any more garbage thrown in their habitat that will affect their health and those of us you like to eat FRESH fish. The impact on our water is already being felt from the number of marijuana grows the county has permitted. Why would you put this in more jeopardy?

661-2

3.Health of the ocean and rivers is key here. If we are not helping to make them a better and cleaner place we are not helping the animals and plants like that live there or ourselves. We are told that fresh and local food is the best for a healthy diet. Here on the North Coast we have many farmers who bring us these goods everyday. And the need for more sustainable organic and local produce and meat goods is growing. SO, why would you consider and "Fish Farm" that produces fish manufactured in cages "pools" for our county. Eating genetically modified food has been proven less nutritious and good for us. It's not the real deal.

Question:

Why is Nordic doing this here? Have they successfully done this anywhere else for any established time? Why not grow these 'modified fish' where they will be sold?

Are we being guinea pigs again like we almost fell for the wind farm in Rio Dell?

This is really a fish manufacturing plant making modified fish.

It's a money grab and if you can't see that, take off the rose colored glasses they gave you and look clearly at what is really important for the future of our beautiful county NOT the Money.

661-3

Thank you and let your conscience be your guide.

Francene Rizza

Fortuna Resident

Letter 661 – Response to Comments

Response to Comment 661-1 – Discharge, Environmental, Water Quality, Transportation

This comment provides broad concerns about impacts to climate change, marine ecosystems, and local fisheries economics. Beneficial climate contributions from the Project will be realized by displacing imported farmed Atlantic salmon already currently sold in California. No evidence to substantiate the concerns or impacts is provided. Economic concerns related to commercial and recreational fisheries are not environmental issues as defined by the CEQA guidelines and therefore do not require subsequent environmental analysis required under CEQA. Please see Master Response 6 regarding statements unrelated to environmental issues as defined by CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). The comment does not raise issues pertaining to the content or adequacy of the DEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 661-2 – Environmental, Feed, Discharge, Water Quality

This comment is providing general narrative and opinions about impacts to marine and freshwater ecosystems. NAFC does not propose to raise genetically modified fish, nor does it use genetically modified ingredients in feed. No evidence to substantiate the concerns or impacts is provided. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). The comment does not raise issues pertaining to the content or adequacy of the DEIR. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 661-3 – General

This comment contains a series of questions and statements of opposition to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA.

McNamara, Cade

From: Jim Rizza <vinnrizza13@gmail.com>
Sent: Wednesday, February 16, 2022 10:01 AM
To: CEQAResponses
Subject: Not sure why?

Why? Shipping compost 300 miles, senseless. | 662-1
Wastewater in the ocean; there is much too much already. | 662-2
Electricity use; shades of the wind farm debacle. | 662-3

Jobs? Always for jobs, but can't we employ more people who are benefitting the | 662-4
environment?

Rethink this....the future of our planet is utmost.

Thank you,
Jim Rizza

Letter 662 – Response to Comments

Response to Comment 662-1 – Waste

The comment regards waste and composting. Please see Master Response 11 (Waste Handling and Disposal). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 662-2 – Discharge

The comment expresses concern over the ocean discharge from the Project. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including conformance with the ocean plan, baseline, and ongoing sampling which ensure permit conditions are met. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 662-3 – Energy Use

The comment is a statement on energy use. Please see Master Response 2 (Greenhouse Gas and Energy) regarding electricity demands. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 662-4 – Opinion

The comment is an opinion on the environmental impacts of the Project yet provides no substantial evidence or recommendations. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Ted Romo <blackbrantsky@yahoo.com>
Sent: Friday, February 18, 2022 12:36 PM
To: CEQAResponses; cmcnamara@humboldt.ca.us
Subject: CDFW Letter - Nordic Aquafarms - DEIR -SCH# 2021040532

Humboldt Co. Planning and Building Dept.
 3015 H St.,
 Eureka, Ca 95501
 February 18, 2022

(submitted via email to: cmcnamara@humboldt.ca.us)

Attn: Mr. Cade McNamara, Planner II

Dear Mr. McNamara:

The following comments are submitted in response to Nordic Aquafarms CA, LLC project Draft Environmental Impact Report (DEIR), case # PLN-2020-16698.



One of the areas of concern is the old, wooden **saltwater intake** that is located at RMT II.

“The existing **RMT II dock intake structure is constructed of wood that has become deteriorated**. The wooden structure will likely need repairs to seal cracks that would allow flow into the intake structure other than through the intake screen.”

(3) (Appendix%20R%20-%20Sea%20Chest%20Screen%20Conceptual%20Design.pdf)

It was installed approximately 1966 or maybe earlier so that it allowed the new pulp mill to use it during construction.

The existing **Salt water intakes have not been in use for years** and should be investigated as to whether or not they currently have permits. There also seems to be an assumption in the DEIR that the existing wooden structure needs to only be modernized in order to function at the 2022 environmental standards. This is certainly a misnomer, as the existing wood intake is in need of repair since it contains an abundant amount of known carcinogens.

Siting new or replacement salt water intake potential in the same location as one selected in 1966 does not address current knowledge or concerns for Humboldt Bay as a shallow water estuary. Neither the concrete nor the wooden intake structures are currently operational. Therefore, the use of language referring to “existing” is misleading to the uninformed reader. One of the existing structures, as described in the SEA CHEST DRAWING UNDER D-12-226, was constructed with Doug-fir and utilized a great amount of creosote in its construction as a wood preserver to prevent deterioration from the saltwater environment.

Creosote Hazard at Existing Saltwater Intake Facility

I suggest that a robust study be initiated on the existing saltwater intake due to the data provided by SHN Appendix R, that shows a diagram of the existing Sea Chest. I’m bringing this up because creosote is hazardous for humans. Why would a food source supposedly organic in nature want to have its water source in any way, shape, or form potentially exposed to a source of carcinogenicity such as creosote?

“Creosote is a probable carcinogen in humans (and surely other animals). Most sources currently assert that there may be no safe level of exposure to a carcinogen, so all contact with creosote or creosote-coated

663-1

materials (wood) should be avoided". You can find the actual document on the SHN Appendix R report. If you go to the schematic called Sea Chest Drawing 2-12-226 page 17 out of 22, and if you go to the bottom right hand corner, look under "General Notes", and blow up the notes, you can read the information shown in Appendix R. (3)



The lower picture is a picture of the Sea Chest that is going to be used for the intake. (8)



"The International Agency for Research on Cancer (IARC) has determined that coal tar is carcinogenic to humans and that creosote is probably carcinogenic to humans. EPA has also determined that coal tar creosote is a probable human carcinogen." (8)

The following quote is taken from the National Marine Fisheries Service guidelines:

"New facilities which propose to utilize unproven fish protection technology frequently require:

- 1) development of a biological basis for the concept;
 - 2) demonstration of favorable behavioral responses in a laboratory setting;
 - 3) an acceptable plan for evaluating the prototype installation;
 - 4) an acceptable alternate plan should the prototype not adequately protect fish. Thus, adequate data to describe the size-time relationship requires substantial sampling over a number of years."
- (5) (<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=75315>)

The following quote is also taken from the National Marine Fisheries Service guidelines:

"Where possible, intakes should be located offshore to minimize fish contact with the facility. Water velocity from any direction toward the screen shall not exceed the allowable approach velocity. Where possible, locate intakes where sufficient sweeping velocity exists. This minimizes sediment accumulation in and around the screen, facilitates debris removal, and encourages fish movement away from the screen face." (5)

Moving the locations for intake of salt water offshore will reduce adverse impacts of entrainment on Dungeness crab, longfin smelt, herring and other marine organisms using the estuary habitats of Humboldt Bay.

If you break down the water consumption of 10,000,000 gallons of saltwater per day intake over a 10-year period of time, the total amount of water used looks something like 36,500,000,000,000 gallons of water. It would be hard to believe that this much water being used from saltwater intakes would not have a detrimental impact on an aquatic environment. Such long-term saltwater transfers might affect the ecological stability in Humboldt Bay saltwater habitats to the extent that the long-term continuation of current water supply practices may result in significant and irreversible damage to the ecosystems.

WHAT IS IMPINGEMENT AND ENTRAINMENT?

As with any other natural seawater source, saltwater contains aquatic organisms (algae, plankton, fish, bacteria, etc.). Impingement occurs when organisms sufficiently large to avoid going through the screens are trapped against them by the force of the flowing source water. Since algae, plankton and bacteria are small enough, they are not exposed to impingement. On the other hand, entrainment occurs when marine organisms enter the fish plant intake, are drawn into the intake system, and pass through to the treatment facilities.

Impingement typically involves adult aquatic organisms (fish, crabs, invertebrates larva, eggs and other aquatic fauna energy for all other organisms) that are large enough to actually be retained by the intake screens, while entrainment mainly affects aquatic species small enough to pass through the particular size and shape of

intake screen mesh. Impingement and entrainment of aquatic organisms is a source of concern with the current salt water intake where it currently exists.

SOLUTIONS FOR IMPINGEMENT AND ENTRAINMENT

While impingement and entrainment associated with seawater intake operations are not expected to create biologically significant impacts under most circumstances, the idea that when considering an endangered species, such as the longfin smelt, the usage of the best available mitigation overall for the saltwater intake site should be considered. Moving the intake operations off-shore will be prudent for minimizing the loss of marine life and maintaining the productivity and vitality of the aquatic environment in Humboldt Bay estuary.

The US EPA considers extending intakes 125 meters (410 feet) outside of the littoral zone a good engineering practice that is aimed at reducing impingement and entrainment. According to the Office of Naval Research, the littoral zone extends 600 feet from the shore. Thus intakes with an inlet structure located at least 1100 feet from the shore will result in reduced environmental impacts. In addition, installing the intake to depths where there is a lower concentration of living organisms is preferable..

Proposed RMT II Dock Intake Structure Conceptual Design

There is currently NO environmental impact from use of salt water. Installing new salt water intake pumps, screens, pipelines, and attachments will INCREASE the environmental impacts due to entrainment of larval marine organisms, including longfin smelt (LFS), herring, Dungeness crabs, and others.

Unfortunately, the DEIR only includes a preliminary evaluation of adverse impacts to longfin smelt (see appendix N for Tenera Memo). The lack of any analysis of negative impacts to herring and all other marine life makes the DEIR "inadequate".

The DEIR also discusses a "planned intake assessment study". This is the \$414,000 contract that HBHR&CD signed with Tenera at the Dec. 9, 2021 HD meeting. However, the detailed sampling and data collection will not be completed until early in 2023. Humboldt Co. Planning and Nordic expect to obtain approval of the Nordic project EIR BEFORE conducting any detailed analysis of adverse impacts of the salt water intake structures.

The mitigation being proposed is of questionable value to some of the marine life forms that will be impacted. As far as I can find, only adverse impacts to longfin smelt are being considered in the proposed mitigation measures. Again, this is environmentally inadequate as it precludes the thought that only longfin smelt will be impacted from the saltwater intakes.

Sincerely,

Ted Romo
Eureka, CA 95501

REFERENCES

1
Fish Screening Criteria for Anadromous Salmonids¹ National Marine Fisheries Service Southwest Region
January 1997

<http://www.onr.navv.mil/focus/oc

2 http://water.epa.gov/1awsregs/lawsguidance/cwa/3L6b/phasel/upload/2009_04_02_316b_phasel_support_contents.QQ.

3 1Appendix%20R%20-%20Sea%20Chest%20Screen%20Conceptual%20Design.pdf

4 <<http://www.onr.navy.mil/focus/https://inspectapedia.com/Environment/Creosote-Hazards.php>

5 <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=75315>

6 Toxicological Profile for Creosote

<https://www.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=66&tid=18>

7

Reference: 016240.005 August 6, 2021

Adam Wagschal

Humboldt Bay Harbor, Recreation, and Conservation District 601 Startare Dr.

Eureka, CA 95501

Phone: (707) 441-8855

Email: info@shn-engr.com Web: shn-engr.com 812 W. Wabash Avenue, Eureka, CA 95501-213

Subject: Humboldt Bay Intake Screen Conceptual Designs, Redwood Marine Terminal II and Red Tank Dock, Samoa, California—Revision 03

Adam Wag Sent from my iPad

8. Lost Coast Outpost. Feb. 15, 2022. "With Just Days Left for Public Comment, Enviro Groups Seek More Detail, Assurances in Nordic Aquafarms' EIR"

<https://lostcoastoutpost.com/2022/feb/15/one-week-left-public-comment-enviro-groups-seek-mo/>

Letter 663 – Response to Comments

Response to Comment 663-1 – Hazardous Materials and RMT II Sea Chest

The commentor has concerns that materials used in construction of the RMT II sea chest may contaminate the incoming seawater with carcinogenic compounds. As discussed on page 2-48 of the DEIR the existing sea chest likely needs repairs as part of the modernization process. Prior to implementing construction of the sea chest modernization, the existing materials and condition will need to be evaluated.

Best management practices will be followed to properly remove and dispose of wood as needed during modernization of the sea chests. The modernization effort is not expected to mobilize contaminants into the environment. All work on the sea chests will involve either further encapsulation of materials that are already in place or the removal of materials for replacement with more appropriate material. Any contaminated material that is required to be removed due to deteriorated material condition during modernization will be disposed of at an appropriate offsite location (i.e., a landfill or receiving facility licensed to accept the waste) and replaced with non-hazardous materials.

NAFC is focused on ensuring water quality within all the fish rearing systems. As discussed on page 2-23 of the DEIR final design of the intake water treatment infrastructure within the aquaculture facility is subject to analysis of final source water data currently being collected. Source water sampling includes many water quality parameters and contaminants of concern for humans and fish. Sampling data is utilized to design engineered solutions to ensure only high-quality water is introduced to the facility rearing systems. Engineered solutions could include water treatment equipment, a liner, or coating as appropriate. Please see Master Response 7 for additional clarity regarding intake biologic productivity and intake salmonids. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 663-2 – Water Intakes

The comment states that moving the location of the Project saltwater intake offshore will reduce adverse impacts to Dungeness crab, longfin smelt, herring and other marine organisms using the estuary habitats within Humboldt Bay. The comment states that water intake impacts to species other than longfin smelt, such as Pacific herring, are not assessed; however, this is not accurate. For example, see DEIR Section 3.3.6 pages 3.3-50 to 3.3-52. Please see Master Responses 8 regarding substantial evidence, speculation, and unsubstantiated opinion, and Master Response 9 describing the level of detail in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Patti Rose <p.rose@suddenlink.net>
Sent: Monday, February 14, 2022 11:40 AM
To: CEQAResponses
Subject: Nordic Farms

More work needs to be done on the Nordic Farms Application. Specifically we need: | 664-1

Require Nordic to invest in enough local clean energy and storage to meet their own power needs. | 664-2

Require Nordic to build a local compost facility for their waste. | 664-3

Require a better analysis of ocean impacts | 664-4

Patti Rose

Mckinleyville

707 839-0588

Letter 664 – Response to Comments

Response to Comment 664-1 – Energy

This comment requests the Project invest in local clean energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and information on including additional solar. DEIR Section 3.5, Energy Resources, contains an evaluation and analysis of the Project's potential to:

- Potential to result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation (Impact ENG-a), and
- Potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency (Impact ENG-b)

As determined in the DEIR, Project construction and operation would not result in inefficient, wasteful, or unnecessary consumption of fuels or other energy resources. Additionally, the DEIR determined that the Project will therefore not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 664-2 – Local Renewable Energy

The comment requests the Project only utilize local renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 664-3 – Local Compost Facility

This is a comment requesting NAFC to build a compost facility in Humboldt County. Please see Master Response 11 for additional clarification regarding waste handling, disposal, and potential for local solutions. The Project will not have an onsite composting facility. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 664-4 – Additional Analysis

The comment requests additional analysis of the discharge. This comment expresses concern regarding the Project's impacts but offers no substantial evidence or recommendations. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Steve Rosenberg <sjreur@gmail.com>
Sent: Friday, February 18, 2022 6:03 AM
To: CEQAResponses
Subject: Nordic Aquafarms

Dear Commissioners:

I oppose this project for the following reasons.

1. The EIR fails to address the ability of this facility to withstand an earthquake with ground subsidence and tsunami in the inevitable event of a rupture of the cascadia subduction zone, which happens on average every 280 years in this area, and every 500 years along the entire zone, the last one occurring on Jan 26, 1700. 665-1
2. The EIR fails to address the effect on endangered salmonids of drawing 2 million gallons of water daily from the Mad River, and the effect of allowing its mouth to stay open during low water periods and not migrate further north damaging the clam beach area and highway support. 665-2
3. The EIR fails to address the effect on recreation in Ruth reservoir from this withdrawal. 665-3
4. The EIR fails to adequately address the effect of drawing massive amounts of water from Humboldt Bay thru screened entries on the bays health and marine life, as well as preventing it from being ingested and killed. 665-4
5. The EIR fails to address the effect on roads and traffic related to the trucking of waste and product over existing roadways. Existing road infrastructure is already overburdened. 665-5
6. The EIR fails to adequately address the possibility of disease infecting our endangered local salmonids from effluent, system failure or inundation.
7. The EIR fails to address the effect marketing pen raised salmon will have on the marketing of wild caught salmon and therefore our local commercial fishing industry. 665-6
8. The EIR fails to address why native salmonids cannot be used rather than nonnative atlantic salmon to alleviate the possibility of escape and thus competition with native species.
9. This project will use 21 percent of the available energy used in this area. This will cause increased pollution and is an excessive use for one business. 665-7
10. The EIR fails to address the danger of algae increases related to effluent discharge into the ocean. 665-8
11. The EIR fails to address the effect on waterfowl migration along the bay corridor, particularly Black Brant, a species of concern. 665-9

From a general perspective, this project is too big for this area, and is not one that will keep profits here. The goal for this area should be on local business and restoration of our native salmonids so that the local commercial fishing industry and quaintness of the community can be preserved. For all these reasons, I oppose this project.

Respectfully,
Stephen Rosenberg, Eureka, Ca.

Letter 665 – Response to Comments

Response to Comment 665-1 – Seismic Risk

The comment is related to seismic and tsunami risks. The comment provides no substantial evidence or recommendations. The Project is designed around a 2500-year tsunami event analysis, which is included in Appendix I of the DEIR. Please see page 2-40 of the DEIR for additional information related to seismic and tsunami risk analysis. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 665-2 – Water Use

The comment is related to water use by the Project yet provides no substantial evidence or recommendations. Per page 2-22 of the DEIR, the HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021). Permitting associated with freshwater allowable use far exceeding the needs of NAFC has been completed by HBMWD. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 665-3 – Ruth Lake

The comment is related Recreation on Ruth Lake yet provides no substantial evidence or recommendations. Management of the Ruth Lake Reservoir and releases from the dam are managed by the HBMWD and are unrelated to this Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 665-4 – Intake

This comment is a statement of concern over the impact of the water intake. The DEIR includes thorough analysis of the impact from the seawater intake in each resource section. Please see Master Response 7 regarding intake biologic productivity and intake salmonids. This comment expresses concern regarding the Project's impacts but offers no substantial evidence or recommendations. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 665-5 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation under the purview of CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 665-6 – Biosecurity and Alternative Species

The comment is related to market impacts, biosecurity, and alternative species yet provides no substantial evidence or recommendations. Economic concerns related to commercial and recreational fisheries are not environmental issues as defined by the CEQA guidelines and therefore do not require subsequent

environmental analysis required under CEQA. Please see Master Response 4 regarding fish health and biosecurity. Please see section 4.3.3 of the DER starting on page 4-14 for discussion of alternative species. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 665-7 – Energy

The comment is a statement on energy use. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 665-8 – Harmful Algal Bloom

The comment expresses concern over discharge and harmful algal blooms. The DEIR evaluates toxic algae HAB in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) demonstrates that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 665-9 – Migratory Birds

Comment on potential impact to migratory birds. Please see page 3.3-17 of the DEIR for analysis on potential impacts to migratory birds including the Black Brant. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Comment Letter 666

From: [Genevieve Rozhon](#)
To: [CEQAResponses](#)
Subject: Public comment: Nordic Aquafarms DEIR
Date: Thursday, February 03, 2022 7:30:08 PM

February 3, 2020

I had not intended to comment on the Nordic Aquafarms DEIR, and do not feel that it is appropriate for me to take a position on the project because, until about five months ago, I was employed at GHD.

However, it was brought to my attention today that I am listed as one of the four preparers of EIR Appendix D, Marine Biology. This is not true. In fact, I had never seen that document until today. I did not author it, review it, or contribute to it in any fashion. I would have refused to put my name on a document I had neither authored nor reviewed.

I request that the list of Appendix D preparers be updated to strike my name. The updated page should be included in the final CEQA record.

Genevieve Rozhon
Gcrozhon@gmail.com

666-1

Letter 666 – Response to Comments

Response to Comment 666-1 – Biological Resources

The comment states that Genevieve Rozhon did not contribute to the Marine Resources Biological Evaluation Report. With regard to Ms. Rozhon and the DEIR Appendix D, Marine Resources Biological Evaluation Report, Ms. Rozhon recorded time to this specific GHD project task (4.4, Marine Resources Biological Evaluation) from December 8, 2020, to January 5, 2021, per GHD's financial reporting system. Ms. Rozhon was not the main author of this report, however GHD does not differentiate between "authors" and "coauthors" in biological reports with multiple contributors. If an individual contributes to a collaborative report, then they are listed as an author. As such, Ms. Rozhon's name remains as an author of the Marine Resources Biological Evaluation Report.

McNamara, Cade

From: Lynn Ryan <lynnr8@gmail.com>
Sent: Friday, February 11, 2022 7:52 PM
To: CEQAResponses
Subject: Nordic comments

Dear Humboldt,

I have concerned about Nordic project near Samoa.

I support reasonable changes to reduce impacts and these changes are achievable. Nordic can modify the project and commit to these changes to keep our Humboldt Bay and open ocean area healthy:

A) Model water quality using ambient water quality data from ocean waters near the discharge point, rather than data taken in Humboldt Bay (approximately 3.5 miles south-southeast of the end of the ocean outfall pipe).

667-1

B) Toxic algae should be monitored both pre- and post-project and compared to thresholds that would trigger protective actions *before* another toxic algae bloom leads to harmful levels of toxins.

C) Renewable energy should be an explicit requirement in the EIR that the project will employ from day one of operations. Utilize solar including over the parking areas. This is a good opportunity to move energy independence forward.

667-2

As a Registered Nurse and an environmentalist, my goal is to make sure this project undergoes the highest level of scrutiny and is as least impactful as possible. I value the health of my Humboldt home.

Sincerely,
Lynn Ryan RN
1693 J st
Arcata, ca 95521
707-845-2825

Sent from my iPhone

Letter 667 – Response to Comments

Response to Comment 667-1 – Discharge Modeling and HAB

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment was not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to this Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study.

The DEIR evaluates toxic algae HAB in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) demonstrates that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 for additional information regarding HABs and water quality monitoring. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 667-2 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Stella S <stellasaba39@gmail.com>
Sent: Tuesday, February 15, 2022 7:32 PM
To: CEQAResponses
Subject: Nordic Aquafarms

Please do not build this farm. I don't agree with it in any sense | 668-1

Letter 668 – Response to Comments

Response to Comment 668-1 – Opposition

This comment is a statement of opposition to the Project. Please see Master Response 6, which addresses statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Steve Salzman <salzman222@gmail.com>
Sent: Monday, February 14, 2022 4:42 PM
To: CEQAResponses
Subject: Nordic Fish Project

CEQA reviewers and Planning Commissioners,

I have the following suggestions on the proposed project:

- 1) Require the Project proponent to provide more low carbon energy resources for their project. This could take the form of more on-site PV or third party, off-site facilities. I don't consider natural gas or biomass to be low carbon energy sources. 669-1
- 2) Require the project to include an on-site fish waste composting facility that could also accept Humboldt Counties food waste stream. We're going to need that capability port soon anyway. May as well make them pay for it. 669-2
- 3) Require a third-party review of their intake and outfall impacts. Specifically, where their monitoring points and modeling nodes are located. 669-3
- 4) This project will undoubtedly bring desperately needed revenues to the Harbor district and the county but the Nordic group stands to make multiple millions from this project. Don't give away the store for the promises of a few good paying jobs. Nordic should be required to invest in other economic development programs for the county. If they want to locate here and benefit from our infrastructure it should be a boon for the county as well. 669-4

Steve Salzman
Arcata

Letter 669 – Response to Comments

Response to Comment 669-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 669-2 – Waste

The comment is a request regarding waste and composting. Please see Master Response 11 (Waste Handling and Disposal). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 669-3 – Additional Review

The comment requests additional review of Project impacts related to the seawater intake, outfall, and requests third party monitoring. Please see Master Response 5 regarding marine outfall and pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Please see Master Response 7 regarding intake biologic productivity and intake salmonids. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 669-4 – Opinion

The comment is an opinion on the Project and related benefits. Please see page 2-2 of the DEIR for project benefits. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: jcschaef@igc.org
Sent: Thursday, February 17, 2022 10:53 AM
To: CEQAResponses
Subject: commets on Nordic Aquafarms Land-Based Aquaculture Project
Attachments: comments on Nordic Aquafarms.docx

The attachment is my set of formal comments. They are copied below.

1734 Roberts Way, Arcata CA 95521
February 17, 2022
Planning Director John Ford
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501
CEQAResponses@co.humboldt.ca.us

Dear Planning Director Ford:

I am pleased to submit for your consideration the following commentary on Nordic Aquafarm's (NA's) Draft Environmental Impact Statement (DEIR).

After a lifetime of work in energy, I believe my background is appropriate to comment. I have over four decades of engineering experience, including since 1976 renewable energy and electric power. Clients and employers include utilities (Nevada Power Company, City of Palo Alto Utilities, Bolivian National Electric Company, PG&E, Cleveland Electric Illuminating Company), equipment and power plant developers (Cummins Power Generation, Aisin Seiki, and Stirling Energy Systems), government agencies (Minnesota Legislature, Nevada Legislature, State of Hawaii, United Nations, and Interamerican Development Bank), and the Electric Power Research Institute. I have taught engineering at the University of El Salvador, San Jose State, and Stanford, and I hold degrees from Stanford, MIT, and Oberlin.

I see no insoluble issues in the DEIR, and I think NA is an excellent opportunity for Humboldt.

I support comments from the team of Northcoast Environmental Center, CRTP, Baykeepers, EPIC, and Humboldt 350. But beyond their comments I want to expand somewhat and suggest a broader perspective than normal practice in DEIR commentary.

The enormity of the climate problem in the world and in the county requires such a broader perspective. Albert Einstein is quoted, "We cannot solve our problems with the same kind of thinking we used when we created them." That certainly applies to the climate and as it turns out, equally to Humboldt County's energy situation.

The bottom line is that the county can help both itself and Nordic Aquafarms (NA) to meet future electricity needs if it is willing to seriously address its own energy needs. That is, if we address the county's problem which we must do, then we can certainly support NA's energy needs too. I realize this consideration is beyond what the Planning Department normally does.

NA's energy demands are substantial. Observers note that the PV array proposed for the facility can supply only a small portion of NA's anticipated daytime energy needs, and none of its nighttime needs. Most of its electricity will come from the grid. If NA purchases its electricity from RCEA, which is committed to 100% renewable energy by 2025, then in theory all its needs would be provided from renewable sources.

670-1

Thus, I hope that NA will commit to 100% renewable electricity from RCEA.

However, there is a caveat that presents a win-win opportunity. NA's total electricity requirements are estimated to be 195 GWh per year by 2030, an increase of about a quarter beyond the county's current electricity consumption. As of 2020 PG&E's diesel plant, Humboldt Bay Generating Station (HBGS), generated about 484 GWh per year, virtually all of which is physically delivered to Humboldt County loads; hardly any is exported from the county.

To reduce greenhouse gases, many California cities, including Arcata, plan to shift natural gas usage to electricity. Over the next decade, this will require additional electric generating capacity.

Absent other local sources, the shift away from natural gas and NA's usage will cause HBGS's generation level to increase, even if in theory RCEA provides "all renewable electricity" because:

There is currently insufficient renewable electric capacity within the county to supply all of RCEA's existing or future loads; Transmission capacity from the Central Valley is insufficient to provide imports to supply all the county's needs, whether renewable or not; and The only other major Humboldt County generation sources so far are HBGS and Humboldt Redwood, along with an unknown but insufficient amount of solar.

Thus, Humboldt County will burn more fossil fuel even if NA commits to 100% renewable electricity from RCEA. Moreover, as cities and the county shift to electricity for energy demands now met with natural gas, more of that electricity will be supplied by HBGS. Humboldt's gas consumption of 29.3 million therms is the equivalent of 879 GWh, more than four times NA's consumption.

Looking forward, Humboldt needs to supply at least 879+195 additional GWh by the time all household consumption is electric, not counting additional electricity to charge electric cars.

With a broader perspective, the win-win solution to this dilemma can only be facilitated by the county and not by NA. NA doesn't generate electricity; they raise fish. The win-win solution is to provide the county's needs with RCEA, which can address NA's needs too.

Within perhaps five years proven wind technology could be installed, but only if the county is willing to accept wind turbines close to shore—or perhaps on the peninsula itself. Given the Terra-Gen history this is the major challenge to being electrically self-sufficient.

RCEA has suggested the use of floating offshore wind, which would be mostly out of sight from Humboldt shores. European tests are now under way to determine whether this largely unproven technology is economically and technically feasible. Perhaps it will be, but it'll be years before feasibility can be proven, and at least a decade before it could be implemented here. Moreover, even if feasible there are offshore sites in Monterey and San Luis Obispo counties that are more economic because they already have transmission capacity that Humboldt does not.

Fixed bottom offshore wind, as opposed to floating offshore wind, is proven economic and feasible in thousands of European installations. Because our shore drops off precipitously fixed bottom turbines could be installed only within a mile or so from shore. There are even a few new installations off the coast of New England, where objections about how they'd change the ocean view have finally been overcome.

In summary, I hope the county will consider a broader win-win broader perspective with wind turbines that provide pollution-free electricity to NA and to the rest of the county as well.

Sincerely,

John Schaefer PhD

671-1
cont.

1734 Roberts Way, Arcata CA 95521
February 17, 2022



Planning Director John Ford
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501
CEQAResponses@co.humboldt.ca.us

Dear Planning Director Ford:

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After a lifetime of work in energy, I believe my background is appropriate to comment. I have over four decades of engineering experience, including since 1976 renewable energy and electric power. Clients and employers include utilities (Nevada Power Company, City of Palo Alto Utilities, Bolivian National Electric Company, PG&E, Cleveland Electric Illuminating Company), equipment and power plant developers (Cummins Power Generation, Aisin Seiki, and Stirling Energy Systems), government agencies (Minnesota Legislature, Nevada Legislature, State of Hawaii, United Nations, and Interamerican Development Bank), and the Electric Power Research Institute. I have taught engineering at the University of El Salvador, San Jose State, and Stanford, and I hold degrees from Stanford, MIT, and Oberlin.

I see no insoluble issues in the DEIR, and I think NA is an excellent opportunity for Humboldt.

I support comments from the team of Northcoast Environmental Center, CRTP, Baykeepers, EPIC, and Humboldt 350. But beyond their comments I want to expand somewhat and suggest a broader perspective than normal practice in DEIR commentary.

The enormity of the climate problem in the world and in the county requires such a broader perspective. Albert Einstein is quoted, "We cannot solve our problems with the same kind of thinking we used when we created them." That certainly applies to the climate and as it turns out, equally to Humboldt County's energy situation.

The bottom line is that the county can help both itself and Nordic Aquafarms (NA) to meet future electricity needs if it is willing to seriously address its own energy needs. That is, if we address the county's problem which we must do, then we can certainly support NA's energy needs too. I realize this consideration is beyond what the Planning Department normally does.

NA's energy demands are substantial. Observers note that the PV array proposed for the facility can supply only a small portion of NA's anticipated daytime energy needs, and none of its nighttime needs. Most of its electricity will come from the grid. If NA purchases its electricity from RCEA, which is committed to 100% renewable energy by 2025, then in theory all its needs would be provided from renewable sources.

Thus, I hope that NA will commit to 100% renewable electricity from RCEA.

However, there is a caveat that presents a win-win opportunity. NA's total electricity requirements are estimated to be 195 GWh per year by 2030, an increase of about a quarter beyond the county's current electricity consumption. As of 2020 PG&E's diesel plant, Humboldt Bay Generating Station (HBGS), generated about 484 GWh per year, virtually all of which is physically delivered to Humboldt County loads; hardly any is exported from the county.

To reduce greenhouse gases, many California cities, including Arcata, plan to shift natural gas usage to electricity. Over the next decade, this will require additional electric generating capacity.

Absent other local sources, the shift away from natural gas and NA's usage will cause HBGS's generation level to increase, even if in theory RCEA provides "all renewable electricity"¹ because:

1. There is currently insufficient renewable electric capacity within the county to supply all of RCEA's existing or future loads;
2. Transmission capacity from the Central Valley is insufficient to provide imports to supply all the county's needs, whether renewable or not; and
3. The only other major Humboldt County generation sources so far are HBGS and Humboldt Redwood, along with an unknown but insufficient amount of solar.

Thus, Humboldt County will burn more fossil fuel even if NA commits to 100% renewable electricity from RCEA. Moreover, as cities and the county shift to electricity for energy demands now met with natural gas, more of that electricity will be supplied by HBGS. Humboldt's gas consumption of 29.3 million therms is the equivalent of 879 GWh, more than four times NA's consumption.

Looking forward, Humboldt needs to supply at least 879+195 additional GWh by the time all household consumption is electric, not counting additional electricity to charge electric cars.

With a broader perspective, the win-win solution to this dilemma can only be facilitated by the county and not by NA. NA doesn't generate electricity; they raise fish. The win-win solution is to provide the county's needs with RCEA, which can address NA's needs too.

Within perhaps five years proven wind technology could be installed, but only if the county is willing to accept wind turbines close to shore—or perhaps on the peninsula itself. Given the Terra-Gen history this is the major challenge to being electrically self-sufficient.

RCEA has suggested the use of floating offshore wind, which would be mostly out of sight from Humboldt shores. European tests are now under way to determine whether this largely unproven technology is economically and technically feasible. Perhaps it will be, but it'll be years before

¹ Much of RCEA's renewable electricity is generated outside the county and can't be delivered physically to us because of limited transmission. Those sources do reduce California's natural fossil powered electricity.

feasibility can be proven, and at least a decade before it could be implemented here. Moreover, even if feasible there are offshore sites in Monterey and San Luis Obispo counties that are more economic because they already have transmission capacity that Humboldt does not.

Fixed bottom offshore wind, as opposed to floating offshore wind, is proven economic and feasible in thousands of European installations. Because our shore drops off precipitously fixed bottom turbines could be installed only within a mile or so from shore. There are even a few new installations off the coast of New England, where objections about how they'd change the ocean view have finally been overcome.

In summary, I hope the county will consider a broader win-win broader perspective with wind turbines that provide pollution-free electricity to NA and to the rest of the county as well.

Sincerely,

John Schaefer PhD

Letter 670 – Response to Comments

Response to Comment 670-1 – Energy

This comment states support of comments from the Northcoast Environmental Center, CRTTP, EPIC, and Humboldt 350. The comment requests that the NAFC commit to 100% renewable electricity from RCEA and offers suggestions on a synergistic approach to meeting future energy demands in an environmentally responsible manner.

Please refer to Response to Comments 503-1 through 503-36 for responses addressing the comments from the organizations cited by the commenter. Please see Master Response 2, GHG and energy, for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy. Much of the comment letter addresses larger issues related to the local and regional energy grid, which is outside the scope of this Project; as such, these comments are not directly responded to here

Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: David Sopjes <ferndalescience@yahoo.com>
Sent: Monday, February 14, 2022 9:50 AM
To: CEQAResponses
Subject: CEQA Response to Nordic DEIR
Attachments: Nordic fish factory is not sustainable.pdf

Hello Cade

I am attaching my comments about the Draft EIR for the Nordic fish factory. There are too many unknowns to proceed to a final EIR. This DEIR only addresses local impacts. This factory will need a huge feed stock source and will produce the waste equivalent of a city of around 300,000 people. These aspects will produce significant environmental impacts wherever they occur. These issues represent glaring discrepancies in the scope of the DEIR.

David Sopjes
3703 Grizzly Bluff Rd
Ferndale, CA 95536

To Humboldt County Planning Department

Attention: Cade McNamara

CEQA Comments on Nordic Aquafarms Facility

My name is David Sopjes and I have lived In Humboldt County for 40 years. I have Degrees in Physical Science and Life Science from Humboldt State University and I have taught high school and AP science classes for 22 years. I am concerned that this RAS facility is too large by an order of magnitude and that the parts of the project with the **highest potential for environmental damage (sourcing of feed stocks; CO₂ and methane emissions and salination of ground water associated with salty fish sludge disposal; destruction of larvae and juvenile aquatic species at the salt water intake) are not addressed in this Draft EIR.** The report acknowledges these omissions and recommends that they be addressed in the final EIR. I would suggest that these discrepancies be addressed in a second draft EIR since they account for processes that pose serious environmental risk.

David Sopjes

3703 Grizzly Bluff Rd

Ferndale, CA 95536

707-617-0122



671-1

CEQA Comments on Nordic Aquafarms Facility

Is the proposed Nordic fish factory sustainable?

Nordic claims that their operation proposed for the Samoa peninsula will be sustainable. To me, a sustainable farm means the farmer grows her feed on her land, raises herbivores (farm animals) as a product, and disposes of the wastes produced on the farm, using the manure on the fields to fertilize the feed crops. This sustainability depends on biological processes driven by sunlight energy. **A sustainable fish farmer would be using wetlands** to supply the feed stocks and dispose of the waste produced by their herbivores. This is called an Integrated Multi-trophic Recirculated Aquaculture System (IMRAS) and is currently being done on, state of the art, Tilapia fish farms in Thailand. It does however **require a significant area of functioning wetlands to support a small production of fish**. Herbivores (tilapia fish) are preferred because only about 10% of the energy at one level of the food chain is passed on to the next level.

Now let's look at Nordic. **They do not have the wetlands required for a sustainable operation** at the site they have chosen on the Samoa peninsula. The massive size of their fish production, projected to be at least 25,000 metric tons (55million lbs)/year, would require a huge wetland associated with it in order to use sustainable, biological processes driven by sunlight energy to support the facility. Instead, **Nordic has opted for an approach that trucks in the feed stocks and trucks out its manure, while dumping its treated liquid effluent waste into the ocean**. This is the same approach taken by Confined Animal Feeding Operations (CAFO's) at feed lots and large hog or poultry raising facilities. The EPA defines a CAFO as an agricultural facility where "animals have been, are, or will be stabled or **confined and fed** or maintained for a total of 45 days or more in any 12-month period". The EPA says a large CAFO is 1000 steers (1200 lbs each). That would be 1.2 million lbs of beef. Mammals (warm blooded) have about 1/5 the feed conversion efficiency ratio (animal kg/ feed kg) than fish have, so that would be equivalent to about 6 million pounds of fish (cold blooded), from a feed to animal point of view. At 55 million pounds of fish **Nordic's operation would be 9X (9000 steers) the EPA size for a Large CAFO**.

Nordic also does not raise herbivores. They raise carnivores (salmon) that are at least one level higher in the food chain, resulting in another 90% loss of the energy available at the herbivore level. Nordic has chosen to target 1st world markets with a high-priced commodity. They are not feeding the world through aquaculture. **The draft EIR does not address where these feed stocks will be sourced or any of the environmental consequences associated with the production of that feed**. Nordic would use **2.5million gallons of fresh water** per day supplied from the Mad River, but they stipulate that it must go through a **2million dollar water treatment plant** before it is ready for their fish. This treatment plant would be **paid for by the Humboldt Bay Municipal Water District**. Nordic would use **10 million gallons per day of sea water** from Humboldt Bay. This seawater contains the larvae and juveniles that make up the next generations in the Bay ecosystem. The Harbor District owns the intakes for this bay water and would have to file their own EIR showing that they are not damaging the Bay ecosystem and pay for improvements. The **ocean disposal pipe**, for their waste effluent, is currently in need of **1 million dollars in repair**, that will be paid for by the Harbor District. **That alone is 10**

671-2

671-3

years rent at \$100,000 per year not counting the unknown cost of refurbishing the salt water intakes.

What landlord would spend 10+ years rent from the 30 year project just to satisfy the needs of the renter?

Based on the size of the project that Nordic is proposing, this 3-4 million dollars is “pocket change”. They will, no doubt, fund all this cost if any of it stands in the way of their profits. They have chosen to try to get these local entities to “go all in” on the project. Nordic expects that these entities will not be willing to protect the environment from the project because they will be invested in the project and the “big payoff”.

671-3 cont.

Nordic has chosen to use traditional waste treatment facilities, similar to those used by urban areas. Nordic’s waste stream will be at least **12.5 million gallons per day of effluent discharged through the ocean outfall pipe** located at this facility. They published a Project Design document (rev 2 Nov 2020) which claims: *“The total RAS and wastewater design delivers the following performance:*

1. 99 percent reduction of total suspended solids, BOD, and phosphorous
2. 90 percent reduction of nitrogen discharge (page 30)”

They present the following table on page 32

“Table 2-5 Project Daily Maximum Effluent Summary

Effluent Discharge

Total Water volume 12.5 MGD

Total Suspended Solids (TSS) 18 KGD

Biochemical Oxygen Demand (BOD) 162 KGD

Total Nitrogen (TN) 673 KGD

Ammonium Nitrogen (NH4) 0.07 KGD

Phosphorus (P) 5.8 KGD

Notes:

1. MGD = Millions of Gallons per Day

2. KGD = Kilograms per day”

RAS = Recirculated Aquaculture System

If these values for **effluent production(kg/d)** are based on the **percentage waste reduction values** stated above in the Project Design Rev. 2 document, then we should be able to use those waste reduction percentages to **calculate the original (100%) amount of waste produced by the facility and**

671-4

presented to the waste treatment plant by 5 million salmon (5kg each). I wanted to compare the waste stream from 5 million salmon to the waste stream from the 45,000 citizens of Eureka before it enters the waste treatment plant and to the waste stream of other smaller RAS facilities to get some idea of the size of Nordic project. I am also using a report, prepared by SHN engineering for the County of Humboldt in 2016, assessing the possibility of using The Redwood Marine Terminal II (RMTII), Nordic's proposed location, as a land-based aquaculture facility.

I present my numerical analysis followed by a summary.

Comparison of Nordic's waste stream with City of Eureka and SHN Report for RMTII expected results						
Total Suspended Solids (TSS)						
1% of TSS (kg/d)(Nordic)	100% of TSS (kg/d)(Nordic)					inflow to Eureka Treatment plant
						TSS (Kg/d) July 2017
18kg/d	1800 kg/d					200.9kg/d
Nordic would be producing 9X the TSS that the City of Eureka (45,000 people) produces (400,000 person waste equivalence)						
Biological Oxygen Demand (BOD)						
1% of BOD(Kg/d) (Nordic)	100% of BOD(kg/d) (Nordic)					inflow to Eureka Treatment plant
						BOD (Kg/d) July 2017
162kg/d	16200 kg/d					4,175kg/d
Nordic's BOD waste production would be 3.88X the City of Eureka (45,000 people) or 174,610 people						
Total Nitrogen (TN)						
10% of TN (kg/d)(Nordic)	100% of TN (kg/d)(Nordic)	TN per year	Fish production per year	Waste production ratio Nordic	SHN report	
		(TN/d X365)		(TN kg/ ton Fish prod.)	Waste prod. Ratio	
673kg/d	6730kg/d	2.33X10 ⁶ kg/yr	25,000 tons	93.0 kg TN/ton of fish produced	55.8kg/ ton	
Nordic's system would produce 1.66X the Total Nitrogen waste as SHN report expected						

671-4
cont.

Ammonium NH₄						
1% of NH ₄ (kg/d)(Nordic)	100% of NH ₄ (kg/d) (Nordic)					inflow to Eureka Treatment plant
						NH ₄ (Kg/d) July 2017
.07kg/d	7.0kg/d					115.3kg/d
Nordic would produce 6% of the mean Max NH ₄ effluent of the City of Eureka.						
Phosphorous (P)						
1% of P (kg/d)(Nordic)	100% of P (kg/d)(Nordic)	P per year Nordic	Fish production per year	Waste production ratio Nordic	SHN report	
		(P/d X365)		(P kg/ ton Fish prod.)	Waste prod. Ratio	
5.8 kg/d	580kg/d	211,700kg/yr	25,000 tons	8.468kg/ton	8.9kg/ton	
Nordic's system would produce 95% of the phosphorous expected by SHN at RMTII						

SUMMARY

Nordic would produce **9X the Total Suspended Solids of the City of Eureka** (45,000people) which is equivalent to **400,000 people**. Nordic claims its NH₄ production per day would be 6 % of the City of Eureka. They are using a **Biological Membrane system to oxidize the Ammonium (NH₄)** to Nitrate because ammonium is toxic to their fish. This **greatly increases the Nitrate released into the ocean**, possibly resulting in **Harmful Algae Blooms**. Nordic did not choose to use the modern, state of the art technology for dealing with their Ammonium. This technology electrochemically oxidizes the ammonium to Nitrogen gas, which is harmless to living things and bubbles away into the atmosphere, instead of producing Nitrate, and powerful algal nutrient. This modern system is more expensive but it is much safer than the biological membrane system. Electrochemical oxidation of the ammonium is not even mentioned in any proposed alternatives for the project. This is a significant oversight!

With all that Nitrate, Nordic's system would **produce 1.66X the Total Nitrogen waste** as the SHN report had expected. This number has been **challenged as a significant environmental impact by the National Marine Fisheries Service (NMFS) in their response to Nordic's request for a permit from the North Coast Regional Water Quality Control Board**. Nordic's BOD waste production is **3.88X the City of Eureka** (45,000 people) or equivalent to **174,610 people**. This **high BOD** is the result of undigested feed proteins, carbohydrates, and oils in the manure and a significant amount of uneaten feed. That estimate is consistent with the estimates I have seen for waste production ratios in smaller RAS operations. **These nutrients are oxidized by heterotrophic bacteria lowering the oxygen levels in the area of the dump site leading to potential eutrophication**. The Phosphorous waste production ratio is about 95% of the

SHN report's estimate so it is possible that they will achieve this ratio. **Phosphorous availability is essential for Blue-green Algal Blooms (Harmful algal blooms).**

As you can see this facility will produce the waste equivalent of a medium sized city. Their waste stream would be about 3X as large as all the cities in the county put together.

Nordic's waste stream also includes **8-12,000 metric tons/year** (dry weight) of settled solids, fish sludge. This **saltwater laden fish sludge** will be removed using 2-4 trucks per day and sent to a facility in Marysville, CA. All urban waste treatment systems produce a type of sludge, which is digested and turned into compost, known as biosolids. This material is then spread onto fields as compost. However, Nordic's fish sludge will be **contaminated with a large amount of salt**, since the adult salmon are raised in salt water. Urban waste treatment plants don't have to deal with the salt since their waste stream comes from fresh water sources. When I asked Nordic's representatives about this, I was told that they would be using a vermiculture process to remove the salt so the biosolids can be used on fields without killing the vegetation. I have not been able to find any peer reviewed literature describing this process. Nordic has a letter from Recology of California that states their facility in Marysville will be expanded to receive 2000 tons of sludge per day. The letter does not state that they will accept salty sludge. The draft EIR does not address any of the environmental consequences of the transport and processing of 12,000 tons of salty fish sludge per year. The DEIR says that turning this sludge into compost will sequester carbon. I disagree! Composting merely delays the start time for the release of this carbon for at most a few months, since the sludge is composed of manure without any humus. Once the first compost starts outgassing, the emissions from this factory will be continuous at full decomposition levels for the next half century. **The CO₂ and methane emissions from this processing must be considered. Where will all the salt end up? In the groundwater?**

You can see that Nordic's fish factory has many unknowns in its supply chain and waste treatment stream.

Initially, **Nordic did not think that monitoring** for impacts of their effluent stream on the coastal ocean environment **was necessary and considers it an undue financial burden**. In their draft EIR, they have agreed to do this monitoring. The facility does have electrical generator backup systems to keep everything running, but **they do not have a backup waste treatment system. They cannot stop dumping into the ocean without losing their entire operation**. The draft EIR says that they are prepared to make modifications to their feeds and feeding regimens and the amount of fish processing at their slaughter house, if regulators can prove that the **detrimental environmental impacts** are "(1) directly attributable to the Project and (2) in conflict with the NPDES order for the Project". The inevitable court battle would be lengthy. **Regulators will be forced to weigh the damage to our coastal environment and its fisheries against the billion-dollar fish factory that will plead that it is "too big to fail"**

As you can see, this is a huge commercial experiment with a host of unknowns about the parts of the project with the highest potential to produce environmental damage. This project will be 10X larger than any existing facility of its kind in the world.

As a citizen of the Humboldt County Ecosystem, I consider our **dumping of our citizens' waste** into our rivers and our ocean as a **manageable, necessary evil** and I applaud our waste treatment professionals for taking good care of our rivers and ocean/bays as our county has grown (Arcata and

671-4 cont.

Fortuna, not so much Eureka). Nordic has a 30year lease with two 10year extensions, so they would be dumping here for the next half century. They would gross over 25 billion in that time period.

Nordic's Fish Factory dumping their wastes into our ocean for their own profit is a completely unnecessary evil. Their promised benefits to our county pale in comparison.

Most of you remember the deal where we were told you didn't need healthy rivers for salmon. As long as you have dams and hatcheries, the ocean will raise the fish. Nordic would tell you that you don't need healthy rivers (just a little water) OR healthy oceans (just a place to dump the waste) and you can have all the "salmon" you can stand. Is this the future of fisheries?

David Sopjes

Ferndale, CA

03Feb22

671-4 cont.

References:

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Xingqiang,Song^{1,2} Ying Liu³ Johan Berg Pettersen^{1,4} Miguel Brandão⁵, Xiaona Ma⁶ Stian Røberg¹ Björn Frostell⁵, Life cycle assessment of recirculating aquaculture systems - A case of Atlantic salmon farming in China, *Journal of Industrial Ecology* 2019;23:1077–1086.

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Letter 671 – Response to Comments

Response to Comment 671-1 – Introductory Comment

This comment is introductory in nature, listing specific concerns that are detailed in comments 671-2 through 671-4. Please see responses to comments 671-2 through 671-4 for detailed responses specifically addressing each concern.

Response to Comment 671-2 – Sustainability Opinion

The commentor raises concerns that the facility does not have sufficient wetlands to support facility operations and makes statements about tilapia farming. Farming practices utilized in farming of freshwater species like tilapia are not directly comparable to fish primarily raised in saltwater. No wetlands use or wetland impacts are associated with the Project. The comment makes comparisons between this project and cattle farming. Please see Master Responses 6 and 8 regarding statements unrelated to environmental issues as defined under CEQA and substantial evidence, speculation, and unsubstantiated opinion. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 671-3 – Fish Feed, Water and the Outfall

The comment is related to ingredients used in the fish feed, water use, and the outfall infrastructure. Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 10 (Fish Feed). Per page 2-22 of the DEIR, the HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021). The DEIR includes analysis of the impact from the seawater intake in each resource section. Please see Master Response 7 regarding intake biologic productivity and intake salmonids. The outfall is currently in use as discussed on page 2-11 of the DEIR: 2.2 Terrestrial Development 2.2.1 Existing Conditions subsection 2. Ocean outfall piping “the outfall is being used to discharge less than 200,000 gallons per day of industrial process water from DG Fairhaven Power Plant and wastewater from the Samoa wastewater treatment facility”. The outfall pipe is in serviceable condition, is routinely inspected and is maintained by the Harbor District. With the most recent inspection cited on page 2-11 of the DEIR “inspected by MM Diving in October 2019 (MM Diving 2019)”. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 671-4 – Waste Stream Comparisons and Waste Discharge

This comment expresses concern regarding the waste stream resulting from the Project and requests comparison to the City of Eureka waste stream. The comment includes information from an uncited 2016 SHN report, which is unrelated to the Project’s proposed discharge. The comment’s characterization of the City of Eureka’s wastewater discharge is substantively different from the characterization of the Project’s treated effluent discharge. The City of Eureka’s discharge is regulated separately by the NCRWQCB under Order Number R1-2016-0001.

The comment notes the discharge of the treated effluent through the ocean outfall is fundamental to the operation of the Project. This is correct. The discharge of treated effluent is regulated by the NCRWQCB. Regulations enforced by the NCRWQCB are unrelated to financial gains or losses.

The comment also includes a number of statements in opposition to the Project. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: zeal Stefanoff <jwstefanoff@gmail.com>
Sent: Sunday, February 13, 2022 12:20 AM
To: CEQAResponses
Subject: Comments on Aquafarm

The Dear Folks,

I am concerned about this project as a land owner of a salmon bearing creek, a ocean beach user and a fisherman.

The project has the potential of being very odorous much like a hog farm and reaching Eureka, Arcata and all in between. | 672-1

The project would be the largest in Humboldt County in decades. At full build out, it would use 21% of the county's energy supplies - as much as the cities of Eureka and Fortuna combined. And yet the DEIR concludes there would be no significant impacts from greenhouse gas emissions, truck traffic, bay intakes that will draw 10,000,000 gallons and an ocean discharge of 12,000,000 gallons of treated wastewater a day. | 672-2
| 672-3
| 672-4
| 672-5

Although its wastewater would have lower nitrogen concentrations than the effluent from antiquated municipal wastewater treatment plants around the bay, it would add to the existing nutrient load. It would also discharge warmer water with lower pH and salinity than the receiving waters. This combination has the potential to exacerbate the toxic algae blooms that have devastated the crab and clam fisheries in recent years. | 672-6

Numerous impacts have not been adequately assessed in the DEIR, including energy demands, greenhouse gas emissions, the ocean discharge, and impacts to wildlife related to the bay intakes. We believe reasonable changes to reduce these impacts are achievable. To make sure Nordic commits to these changes, we are requesting the following modifications:

1. Potential effects should be modeled using ambient water quality data from ocean waters near the discharge point, rather than data taken in Humboldt Bay (approximately 3.5 miles south-southeast of the end of the ocean outfall pipe). | 672-7
2. Levels of toxic algae should be monitored both pre- and post-project and compared to thresholds that would trigger protective actions *before* another toxic algae bloom leads to harmful levels of domoic acid. | 672-8
3. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely by renewable energy. | 672-9
4. Additional onsite renewable energy production through more aggressive utilization of solar, including over parking areas. | 672-10
5. What is worst case scenario of earthquake and tsunamis' incidents to the infrastructure and fish releases? | 672-11
6. What happens to the product if disease break out. | 672-12
7. How can you mitigate the use of antibiotics and it entering the discharge? | 672-13
8. What effect on migrating salmonids entering Humboldt/Arcata Bay from the discharge?
9. During a major fish kill how will you deal with the product?

As an environmentalist, climate activist, and stakeholder, my goal is to make sure this project undergoes the highest level of scrutiny and is as least impactful as possible with beyond state of the art technology.

Jeffrey Stefanoff
6164 Jacoby Creek Rd.
Bayside, Ca 95524

Letter 672 – Response to Comments

Response to Comment 672-1 – Opinion on Odor

The comment is an opinion on the Project's potential odor. Please see page 2-33 of the DEIR for information on potential project odor. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-2 – Energy Use

The comment is a statement on energy use. Please see Master Response 2 (Greenhouse Gas and Energy).

Response to Comment 672-3 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-4 – Intake

This comment is a statement of concern over the impact of the water intake. The DEIR includes analysis of the impact from the seawater intake in each resource section. Please see Master Response 7 regarding intake biologic productivity and intake salmonids. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-5– Discharge

The comment expresses concern over the Project effluent discharge. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing monitoring. Please see Master Response 5 regarding marine outfall. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-6– Harmful Algal Bloom

The comment requests additional analysis of discharge related to HAB. The DEIR evaluates toxic algae HAB in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-7– Discharge Modeling

The comment requests changes to the data utilized in the discharge modeling effort. Specifically, the comment requests that the model use ambient water quality data from ocean waters near the discharge

point, rather than data taken in Humboldt Bay. Please see Master Response 5 regarding marine outfall. The Humboldt Bay entrance data being referenced in the comment was not used in constructing the model, but rather was used to validate the model. This is common practice to use proximate, real-world data to test or validate the model performance and doesn't introduce any errors or biases into the model itself. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-8– Discharge

The comment requests baseline monitoring and continuous monitoring related to HAB. Please see The DEIR evaluates toxic algae HAB in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9. HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Master Response 5 regarding marine outfall. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-9– Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy and the determination that the Project would not result in a significant GHG impact. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-10– Biosecurity, Tsunami, and Earthquake

The comment is related to biosecurity and risks posed by tsunami and seismic events yet provides no substantial evidence or recommendations. Please see page 2-40 of the DEIR for information related to seismic and tsunami risk analysis. Please see Appendix I of the DEIR for the Probabilistic Site-Specific Tsunami Hazard Analysis. Please see Master Response 3 regarding fish escape. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-11– Antibiotics

The comment expresses concern regarding the use of antibiotics by the Project. Please see page 2-37 of the DEIR for information on the use of antibiotics. The Project has established mitigation factors that would make it very difficult for bacterial pathogens to enter and cause fish disease that would require treatment with antibiotics. Please see Master Response 4 (Fish Health and Biosecurity) regarding the impacts associated with antibiotic use. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-12– Discharge

The Concern over Project discharge. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Please see Master Response 5 regarding marine outfall. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 672-13– Fish Kill

The comment expresses concern over a large fish kill. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Prior to operations, NAFC will have a contingency plan in place that ensures that any fish that may die in connection with an event resulting in high mortality are handled such that they do not pose a risk to staff, the welfare of the other fish in the facility or the surrounding environment. Part of this plan will include the prompt removal of mortalities from the facility and secure transport to an approved disposal facility. This contingency plan shall also describe protocols for the prevention and mitigation of such acute mortality incidents.

A large fish kill at the NAFC facilities, however, is extremely unlikely because all fish culture systems are monitored by Programmable Logic Controllers (PLCs) and Supervisory Control and Data Acquisition (SCADA) software which constantly assess key water quality parameters, equipment status and performance, as well as actuating automated warning and alarming systems. Should a failure occur or a water quality variable drift outside optimal set points, then an alarm will be sent to notify the operator while the software actuates corrective actions and/or standby equipment comes online. For example, one important backup system is for power generation. If there is a disruption to power, backup generators will automatically come online to meet the facilities' power needs when the grid is down.

Another important backup system is emergency oxygen. If for any reason the flow of water to a fish tank is disrupted, the SCADA system will automatically dose oxygen to diffusers on the floor of the affected tank to support the fish for as long as it takes to correct the problem. In addition, NAFC has developed a draft Fish Health Management Plan (FHMP) that would be submitted to CDFW for further collaboration and regulatory guidance. Components of the FHMP include a designated Fish Health Team, personnel training, quarantine program, fish welfare monitoring, standard operating procedures (SOP) for fish health monitoring, biannual fish health inspections, farm biosecurity, vaccination program, disease response procedures and management including CDFW/USFWS (US Fish and Wildlife Service) regulatory requirements.

The above-described comprehensive fish health management programs, in conjunction with strict water treatment regimens, greatly reduce the risk of a large fish kill associated with a fish health emergency. In fact, all of the above strategies and safeguards are in place in the facilities currently operated by NAF in Europe and have been instrumental in ensuring that those facilities have never had a major loss of fish stock. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: A.L. Steiner <asteinerny@gmail.com>
Sent: Wednesday, February 16, 2022 7:03 AM
To: CEQAResponses
Subject: mitigation requests for Nordic AquaFarms' proposed facility

Hello, please consider the following, as numerous significant impacts have not been fully assessed and mitigated in the DEIR, specifically concerning increased electricity demands, greenhouse gas emissions, and the ocean discharge in regards to Nordic AquaFarms' proposed facility.

Our families and community believe that reasonable changes to reduce destructive impacts are 100% achievable. To make sure Nordic commits to these changes, we are requesting the following required mitigations:

- | | |
|--|-------|
| 1. An explicit requirement in the EIR that the project will, from day one of operations, be powered solely through renewable energy. | 673-1 |
| 2. The project shall maximize its feasible onsite renewable energy production through more aggressive utilization of solar, including over parking areas. | |
| 3. The project shall use refrigerants with a global warming potential of under 150. | 673-2 |
| 4. The food fed to the salmon shall be certified to have the lowest greenhouse gas footprint commercially available. | 673-3 |
| 5. Modeling of ambient water quality shall use data from the mixing zone near the RMT II diffuser, instead of the data taken from Humboldt Bay (approximately 3.5 miles south-southeast of the discharge point). | 673-4 |
| 6. Baseline monitoring and continuous monitoring of the effluent shall be performed by experts and compared to an established threshold which would trigger protective actions. | 673-5 |

Thank you, in advance, for your care and insight regarding Nordic's proposal.

Regards, A.L. Steiner

Letter 673 – Response to Comments

Response to Comment 673-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 673-2 – Refrigerants

The comment requests the Project only use refrigerants with a global warming potential of under 150. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 673-3 – Fish Food

The comment is related to analysis of GHG and fish feed. Please see pages 2-37 – 2-38 of the DEIR for information regarding feed standards and regulations. Please see Master Response 10 (Fish Feed). Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 673-4 – Discharge Modeling

The comment requests changes to the data used for discharge modeling and expresses concern over HAB. The data being referred to in the comment were not used to construct the model itself, but rather to validate model performance by comparing model results to proximate, real-world data. This model is standard globally for analyzing discharges similar to the Project. Please see Master Response 5 for additional information and clarifications regarding the dilution study. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 673-5 – Discharge

The comment requests changes to the monitoring requirements of the Project discharge. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Meg Stofsky <mstofsky87@gmail.com>
Sent: Monday, February 14, 2022 11:12 PM
To: CEQAResponses
Subject: Nordic Farm

I am commenting as a Eureka resident totally against the Nordic Farm plan, certainly not as put forth now.

1. Nordic says its electricity use will have zero environmental impact because RCEA plans to have 100% renewable energy by 2025. RCEA's plan did not include supplying large amounts of power to a fish farm, or CalPoly, or data centers. RCEA also counts biomass as renewable, which it is not and solar energy purchased in Kern as completely offsetting power plant emissions here, which is not the case. Nordic's biggest use of electricity is for pumps which operate night and day. Nordic only plans solar panels to meet 3% of their energy use. This is unacceptably low.

674-1

2. Toxic algae blooms hurt our crab fishermen, harm marine mammals, and could also shut down our oyster industry. Nordic's wastewater would enter the ocean from an existing pipe 1.5 miles off shore, but they modeled impacts on water quality at the mouth of the Bay, 3.5 miles away. Humboldt Baykeeper says modeling must be done for ocean impacts near the outfall and that the frequency of algae blooms should be monitored.

674-2

I am gravely concerned that Nordic Farms will ruin our environment.

Sincerely,

Margaret Stofsky

Letter 674 – Response to Comments

Response to Comment 674-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 674-2 – Harmful Algal Bloom

The comment requests additional analysis of discharge related to HAB. The DEIR evaluates toxic algae HAB in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scale and thus unlikely to contribute to a HAB in the highly dynamic coastal waters potentially affected by the Project. Please see Master Response 5 regarding marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: darryle story <darestory66@gmail.com>
Sent: Monday, February 14, 2022 9:32 AM
To: CEQAResponses; darestory66@gmail.com; dare2sher@suddenlink.net
Subject: Proposed Aqua Farm

Please make sure the energy usage is from renewable sources and the ocean waters is not adversely impacted. | 675-1

I endorse the recommendations submitted by the Surf riders Foundation and EPIC. | 675-2

Darryle Story
75 Forest Creek Ln
Freshwater, Ca
95503

Sent from my iPhone

Letter 675 – Response to Comments

Response to Comment 675-1 – Renewable Energy

The comment requests the Project only utilizes renewable energy. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy). As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 675-2 – Opinion

The comment is an opinion on the Project yet provides no substantial evidence or recommendations. Please see responses to Letter 503 and Letter 517 for additional information. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: sunrana <sunrana@yahoo.com>
Sent: Wednesday, February 16, 2022 9:27 AM
To: CEQAResponses
Subject: Nordic fish

Sirs

I'm very excited abt the possibility of nordic coming here, but there are concerns:

Waste water	676-1
Energy source	676-2
Compost	676-3

PLEASE HAVE THESE ISDUES ADDRESSED!

THANK YOU

Sent from my Verizon, Samsung Galaxy smartphone

Letter 676 – Response to Comments

Response to Comment 676-1 – Discharge

The comment expresses concern over discharge from the Project yet provides no substantial evidence or recommendations. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Please see Master Response 5 regarding marine outfall. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 676- 2– Energy Use

The comment is a statement on energy use yet provides no substantial evidence or recommendations. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 676-3 – Waste

The comment regards waste and composting. Please see Master Response 11 (Waste Handling and Disposal). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Shawn B. Troxell <sbrown3348@yahoo.com>
Sent: Saturday, February 12, 2022 4:01 PM
To: CEQAResponses
Subject: Nordic AquaFarm: No.

“Nordic AquaFarms’ proposed aquaculture facility in Samoa would be the largest project in Humboldt County in decades. At full build-out, It would use 21% of the county’s energy supplies – as much as the cities of Eureka and Fortuna combined. And yet the draft EIR concludes there would be no significant impacts from greenhouse gas emissions, truck traffic, bay intakes that will draw 10,000,000 gallons and an ocean discharge of 12,000,000 gallons of treated wastewater a day.” (350 Humbolt)

677-1
677-2
677-3
677-4

No significant impacts? Just check those last two numbers.
I see a huge impact, one that is unacceptable for our planet as well as for Samoa.

677-5

Sincerely,
Ms. Shawn Troxell

Sent from the Eagle 5.

Letter 677 – Response to Comments

Response to Comment 677-1 – Energy Use

The comment is a statement on energy use yet provides no substantial evidence or recommendations. Please see Master Response 2 (Greenhouse Gas and Energy). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 677-2 – Truck Traffic

The comment is related to truck traffic for the Project yet provides no substantial evidence or recommendations. Please see Section 3.12 of the DEIR for information regarding transportation with regard to CEQA. Please see Master Response 1 regarding truck traffic and road safety. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 677-3 – Intake

This comment is a statement of concern over the impact of the water intake. The DEIR includes thorough analysis of the impact from the seawater intake in each resource section. Please see Master Response 7 regarding intake biologic productivity and intake salmonids. This comment expresses concern regarding the Project's impacts but offers no substantial evidence. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 677-4 – Discharge

The comment expresses concern over the Project effluent discharge. Please see pages 2-45 – 2-46 of the DEIR for details on the NPDES discharge permit requirements including baseline and ongoing sampling. Please see Master Response 5 regarding marine outfall. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Lawrence Williams <mepoch@gmail.com>
Sent: Wednesday, February 16, 2022 9:56 AM
To: CEQAResponses
Subject: Environmental & Community Impacts - Nordic Aqua Farms

Require Nordic to invest in enough local clean energy and storage to meet their own power needs. | 678-1

Require Nordic to build a local compost facility for their waste. | 678-2

Require a better analysis of ocean impacts. | 678-3

Lawrence Williams
1990 Scenic Drive
Trinidad, CA 95570

Letter 678 – Response to Comments

Response to Comment 678-1 – Renewable Energy

The comment requests the Project only utilize local renewable energy and increase onsite solar. Please see page 2-31 of the DEIR to see commitments by NAFC on non-carbon and/or renewable energy. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the determination that the Project would not result in a significant GHG impact, and information on including additional onsite solar. As described in the DEIR, no additional mitigation measures are warranted.

As noted in Section 4 (Errata), the Project Description has been updated to reference the 100% renewable and/or non-carbon energy commitments that NAFC has voluntarily agreed to in association with the Project. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 678-2 – Waste

The comment relates to waste and composting. Please see Master Response 11 (Waste Handling and Disposal). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 678-3 – Additional Analysis

The comment requests additional analysis to reduce impacts yet provides no substantial evidence or recommendations. Please see Master Response 5 regarding marine outfall. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

McNamara, Cade

From: Alison Willy <alison.willy44@gmail.com>
Sent: Thursday, February 17, 2022 12:28 PM
To: CEQAResponses
Cc: Planning Clerk; McNamara, Cade; Cassidy.Teufel@coastal.ca.gov;
Corianna.Flannery@wildlife.ca.gov; Matt Goldsworthy; Elliot.Sunny@epa.gov
Subject: Willy Comments on Nordic Aquafarms DEIR
Attachments: Willy coment letter Nordic DEIR 17feb2022.docx

Dear Mr, McNamara:

Attached are my comments on the Nordic Aquafarms Draft Environmental Impact Report. Thank you for including my comments in the planning review process and in the administrative record.

Sincerely,

Alison Willy
Riparian Solutions



February 17, 2022
Riparian Solutions
Elk Grove, Calif.

Cade McNamara
Planner II
Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501



Submitted by email to CEQAResponses@co.humboldt.ca.us

RE: Nordic Aquafarms DEIR, Case Number PLN-2020-1669

Dear Mr. McNamara:

After submitting three comment letters on the Nordic Aquafarms (NAF) proposed industrial finfish aquaculture facility (Project) on the Samoa peninsula, and providing those comments to the Humboldt County Planning and Building Department in 2021, I was interested in reading the Draft Environmental Impact Report (DEIR) for the Project. The disappearance of salient data and figures that were available during Public Scoping, and that were not included in the DEIR, is a grave concern. The newly-constrained "Study Area" is inconsistent with environmental laws and regulations, in particular the: Federal Endangered Species Act (ESA), California Endangered Species Act (CESA), California Environmental Quality Act (CEQA), and National Environmental Policy Act (NEPA). The problem with the truncated Study Area is that it does not allow for an informed understanding of the environmental baseline and Project effects that are needed for ESA, CESA, CEQA, and NEPA analyses.

679-1

As a career fish and wildlife biologist, with a Masters in Wildland Natural Resource Science and 45 years of experience in implementing environmental policy, I am writing to you as a scientist, policy analyst, and concerned citizen.

The DEIR did not appear to respond to many of the comments submitted during public scoping. This lack of responsiveness, combined with a severely constrained area of analysis, missing analyses, lack of baseline data, and lack of ESA consultation, misrepresented the level of effects to native species and local ecosystems from Project construction and operation.

- Disregarding known adverse effects from industrial fish farming, such as proliferation of viruses, bioaccumulation of toxins, and loss of marine habitat and diversity would naturally lead an uninformed reader to conclude that these problems are not a concern.
- Not including important analyses, such as a quantification of prey biomass removal from Humboldt Bay and the cumulative effects of marine upwelling and

679-2

↓ 679-3

effluent dispersal, leads to multiple “less than significant” determinations that are false. This undermines confidence in the reliability of the DEIR.

↑ 679-3 cont

- Risk posed to the marine fishery is downplayed or discounted in the DEIR. Exposure to viruses, loss of habitat (including food and cover), timing of exposure to toxic chemicals, disruption of migration, thermal pollution, and localized domoic acid proliferation all deserve a harder look in the final EIR. This is especially true for vulnerable species such as green sturgeon, Chinook salmon, coho salmon, steelhead, eulachon, longfin smelt, and Dungeness crab.
- The full buildout of the Project is for 39.8 MW, but only 22.3 megawatts (MW) are addressed in the energy analysis. A lack of clarity about energy demand disguises the carbon footprint of the Project.

679-4

679-5

SPECIFIC COMMENTS ON THE DEIR

Introduction and Summary – Section 1

Although serious concerns regarding the potential threat of salmonid viruses being introduced into the marine environment and posing a risk to wild salmonids exist, the only place where viruses are specifically mentioned in the DEIR is on page 1-4, in Table 1-1. This table directs the reader to Section 3.3, where the issue of the potential of the Project to allow viruses and bacteria to enter the marine environment is not discussed. Viruses and bacteria are not specifically mentioned in Section 3.3 (Marine Resources) and no analysis of the risk to wild salmonids from viruses in the effluent was undertaken.

679-6

Table 1-2 contains 12 generalized “less than significant” determinations of special status fishes or their habitat (pages 1-7 through 1-11) and three “no impact” determinations. As discussed below, these determinations reflect a lack of due diligence in responding to concerns raised during Public Scoping, and they are largely unfounded.

679-7

Project Description – Section 2

Water Treatment – The claim that there is strong biosecurity on the outfall (page 2-24) is not supported by any proposed monitoring of the fish in the recirculation tanks, or of the blood and body fluids from the fish processing area, for viruses that are known to occur in farm-raised salmon and are known to escape into wild salmonid populations. The risk of viral pathogens is discussed under Section 3.3 and Appendix D. Security without monitoring is not security. The currently described handling of fish waste is not accident proof or failure proof, and there are no described measures for addressing spills or system failures.

679-8

The DEIR did not respond to public comments regarding the threat of viruses in the Project effluent, other than to claim high biosecurity. Wastewater from Project’s fish

↓

processing area is shown on page 2-25 of the DEIR to have a flow of 0.5 MGD. When there is a viral outbreak, this portion the wastewater will contain the highest viral loading of the entire effluent stream, because maximum viral loading in salmonids is often in the blood and in the abdomen—where virus-laden fluid from lysed or broken cells accumulates. Beyond the unquantified UV treatment there is no proposal to treat this fish-killing wastewater for pathogens, no proposed ozone treatment of processing waste fluids, no reverse osmosis treatment, and no proposed monitoring for high-risk pathogens.

The DEIR is premature in its conclusion that the Project's risk of exposure to fish diseases is eliminated by the Project's "robust biosecurity measures" and water treatment facility. There are zero known sources of Atlantic salmon eggs that have been proven to be virus free, so therefore the Project does not have an established biosecurity measure for keeping viruses out of the facility. Not only are the source eggs an issue, the DEIR does not include any monitoring or testing for viruses and other pathogens utilizing contemporary testing methods. This lack of monitoring applies to within the facility itself, its wastewater, and its waste solids. This is a serious oversight.

A significant array of viruses and other pathogens have been found in farmed Atlantic salmon (Bateman *et al.* 2021, Khalifa and McDiarmid 2019, Kebenge *et al.* 2019, Miller *et al.* 2017, Mordecai *et al.* 2019). Metatranscriptomic sequencing, salmon host transcriptional biomarkers, and high-throughput reverse transcription polymerase chain reaction (RT-PCR) screening can be used to detect viruses in salmonids before they become moribund (Miller *et al.* 2017, Mordecai *et al.* 2019, Mordecai *et al.* 2020). A viral disease development (VDD) biomarker panel of host transcriptional biomarkers is capable of differentiating fish in an active RNA viral disease state from those carrying bacterial or fungal disease (Mordecai *et al.* 2020b, Mauduit *et al.* 2022). This type of sophisticated monitoring should be commitment and a requirement in the final EIR.

It is a grave concern that NAF has not made any commitment to the biosecurity measures of: (1) screening eggs, juvenile fish, and adults using metatranscriptomic sequencing, salmon host transcriptional biomarkers, and high-throughput reverse transcription polymerase chain reaction (RT-PCR); (2) frequent monitoring utilizing these contemporary methodologies for pathogen screening (*e.g.*, using a VDD biomarker panel); (3) removal of pathogens from fish processing waste; (4) early reporting to CDFW and NMFS of fish diseases in the facility; and (5) real-time remediation for any of the viruses that pose a risk to wild salmonids.

Facility Truck Traffic – This subsection addresses the weekly number of trucks used for outgoing product delivery and dry sewage waste delivery, as well as incoming for fish feed and chemical deliveries (page 2-27). Missing information is the type of truck used, its overall size, and its payload in weight and volume. The final EIR should include truck type, size, and payload in weight and volume so that the total carbon footprint of Project operations can be calculated and the total dry waste (sewage sludge) volume can be calculated.

679-8
cont.

679-9

The *Egg Importation*, *Quarantine*, and *Farm Biosecurity* subsections (pages 2-35 through 2-37) do not make any commitment to screen for the 47 known pathogens that can infect farmed salmon (Mauduit *et al.* 2022). The DEIR does not commit to pathogen screening using modern molecular techniques that are shown to detect salmon pathogens before a diagnosis can be made by a veterinarian familiar with external symptoms of salmonid diseases. Atlantic salmon eggs continue to be “certified free of diseases or pathogens of concern”, yet salmon viruses continue infect salmon in fish farms around the globe. NAF does not specify the state or country the where the source facilities are, their certification status, or the government or state that will issue the certification.

679-10

Power Backup Systems – In discussing the existing, on-site electrical substation [“60-kilovolt (KV), 20 Megawatt (MW) electrical switchyard and transformer”] on page 2-11, it is clearly stated that: “The total capacity of the switchyard will be expanded to accommodate NAFC’s peak capacity in future operations.” On page 2-30 they state that: “Modernization and upgrade of the existing substation is planned to include expanding the total capacity of the switchyard to 35 MW to be utilized by NAFC and Harbor District RMT II operations.” The breakdown of the energy use for the additional 15 MW that NAF is adding to the substation is shown in Figure 2-9, where 10 MW of the added capacity will go to NAF and 5 MW will go to the Harbor District. [Note that the substation upgrade is also described on pages 3.13-5, 3.14-6, 3.5-2, of the Energy subsection, but without the usage breakdown.] NAF makes a commitment to use the existing 20 MW power substation, but fails to fully describe the purpose and need for an upgrade of the substation from 20 MW to 35 MW.

679-11

Feed Standards – Commitments to feed quality, based on the certifications identified on page 2-37, do not remove the risk of antibiotic resistant bacteria, viruses, or toxic chemicals from entering the facility and being discharged in the waste stream. The guidance criteria that NAF proposes (page 2-38) has general provisions that do not address the specific risks from pathogens and toxins.

The determination that “No medicated feed passes on to the natural environment” (page 2-37) is not precisely correct. Uneaten feed is included in the solid waste, which will be exposed to the environment during the composting end-point for waste disposal. Medications that are miscible in water could leach out of the uneaten food and will also be excreted by the farmed fish. These medications will remain in the effluent stream after solid waste removal and filtering, meaning that they will be passed on to the natural environment of the nearshore coastal zone.

679-12

NAF’s aim to avoid GMO sources for its fish feed is illusory. It is close to impossible to find non-GMO corn, soy, rapeseed (source of Canola oil) in the U.S., unless the source is organic and certified as non-GMO. There are no non-GMO sources of soy or rapeseed in Canada, where the fish food will likely be sourced. Up to 67 percent of NAF’s fish feed is expected to be corn, soy, rapeseed, and wheat. All of these grains are heavily treated with glyphosate, unless they are designated as organic. Glyphosate bioaccumulates in tissue and is a carcinogen and teratogen (causes birth defects).

↓

Glyphosate is an herbicide that is used on to suppress weeds in fields of GMO corn, soy, and rapeseed. It causes autism-like behaviors, brain fog, and malaise (Argou-Cardozo and Zeidan 2018, Beecham and Seneff 2016). It is used in both the United States and Canada (likely grain-source countries) as a desiccant in wheat.

Aiming to avoid GMO food, is not the same as using organic feed. GMO Soy is ubiquitous in the U.S. and Canada. GMO soy and rapeseed was developed to allow for the application of glyphosate (Round Up ®). Glyphosate is miscible in water and will be able to pass through the biofilters. NAF is not offering to use organic fish feed or to test for glyphosate in the effluent stream, so decision-makers should not be mollified by this provision.

Fish harvested for the purpose of making fish meal disrupts regional indigenous fisheries—causing fishery collapse, ecosystem collapse, and starvation in indigenous communities that depend on local fish harvest to feed their families. Many viable alternatives to devastating the marine food web to get fish proteins are still in the idea phase. Production of insect proteins is an emerging industry. Including insect proteins in the fish feed alternatives is a nod to the future; however, NAF has not identified any insect protein farms that have the capacity to produce the volume of protein that NAF will need for its fish feed.

NAF's "aim" of integrating alternatives to harvest fisheries is "to the extent practicable" and is by potential use of vegetable protein and oils, insect meal, and single-cell organisms. Insect based food and single-cell protein production are emerging fields that are currently not practicable. What is practicable are the "Agri crop" sources of corn, soy, rapeseed, and wheat and the poultry byproduct sources identified in Figure 1. It should be made clear in the final EIR with that the "Agri crop" is typically GMO and heavily treated with herbicides and pesticides.

Although NAF has not made a final decision on a fish feed supplier, they currently contract with Skretting, which is a global aquafeed company with facilities in Tooele, Utah, and Vancouver, British Columbia. During public scoping, NAF showed a fish feed formulation from Skretting that would allow for up to 20% of the raw material in the salmon feed to come from poultry byproduct. The graphic was used in a discussion of a salmon feed formulation that is being used to reduce the global ecological burden of harvesting groundfish as a salmon feed source. The breakdown of fish feed components from that graphic is shown in Figure 1, and it clearly shows that poultry byproducts are used in the fish feed composition presented.

In my earlier comment letters, I brought to your attention the issue that use of poultry byproducts can pose a risk to human health. I raised the particular concern that antibiotic resistant *Escherichia coli* and *Staphylococcus aureus* could pose a risk to swimmers and surfers. I also pointed out that antibiotic resistance in RAS systems, such as in NAF's Project design, is an emerging disease threat (Liu *et al.* 2020), and that antibiotic-resistant bacteria from the Project that enters the facility via fish feed may put workers, recreational ocean-water users, and fishermen at risk.

679-12
cont.

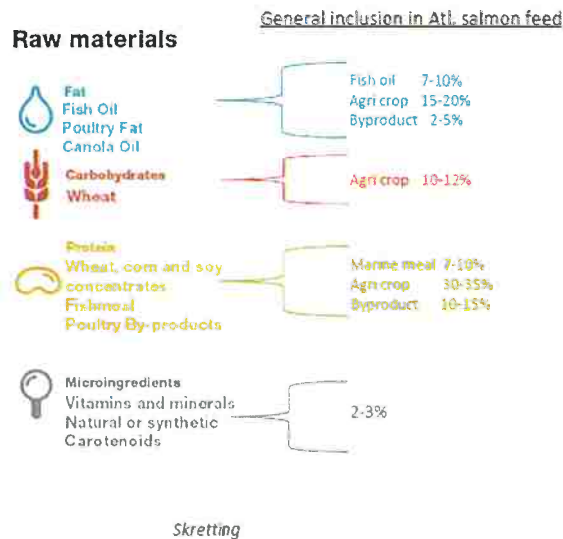


Figure 1. Breakdown of fish feed components by Skretting, a manufacturer used by NAF.

The DEIR does not include any mention of antibiotic-resistant bacteria. It does not address any of the antibiotic-resistant bacteria associated with aquafarming that have been found to cause illness and death. At a very minimum, the DEIR should include a monitoring plan for antibiotic resistant strains of *E. coli*, *Staphylococcus aureus*, *Vibrio vulnificus*, and *Vibrio parahaemolyticus*. The monitoring plan should include remediation and reporting. Such a plan would be used to reduce pathogen exposure and risk to surfers and other beachgoers, truckers hauling the sewage solids, factory workers, workers at the end-point composting facilities, commercial fishermen, and tourists.

Rather than address the significant and frightening concern of antibiotic-resistant bacteria, the DEIR identifies feed standards (pages 2-37 to 2-38). This is without making a commitment to either use salmon feed that does not contain poultry byproducts or making a commitment to monitor for the antibiotic-resistant bacteria that are known to be associated with poultry farming and poultry byproducts: such as *Campylobacter spp.*, *E. coli*, *Enterococcus spp.*, and *Staphylococcus aureus* (Apata 2009, Liu *et al.* 2002, Nandi 2004).

The use of fish byproduct trimmings appears to somewhat supplant the use of poultry byproduct that was discussed during public scoping. The use of fish byproduct trimmings from consumption fisheries (page 2-38) comes with its own set of problems and can be a source of salmonid diseases. In the fish feed formulation, the overall 3 to 4 percent fishmeal from byproduct fish trimmings would reduce harvest fisheries burden from 14-20 percent of the fish feed to 11-16 percent of the fish feed. Normally even this small reduction in harvest fisheries would be an achievement; however, if any of the 47 pathogens associated with aquaculture are able to persist through formulation of the

679-12
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fish feed, this is a serious biosecurity threat. Emerging salmonid viruses are an economic and ecological risk to farmed and wild salmonids all around the globe.

The food stabilizer ethoxyquin is not mentioned in the feed standards, even though it is used in fishmeal stabilizer. It bioaccumulates in salmon tissue, and has a parent compound and metabolites that are toxic. It is known to cause reproductive disorders, dermatological problems, and immune-mediated diseases. It is also toxic to pets. It is likely that fish byproduct trimmings will contain ethoxyquin, unless its use is not permitted in the fish feed standards.

It is laudable that NAF will require the feed supplier to have a monitoring program for “environmental contaminants” in the feed, an in-house quality assurance for feed quality, and a program of traceability. What is not made clear in these commitments is whether the monitoring and quality assurance will be for standard manufacturing risk factors (such as rat poison) or for antibiotic-resistant bacteria, salmonid viruses, dioxins, PCBs, organochlorine pesticides, PBDEs, mercury, glyphosate, organochlorine pesticides, and ethoxyquin.

The issue of commercial fish feed containing dioxins, PCBs, organochlorine pesticides, polybrominated diphenyl ethers (PBDEs), and mercury (Buckman *et al.* 2016, Choi *et al.*, Dietrich *et al.* 2015, Jacobs *et al.* 2002, Ng *et al.* 2018) was also not addressed in the DEIR. These toxic chemicals are both bioaccumulated into fish tissue and excreted into the environment. The DEIR only addresses residual, onsite dioxins, PCBs, organochlorine pesticides, and PBDEs and does not address fish feed and excrement as a source of dioxins, PCBs, organochlorine pesticides, PBDEs, and mercury.

Monitoring and determining the amount and significance of dioxin toxic equivalents and PCBs being discharged from the Project, and potentially entering Humboldt Bay, would be a first step in protecting Humboldt Bay from further impairment. Monitoring for other toxic compounds such as ethoxyquin, PBDEs, and mercury could allow for added protection of the sensitive estuarine habitat of Humboldt Bay.

The DEIR specifically mentions that the feed supplier must have a program of traceability for feed ingredients. This is important for any ingredient that contains toxins or pathogens. This commitment is not the equivalent of a certification program, such as an organic certification. The DEIR specifically calls out fish meal, fish oil, and soy ingredients for this program, but it does not address virus or disease tracking or tracking of poultry-containing ingredients. If poultry byproduct is included in the fish feed formula, tracing back to farms where antibiotic-resistant bacteria has resulted in community spread, and not using that source again, should be included as a biosecurity measure.

The vague commitments in the fish feed standards should be revised to reflect control, testing, and monitoring of the following: antibiotic-resistant bacteria, salmonid viruses, dioxins, PCBs, organochlorine pesticides, PBDEs, mercury, glyphosate, organochlorine pesticides, and ethoxyquin.

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Humboldt Bay Water Intakes – The DEIR makes a bold claim (on page 2-47) regarding the fish screens at the seawater intakes in Humboldt Bay: “modifications would increase water withdraw [sic] capacity and add features that reduce environmental impacts of aquatic species entrainment and impingement with installation of new 1.0 mm wedge wire intake screens.” Claiming that the new fish screens would reduce environmental impacts is a sweeping and general statement, using the premise that organisms can swim away and avoid the seawater intakes, then applies it to a myriad of aquatic organisms that do not possess that capability.

Page 2-41 of the DEIR responds to the concern of viruses in the wastewater by redirecting the discussion to fish escape and claiming that there is “a zero probability of fish (adult, fry, eggs) from passing through the wastewater treatment system.” However, it is the ruptured or failed fibers in the wastewater treatment plant (also mentioned on page 2-41) that are precisely the source of concerns that needs to be addressed. These are: (1) the *risk* of viral pathogens escaping the Project and infecting wild salmonids, and (2) the *risk* to wild salmonid populations from that exposure.

679-13

Page 2-46 contains a commitment to monitor giant kelp, consistent with the NPDES permit. This type of monitoring avoids considering sugar kelp, which is more sensitive to the effluent coming out of fish farms in Norway. Given that there is already a type of kelp that has been shown to be sensitive to effluent discharge, and giant kelp has been shown to be tolerant of discharge, selecting giant kelp for environmental monitoring is a sure-fire way to obscure effects to important marine macroalgae.

Kelp forests and macroalgae ecosystems are essential for salmonid smolt survival, because they provide food and cover when the juvenile fish enter the marine environment. The DEIR does not include an analysis or explanation of the effect of miscible cleaners, solvents, antibiotics, fungicides, or dissolved nutrients on the diverse macroalgae in the kelp forest ecosystem. For example, *Saccharina latissima* (sugar kelp) is highly sensitive to hydrogen peroxide (Haugland 2019).

Biological Resources – Section 3.3

Section 3.3 of the DEIR concludes that the Project's seawater intakes will have a “less than significant” impact on the waters within Humboldt Bay. This conclusion is premature, unfounded, and incorrect, because it did not include analyses of: (1) the loss of prey biomass for threatened fish species, such as longfin smelt, Chinook salmon, coho salmon, and steelhead; (2) the impact of loss of invertebrate biomass on fishes and the estuarine ecosystem; and (3) the impact of entrainment of zoea on the Dungeness crab population that spawns in Humboldt Bay.

679-14

Pacific Ocean Setting – Planktonic invertebrates are discussed relative to the vicinity of the ocean-side diffuser (outfall pipe) are not mentioned in relation to the waters of Humboldt Bay. Amphipods, mysids (opossum shrimp), copepods, and pteropods are specifically mentioned on page 3.3-2 under *Pacific Ocean Setting* but they are not mentioned in relation to the waters of Humboldt Bay under *Humboldt Bay Setting*. The

DEIR should give equal treatment to the planktonic invertebrate community in the vicinity of the sea chests (seawater intakes) in Humboldt Bay.

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Study Area – The Biological Resources section begins with describing a study area that is arbitrarily decoupled from the affected area in the marine environment. The study area is constrained to within 500 meters (1640 feet) of the outfall pipe—referred to as the Project Study Boundary (PSB). The constrained PSB does not address the flow of effluent that will extend beyond the 1640 feet reach that is presented.

The 408 pounds per day of suspended solids and the 1,484 pounds per day of total nitrogen from Project effluent is likely to remain suspended in the water column in a strong current, and that material is likely to settle when and where water velocities decline. With a northerly (southbound) current, diffuse effluent from the Project would enter Humboldt Bay on incoming (flood) tides. If the current remains strong, which is not uncommon, the suspended solids and nitrogenous material would remain suspended in the water column and likely settle in the North and South Bay. With a 1.5 knot southerly (northbound) current, which is not uncommon in the PSB, the diffuse effluent is likely to enter the Samoa State Marine Conservation Area (SSMCA) in approximately 2.5 hours—posing a risk of effluent deposition in the SSMCA. By focusing exclusively on effluent impacts in the close proximity to the outfall pipe, the DEIR consistently avoids the concern of nitrogen deposition in the SSMCA and Humboldt Bay, and also avoids consideration of the macroalgae in the ecosystem that is likely to become degraded over time from Project effluent.

679-15

While analysis of Project effects is constrained by the PSB on the marine side, on the Humboldt Bay side the study area considers: “Potential impacts of the water intakes on aquatic species are assessed at the full scale of Humboldt Bay.” Later in the DEIR, this change in scale is used to diminish the significance of removing 10 to 12 MGD of seawater and the impact of that removal on the aquatic food web in Humboldt Bay.

Regulatory Setting – Take of species that are federally-listed under the ESA is briefly described on page 3.3-2 and 3.3-3. Other than to incorrectly summarize agency requirements in Appendix D, the DEIR does not address how take of ESA-listed species [coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*O. tshawytscha*), steelhead (*O. mykiss*), and green sturgeon (*Acipenser medirostris*)] from Project operations will be exempted from Section 9 of the ESA through either Section 7 consultation or Section 10 permitting.

679-16

Clean Water Act Section 404 is briefly described on page 3.3-3, but the Project’s need to obtain a 404 permit is not articulated anywhere in the DEIR. Instead, the DEIR focuses on the need to obtain a Rivers and Harbors Act Section 10 permit. This is a serious omission, because the Project’s proposed in-water construction work could release marine sediments into Humboldt Bay. The in-water work is part of the Project and would not occur “but for” the Project, so the federal permitting and concomitant ESA consultation is advisable.

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For both the in-water construction work to upgrade the sea chests and the in-water work on the Mad River intakes, the Army Corps of Engineers (Corps) must consider effects to ESA-listed species in all areas to be affected, both directly and indirectly, by the Project not merely the immediate areas that specifically require Clean Water Act or Rivers and Harbors Act permitting. This means that the Corps must look at the dispersion of Project effluent into the area shown in Figure 1 of GHD 2020a: not the arbitrarily reduced impact area described in GHD 2021a.

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Humboldt Bay is a renowned estuary that is significant for its diversity and biological productivity. Specific language from the *Humboldt Bay Area Plan – Local Coastal Plan* is included on pages 3.3-6 and 3.3-7. Of particular note is Humboldt Bay's "*Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values.*" The DEIR should include a thorough analysis of how the Project will affect the food web in Humboldt Bay, and how nitrogen loading from Project effluent may impact local fisheries due to nitrogen deposition and exposure during upwelling.

Environmental Setting – The "Pacific Ocean Setting" contains a list of the "wide variety of organisms" that are in the vicinity of the outfall pipes, but fails to include a similar list of organisms under "Humboldt Bay Setting" that are in the vicinity of the seawater intake pipes.

679-17

Species vulnerable to entrainment in Humboldt Bay include, but are not limited to: opossum shrimp (mysids), copepods, amphipods, crab zoea, and pelagic eggs (e.g., sand lance, sand dab, and decapods). The "Humboldt Bay Setting" should include a thorough accounting of the planktonic and ichthyoplanktonic biodiversity found in Humboldt Bay and Arcata Bay (North Bay).

Impacts and Mitigation Measures – Table 3.3-1 (Sensitive and Special Status Species) is replete with incorrect determinations and should reflect that ESA-listed species are likely to be taken as a result of Project operations. Loss of marine invertebrates leads to loss of prey for coho salmon, Chinook salmon, steelhead, and green sturgeon. That adverse effect is significant to the individuals harmed or injured by reduced prey availability. So, the conclusion of less-than-significant for these species is incorrect. Take from loss of prey, loss of habitat, and exposure to disease should be addressed fully in the DEIR and reflected in the Table 3.3-1 revisions.

679-18

Mitigation should be included in the DEIR for: (1) impacts to water quality related to special status marine life; (2) domoic acid proliferation effects to Dungeness crab; (3) salmonid run collapse from pathogens associated with Atlantic salmon farming; (4) loss of salmonid prey biomass and invertebrate biodiversity; (5) exposure to antibiotic-resistant bacteria; and (6) loss of ecosystem function in Humboldt Bay.

Water Quality Related to Special Status Marine Life – When making conclusions about coho salmon, Chinook salmon, steelhead, and green sturgeon (page 3.3-28), the DEIR should clarify that this speculation is for adult fish only. Calculations should be made to

679-19

determine the amount of time juvenile fish of each species are exposed to Project effluent in the PSB as they use coastal ocean currents to migrate. For example, a current of 1.5 knots would have juvenile fish migrating through the PSB for 15 minutes, but with slower currents they could be in the PSB for over an hour. If a current switch occurs after a juvenile fish has passed through the PSB, the fish would experience a repeat exposure to the less dilute effluent. The physiological stress of exposure of juvenile fishes to Project effluent is an important consideration. Effects to species from reduced water quality should be applied to all exposed life-history stages and not simply adults.

The potential adverse effects to coho salmon, Chinook salmon, and steelhead from viruses that are associated with and derived from farming Atlantic salmon is a real concern. Diseases that originated from farmed salmonids are continuing to spread around the world (Kibenge *et al.* 2019). Viral load is typically not limited to a single virus, and Mordecai *et al.* (2021) found multiple viruses in their analysis of viruses found in salmon farms in British Columbia. The phrase “dead fish swimming”, coined by Hinch *et al.* (2012), is an apt descriptor for wild salmon carrying pathogens acquired from exogenous sources such as wastewater from fish processing facilities and fish farms.

Salmonid physiology, health, and overall fitness are compromised by many viruses. Both lethal and sublethal infections may occur, with sublethal infections obscuring potential mortality factors in the wild. Some fish can survive viral infections over a period of days or months, but survivors are compromised in many ways that ultimately affect their health, resiliency, and ability to reproduce. Viruses that affect appetite prevent juvenile fish from growing to sizes that would help them avoid predation and prevent adult fish from having the energy they need to migrate and spawn. Viruses that affect muscle and tissue make fish more vulnerable to predation, because individual fish do not have the strength or swim speeds to avoid that predation. Viruses that affect internal organs, especially the pancreas, heart, liver, and kidneys prevent salmonids from having the energy and fitness to return to spawning grounds.

One of the key issues brought up during public comment on the Initial Study/Mitigated Negative Declaration, was the potential threat to wild salmonids from viruses exiting the Project’s effluent pipe. Effluent from the fish processing area of net pen facilities in British Columbia is now known to be a primary source of exposure of wild salmonid populations to piscine reoviruses.

The 0.5 MGD flow of wastewater from the Project’s fish processing area will have the highest viral loading of the entire wastewater stream, because the maximum viral loading in salmonids is often in the blood and in the abdomen where fluid from lysed or broken cells accumulates for many of the highest-risk viruses.

Introduction of pathogens into the facility—from egg sources, workers, equipment, and feed—should be addressed through proven security protocols, modern screening methodologies, and appropriate remediation.

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Below, salmonid viruses and their risk to wild populations is discussed. All of these can be detected early in farmed salmon using metatranscriptomic sequencing, salmon host transcriptional biomarkers, and high-throughput reverse transcription polymerase chain reaction (RT-PCR). This screening can also be done on wild populations so that threats to those populations can be assessed and remediated during the life of the Project. NAF has not made any commitment to the biosecurity measures of: (1) screening eggs, juvenile fish, and adults using metatranscriptomic sequencing, salmon host transcriptional biomarkers, and high-throughput reverse transcription polymerase chain reaction (RT-PCR); (2) frequent monitoring utilizing these contemporary screening methodologies; (3) removal of pathogens from fish processing waste; (4) early reporting to CDFW and NMFS; and (5) real-time remediation for any of the viruses that pose a risk to wild salmonids.

NAF has focused their avoidance of viral pathogens on egg certification. Sole reliance on virus-free certification can result in many potential outcomes and risk factors for wild salmonid populations. The problem with offering certification alone is that: (1) there is not a *proven* protocol for generating and supplying virus-free eggs; (2) every country and state is likely to have a different “certification” process and standard, meaning, eggs from one country or state would have different viral loads than those from another; (3) the DEIR does not include testing for viruses and other pathogens in the facility utilizing contemporary methodologies. The outcome of this vague commitment to certification, without state-of-the art testing, is that up to 47 known pathogens (Mauduit *et al.* 2022) could be introduced to the facility and spread—before later-stage infection, co-morbidity, and mortality are detected.

The DEIR makes multiple claims regarding the “advanced” effluent treatment system, without acknowledging that the effluent treatment is untried and unproven. Although the DEIR recognizes that the system could have ruptured or failed fibers in the microfilters, it concludes that “the risk of disease exposure and potential spreading of disease from the facility to native fish populations is eliminated.” There is no proposed monitoring or replacement schedule described for the biofilters and no reporting proposed for when they fail to meet the 0.04 micron filtration standard.

NAF has offered UV treatment of the combined waste stream, assuming it will be effective, but the partially-treated 0.5 MGD of effluent, which will contain the fish processing wastewater, may allow viruses and viral fragments to pass. Given that the moving bed biofilm reactors and membrane bioreactors are vulnerable to degradation, the resulting incomplete treatment of wastewater increases the risk of viral spread to wild salmonid populations. The “ruptured or failed fibers” mentioned on page 2-41, are precisely the source of the unaddressed risks in the DEIR. Failures, tears, or degradation of the biofilters could lead to salmonid viruses entering the marine ecosystem, where juvenile salmonids feed and shelter as they grow large enough to enter their pelagic life-history phase.

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The wastewater leaving the Project will not be as fully treated as the river and estuary water entering the Project (*i.e.*, incoming water will be filtered, UV treated, and ozone treated; outgoing water will only be filtered and UV treated). The experimental technology of the Project may not be adequate to protect humans and wild fish from exposure to pathogens; therefore, viruses and antibiotic-resistant bacteria may enter the marine environment and cause harm. It is unproven that UV-C sterilization will fully treat the 12.5 MGD of effluent leaving the Project. Viruses attached to the 408 pounds-per-day of suspended solids in the effluent stream would be capable of surviving the proposed UV treatment of the effluent.

Once a salmonid virus enters a wild population, the threat to individual fish goes beyond direct mortality. Ability to swim and forage is typically compromised in infected salmonids, making them vulnerable to predation. One or more viral pathogens in wild salmonid populations are implicated in high mortality during outmigration (Furey *et al.* 2021, Jeffries *et al.* 2014, Hinch *et al.* 2012). Other pathogens such as bacteria, fungi, protozoa, myxozoan microparasites, and sea lice compound the physiological stress from viral loads and increase the threat of mortality (Lovell *et al.* 2010). Salmonid viruses that affect internal organs compromise infected salmonids during upmigration (returning to natal streams to spawn). Added stress from viral infection causes salmonids to either not start their upmigration to natal streams, or not survive the natural physiological stresses of upmigration. Salmon compromised by viral load are referred to as “dead fish swimming” (Hinch *et al.* 2012).

A cumulative effect that was not considered is the prevalence of *Ceratomyxa* [*Ceratomyxa*] *shasta* in streams and rivers of the Pacific coast of North America, and it is abundant in the Klamath River during warm years and warming events. *C. shasta* is a myxozoan microparasite that causes severe and potentially lethal organ damage in wild salmonids, from hemorrhaging and necrosis the intestines. Chinook salmon are particularly vulnerable to *C. shasta* infections, and the combination of viral loading from farmed Atlantic salmon and myxozoan exposure could lead to run collapse.

In instances when viral exposure and viral loading does not result in direct mortality to the fish, indirect harm, injury, and mortality are likely to occur when infected wild salmonids experience increased predation, decreased mobility and visual acuity, and lack of energy needed for migration. (Furey *et al.* 2021, Hinch *et al.* 2012, Jeffries *et al.* 2014, Miller *et al.* 2107)

During fish processing, bodily fluids containing a viral load will be the most difficult to contain and prevent from spreading into wild salmonid populations. Industrial cleansers used for protecting human health during fish processing can be damaging to biofilters, and could compromise the effectiveness of the Moving Bed Biofilm Reactor used by the Project to remove sewage solids.

Infectious Pancreatic Necrosis Virus (IPN) is a disease first found in 1951 in farmed Atlantic salmon in Canada. It causes fluid in the abdomen (ascites) and sudden mortality. Other symptoms are: swollen eyes, darkening of the skin, anorexia, spiral

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swimming, fecal casts trailing from the vent, pancreatic necrosis, catarrhal exudate in the intestine, and hemorrhages in the visceral organs. IPN is an acute and highly contagious disease in juvenile salmonids. It causes mortality up to 70% in farmed salmon, with freshwater-stage mortality up to 100% (Evensen and Santi 2008).

As well as being found in Atlantic salmon, IPN is also found in farmed rainbow trout (*O. mykiss*), and this virulent disease has spread to fish farms in North America, Europe, Chile, Japan, Korea, Taiwan, Iran, Turkey, China, Kenya, and Australia (Dopazo 2020). There has been a push to develop a vaccine for IPN, but it would not be possible to vaccinate all of the wild salmonid species from the Mad River, Eel River, Humboldt Bay, Elk River, Salmon Creek, Freshwater Creek, or Jacoby Creek once wild fish have been exposed to the virus. Because juvenile salmonids will be migrating through the Project's effluent plume, their risk of mortality is high if this virus escapes the Project. If IPN escapes the Project, it could have a significant adverse impact on the Mad River fish hatchery.

Infectious Salmon Anemia Virus, also known as Hemorrhagic Kidney Syndrome, Infectious Salmon Anemia (ISA) is a highly contagious disease associated with farmed Atlantic salmon. First reported in fish farms in Norway in 1984, ISA has since spread to fish farms in Scotland, the Faroe Islands, Chile, northeastern Canada and northeastern U.S. (Maine). Symptoms include lethargy, anemia, leukopenia, bloated abdomen (ascites), protruding eyes, darkened skin, enlarged spleen, liver necrosis, swollen and discolored kidneys, localized bleeding from skin lesions (USDA *et al.* 2011, USDA 2020), and increased mortality of approximately 5 to 90 percent (Dannevig *et al.* 2008). Rainbow trout may also develop heart lesions.

Infectious Salmon Anemia virus can also be transmitted to Pacific herring (Nylund *et al.* 2002), allowing for spread of the disease to wild salmonids through foraging. Pacific herring can also act as a disease reservoir. Humboldt Bay and its surrounding waters are known to support large populations of Pacific herring.

Salmonid Alphavirus (SAV) causes pancreas disease (PD) in farmed Atlantic salmon and sleeping disease (SD) in farmed rainbow trout. It is found in salmonid farms in Norway, Scotland, England, Ireland, France, Germany Spain, U.S. (Washington), and Italy. Infections of SAV have high mortality rates. Six strains of SAV have been identified (Deperasińska *et al.* 2018). Symptoms include cessation of feeding, lethargy, muscle damage, fluid in the abdomen, atrophy of red skeletal muscle, pancreatic necrosis, cardiac myopathy, difficulty swimming and staying upright, failure to grow, failure to gain weight, and death. Survivors appear thin and unthrifty, and they can become vectors. SAV was found to have up to 27 percent mortality in net pens in Washington state, but no studies on mortality have been conducted on wild salmonids. Sleeping disease in wild steelhead would make them extremely vulnerable to predation. If SAV escapes the Project, it could have a significant impact on steelhead returns to the Mad River Fish Hatchery.

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Piscine Orthoreovirus and Novel Piscine Reoviruses is also known as Atlantic salmon reovirus and novel reovirus. Piscine Orthoreovirus (PRV) symptoms include, but are not limited to: heart and skeletal inflammation (HSMI), inflammatory lesions of the heart and skeletal muscle, burst cells (in Chinook), jaundice, anemia, anorexia, lethargy, inflammation, kidney and liver damage (degenerative/ necrotic lesions of the liver/kidney), and fluid in the abdomen (ascites). There are now three strains of PRV, and both PRV-1 and PRV-3 have two sub-types with additional mutations.

PRV's expression of HSMI was first characterized in 2010 in farmed Atlantic salmon (Palacios 2010). PRV and HSMI have been found in farmed: Atlantic salmon (Palacios 2010, Kibenge *et al.* 2017), coho salmon (Takano *et al.* 2016, Kibenge *et al.* 2017), Chinook salmon, and rainbow trout (Olsen *et al.* 2015). PRV and HSMI are associated with high morbidity and mortality. PRV and HSMI are now also found in wild coho and Chinook salmon (Kibenge *et al.* 2017).

PRV and its variants are found in farmed salmonids in Norway, Denmark, Germany, United Kingdom, France, Canada, Japan, Chile, Italy, and the U.S. (Washington, Oregon, and Maine). Kibenge *et al.* (2017) estimated PRV prevalence in the source farmed Atlantic salmon population at 95% or greater. They found escaped, farmed Atlantic salmon had a PRV prevalence close to 100% in Washington State and British Columbia following a large containment failure at a farm in northern Puget Sound. Mordecai *et al.* (2021) found that infection of wild Chinook salmon with PRV-1 infection was closely tied to farm proximity.

First found in farmed Atlantic salmon in 1999 (Kongtorp *et al.* 2004) and later implicated as being associated with HSMI (Palacios 2010), PRV was first described in farmed *O. mykiss* in Norway in 2013; however, symptoms similar to PRV have been described as early as 1977 (Vendramin *et al.* 2019).

Although PRV is ubiquitous in farmed salmon, some argue that symptoms and mortality are less than previously reported (Polinski *et al.* 2019). Emerging studies (Løvell *et al.* 2010, Mordecai *et al.* 2020) have shown that co-occurrences with other viruses and pathogens may drive the expression of symptoms and mortality. PRV is often co-associated with other viruses (Løvell *et al.* 2010, Mordecai *et al.* 2021).

Polinski *et al.* (2019) found that different populations of Atlantic salmon had different responses to PRV, but PRV variants were not isolated in the study. Also, the fish with HSMI in other studies were already sick; whereas PRV-positive but asymptomatic fish in Polinski *et al.* (2019) may have had earlier disease progression than other studies, therefore not yet showing signs of HSMI.

In their study of PRV-3, Sørensen *et al.* (2020) found that the variant had its highest prevalence in grow-out facilities (71.7%) and, in Denmark, disease outbreaks of PRV-3 were only observed in RAS facilities. Considering that the Project is a grow-out RAS facility, the risk of viral loading after disease introduction is very high.

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PRV has variable outcomes for farmed salmonids, depending on the PRV strain and the affected species. Stress is thought to be causative when going from a PRV infection to full-on HSML. There are no studies of heart, liver, or kidney effects to wild salmonids during upmigration to natal streams, but the stress of upmigration would put a phenomenally amount of physiological strain on individual salmonids with PRV. Individuals that avoid predation in their outmigration and marine phases would be the “dead fish swimming” described by Hinch *et al.* (2012) —e.g., not able to complete their full life-history cycle, upmigrate, or reproduce. If PRV escapes the Project, it could have a significant adverse effect on the Mad River Fish Hatchery.

Novel Fish Totivirus is co-associated with PRV and is implicated in Cardiomyopathy Syndrome (CMS), which is a spontaneous heart attack that occurs in farmed fish prior to harvest (Løvell *et al.* 2010). CMS was first reported in Norwegian farmed salmon in 1988 (Amin and Trasti 1988). Totiviruses are typically associated with fungi. Co-association of the novel fish totivirus and PRV is thought to significantly increase salmonid mortality.

Infectious Hematopoietic Necrosis Virus is one of the earlier diseases associated with fish farming hatcheries is Infectious Hematopoietic Necrosis Virus (IHN). Earlier names are Oregon Sockeye Salmon Disease, Columbia River Sockeye Disease, Sacramento River Chinook Disease. Juvenile salmonids are more severely affected by IHN than adults, but those that do survive the disease become vectors by shedding the virus through feces and mucus. IHN is known to affect Atlantic salmon, sockeye and Chinook salmon, and *O.mykiss*. It is found in continental Europe, Alaska, Japan, Canada, Central California, Oregon, and Washington State.

IHN causes lethargy, occasional frenzied swimming, darkened skin, abdomen swollen with ascitic fluid, protruding eyes, and hemorrhaging at the mouth, anus, and base of the fins. The cumulative mortality rates on fish farms can reach 90-95%. Occasional disease outbreaks have been reported in wild salmon.

The DEIR does not contain any discussion of the emergence and spread of viral pathogens in farm-raised Atlantic salmon and does not address the known and quantifiable risk of viral spread in recirculating aquaculture facilities. The best and most recent technologies for detecting viruses and other pathogens are not a part of the Project, and are not included in developing safety measures necessary to protect wild salmonids from being exposed to disease agents.

It is premature to conclude that wild salmonids will not be exposed to the viruses that are associated with the Project’s farmed Atlantic salmon. The DEIR has not demonstrated that there are adequate biosecurity measures in place that would prevent viruses from entering the facility or that would protect wild salmonids from exposure to viruses in the Project effluent.

It is premature to conclude that the risk of disease to wild salmonids is eliminated, because: (1) the risk of introduced pathogens continues to be high with fish viruses

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continuing to mutate and spread around the globe; (2) there is no proven sources of virus-free eggs or virus-free Atlantic salmon farms; and (3) the technology has not been tested to demonstrate that the biofilters (new technology) will continue to function as described and will not experience the failures, tears, or degradation that would allow viruses to escape containment and infect wild salmonids.

Ocean Discharge – The potential for viruses being present in Project effluent, discussed above, could have significant adverse effects to coho salmon, Chinook salmon, and steelhead. Viruses attached to the 408 pounds-per-day of suspended solids in the effluent stream, would be capable of surviving the proposed UV treatment of the effluent. The majority of the Project water will receive ozone treatment, but not the 0.5 MGD of fish processing wastewater. The fish processing portion of project effluent would contain a massive viral load if any of the viruses that are known to be associated with Atlantic salmon farming have an outbreak in the rearing tanks. This is a serious lack of biosecurity.

The DEIR's emphasis on marine species ability to swim away from Project effluent is untrue for salmonid smolts and other fishes that utilize marine currents to facilitate migration. When local marine flows are in a northbound direction, smolts from Humboldt Bay and the Eel River will be carried through the effluent discharge area and remain with the effluent while it is suspended in the water column. When the local marine flows are in a southbound direction smolts from the Mad River will be carried through the effluent discharge area. This exposure to Project effluent during natural migration of juvenile salmonids is at odds with the argument that there is "unlikely attraction to the discharge pipe." A salmonid smolt, at four to seven inches in length, does not have the swimming capability to swim the 1.55 miles out to sea to avoid Project effluent and then somehow return to the nearshore area before the local Coastal Current changes direction during the next tidal cycle.

Marine species of concern that are forced to change their migratory route could be harmed, harassed, or killed if altered migration affects their offspring or hinders successful reproduction, or if it exposes them to predators that they would have avoided on their normal migratory route. Lost food resources from the effluent and changing migratory patterns to avoid the effluent is likely to adversely affect breeding, feeding, and sheltering of ESA and MMPA listed species. The less-than-significant determination for coho salmon, Chinook salmon, Northern California steelhead, green sturgeon, and white sturgeon is incorrect.

The Biological Resources section does not mention the chemicals used for treating sea lice outbreaks in the facility (typically organophosphates and pyrethroids) that would ultimately be discharged in the effluent stream if an infestation occurs. Although treating intake water entering RAS facilities is a sound method for *reducing* the risk of sea lice infection, it does not completely *remove* the risk. If a sea lice infestation occurs, farmed salmon will need to be treated. Once this occurs, the risk to the marine ecosystem exposed to the effluent becomes high. In assessing the risk, Urbina *et al.* (2019) found adverse effects to non-target invertebrates at lower levels than the common treatment

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levels used for farmed salmon and trout. Hydrogen peroxide, organophosphates, and pyrethroids that are typically used to treat sea lice would enter the marine environment at levels that will certainly kill marine invertebrates in the PSB, but chronic exposure of marine invertebrates in the current to the north and south of the Project may also result in long-term declines in prey availability for sensitive species from the mouth of Humboldt Bay to within the SSMRA.

By not mentioning the fungicides, insecticides, or oxidizing agents that are miscible in seawater and small enough to flow through the biofilters, the effect that these chemicals will have on marine invertebrates is obscured. Dungeness crab zoea and megalopae are extremely vulnerable to sea lice treatment. Although the water coming into the facility is treated more intensively than the outfall water, parasites can still pose a risk. The less-than-significant finding for Dungeness crab and for listed salmonids is unfounded.

Atlantic sugar kelp *Saccharina latissima* is highly sensitive to the hydrogen peroxide (Haugland 2019) used for treating sea lice infestations in Norwegian salmon farms. The DEIR fails to address the sensitive local kelp species that are likely to be exposed to Project effluent, such as the local sugar kelp (*Laminaria saccharina*), rock weed (*Saccharina dentigera*), sea cabbage (*Saccharina sessilis*), and sea lettuces (*Ulva* spp.). The DEIR fails to address the importance of kelp and macroalgae ecosystems to the survival of juvenile salmonids, and narrows the area of analysis originally in the IS/MND to 1680 feet from the outfall pipe. This new and significantly smaller area of analysis does not consider the distribution of effluent into macro-algae habitat to the north and south of the PSB.

By focusing on kelp forests and kelp beds that are not in the vicinity of the Project, and by not considering scattered aquatic vegetation that provides food and cover for salmonids, the DEIR has obscured the importance of this habitat. The DEIR does not include any analyses of the effects of treatment chemicals on the local sugar kelp, rock weed, sea cabbage, sea lettuces, or any other sensitive macroalgae or kelp species that may be exposed to Project effluent. The local kelps and macro-algae are important habitat for marine invertebrates that listed salmonids depend upon for their survival. Instead of considering full extent of effluent dispersal, the DEIR only looks at the sandy area in close proximity to the outfall and offers to monitor giant kelp (*Macrocystis pyrifera*). Giant kelp is one of the more robust species of macroalgae and may be likely to at least tolerate effluent exposure; however, giant kelp tolerance to fish farm chemicals in North America is unstudied. Because Haugland found that immature sugar kelp was the most sensitive to hydrogen peroxide, it does not make sense to focus on monitoring mature specimens of a very different and much more vigorous species. Before toxicity testing has been conducted on sensitive kelp species that support prey and provide cover for ESA-listed salmonids, it is premature to conclude that the effect of Project effluent on sensitive macro-algae is less-than-significant.

NAF's wastewater treatment allows for 1484 pounds per day of nitrogenous waste to be released into the marine environment and temperatures that are up to **10.9°C** (19.6 °F)

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above ambient. It is well-established scientifically that the combination of warm water and nutrients is a recipe for algal blooms. When those algal blooms include toxic species or species that release toxic substances, such as *Pseudo-nitzschia*, organisms in the environment could be harmed, injured, or killed. The DEIR's conclusion that "the risk of increase in domoic acid producing diatoms is very low" (page 3.3-27) does not take into consideration the fact that *Pseudo-nitzschia* continues to be present in northern coastal California waters (Figure 2), and that *Pseudo-nitzschia* responds very rapidly to localized warming and nutrient loading. Although it is true that domoic acid proliferation is known to be associated with large-scale climate events, the continuing presence of *Pseudo-nitzschia* in coastal waters puts the marine ecosystem at risk from a domoic acid events. Figure 2 shows that lesser domoic acid events have occurred since the major event in 2016.

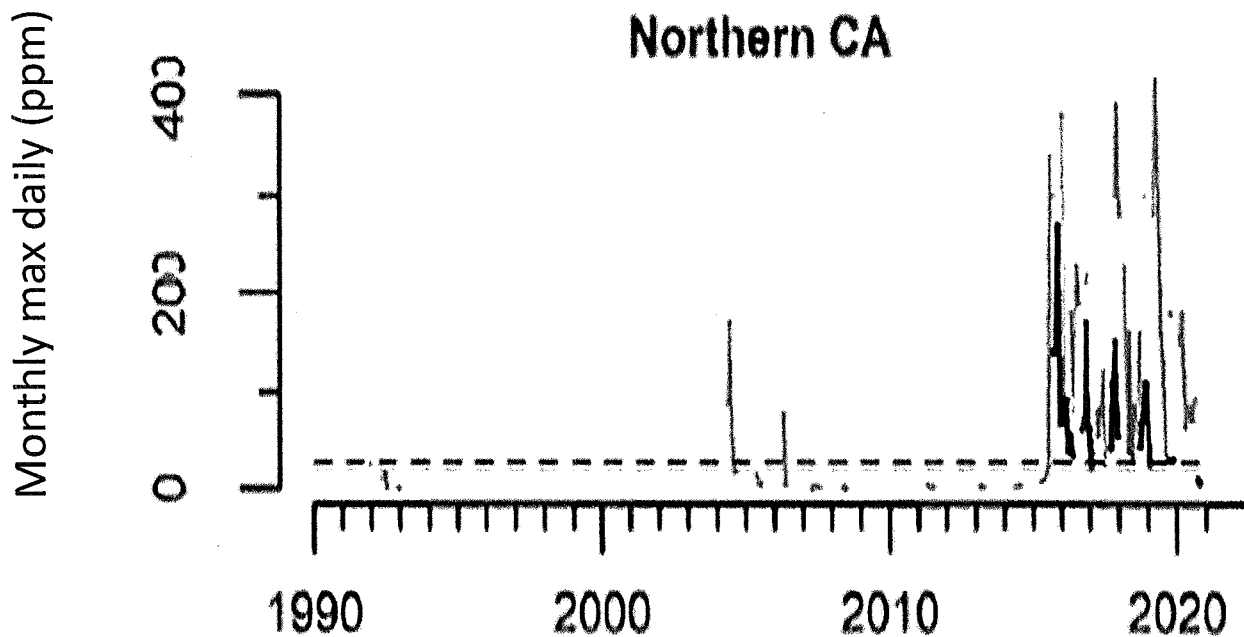


Figure 2. Monthly maximum domoic acid concentration (ppm) in razor clams (gray) and Dungeness crab viscera (black) through 2020.) Figure 3.4.1 from the 2021 *California Current Integrated Ecosystem Assessment (CCIEA) California Current Ecosystem Status Report*.

The currently low, anthropogenic nitrogen fluxes in the vicinity of the outfall pipe (page 3.3-29) prior to Project operation is not a good argument for lack of marine effects from nitrogen loading. Claiming that there is "little evidence that anthropogenic nutrient

loading is the primary promoter of *Pseudo-nitzschia* spp. blooms” is a spurious argument in the absence of testing and monitoring.

Linking *Pseudo-nitzschia* blooms to upwelling (page 3.3-29) is an interesting point, considering that the marine upwelling modeling conducted on behalf of NAF has not been released and was not included in the DEIR. The importance of revealing the results of the Biologically Effective Upwelling Transport Index (BEUTI) study cannot be overstated. When SeaGrant did the BEUTI analysis, they provided a report to NAF. It is my understanding that SeaGrant had some serious concerns regarding the cumulative effects of effluent dispersal and marine upwelling. If SeaGrant’s BEUTI report has been sequestered, now is the time for Humboldt County to either obtain the report or have the model re-run. The results of the BEUTI modeling should be included in the final EIR.

Marine warming has led to harmful algal blooms and bioaccumulation of domoic acid in the food chain along the coast of California. Additional nutrient loading and thermal pollution (9.0 to 10.9°C in winter months) from the Project effluent could extend the season for harmful algal blooms and extend exposure to marine mammals. California sea lions are particularly hard hit from domoic acid poisoning.

The 10 to 20°F warmer water from the outfall pipe is likely to foster a perennial reserve population of *Pseudo-nitzschia* that could trigger a faster domoic acid outbreak than a natural, slow warming trend at a larger scale. The area affected by the Project effluent (including and beyond the PSB) is likely to become a highly retentive region for *Pseudo-nitzschia*, such as described (page 3.3-29) for: Juan de Fuca eddy, Heceta Bank, Monterey Bay, and Point Conception (Trainer *et al.* 2020). The same risk from those areas becoming a “potential hotspot” for *Pseudo-nitzschia* outbreak applies to the area affected by the Project—both in the PSB and beyond the PSB.

While the spread of domoic acid from a localized population of *Pseudo-nitzschia* would not affect the entire coastline, such as during a large-scale event, it would certainly affect local recreational and commercial crab fisheries and marine mammals. While larger marine mammals may move their young away from the effluent stream, both adults and juveniles could still be exposed to domoic acid and subsequent neurological effects if the warm and nutrient-laden effluent from the Project result in harmful *Pseudo-nitzschia* algal blooms. Sea lions and harbor seals are at the greatest risk from domoic acid poisoning, which results in lethargy, disorientation, loss of pregnancy, seizures, brain damage, and death. Although the Project is not the proximal cause of marine warming, *per se*, thermal pollution from Project effluent and the 30 to 35 MW of power needed for Project operations would contribute to both marine warming and global warming. When the full energy demand is finally calculated, including use of refrigerants and cooling systems, the energy demand will be significant and the warming factors would put marine species at risk. If a marine warming event happens in the early stages of operation, the Project would be contributing to the magnitude of a harmful algal bloom. As the Project contributes significantly to the carbon emissions in Humboldt County, the magnitude and duration of marine warming events is likely to increase.

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Concluding that loss of food resources will not affect Dungeness crabs, when not considering loss of zoea from entrainment and not considering potential localized exposure to *Pseudo-nitzschia*, makes the effect determination of less-than-significant for impacts to Dungeness crabs unsupportable.

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Special Status Fish – Given that the Project calls for construction of the seawater intakes (sea chests) and that the construction will need a Rivers and Harbors Act Section 10 permit and a CWA 404 permit, the statement that “no in-water work in Humboldt Bay is proposed” (page 3.3-24) is false. The impacts to critical habitat for listed-salmonids and their loss of prey biomass from the seawater intakes in Humboldt Bay has not been consulted on with NMFS. Because the permitting process on the in-water work has not been conducted, and ESA consultation has not been conducted on the intakes, it is premature to conclude that “potential impact to special status fish in Humboldt Bay would be less than significant.”

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It is a significant oversight that this subsection did not include the special status fishes that would be exposed to potentially lethal concentrations ammonia in the vicinity of the outfall pipe or address the higher risk to smaller species and salmonid smolts being exposed to those lethal levels. It also did not consider the impact on special status species in Humboldt Bay that would be adversely affected by the loss of 10 to 12 MGD of seawater containing invertebrate prey species.

Page 3.3-33 includes sandlance as prey for coho and Chinook salmon but does not include sculpins, which are also important prey species. This should be corrected.

The conclusion that “The Project would not result in a conflict with the NCRWQCB Basin Plan, or Humboldt Bay’s TMDL listing for dioxin and PCBs” (page 3.3-43) does not include the potential discharge of dioxins and PCBs from the outfall pipe, even though dioxins and PCBs are known to be found in fish feed and will not be removed from the effluent by the biofilters.

Humboldt Bay Intakes

Special Status Fish -- Page 3.3-46 describes the fish screen that will be installed to prevent entrainment of fish, but nowhere does the DEIR explain the loss of estuarine productivity that will occur when plankton and ichthyoplankton are removed from the ecosystem. The model used to estimate entrainment (Appendix P) did not include impingement as a threat to sensitive species, and also failed to quantify the myriad of marine organisms that are likely to be impinged on the screens and then blasted with air to clear the screens.

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In looking at entrainment at the saltwater intakes, the DEIR only modeled the impact on four species of larval fish and Dungeness crab megalopae; all of which have swim speeds that may allow them to avoid entrainment. By focusing on the few organisms that could avoid impingement or entrainment, the DEIR mischaracterizes a potential significant impact to the Humboldt Bay estuarine ecosystem.

It is entirely inappropriate to conclude that the impact of seawater removal is low or less than significant without any explanation of the full range of species that will be impacted, and without calculating the amount of prey biomass that will be removed from the estuary. Calculation of biomass and prey-base removal should be based on planktonic studies in the vicinity of the sea chests and in Arcata Bay (North Bay).

A measured loss of prey biomass can be used to calculate the number of target fish species that will be harmed, injured, or killed by the reduced food availability. The conclusion that: "Impingement of organisms would be avoided with the low intake velocity and screen design proposed" does not take into consideration the pelagic and benthic invertebrates that do not have the capability of swimming away from the intakes, especially those with body sizes of greater than 1.0 mm that may clog the fish screens and be blasted by the "automated air burst self-cleaning system" used to clear the screens (page 3.3-46). The final EIR should quantify and qualify the prey biomass and prey biodiversity that will be reduced by the Project. This information should be used to quantify the number of ESA-listed species that will be harmed, injured, or killed by the reduced food availability. This subsection does not address loss of prey base and loss of biomass in Humboldt Bay. The final EIR should include a subsection that specifically addresses this issue.

The seawater intakes are being designed to reduce entrainment and impingement of juvenile fish (pages 3.3-46 & 47), but not zooplankton and ichthyoplankton. The DEIR makes the determination (on page 3.3-52) that: "Overall, operation of the proposed seawater intake system would not cause populations of target species, including larval stages of Coastal Pelagic Species, to fall below self-sustaining levels or otherwise eliminate such species." This determination is unfounded, because the target species modeled were organisms that were deemed to have enough motility to avoid entrainment, not the myriad of marine invertebrates whose sizes and life-histories make them vulnerable to entrainment and impingement. It is apparent that the threshold of significant effects in this argument is extirpation, which is an extremely high bar that avoids scrutiny of measurable adverse effects. The determination is also unfounded because loss of prey base for sensitive species, loss of food-web biomass, and loss of Dungeness crab zoea has not been analyzed.

The conclusion that: "Entrainment from the proposed project's intake would not result in a substantial decrease in marine populations" (page 3.3-52) is similarly unfounded, because millions or even billions of Dungeness crab zoea could be entrained by the Project, and that loss has not been quantified. Also, untold pounds of Chinook salmon, coho salmon, steelhead trout, and longfin smelt prey biomass will be removed by the Project.

The DEIR entrainment model is based on a model that "did not require detailed biological data on the fish and invertebrate larvae potentially impacted." A model intended to quantify a biological response is not valid if it does not include what is known about the biology of the organisms impacted. The model only addressed a period of 30 days, rather than the 365 days that a diversity of planktonic invertebrates,

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pelagic eggs, and larval fishes can be found in Humboldt Bay waters. This kind of black-box modeling is not empirical, and it is not supported by any studies—other than a nearly 50-year-old fisheries reference (Monroe 1973) that only mentions “miscellaneous invertebrates” that are used as bait, and a 1973 Master’s thesis (Samuelson 1973).

While it is true estuarine systems have natural variability over the course of a year or many years, using the natural variability of the estuarine ecosystem as a justification for planktonic biomass removal having a less-than-significant effect to Essential Fish Habitat (page 3.3-52) is a reprehensible argument. All of the species that depend on the food web in Humboldt Bay for their survival could be impacted by the removal of 10 to 12 MGD of water. These minute phytoplankton and ichthyoplankton are integral to sustaining the food web in Humboldt Bay. When essential food resources are removed, Essential Fish Habitat is adversely impacted.

In stating that “intake volume is low relative to source waters” (page 3.3-62) the DEIR avoids quantifying the impact to the food web in Humboldt Bay.

In claiming that a substantial decrease in marine populations could not be detected over natural variability, the DEIR avoids concerns over potentially measurable harm to ESA listed species and losses the food component of critical habitat. Loss of habitat and loss of food are metrics used for quantifying take of ESA-listed species. In the case of the Project, some of these losses will be irreversible. Exemption from ESA Section 9 would provide Humboldt County protective coverage for incidental take of ESA-listed species, and formal ESA consultation with NMFS is advisable.

The DEIR puts considerable emphasis on the “high mobility of marine resources of concern” while simultaneously recognizing the Project’s indirect effects “to benthic organisms with limited mobility and immobile benthic prey species of marine species of concern.” Marine species of concern that are forced to change their migratory route could be harmed, harassed, or killed if the altered migration affects their offspring or successful reproduction, or if it exposes them to predators that they would have avoided on their normal migratory route. Lost food resources from the effluent and changing migratory patterns to avoid the effluent is likely to adversely affect breeding, feeding, and sheltering of ESA and MMPA listed species. Therefore, the less-than-significant determination on page 3.3-61 is incorrect.

It is incorrect to conclude that the seawater intake system is not expected to reduce larval numbers of Dungeness crab. That conclusion (page 3.3-63) is not based on a quantifiable reduction Dungeness crab zoea. Instead, it is based on of strong tidal currents, low intake volume relative to source waters, intake velocity that megalopae are capable of avoiding, and the settling nature of megalopae. The smaller Dungeness crab zoea are an earlier, pelagic life-history stage for the species, and as such are significantly more vulnerable to entrainment. In selecting the megalopae life-history stage of Dungeness crab for analysis and not the considerably more vulnerable zoea life-history stage, the DEIR is skewed toward a less-than-significant determination for effects to Dungeness crab and the estuarine ecosystem, and it disguises the actual impact of seawater withdrawal on the Dungeness crab population in Humboldt Bay.

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The Humboldt Bay Area Plan requires protection of biological productivity and coastal waters (page 3.3-64). The DEIR does not address the daily changes in current direction in the vicinity of the outfall pipe. It does not quantify the reach of Project effluent in Humboldt Bay on a southbound current and flood tide, or to chronic effects of diffuse effluent entering SSMCA on a northbound current. The risk of nitrogen loading combined with increased temperatures and benthic upwelling has not been addressed. The loss of biomass in Humboldt Bay and its effect on productivity has not been quantified. The effect of loss of Dungeness crab zoea and megalopae has not been thoroughly analyzed. The conclusions (on page 3.3-63 and 3.3-64) that "...the Project would not conflict with any policies in the Humboldt Bay Area Plan; thus, no impact would result" are completely without merit.

NAF is well acquainted with the input to output ratio for salmon feed and salmon growth. The total daily biomass from entrainment and impingement at the seawater intakes should be calculated, so that the loss of growth potential for coho salmon, Chinook salmon, steelhead, and longfin smelt can be calculated. Once planktonic and ichthyoplanktonic diversity and abundance has been determined from an adequate study; the preferred prey organisms for coho salmon, Chinook salmon, steelhead, and longfin smelt can be parsed out to determine levels of suppressed feeding for each species.

Terrestrial Development – This is the only subsection (page 3.3-65) that mentions the freshwater intakes in the Mad River. The risk of Project freshwater withdrawal during a low-flow event, such as happened in August 2008, was brought to your attention in multiple comment letters during public scoping. The use of a will-serve letter, provided by HBMWD, does not obviate this concern. The will-serve letter may mean that HBMWD will continue to provide the Project with fresh water even during a low-flow event that would impact the physical and biological features of eulachon, steelhead, coho salmon, and Chinook salmon critical habitat in the Mad River. Project water withdrawals during a low-flow event on the Mad River could also harm, harass, capture, injure and kill ESA listed species. ESA consultation on this impact is warranted and advisable.

Considering that the Mad River is Clean Water Act Section 303(d) listed Impaired Water Body due to impairments to water quality by sediment/turbidity and high water-temperatures, it seems reasonable that Project commitments would be in place to ensure protection of critical life stages of salmonids and eulachon.

As part of the justification that removal of 10 to 12 MGD of seawater has less than significant effects to Humboldt Bay productivity, the Biological Resources section references four California Coastal Commission (Commission) documents (pages 3.3-67 & 68) that address sea water intake in Humboldt Bay. The combined, permitted seawater withdrawal from Humboldt Bay aquaculture is currently 1.48 MGD—for the Hag Fish Corporation, Hog Island Oyster Company, Taylor Mariculture, and Coast Seafoods Company.

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Coast Seafoods Company is responsible for 69 percent of the 1.48 MGD seawater withdrawal in Humboldt Bay. At the time of the Commission's permitting of the Coast Seafoods facility in 2016, concerns were expressed over potential impacts to Humboldt Bay from the increased volume of seawater withdrawal from that project. The Commission's permit for Coast Seafoods was conditioned with a permit term limit, in order to give the Commission the opportunity to re-assess the coastal resource impacts of the operation after it has been functioning for approximately 10 years. The term limit has yet to be reached, and the assessment has not been conducted. The 1 MGD seawater withdrawals by Coast Seafoods is significantly less than the 10 to 12 MGD seawater withdrawals proposed by Nordic. It is premature to conclude that Nordic's withdrawals would be less than significant by basing that conclusion on an existing project that is an order of magnitude smaller.

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Consideration is not given to the fact that Hog Island Oyster Company shellfish hatchery may be affected from biomass removal in Humboldt Bay and from potential sediment and nutrient loading that could occur on the daily tidal cycle, which would be exacerbated by marine upwelling events.

Energy – Section 3.5

The electricity demand of the Project is expected to be at least 30 MW, based on the Project Description, not the 20 MW described in Section 3.5. The energy analysis in this section is based on use of the existing 20 MW substation, with the additional contribution of 2.3 MW from the Project's 4.8 MW rooftop solar panels. The substation upgrade is referred to 7 times in the DEIR. The Section 3.5 analysis does not take into consideration or analyze the Project's proposed substation upgrade of 30 to 35 MW, described on page 3.5-2 and in the DEIR Project Description (Page 2-30, and Figure 2-9).

In my May 23, 2021, comment letter, I pointed out the NAF's proposed RAS facility in Belfast, Maine, is a 7.5 MGD Atlantic salmon farm that has a total energy demand of 28 MW. NAF's Maine facility will use 7.5 MGD of combined fresh and seawater and has the same engineering and specifications as the Samoa facility. Unfortunately, the total energy demand that I calculated for the Project (on May 23) had a typo. Based on the actual energy demand of 28 MW for a 7.5 MGD RAS facility, the commensurate total energy demand of the 12.5 MGD Project would be 46.7 MW (not 36.7 MW).

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Considering that NAF misrepresents their electricity demand as 20 MW at full build-out, rather than the 30 to 35 MW of electricity after the upgrade, it is likely that their graphic on page 3.5-1 (Image 3.5-1) is in error. The analyses throughout this section should be revised to reflect the total future electricity demand, including the total of 30 to 39.8 MW of power that will be supplied after the substation upgrade and the rooftop solar contribution.

The statement that "The average annualized operational electricity demand of the Project facilities at full build out is anticipated to be approximately 22.3 MW"

(page 3.5-2) is an under-representation of anticipated energy demand and usage. The pattern of underrepresenting energy demand is also a pattern for NAF's proposed RAS in Belfast, Maine, which went from 14 MW to 28 MW after undergoing public scoping. The energy demand for the Belfast RAS facility is now calculated to be approximately 31 MW.

NAF has not been forthcoming about their full energy demand for the Project. Power from PG&E's natural gas pipeline to the facility, is identified (page 2-5) to be used in "power backup systems"; however, the total energy demand, including supplementation with natural gas, has not been articulated. The dual fuel generators

The emergency backup provided by the diesel generators (Project Description, page 2-27) have clearly defined hours of usage. What is not clear is how the natural gas power supply will be used for Project operations. If the electrical usage is 22.3 MW, it should be made clear in the DEIR how the additional 24.4 MW of demand will be met.

By focusing on electricity demand and not overall operational energy demand, the total carbon footprint for the Project has been obscured. Recent calculations indicate that the actual energy demand in the Belfast RAS facility will be closer to 31 MW. If this turns out to be the case, that would mean that the total energy demand for the Project would be closer to 51.7 MW.

This Project has been greenwashed as having a lower carbon footprint than farmed salmon flown to California from Norway, while the true magnitude of energy demand and carbon footprint of the Project has been obscured by partial calculations and incomplete representation of energy demand at build-out. These failings should be corrected in the final EIR.

The DEIR does not address the carbon footprint of harvesting wild fish for fish meal, processing wild fish into fishmeal on factory ships, shipping fishmeal to fish feed factories in Canada, the use of petrochemical-dependent grains in the fish feed formulation, or shipping fish feed from Canada to the Samoa peninsula. The DEIR has also not addressed the carbon footprint of shipping salt-laden sewage waste from the Samoa peninsula to a location in the Central Valley. The true power demand, including electricity and gas, is not addressed in the DEIR. All of these deficiencies should be corrected in the final EIR.

Section 3.9

Page 3.9-39 Nordic has only discussed how water treatment chemicals will be stored and has not presented any information for known adverse effects to fish, marine invertebrates, or macroalgae that is likely to occur from exposure to chemicals that cannot be removed using the proposed effluent treatment methodology. This is a failing and masks the true loss of impacts to forage, cover, and individual listed salmonid species.

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There is no reporting on the LD50 for sodium hypochlorite on *S. latissima*, or other sensitive macroalgae, or any of the ESA-listed species that will come into contact with Project effluent. Concerns about effects of the powerful fungicide Virkon, the powerful oxidizing agent potassium peroxydisulfate, Parasite-S, Formalin-F, and Formacide-B (Formalin) were brought up during public scoping. The DEIR failed to directly address the public's concerns regarding treatment chemicals that could harm individual fish and their prey. Other than to posit that macroalgae is too far away to be exposed to anything greater than 1:2000 dilution factor, and then not include adequate modeling of upwelling and effluent dispersal, the DEIR does not address potentially significant effects to macroalgae and eelgrass ecosystems, important salmonid prey, or individual fish species. There is no commitment to test these chemicals, there is no commitment to prevent their use, and there is no proposed mitigation for adverse effects from effluent exposure.

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Alternatives Description and Analysis – Section 4

Page 4-7 “The Project would result in a regional alternative for fresh fish with a lower carbon footprint” than airfreight from Norway. This conclusion is based on the DEIR only considering the 22.3 MW of electricity demand described in the Energy section (pages 3.5-1, 3.5-2, and 3.5-3), and not the 30 to 39.8 MW of electricity capacity developed as part of the Project (described in Section 2) and certainly not the potential 46.7 to 51.7 MW of energy that would be needed to operate the Project. It also does not consider the carbon footprint from shipping solid waste or overland freight to Seattle, San Francisco, and Los Angeles. Doing an alternative analysis with incorrect numbers and missing information is misleading and should be corrected.

On page 4-16 (Table 4-2 Comparison of Potential Fish Species), the biological risk of raising Atlantic salmon is compared to steelhead, rainbow trout, and yellowtail kingfish. It appears that the preference for raising Atlantic salmon is based on experience with RAS farming for the species, without consideration of the risks that the Project will present to wild salmonids, ESA listed species, critical habitat, sport and recreational fisheries, and the overall health of the Humboldt Bay ecosystem.

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On page 4-22 (Table 4-3 Comparison of Alternatives to the Proposed Project) addressing the risk to biological resources, the conclusion that: “Mitigation measures would be implemented to ensure biological and aquatic resources were protected. Wetland impacts would not occur. Impacts would be less than significant after mitigation” is utterly false. There is no proposed mitigation for loss of plankton and ichthyoplankton from the seawater intakes, take of listed species, or impacts to critical habitat.

Appendix C-1 – Terrestrial Resources Report

Appendix C-1 concludes (on page 56) that there is “No Potential” for eulachon to occur at the Project site or within the Project Study Boundary (PSB). This is based on a 2006 book (Allen *et al.* 2006) that predates CDFW 2009 reporting of eulachon spawning as

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far upstream as the confluence with the North Fork of the Mad River (as cited in NMFS 2011). Threatened, endangered, and rare species have a tendency to be rarely detected; nonetheless, protection is needed for their habitat where they were once abundant but are now only occasionally found. This is the purpose of critical habitat designations: to protect the species where they can be found or where they can be recovered. The conclusion that eulachon has “no potential to occur at the Project Site or within the greater PSB” is unsubstantiated and unfounded.

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While Appendix C-1 recognizes that: “Marine invertebrates, such as copepods, euphausiids, amphipods, and crab larvae, are the primary food sources for Coho Salmon when they first enter saltwater” (page 77); and longfin smelt feed on copepods, mysids, and amphipods (page 80). Similar language for coho salmon and longfin smelt is not included in the Marine Resources Report (Appendix D). Coho salmon have a pelagic life-history stage and they also forage on longfin smelt, so, the ecosystem and food-web relationship of these two species should be included in the Marine Resources Report.

Appendix D – Marine Resources Report

Appendix D recognizes that “Planktonic invertebrates are also important prey for many species of birds, mammals, and fish” (page 13), and “Planktonic invertebrates are prey for Chinook salmon” (page 30). Simply pointing out that planktonic invertebrates are important is not enough. It is important to quantify the biomass of planktonic invertebrates that will be lost to the saltwater intakes through entrainment and impingement. By overlooking and not discussing the array of planktonic invertebrates in the Humboldt Bay ecosystem, and not including their contribution to the food web and to threatened fish species survival, the DEIR misrepresents the magnitude of the environmental impact of the seawater intakes.

Appendix D, the updated (revision 4) of the *Marine Resources Biological Evaluation Report Samoa Peninsula Land-based Aquaculture Project* (GHD 2021a), continues to rely on the “they will just swim away” and “exposure is short term” viewpoints, which are used for underrepresenting Project effects. For the majority of the species addressed in Appendix D, the conclusion is: “Because ... [they] are highly mobile, their exposure to the diffuser effluent is likely to be short term.” Sadly, juvenile salmonids, juvenile green sturgeon, eulachon, and longfin smelt do not have the evolutionary wherewithal to swim away from toxicants and diseases. Nor do they have the ability to cope with loss of food and cover in their nursery areas.

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A significant flaw in Appendix D is that the marine and estuarine environment in Humboldt Bay is excluded from the Project Study Boundary (PSB); therefore, direct and indirect effects to species within Humboldt Bay are not fully addressed. The area of impacts that could be inferred by an understanding of local marine conditions and biology is much greater than the area of the PSB. The full reach of effluent dispersal and adverse effects from resuspension during upwelling and storm events is not addressed. The habitat upon which species depend on in Humboldt Bay will be altered

by the Project—from loss of prey biomass, and from the cumulative and additive effects of marine upwelling and nutrient loading.

Appendix D places an emphasis on short-term exposure to Project effluent and the swimming capabilities of adult fish. These emphases are a recognition that threatened and endangered fishes, and other sensitive species, will be exposed to potentially toxic Project effluent and that migratory patterns will be disrupted. Appendix D makes many conclusions that short term exposure to Project effluent does not represent an effect to listed species. The threshold for formal ESA consultation is when an action “may” affect listed species. Appendix D clearly establishes that the trigger for formal ESA consultation has been met.

Endangered Species Act (ESA) –This section incorrectly indicates that Section 7 of the ESA is a permitting process (page 4). It is not. An incidental take exemption under Section 7 provides protective coverage from Section 9 of the ESA. The Section 7 process allows for cooperation between federal agencies that permit, fund, or carry out an action. Section 7 is only for take that is incidental to the action and is not for take that is purposeful or illegal. The Incidental Take Statement that is an outcome of formal Section 7 consultation allows for decision makers and operators to have an exemption that goes beyond the permitted entity. In the case of the Project, it would provide protective coverage to Humboldt County and the Army Corps of Engineers for the take that is likely to occur as a result of Project operations. Monitoring of incidental take is conspicuously lacking in the DEIR; however, an incidental take exemption under Section 7 requires monitoring of the take so that NMFS or the USFWS can have confidence that the amount of exempted incidental take is not exceeded.

On page 4, paragraph 2, it should be made clear that “the agency” determination is made through formal ESA Section 7 consultation and that the determination is made by either NMFS or the USFWS. During formal ESA consultation, NMFS or USFWS will make a determination as to whether the action will jeopardize a listed species or adversely modify critical habitat.

The expected take of ESA-listed species is clearly laid out in my above comments on the Biological Resources section of the DEIR. If NAF continues to reject the need for ESA consultation, then the benefit and utility of requesting ESA consultation through ESA Section 7(a)(3) will not be available to either NAF or Humboldt County. Without ESA Section 7 consultation exempting NAF or Humboldt County from the provisions of ESA Section 9, the only recourse is permitting take of ESA-listed species through Section 10(a)(1)(B), which requires a Habitat Conservation Plan.

It is completely false to claim that the ESA definition of Action Area is the federally designated term for the PSB (as stated on page 4). The ESA term “Action Area” (area affected by the action) is not synonymous with the PSB as defined. The Action Area is defined by regulation as: “all areas to be affected directly or indirectly by the Federal action, and not merely the immediate area involved in the action” (50 CFR §402.02). In this case the Action Area is, by definition, the entire area where effects from the project

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can be measured. The PSB is limited to an arbitrarily selected area that is specific to the discharge requirements of the NPDES permit, not the full reach of Project effects.

Rather than quantify effluent dispersal and fate in the model domain, as described in GHD 2020a, the analysis of impacts to marine species is limited to the arbitrarily determined PSB. This is defined as: “approximately 500 m away from the multiport diffusers at the outfall, as shown in Figure 2”. This reference to Figure 2 is on page 10, but Appendix D does not include a Figure 2.

Between the 2020 modeling report (GHD 2020a) and the revised modeling report (GHD 2021a), study of the effluent-affected area changed from greater than 6 square miles to approximately 0.5 square mile. Changing the affected area on paper does not change the anticipated effect to the environment or to sensitive species. This significant and arbitrary reduction in the area being analyzed for the purposes of the DEIR eliminates consideration of the effects of diffuse and dispersed effluent having cumulative effects within the model domain from the 2020 modeling report.

Offshore Effluent Discharge Evaluation – It is of great concern that: (1) the risk of NAF generating a viral load of known salmonid farm viruses has not been evaluated in the DEIR; (2) the upwelling modeling (BEUTI) effects combined with Project effluent has not been released; and (3) the effluent discharge evaluation did not include wave dynamics, local currents, and tidal surge (page 13). Based on these failings, the offshore effluent discharge evaluation falls short. Conclusions based on such lack of evaluation and modeling should be considered suspect.

It is useful and important that PCBs and dioxins are mentioned on page 11: “PCBs and dioxins are persistent environmental pollutants with low solubility in water that bind to sediments and are present in Humboldt Bay.” However, the risk of increased PCBs and dioxins from fish feed is not addressed anywhere in the DEIR. Page 11 has an assurance that PCBs and dioxins will not enter the Project from the water source, but there is no similar assurance that PCBs and dioxins will not enter the facility in the commercial fish feed.

Commercial fish feed is a source of dioxins, PCBs, organochlorine pesticides, polybrominated diphenyl ethers (PBDEs), and mercury (Buckman et al. 2016, Choi et al., Dietrich et al. 2015, Jacobs et al. 2002, Ng et al. 2018). These toxic chemicals are both bioaccumulated into fish tissue and excreted into the environment. The DEIR only addresses residual onsite dioxins, PCBs, and organochlorines. It does not address fish feed and excrement as a source of dioxins, PCBs, organochlorine pesticides, PBDEs, and mercury.

Summary of General Biological Resources – This subsection recognizes that “Planktonic invertebrates are also important prey for many species of birds, mammals, and fish” (page 13). Simply pointing out that planktonic invertebrates are important is not enough. It is important to quantify the biomass of planktonic invertebrates that will be lost to the saltwater intakes through entrainment and impingement. Appendix D does

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not include or address the mysids, zoea, amphipods or copepods that inhabit Humboldt Bay at the seawater intakes. By overlooking and not discussing the array of planktonic invertebrates in the Humboldt Bay ecosystem, and not including their contribution to the food web and to threatened fish species survival, the DEIR misrepresents the magnitude of the environmental impact of the seawater intakes.

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Marine Resource Evaluation Results – It is a mystery as to why the marine environment in Humboldt Bay was not included in the marine resource evaluation. Project impacts to ESA-listed critical habitat and to the juvenile life history stages of coho salmon, Chinook salmon, steelhead, and green sturgeon continue to be treated dismissively. Adverse effects to listed species are disguised by missing data, biased analyses, and unfounded conclusions.

Conclusions that coho salmon, Chinook salmon, steelhead, and green sturgeon will have only short-term exposure to potentially toxic levels of ammonia forestalls consideration that exposure to toxic chemicals can kill or injure individual fish. Both killing and injuring are prohibited under Section 9 of the ESA. How listed species can be harmed, harassed, injured, or killed by both the seawater intakes and ocean outfall should be considered while evaluating effects to these species.

Appendix D should include an analysis of impacts to marine life from the in-water construction work on the sea chests. During the CWA 404 and RHA permitting, the Corps will need to consider effects to ESA-listed species in all areas to be affected, both directly or indirectly by the Project, and not merely the immediate areas that specifically require permitting. This means that the Corps must look at the dispersion of Project effluent into the area shown in Figure 1 of GHD 2020a, not simply the arbitrarily reduced impact area described in GHD 2021a.

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According to NOAA (2022): "Humboldt Bay also produces more than 50 percent of the oysters harvested in California...extreme care should be taken to utilize all best management practices when transiting Humboldt Bay." Appendix D does not address Project impacts to existing oyster farming from entrainment and impingement of ecosystem biomass. It also does not address the cumulative effect of removing at least 10 MGD of seawater for the Project that would be in addition to existing seawater removals for oyster farming and other aquaculture in Humboldt Bay.

Appendix D does not adequately address the vulnerability of all of the important prey fishes in the vicinity of the seawater intakes. For example, it is likely that sculpin will be foraging and migrating in the vicinity of the seawater intakes. Sandlance are known to occur in the vicinity of the seawater intakes and may be spawning there. Both sculpin and sandlance are important prey for salmonids in some years. As bottom dwellers and migrators in the lower water column, sculpin could be extremely vulnerable to entrainment and impingement. The seawater intakes could affect sandlance spawning near them, which could result in lower sandlance population numbers.

By only considering marine resources in the vicinity of the outfall pipe, Appendix D fails to include important salmonid prey species, such as opossum shrimp and sandlance in the vicinity of the seawater intakes. Additionally, Appendix D does not include any mention of zoea. Both Dungeness crab and rock crab zoea are extremely vulnerable to Project entrainment. These fragile larvae may also be compromised when local currents sweep them into the effluent discharge area.

Table 5.1 “Marine Species Potential to Occur in the Project Area” (page 21) is incomplete, because it does not include marine species in the vicinity of the seawater intakes or the full array of marine species affected by the project. The table could be re-named “Special Status Marine Species...” to at least reflect the species that are included in the table.

The anadromous life-history stage of eulachon is not discussed in Appendix D. The determination in Appendix D (page 22) that eulachon has “No Potential” to occur in the Project Area and PSB does not take into consideration the anadromous life-history stage of this species. Larval eulachon disperse on marine currents. Adults return to their freshwater spawning areas. The migratory nature of the species, and their use of marine currents, indicates that there is a likelihood that they will encounter Project effluent in the PSB. In justification for the no-potential determination, Appendix D references Simpson (2019). While Simpson (2019) is an excellent depiction of the importance of eulachon to the Wiyot tribe, it does not reference the CDFW 2009 reporting of eulachon spawning in the Mad River. As such, Simpson (2019), which is used as a basis for the “no potential” to occur determination, does not provide an empirical or definitive answer on eulachon presence in critical habitat in the Mad River. The conclusion that eulachon has “no potential to occur at the Project Site or within the greater PSB” is unsubstantiated and unfounded.

As benthic foragers, green sturgeon forage and migrate near the ocean floor, increasing their risk of exposure to potentially toxic levels of ammonia from the diffusers in the outfall pipe. While foraging on the ocean floor, green sturgeon mouth parts will be in direct contact with precipitated effluent solids. Project effluent is likely to reduce prey availability and affect green sturgeon olfactory receptors used during feeding.

Described effects to green sturgeon appear to be for the adult stage and do not consider the juvenile stage. Only pointing out (page 29) that “adult Green Sturgeon are highly mobile” does not take into account that juvenile green sturgeon may be using marine currents for migration and foraging, which would significantly increase exposure time to Project effluent. The size of juvenile green sturgeon upon entry into the marine environment is not discussed. The size of juvenile green sturgeon when they enter the PSB is likely to be related to effluent exposure time.

Green sturgeon exposed to Project effluent in the PSB may change their migratory behavior. By changing their migratory route to avoid effluent exposure, green sturgeon foraging could be affected. Changes in behavior that affects migration and feeding should undergo ESA consultation with NMFS.

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The recognition that adult salmon feed at greater depths than juveniles (page 30) is an important consideration. Juvenile salmonids in the nearshore area and in the vicinity of the outfall pipe diffusers will have greater exposure times to Project effluent, and they have little capacity to swim away and avoid that effluent. Adverse effects to juvenile salmonids that should be addressed in the Final EIR are: (1) heightened exposure times during juvenile migration on ocean currents; (2) greater sensitivity of juvenile salmonids to toxins and viruses; (3) dependency of juvenile salmonids on invertebrate prey that will be adversely affected by the Project; and (4) a quantification of plankton and ichthyoplankton that will be lost due to entrainment, impingement, sedimentation, exposure to treatment chemicals, and exposure to potentially toxic levels of ammonia from the outfall pipe diffusers

Appendix D correctly points out that: "Marine survival and growth of coho salmon are linked to food availability, environmental conditions, and stressors present in the marine environment" (page 30); however, there is no analysis of how the Project will reduce food availability and add potential stressors (such as viruses) to coho salmon survival and growth. There is no description of the marine conditions that contribute to coho salmon survival. The food resources are described in the Terrestrial Resources Section of the DEIR but not the marine habitat that coho salmon food resources depend upon.

The conclusion (page 30) that "no exposure [to coho salmon] would result in Humboldt Bay as a result from the distance and associated dilution from the diffusers" is unfounded and therefore incorrect. A southbound current and incoming tide will result in suspended solids, treatment chemicals, potential viruses, and nitrogen to enter Humboldt Bay. Mud flats in bays are depositional areas, where suspended sediments drop out of the water column during slack water. Without a full analysis of potential nitrogen loading in Humboldt Bay, and a completed upwelling model that addresses cumulative risk from resuspended solids and depositional nitrogen (see Jacox 2018), the conclusion is spurious.

When juvenile coho enter the marine environment, they migrate low in the water column during daylight hours. This migration, close to the ocean floor in the nearshore area, could expose them to potentially toxic levels of ammonia from the outfall pipe diffusers. By limiting consideration of exposure of effluent to Humboldt Bay, the DEIR overlooks the ocean life-history phase of coho salmon and overlooks the fact that they are a species associated with the nearshore area during their ocean phase. In addition, juvenile coho salmon are likely to be riding the local coastal currents as those currents shift back and forth across the PSB. By using coastal currents for migration, juvenile coho salmon are likely to have multiple and longer exposure times to effluent in the PSB than adult coho, putting them at risk of prolonged exposure to potentially toxic levels of ammonia.

Appendix D, like Section 3-3 Biological Resources, appears to focus on the adult life-history stage of Chinook salmon, concluding that: "Because Chinook Salmon are highly mobile, their exposure to the diffuser effluent is likely to be short term in the Pacific

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Ocean.” This may be true for adult Chinook salmon that have the capability swimming away from the effluent stream after a brief exposure; however, juvenile Chinook salmon that may be riding the local currents as they shift back and forth across the PSB are likely to be exposed longer and more frequently to Project effluent. The conclusion that “No exposure would result in Humboldt Bay as a result from the distance and associated dilution from the diffusers” is premature because: (1) effluent dispersal modeling did not extend beyond 1680 feet from the outfall pipe; and (2) upwelling modeling has not been concluded or made available for review.

By focusing analysis of Project effects solely on the PSB, and not using a complete analysis of effluent dispersal and cumulative effects, potential adverse effects to Chinook salmon critical habitat has been overlooked. This should be remedied by reporting the full distribution of detectable effluent and by considering chronic effects of effluent on the Chinook salmon prey base in critical habitat.

While it is true that steelhead spend less time in the nearshore marine area than other salmonids (Hayes and Kocik 2014), the 5 to 33 days that steelhead have been shown to spend in the nearshore marine environment (Daly *et al.* 2014, Goetz *et al.* 2015) is sufficient to have multiple exposure incidences in the PSB. Exposure times will increase when juvenile steelhead outmigrate during a period when there are multiple changes in coastal current direction from north to south and back again. Twice daily current switching can result in hours of repeat exposure to the effluent. If viruses such as IPN, ISA, SAV, or PRV are in the effluent stream, this could have significant and devastating impacts on local steelhead populations.

The conclusion that steelhead “exposure to the diffuser effluent is likely to be short term in the Pacific Ocean, and no exposure would result in Humboldt Bay as a result from the distance and associated dilution from the diffusers” (page 31) is unfounded for three reasons: (1) No modeling of the existing, local marine currents has been done in conjunction with steelhead outmigration timing; (2) the effluent diffusion modeling did not extend beyond 1680 feet from the outfall pipe; and (3) the upwelling modeling to determine the cumulative effects of upwelling and effluent dispersal has not been made available.

Although it is true that steelhead critical habitat does not extend into the open ocean, tidal action at the mouth of steelhead streams could expose critical habitat to Project effluent. By constraining the area of analysis to the PSB, no inquiry can be made regarding the potential threat of Project effluent entering critical habitat.

Table 5.2 (page 33) should include speckled sanddab, because it is an excellent culinary fish, is fun to catch, and is found in the vicinity of the seawater intakes.

It is unclear how Dungeness crab exposure to Project effluent is likely to be short term (as described on page 36). Dungeness crab megalopae and zoea may experience repeat exposure to project effluent as the currents switch from south to north and back. Because larval crabs are very small invertebrates, they may experience lethal and

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sublethal responses to treatment chemicals in Project effluent. Adult Dungeness crab in the PSB are sessile, so would be exposed to Project effluent in the PSB repeatedly. It is unclear whether the high motility described for the species is based on adult Dungeness crabs crawling away from the PSB.

For green sturgeon critical habitat, critical habitat elements of a safe migratory pathway, water quality with acceptably low levels of contaminants, and abundant prey items will not be demonstrably protected in the PSB. The expectation that green sturgeon will swim away from the outfall pipe, or only experience short-term exposure to potentially toxic levels of ammonia, is an indication that primary constituent elements of green sturgeon critical habitat will be adversely affected. ESA consultation on these adverse effects is advised.

The conclusion that “The risk of increase in domoic-acid producing diatoms is also very low” (page 41), does not take into consideration that localized warming at the outfall pipe combined with nutrient loading increases the risk of localized domoic acid outbreaks. These effects will likely foster a reserve population of *Pseudo-nitzschia*, which could lead to longer and more frequent localized spikes in domoic acid production.

The determination that “No impacts to marine resources are expected as a result of the Project’s discharge” (page 42) is completely arbitrary because: (1) it is based on a constrained area of analysis (PSB); (2) there is missing data; (3) lack of adequate quantification of lost biomass; (4) lack of quantification of take; and (5) lack of consideration for vulnerable life-history stages of many organisms.

The determination that “...impacts to commercial and recreational species, as well as invertebrate communities that support commercial and recreational species, are also considered to be less than significant” is another flawed and arbitrary conclusion. Disregard for the loss of Dungeness crab zoea and megalopae at the seawater intakes, and lack of consideration of localized domoic acid increases are risk factors for both commercial and recreational crabbing.

Appendix E – Marine Modelling Report

Between the 2020 modeling report (GHD 2020a) and the revised modeling report (GHD 2021a) the effluent-affected area changed from greater than 6 square miles to 0.48 square miles. Changing the affected area on paper does not change the anticipated effect to the environment or to sensitive species. This significant and arbitrary reduction in the area being analyzed for the purposes of the DEIR reduces the level of effects being considered for sensitive species and important commercial and recreational fisheries.

The DEIR’s dependency on “advanced” wastewater treatment does not address monitoring of wastewater treatment efficacy, a replacement schedule for failed or degraded biofilters, or any proposed remediation or mitigation for when the biofilters fail to meet the 0.04 micron filtration standard.

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Appendix E does not include the full dispersal area of the effluent or any upwelling modeling needed to assess cumulative effects.

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Appendix P

The Empirical Transport Model (ETM) described in Appendix P is problematic for the following reasons: (1) it focuses on organisms that have some capacity to avoid entrainment and not on organisms that have little to no capacity to avoid entrainment; (2) it disregards the importance of marine and estuarine invertebrates for salmonid growth and survival; (3) it does not consider the ecosystem impact of loss of prey biomass and disruption of the food web; (4) it does not consider the critical life stage of Dungeness crab zoea, which are highly vulnerable to entrainment; and (5) it does not include sandlance and sculpins, which are important salmonid prey items.

The ETM is misrepresented as empirical, because no direct observations were made or data collected on the plankton and ichthyoplankton in the vicinity of the seawater intakes over the course of a year. For example, sanddabs are found in the vicinity of the sea chests. They typically lay their eggs near them in the sand. When the eggs hatch, the pelagic 10 mm larvae would be extremely vulnerable to entrainment and impingement. Cumulative loss of biomass in the ecosystem from removing 10 to 12 MGD of seawater from Humboldt Bay would be an actual empirical measurement, if it was based on actual, relevant, and timely plankton and ichthyoplankton studies.

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Appendix P starts out with a bold and false assumption regarding impingement. On page 1-1 it is claimed that the fish screen will: "almost eliminate any effects due to impingement." This claim is patently untrue, because the ETM is limited to modeling a set of organisms that have swim speeds that could allow them to avoid impingement. The ETM does not model the myriad of fish and plankton species and life-history stages that are profoundly vulnerable to impingement. The ETM does not include any consideration of the mysids, zoea, amphipods, or copepods that may foul the screens, nor the yolk-sac, floating-pelagic, and pre-swimming life-history stages of fish species that spawn in Humboldt Bay.

By discounting impingement and focusing solely on the ability to avoid entrainment by post-flexion larval fish and megalopae, Appendix P has overlooked the significant and compelling impact of loss of biomass at the bottom of the food web. It is concerning that the DEIR utterly fails to address the planktonic invertebrates that could be entrained and impinged by the seawater intakes, other than to select megalopae for their modeling. The overall impact to the Humboldt Bay ecosystem from loss of biomass is likely to be significant.

Removal of planktonic invertebrates from the ecosystem will indirectly impact birds, mammals, and fish by reducing food availability. It will also directly impact the Dungeness crab population by removing millions or even billions of zoea every year.

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By selecting a life history stage of Dungeness crab that will be less impacted by the seawater intakes, the vulnerable life-history stage of Dungeness crab zoea is overlooked and not considered in Appendix P. This is a serious omission that should be addressed by conducting a thorough analysis of the planktonic and ichthyoplanktonic composition in Humboldt Bay in the vicinity of the sea chests: throughout the year and during different tidal and diurnal cycles.

Planktonic invertebrates an important prey base for fish, marine mammals, and seabirds that live and forage in Humboldt Bay. Planktonic invertebrates in Humboldt Bay include copepods, mysids (e.g., opossum shrimp), crab zoea (rock crab and Dungeness crab), polychaetes, amphipods, gastropods, larval bivalves, and crangonids (e.g., bay shrimp and sand shrimp). Impacts of seawater withdrawal in Humboldt Bay should be quantified by plankton studies and by estimating the percentage of planktonic invertebrates that will be removed from the channel in the vicinity of the sea chests.

Appendix P (page 2-7) correctly recognizes that: "...estuarine areas, like parts of Humboldt Bay, are important habitat for juvenile stage crabs (Armstrong *et al.* 2003)." However, the ETM then fails to model the effect of the Project on Dungeness crab zoea, which is the most vulnerable life-history stage of the species. Other than a two-sentence mention of Dungeness crab zoea on page 2-7 of Appendix P, this important life-history stage is not mentioned in any other place in the DEIR. This is a serious omission. A more appropriate type of modeling for Dungeness crab larval entrainment would be to follow Berger *et al.* (2021) and complete a passive transport model for zoea.

Appendix P limits the entrainment analysis to four species of fish and to Dungeness crab megalopae, but does not address the food web of pelagic and benthic invertebrates that are likely to be entrained at the upgraded sea chests. In its narrow analysis, Appendix P arbitrarily discounts impingement of local marine invertebrate larvae and instead looks at potential effects on ichthyoplankton and megalopae due to entrainment at the upgraded seawater intakes in Humboldt Bay. By focusing on ichthyoplankton and megalopae entrainment, the DEIR disregards important prey species for coho salmon, Chinook salmon, steelhead, longfin smelt, as well as impacts to the Humboldt Bay estuarine ecosystem.

Rather than model the impact of the Project on two species of goby, that are not important prey species for salmonids and birds, it would be more appropriate to model the impact of the Project on sand lance, which are important prey for birds and fish. Impacts to sculpin should also be analyzed, or sand dab, which are found in the vicinity of the sea chests (Cole 2004). A greater emphasis on determining the fate of pelagic larvae would be considerably more useful in estimating the population impact of fish that spawn in the vicinity of the sea chest, or whose eggs and larvae pass the sea chests daily on the tidal cycles.

Chinook salmon and steelhead experience an ontogenetic shift as they leave their natal areas upstream of Humboldt Bay. This shift continues in the estuary, where they grow and prepare for the pelagic life-history stage. For coho and Chinook salmon, this shift

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includes transitioning from an invertebrate prey base to a fish prey base. For juvenile coho salmon, greater than 50 percent of the diet during the estuarine phase is invertebrates (Daly 2009). Chinook salmon switch to piscivory sooner than coho, but for smaller chinook smolts, up to 40 percent of the diet is invertebrates (Daly 2009). For juvenile steelhead, typically greater than 90 percent of prey are invertebrates (Daly 2014). Ultimately, the smaller smolts that are residing in Humboldt Bay are highly dependent upon invertebrate prey biomass for their survival and growth. In addition, the small fish that they feed on, such as longfin smelt and sculpins, are largely dependent upon invertebrate prey biomass. Consequently, the overall loss of biomass and species diversity calculated to be present in 10 to 12 MGD of water from the estuary is a better metric for calculating loss of biomass from the estuary and for determining how many longfin smelt, coho salmon, Chinook salmon, and steelhead will be harmed by the loss of available food. The sea chests will suck vital components of the food web out of Humboldt Bay. The prey biomass loss from the removal of between 10 to 12 MGD per day from Humboldt Bay should be addressed in the final EIR.

The DEIR fails to adequately address the seasonal and annual contribution of important prey fishes for coho salmon and Chinook salmon. Appendix P included entrainment modeling for two gobies, which salmonids do not tend to eat. However, the combined dietary contribution of sculpin and sandlance (which the DEIR did not include) to salmonid diets may be as much as 20 percent in some years (Daly *et al.* 2009); particularly years with low smelt numbers. In some juvenile Chinook size classes, sandlance can be as important of a prey item as anchovies (Daly *et al.* 2009), and they are found in the vicinity of the seawater intakes (Cole 2004). The loss of these important prey fishes to the seawater intakes could result in population suppression of coho and Chinook salmon.

Appendix P does not adequately address the vulnerability of all of the important prey fishes in the vicinity of the seawater intakes. For example, it is likely that sculpin will be foraging and migrating in the vicinity of the seawater intakes. Sandlance are known to occur in the vicinity of the seawater intakes and may be spawning there. Both sculpin and sandlance are important prey for salmonids in some years. As bottom dwellers and migrators in the lower water column, sculpin could be extremely vulnerable to entrainment and impingement. The seawater intakes could affect sandlance spawning near them, which could result in lower sandlance population numbers.

Rather than to truly assess potential adverse impacts of the Project on local oyster farming, the emphasis in Appendix P is on how local oyster farming may have contributed to eelgrass beds in Humboldt Bay (page 2-7). This is a smokescreen, because Appendix P fails to analyze potential Project effects on the existing oyster farms.

CONCLUSION

Science is advancing rapidly in the area of fish disease detection, habitat monitoring, aquatic modeling, and the understanding of the community and global effects of high-

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density aquaculture. In the meantime, so much is happening to our communities and wildlife: Fires, drought, marine warming and domoic acid proliferation, closed fisheries, fish and sea lion die-offs, viruses jumping between species, and friends or family members dying from antibiotic-resistant bacteria. When considering the local and global impact of a large industrial project, such as the Nordic Aquafarms facility, it is important to look past the short-term gain from construction jobs and to consider the environmental, social, and economic effects of the Project on the local community.

Humboldt Bay is a beautiful and well-renowned estuary. It has tremendous ecological significance to coastal California and may become a reserve of biodiversity as global warming continues to degrade coastal ecosystems to the south. Humboldt Bay has thriving commercial and sport fisheries that contribute to the economy and well-being of the citizens of Humboldt County.

Now is not the time to put a heavy energy burden on the region. In order to give Humboldt County the latitude to continue reducing its carbon footprint, the Project should be designed as carbon neutral. To that end, the energy demand of the Project should be determined by a third-party, and the carbon-neutral energy sources should be fully operational at the time of initiation of Project operations.

Adverse effects to local fisheries are reasonably certain to occur as a result of the Project. These adverse effects would come at a time when our fisheries and local wildlife are already stressed from climate change, marine warming, and harmful algal blooms. Protecting the nearshore marine environment and local estuaries are a way to protect and conserve not only the environment but also the local community that depends upon a dynamic and productive fishery.

The Project site has already left a burden on the county, community, and ecosystem as an eyesore and a source of toxic contaminants. If the Project fails, a contingency plan and funding for clean-up should be in place for the purpose of remediation—guaranteeing financial protections for Humboldt County and its taxpayers. Funding for remediation should be in a non-wasting account, so that the cost of cleanup if the Project fails does not fall to Humboldt County or the Harbor District.

The final EIR should fully address the impacts of the Project and be clear about: energy demand, total effluent load, effluent distribution and residence times in local estuaries, effluent impacts on the marine and estuarine ecosystems, waste-solids end points, disease risk and monitoring, effects to listed species and critical habitat, fish feed sourcing and environmental risks, fish escapes, seismic risk, and harassment of marine mammals. The multiple, flawed “less-than-significant impact” conclusions in the DEIR indicates that third-party scientific review of environmental documents is warranted. Formal ESA consultation is advisable, to address the potential for Project construction and operation to result in take of ESA-listed species and adverse effects to critical habitat.

679-33
cont.

It is my continuing hope that the unique nature and beauty of Humboldt Bay and the coastal marine ecosystems along the coast of the Samoa Peninsula are preserved for future generations. Please ensure that the Project has measures in place to protect and conserve wild fisheries, local wildlife, natural resource values, and community vibrancy.

↑
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↓
cont.

Thank you for your consideration of these comments.

Sincerely,



Alison Willy, M.S.

cc

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Letter 679 – Response to Comments

Response to Comment 679-1 – Introductory Remarks

This is an introductory comment. The comment notes data and figures available during scoping are no longer included, which is incorrect. Substantial information was added following scoping and as a result of comments received during scoping. Appendices to the DEIR previously publicly released during the prior Initial Study Mitigated Negative Declaration were not altered. As such, the Study Area also has not changed since its inception. Concerns related to ESA, CESA CEQA, and NEPA are addressed in greater detail below.

Response to Comment 679-2 – Adverse Effects

This comment is concerned the DEIR disregards adverse effects from industrial fish farming related to viruses, bioaccumulation of toxins, and loss of marine diversity yet provides no evidence. Please see Master Response 8, which addresses substantial evidence, speculation, and unsubstantiated opinion. Please see below for additional information on the topics raised in the comment:

- Viruses - Please see Master Response 4 for concerns related to fish health and biosecurity. Response to comment 679-19 also discusses viruses in greater detail.
- Bioaccumulation of toxins - The DEIR addresses the issue of biosecurity in Section 2 (Project Description), starting on page 2-41 describing the treatment of the effluent water, which is designed to prevent PCBs, dioxins, and viruses from being discharged into wild habitats. Effluent is treated prior to reaching the Ocean Discharge site via onsite wastewater infrastructure, including a moving bed biofilm reactor, a membrane bioreactor, and UV-C sterilization that would eliminate bacteria from discharge. The effluent would also be treated using 300 mJ/cm² disinfection and treated using 0.04-micron ultrafiltration MBRs. These processes are referenced in DEIR Appendix D (Marine Resources Biological Evaluation), Section 4.3 (Offshore Effluent Discharge Evaluation), starting on page 10 and 11.
- Loss of marine diversity – This concern is discussed in substantial detail in responses to comments below, specifically response to comment 679-4, 679-16, 679-17, 679-18, 679-20, 679-25, 679-29, and 679-30.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-3 – Seawater Intakes and Effluent

The comment is concerned with Humboldt Bay biomass and effluent dispersal. Information on prey biomass removal from Humboldt Bay associated with the proposed intakes is discussed in Section 3.3 of the DEIR (Biological Resources) and is detailed in DEIR Appendix P (Teneral Final Report) and DEIR Appendix Q (Tenera Addendum).

Information on effluent discharged into the Pacific Ocean is discussed in the DEIR in Section 3.3 (Biological Resources) and Section 3.9 (Hydrology and Water Quality) and is detailed in DEIR Appendix D (Marine Resources Biological Evaluation) and DEIR Appendix E (Numerical Modelling Report).

Please see Master Response 7 (Intake Biologic Productivity, Intake Salmonids) with information on Humboldt Bay biomass removal and Master Response 5 (Marine Outfall) for information on the proposed effluent discharge.

This comment does not provide substantial evidence, so please also see Master Response 8, substantial evidence, speculation, and unsubstantiated opinion. No further analysis is necessary, or revisions to the DEIR are required to be made, specific to this comment.

Response to Comment 679-4 – Impacts to Marine Fisheries

This comment is introductory in nature and expresses concern that the impact of marine fisheries has been downplayed by not adequately considering toxic chemicals, exposure to viruses, habitat loss, thermal pollution, and domoic acid production. These issues are also addressed in greater detail in other comments throughout Letter 679.

In Section 2 (Project Description), starting on page 2-41, the DEIR also describes the treatment of the effluent water, which is designed to prevent viruses from being discharged into marine fisheries habitat. Please see Master Response 4 for additional information regarding Project fish health and biosecurity. As stated in Section 3 (Hydrology and Water Quality) on page 3.9-19, the Project would employ a high level of water treatment in the facilities recirculating aquaculture systems. Approximately 99% of the water that is recirculated through aquaculture systems would be reused. The remaining 1% is sent to the facilities wastewater treatment plant that includes a moving bed biofilm reactor, a membrane bioreactor, and UV-C sterilization that would eliminate bacteria from discharge. The effluent would also be treated using 300 mJ/cm² disinfection and using 0.04-micron ultrafiltration MBRs. These processes are referenced in DEIR Appendix D (Marine Resources Biological Evaluation), Section 4.3 (Offshore Effluent Discharge Evaluation), starting on page 10 and 11.

The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on ESA-listed Salmon and their designated critical habitat, Pacific Coast Salmon EFH, Coastal Pelagic Species EFH, as well as commercial and recreational fish species, in Section 3.3 (Biological Resources, Ocean Discharge), starting on pages 3.3-33 and 3.3-36, and Humboldt Bay Water Intakes, starting on page 3.3-50. The Ocean Discharge would not result in significant adverse impacts to coastal habitat or marine fisheries resources because of limited spatial area and organic loading.

The three-dimensional hydrodynamic models that define the spatial extent of the zone of water quality degradation show how quickly and vastly effluent is dispersed, confirming that the risk of deleterious water quality impacts is 'very low' and thus unlikely to threaten marine resources in the highly dynamic coastal waters potentially affected by the Project. A description of these models and simulated dilutions are found DEIR Appendix E, Section 6.8.1 (Defining the Zone of Potential Water Quality Degradation), starting on page 26.

The limited thermal pollution and organic loading detailed in the Numerical modeling (DEIR Appendix E) also suggests that the environment is not suitable to support high phytoplankton biomass nor domoic acid production. Please see Master Response 5 for additional information regarding marine outfall, and Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for information regarding the Humboldt Bay Water Intakes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-5 – Energy

This comment identifies that 39.8 MW annual energy demand is identified as the Project's full buildout energy consumption, that 22.3 MW is the energy demand utilized in the DEIR's energy analysis, and requests clarification about the Project's energy demand. Please see response to Comment 679-22. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-6 – Monitoring and Viruses and Pathogens

The comment expresses concern that the DEIR does not assess the potential risks of viral and bacterial pathogens to enter and exit the Project. Requirements for pathogen screening and regulatory fish health inspections would be determined by CDFW. Please see Master Response 9, level of detail in an EIR and response to comments. CDFW requires an evaluation of disease risk for reviewing new species for aquaculture, aquaculture license applications, and for importation/transfer permits. This includes a risk analysis for transmission of pathogens into the environment. NAFC has submitted their Aquaculture Registration Application and Risk Evaluation for Atlantic salmon to CDFW Aquaculture Program and is currently awaiting next steps with them.

Salmonid viruses are included in the CDFW list of significant, severe, and catastrophic pathogens of concern. See Master Response 4 (Fish Health and Biosecurity) for information regarding fish health inspections and pathogen monitoring. Information regarding waste discharge requirements and additional monitoring can be found in DEIR sections 2.3.1 (page 2-45) and 2.3.2 (page 2-47). NAFC effluent water treatment specifications see DEIR Project Description pages 2-41 and 2-42. See also Master Response 4 (Fish Health and Biosecurity) for information related to biosecurity measures to prevent transmission of pathogens to the environment.

The conclusions in Section 3.3 are based on multiple resources contained within the DEIR and examined against the regulations as described in subsections 3.3.3 (Regulatory Setting). Sections such as 3.3 do not rely on a single point of data to draw their conclusions but from all relevant sections of the DEIR such as the Project description under pages 2-24 through 2-25 where the water treatment is described. The potential for pathogens (including viruses) to enter the marine environment is specifically addressed on page 3.9-10. These considerations were taken into account in Section 3.3 Ocean Discharge Water Quality Related to Special Status Marine Life page 3.3-26. As such the risk of viruses in the effluent to wild salmonids has been fully analyzed and found to be less than significant with no mitigation is necessary. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-7 – Special Status Fish Determinations

This comment expresses the concern that the determinations for special status fish in summary Table 1-2 in the DEIR, Section 1 (Introduction and Summary) are unfounded. The DEIR evaluated effects of the Ocean Discharge on special status fish in Section 3.3 (Biological Resources), starting on pages 3.3-26, and 3.3-32 and in DEIR Appendix D (Marine Resources Biological Evaluation), Section 5.2.2 (Results, Marine Resources Evaluation Results, Special Status Specie Descriptions), starting on page 29. Based on analysis in the DEIR and DEIR Appendix D and E, the Ocean Discharge would not result in significant impacts to coastal habitat or marine resources based on the limited spatial area and organic loading, resulting in a low risk of adverse effects to marine species including EFH and critical habitat. The Humboldt Bay Water Intakes are specifically designed to meet NMFS screening criteria and avoid impingement or entrainment of juvenile salmonids. Please see Master Response 5 for additional information regarding the marine outfall, and Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for information regarding the Humboldt Bay Water Intakes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-8 – Viruses, biosecurity

This is a comment related to viruses and biosecurity measures in the facility

The comment states that the DEIR lacks a monitoring program of the fish for viral pathogens. A Fish Health Monitoring Plan (FHMP) would be developed in coordination with and approved by CDFW for this facility before it is stocked with fish. This is elaborated in the DEIR Project Description, Fish Welfare and Biosecurity subsection, on pages 2-33 through 2-37, and further described in Master Response 4 (Fish Health and Biosecurity). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

The comment expresses concern regarding viral load in the wastewater from fish processing. Wastewater from the processing facility is sent to the Project's wastewater treatment plant (WWTP). Treatment of discharge is addressed in Project Description Section on page 2-41 and illustrated in images 2-11, 2-11a, and 2011b. For further information regarding pathogen screening in effluent see Master Response 4 (Fish Health and Biosecurity). The UV dose has been quantified in the Project description under pages 2-24 through 2-25. For further information regarding pathogen sensitivity to UV dose please see Master Response 4.

The comment expresses concern with fish waste offtake of waste products from the facility. Please see Master Response 11 regarding the handling of fish waste handling and disposal.

The comment requests information pertaining to the source hatchery of eggs and expresses concerns about pathogen transfer from the source hatchery. Page 2-35 of the DEIR describes the source hatchery requirements for supplying eggs to the Project, and the importation requirements under CDFW. Please also refer to Master Response 4 (Fish Health and Biosecurity).

The comment requests that modern molecular testing techniques be used in a facility health monitoring program. Please see Master Response 4 (Fish Health and Biosecurity) for diagnostic methods applied in the Project's Farm Health Management Plan. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-9 – Transportation, Traffic

This comment requests additional information on the type of truck used, including size and payload in weight and volume, so that the total carbon footprint of Project operations can be calculated, and the total dry waste volume can be calculated. The truck type and payload information are not known at this time and is not required to evaluate the potential environmental impacts related to transportation and emissions. Section 3.7 of the DEIR discusses Greenhouse Gas Emissions and Section 4.12 discusses Transportation. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-10 – Fish Disease and Egg Importation

This comment is concerned about biosecurity, including egg importation. Please see Master Response 4 (Fish Health and Biosecurity) which specifically addresses these issues. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-11 – Energy

This comment requests additional information regarding the proposed upgrade to the existing electrical substation; specifically, the comment requests a description of the purpose and need for the upgrade of the substation. Please see Master Response 6 for statements unrelated to environmental issues as defined

under CEQA. As disclosed in DEIR Section 2, Project Description, on page 2-11, the total capacity of the switchyard will be expanded to accommodate NAFC's peak capacity in future operations. Additionally, the DEIR Project Description provides that the substation upgrades include modernization of the substation. Language regarding the use of the electrical substation has been adjusted to clarify that 5 megawatts of the expanded capacity will be dedicated to future Harbor District uses. Please see Section 4.1.3 of the Errata for updated language. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-12 – Feed

The comment states that medications, if used in feed, can leach from feed, become soluble and release through effluent water and impact the surrounding waters. The comment does not provide supporting evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). For further information regarding impacts associated with medicine use, please see Master Response 4 (Fish Health and Biosecurity).

The comment states that pathogens and medication, if used in feed, can be released to the environment from composting uneaten pellets, but offers no supporting evidence. Please see Master Response 8 regarding substantial evidence, speculation, and unsubstantiated evidence. Composting has been shown to effectively reduce contaminants from soils including pharmaceuticals to undetectable levels, and the temperatures reached during composting is effective to kill pathogens associated with salmon farming. Please see Master Response 4 (Fish Health and Biosecurity) regarding impacts associated with antibiotics.

The comment states there are no sources of non-GMO soy, corn, or canola oil in North America where the Project's feed is likely to be sourced. Analysis of raw material market for domestic feed inclusion is unrelated to CEQA. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA.

The US agriculture crop production for soy and corn is not 100% genetically modified. For example, over 4 million acres of non-GMO soybeans were planted in the US in 2021, and the same is expected for 2022. As stated in the DEIR page 2-38, NAFC would avoid the use of GMO ingredients in feed. In cases where feed is designated as non-GMO, it would require the feed manufacturer to certify and provide traceability that vegetable materials used in feed are not from genetically modified crops. Typically, such attestation states that adventitious DNA or protein must be less than 1% in the finished feed.

The comment is concerned that feed would contain Glyphosate at unsafe levels and the Project should test for Glyphosate in effluent waters. This is an unsubstantiate and speculative comment. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

NAFC's discharge will be regulated by the National Pollution Discharge Elimination System (NPDES) order No. R1-2021-0026 administered by the NCRWQCB. Accordingly, NAFC is not required to monitor Glyphosate in the effluent. For effluent monitoring requirements see DEIR Section 2.3.1 (Summary of NPDES Requirements), and Section 2.3.2 (Additional Monitoring to be Completed by the Applicant).

Regarding Glyphosate, the FDA performs annual sampling of corn, soybeans, milk and eggs to monitor pesticides residuals in crops. Since the start of the program in 2016 and through 2019 (latest report), no Glyphosate residuals were found above the tolerances established by EPA. As part of this action, the EPA continues to find that there are no risks of concern to human health and the environment for Glyphosate when used according to label directions. The Project would continue to monitor the FDA and EPA regulations surrounding Glyphosate. The Project would consult with their feed manufacturer to assess their

quality assurance program targeting Glyphosate and may decide to implement periodic sampling for this compound in the company's Product Quality Management Program.

The comment requests that insect meals be used in the Project's feed. NAFC agrees that insects can provide a useful raw material for feed formulation and will be one solution towards feeds less dependent on marine proteins. Today, these materials are still at minor inclusion levels in feed but do and will continue to improve the overall sustainability footprint of the feeds. There are over 30 companies worldwide currently pioneering insect research and production scale-up to increase the volumes of insect proteins available to the feed industry. By the time the Project is ready for feeding, insect ingredients could become an important component of the formulation.

The comment references an infographic used during public presentations by the Project. The Figure served as an example of the various, broad selection of raw materials that can be incorporated into salmon feed. This Figure is not part of the DEIR. NAFC has not made a final decision on feed supplier or feed formulation (See Master Response 10).

NAFC has established criteria that will guide the selection of their feed profile. While NAFC have not included the use of animal byproduct such as poultry in the guidance, it did highlight in public information sessions that poultry byproduct is a viable ingredient used in salmon feed to achieve greater sustainability by reducing the dependency on marine derived materials and by capturing viable ingredients from the circular economy to reduce GHG/carbon emissions.

The comment expresses concern that the use of poultry by-products in feed can pose a risk to human health through development of antibiotic resistant *E. coli* and *Staph aureus*. For information concerning feed safety please see Master Comment 10. NAFC has not included poultry by-products in their feed guidance (DEIR page 2-38).

With regard to regarding animal by products rendering of animal byproducts is regulated by the USDA and requires specific cooking temperatures and time (approximately 115-145 °C [239-293 °F] for 40-90 minutes) to kill foodborne pathogenic microorganisms. Feed manufacturers sourcing materials from rendering facilities require traceability, USDA and HACCP certification, and QA program to monitor for cross-contamination post-rendering. When integrated to aquaculture feed, these byproduct raw materials are again extruded at high temperature and pressure to kill microorganisms. The combination of byproduct rendering followed by feed extrusion would make it highly unlikely for viable antibiotic resistant bacteria to transfer from poultry farm to the natural marine environment via aquaculture feed.

The comment requests that the FEIR require a commitment from the Project to not use poultry by-products in feed formulation as well as include a monitoring program for antibiotic-resistant bacteria. While the Project has left out the use of animal by-products from the feed guidance listed on page 2-37-38, it would be inappropriate to commit to an exclusion of these materials from feed formulations that will be decided on several years in the future. Rendered animal proteins and fats have been used in aquaculture feeds for decades and have the potential to greatly improve the sustainability of fish feeds. These materials are sustainable, safe and offer digestible proteins, digestible energy, bioavailable essential amino acids, fatty acids, and minerals required by salmon.

The comment posits that antibiotic resistance in RAS is an emerging problem and references a study by Lui et al 2020 as supporting evidence. It would be inappropriate to make inferences about the Project's technology based on the study by Liu (2020). The rudimentary system utilized in the study hardly deploys the level of RAS design, engineering and equipment technology demonstrated by the Project. The RAS system used by Liu (2020) added a volume of untreated seawater of 5% total volume per day directly into culture tanks (not RAS filtration). The RAS system itself was comprised of one 500 µm sieve screen, a UV

disinfection unit of only 40 mJ/cm² and ozone and the UV and ozone were only turned on for just six hours per day. While there is no doubt that antibiotic resistant genes are being passed around by bacterial communities within this particular RAS, their inference that feed is a source of contamination to the RAS is not supported by the evidence generated from the study design. The feed is sampled only after it has been sitting underwater in the tank amongst feces, and the feed itself is not tested prior to entering the RAS. The study provides no details about how the feed was manufactured, ingredient source, and post-manufacturing handling or storage. This is an uncontrolled study and is a mere snapshot into the microbiome of a contaminated system highly influenced by the natural environment of seawater at their location, which could quite possibly be the source of antibiotic resistant bacteria being amplified in their system.

As discussed on pages 2-24 and 2-25 in the DEIR and in Master Response 4 (Fish Health and Biosecurity) the Project would use ultrafiltration and high dose UV to remove bacteria from water both at the intake and at the effluent, thereby more than significantly reducing the risk of antibiotic resistant bacteria contaminating the farm or exiting if they were to develop within the farm. Within the farm, each individual RAS system deploys UV along with water microfiltration and ozone to control bacteria levels within the RAS unit.

The comment is concerned with the risk of transmission of salmonid pathogens using fish byproduct trimmings in feed formulation. Fish meal derived from trimming, such as by-product from human consumption fisheries, undergoes thermal treatment during processing to eradicate any pathogens that may be associated with the materials. Furthermore, when making fish feed, the ingredient is again treated by the extrusion process that pasteurizes at temperatures as high as 110 °C (230 °F) under high pressure sufficient to kill indicator organisms such as *Salmonella* sp., *E. coli*, and *Staphylococcus* species. Lastly, fisheries by-product meal intended for salmon feed are not composed of fish species that are possible hosts for significant salmonid pathogens. Cannibalism is widely considered a health risk to the cannibal, for instance Bovine Spongiform Encephalopathy (mad cow disease). NAF does not currently and will not use salmon by-products in salmon feed.

The comment is concerned about contaminants in feed particularly rat poison, ethoxyquin, dioxins, PCBs, organochlorine pesticides, PBDEs and mercury. See Master Response 10 regarding fish feed safety. Undesirable substances including arsenic, cadmium, lead, mercury, Dioxins, Furans, Dioxin-like PCBs are routinely monitored in feed ingredients and finished feeds. Standards are in place by the FDA that set limits for these substances in animal feed. As stated on page 2-37 of the DEIR, NFAC would have its own quality assurance program monitoring contaminants in feed providing triple redundancy in QA programs through the value chain (ingredient supplier, feed supplier, and NAF program). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-13 – Water Intakes

The comment states that analysis related to water intake entrainment and impingement is only for mobile species. This is not accurate. The DEIR assesses effects to planktonic species (see Section 3.3.6, Pages 3.3-50 to 3.3-52) that are not mobile. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 679-14 – Water Intakes

The comment states that no analysis of loss of prey biomass for threatened species; impact of loss invertebrate biomass on fishes and the estuarine environment; impact of Dungeness crab entrainment. The empirical transport modelling conducted for the effects analysis (see DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53 and DEIR Appendix P) found that only a small proportion of bay water and therefore larvae would be

removed from the system. Also, as described in DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53, larvae entrainment would not result in a substantial decrease in marine populations that could be detected over natural variability. This includes for prey species. See Master Response 7 (Intake Biologic Productivity, Intake Salmonids) regarding impacts to Dungeness Crab. Please also see Master Responses 8 and 9 regarding substantial evidence, speculation, and unsubstantiated opinion, and level of detail in an EIR and response to comments. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-15 – Water Quality Impacts

This comment expresses the concern that the study area was inappropriate for addressing biological effects of the Ocean Discharge on the Samoa State Marine Conservation Area (SSMCA), while the study area for the Humboldt Bay Water Intakes included Humboldt Bay.

The DEIR addressed the rationale for the area of analysis. First, the Marine Resource Biological Evaluation Report (DEIR Appendix D) Project Study Boundary for the Ocean Discharge was based on the zone of potential water quality degradation identified in the Numerical Modeling Report (DEIR Appendix E), Section 6.9.2 (Zone of Potential Water Quality Degradation), starting on page 28. The SSMCA is approximately 4 miles north of the Ocean Discharge, referenced in Section 3.3 (Biological Resources), starting on page 3.3-59), and beyond the zone of potential water quality degradation analyzed in DEIR Appendix D.

The Humboldt Bay Water Intakes are located in a highly dynamic, narrow, dredged channel, with complex flows from Arcata Bay, the Main Channel, the Entrance Channel and potentially the South Bay, which were included in the model (Tenera Environmental 2021a, as cited in Section 3.3, (Biological Resources), starting on page 3.3-46). The proportion of water pumped at the Humboldt Bay Water Intakes is low compared to the volume exchanged in the bay over a tidal cycle, referenced in Section 3.3 (Biological Resources), starting on page 3.3-52.

Suspended solids and nitrogen included in the treated effluent discharge are well within the bounds of the draft NPDES order from the NCRWQCB and would not cause a conflict with the regulatory guidelines established in the California Ocean Plan or California Thermal Plan.

Additionally, as noted on page 3.9-20 of the DEIR (Hydrology and Water Quality Evaluation of Potential Impacts to Humboldt Bay from Effluent Discharge), the Project's discharge in the Pacific Ocean will not enter Humboldt Bay. The dilution target of 200-fold for water quality degradation is not predicted to enter Humboldt Bay as described in Sections 6.9.2 and 6.10.2 of DEIR Appendix E. Thus, there is no potential for treatment chemicals to impact macroalgae or eelgrass beds in Humboldt Bay. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale, and thus unlikely to result in significant impacts to kelp and other marine resources in the highly dynamic coastal waters potentially affected by the Project, or in Humboldt Bay (analyzed in Section 3.3, Biological Resources), starting on page 3.3-26.

Please see Master Response 5 for additional information regarding marine outfall, and Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for information regarding the Humboldt Bay Water Intakes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-16 – Take Under ESA and Food Web

This comment includes concerns about Endangered Species Act review, potential for take of ESA listed salmonids and green sturgeon, and effect on the food web in Humboldt Bay.

The NAFC terrestrial development and discharge of treated effluent do not trigger a federal permit, such as a US Army Corps of Engineers (USACE) Section 404 or Section 10 permit. The terrestrial development does not impact any regulated wetlands or waters, and the discharge of treated effluent occurs outside the jurisdiction of the USACE. Therefore, review of those Project components under the federal Endangered Species Act (ESA) is not required. The Harbor District's upgrades to the Humboldt Bay Water Intakes do trigger a USACE Section 10 permit. Thus, consultation with NOAA Fisheries/National Marine Fisheries Service (NMFS) under Section 7 of the ESA is required for that Project component. The Harbor District has submitted a Biological Assessment to NOAA Fisheries/NMFS, which remains under review. Potential impacts to federally listed species potentially affected by were evaluated in DEIR Section 3.3 (Biological Resources) and found to be less than significant.

The DEIR considers how the Project would affect the food web and employs compensatory off-site restoration and mitigation inside Humboldt Bay by addressing the effects of the Humboldt Bay Water Intakes on impacts to EFH per DEIR Section 3.3 (Biological Resources), starting on pages 3.3-50 and 3.3-61.

The location of the Humboldt Bay Water Intakes is subject to strong tidal currents both on flood and ebb tides, and the intake volume is relatively low in comparison to the exchange rate in Humboldt Bay. The Humboldt Bay Water Intakes would be screened with a slot size of 1.00 mm with a minimum open area across the screen of 36%, and a manifold system inside the screen modules to equalize pressure across the entire screen surface, as described in Section 3.3.3 (Biological Resources, Regulatory Setting), starting on page 3.3-47 and Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. These design features result in a low approach velocity of 0.2 fps (6 centimeters per second) to avoid impacts to most fish species, and their larvae. Additionally, the Project includes off-site compensatory restoration to account for any potential impacts to biological productivity in Humboldt Bay.

The location of the Offshore Discharge is approximately 1.55 miles offshore of the peninsula and approximately 3.5 miles north of the entrance to Humboldt Bay, as shown in Figures 2-1 and 2-2 referenced in Section 2.0 (Project Description). The Ocean Discharge would not result in significant adverse impacts because of limited spatial area and organic loading, thus posing no threat to the food web inside Humboldt Bay. Refer to Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for further information on intakes and Master Response 5 for further information on marine outfall.

The DEIR does consider that nitrogen loading from Project effluent may impact local fisheries. As stated in Section 2 (Project Description), starting on page 2-41 and Section 3 (Biological Resources), starting on page 3.10-19, the Project would employ a high level of water treatment in the facilities recirculating aquaculture systems (RAS). The RAS systems include both aerobic and anaerobic biological treatments for breaking down ammonia to less harmful nitrite. That nitrite is further broken down to even less harmful nitrate. Lastly the denitrification process breaks down nitrate into nitrogen gas, removing approximately 90% of total nitrogen from the water. The 1% of water that is not recirculated through the aquaculture system is sent to the facilities wastewater treatment plant where additional nitrogen removal steps would be employed. This 1% of water released at the Ocean Discharge site is rapidly dispersed and diluted, and Numeric modeling (DEIR Appendix E) clearly demonstrated that elevated levels of nutrients are limited in spatial scales.

Please see Master Response 5 for additional information regarding nitrogen in the marine outfall. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-17 – Marine Organisms in Humboldt Bay

This comment requests a list of organisms in the vicinity of the Humboldt Bay Water Intakes to be drafted in the same way a list of organisms was drafted for presence in the vicinity of the Ocean Discharge site. The species likely to be in Humboldt Bay are described in Section 3.3, Biological Resources, starting on page 3.3-45. The location of the Humboldt Bay Water Intakes is subject to strong tidal currents both on flood and ebb tides, and the intake volume is relatively low in comparison to the exchange rate in Humboldt Bay. Water withdrawals are not expected to alter the organisms within the vicinity of the Humboldt Bay Water Intakes. The Humboldt Bay Water Intakes also adds features to modernize and meet applicable design for fish screens, discussed in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. They would be screened with a slot size of 1.00 mm with a minimum open area across the screen of 36%, and a manifold system inside the screen modules to equalize pressure across the entire screen surface as described in Section 3.3.3 (Biological Resources, Regulatory Setting), starting on page 3.3-47 and Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. These design features result in a low approach velocity of 0.2 fps (6 centimeters per second) to avoid impacts to most species. The intake screens meet the design criteria assuming the presence of fish and invertebrates, including anadromous salmonid fry and juvenile longfin smelt, outlined in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. Additionally, the Project includes off-site compensatory restoration to account for any potential impacts to biological productivity in Humboldt Bay. Refer to Master Response 7 (Intake Biologic Productivity, Intake Salmonids) for further details related to the Humboldt Bay Water Intakes. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-18 – Biological Resources and Additional Mitigation

This comment expresses concern over the DEIR stating that impacts to ESA-listed coho salmon, Chinook salmon, steelhead, and green sturgeon are less than significant. The comment notes the less than significant determination is incorrect but provides no evidence to that point. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

The comment requests mitigation efforts related to threats to salmonids and loss of ecosystem function, water quality degradation, and domoic acid production in Humboldt Bay. The DEIR evaluates effects of the Ocean Discharge on ESA-listed salmonids, their designated critical habitat, and Pacific Coast Salmon EFH in Section 3.3 (Biological Resources), starting on page 3.3-35 and DEIR Appendix D (Marine Resources Biological Evaluation Report) Section 5 (Results) starting on page 13. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale and thus unlikely to 1) contribute to negative effects to salmonids in the highly dynamic coastal waters potentially affected by the Project and 2) contribute to high phytoplankton biomass and domoic acid production. All impacts were found to be less than significant. CEQA does not require mitigation unless an impact is found to be potentially significant.

The DEIR includes details on the Humboldt Bay Water Intakes. The Humboldt Bay Water Intakes are specifically designed to meet NMFS screening criteria and avoid impingement or entrainment of juvenile salmonids and have relatively low volume in comparison to the exchange rate of Humboldt Bay, all of which are discussed in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. Because of the low volume of the intakes compared to the exchange rate of Humboldt Bay, the intakes would not significantly alter planktonic invertebrate biomass and would not threaten the ESA-listed species that forage in Humboldt Bay.

The Humboldt Bay Water Intakes specifically included features to modernize fish screens, discussed in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. The screens would have a slot size of 1.00 mm with a minimum open area across the screen of 36% as described in Section 3.3.3 (Biological Resources, Regulatory Setting), starting on page 3.3-47 and Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. These features result in a low approach velocity of 0.2 fps (6 centimeters per second) to avoid impacts to most fish species and meet the design criteria assuming the presence of fish and invertebrates, and their larvae, outlined in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. Section 3.3 (Biological Resources) found significant impacts to special status fish species would not result from the Project. As an exception, Mitigation Measure BIO-6a was incorporated into the Project to require mitigation for potential Longfin Smelt impacts (see Section 4 – Errata). Additionally, the Project includes off-site compensatory restoration to account for any potential impacts to biological productivity in Humboldt Bay. CEQA does not require mitigation unless an impact is found to be potentially significant. Thus, mitigation for species in addition to Longfin Smelt is not required, as impact analysis in the DEIR did not conclude additional species would be significantly impacted by the Project.

Please see Master Response 4 for additional information regarding Project fish health and biosecurity, Master Response 5 for additional information on marine outfall, and Master Response 7 for additional information on intake biologic productivity and intake salmonids. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-19 – Virus Introduction and Toxic Algae Blooms

This comment expresses concern about the Ocean Discharge effects on salmonids and other marine life. The DEIR addresses the issue of biosecurity in Section 2 (Project Description), starting on page 2-41, describing the treatment of the effluent water, which includes a filtration system with built in redundancy. It is designed to prevent contaminants, bacteria, and viruses from being discharged into wild salmonid habitats. *C. shasta* occurs in freshwater habitats and is not affected by the Project, which involves only marine habitats. Please see Master Response 4 for additional information regarding Project fish health and biosecurity.

The comments on salmonid smolts utilizing marine currents to facilitate migration and therefore affecting their exposure is speculative. No evidence has been provided. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). The DEIR analyses adult and juvenile salmonids in their ocean behavior in Section 3.3. Biological Resources, starting on page 3.3-32.

This comment is addressing a number of concerns regarding chemicals present in the treated effluent discharge, specific to impacts to macroalgae/kelp species. The comment offers no substantial evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). This comment submitted a similar comment under Comment Letter 517, comment 4. Please see response to comment 517-4. Additionally, as noted on page 3.9-20 of the DEIR (Hydrology and Water Quality Evaluation of Potential Impacts to Humboldt Bay from Effluent Discharge), the Project's discharge in the Pacific Ocean will not enter Humboldt Bay. The dilution target of 200-fold for water quality degradation is not predicted to enter Humboldt Bay as described in Sections 6.9.2 and 6.10.2 of DEIR Appendix E. Thus, there is no potential for treatment chemicals to impact macroalgae or eelgrass beds in Humboldt Bay. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale, and thus unlikely to result in significant impacts to kelp and other marine resources in the highly dynamic coastal waters potentially affected by the Project, or in Humboldt Bay (analyzed in Section 3.3, Biological Resources), starting on page 3.3-26.

There is minimal risk of nitrogen loading and thermal pollution from the effluent at the Ocean Discharge site contributing to domoic acid producing blooms. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale and are dispersed at rates that would not support high phytoplankton biomass nor domoic acid production. The nitrogen loading itself is also limited because the Project would employ a high level of water treatment in the facilities to remove approximately 90% of the total nitrogen from the water prior to discharge, as stated in Section 2 (Project Description), starting on page 2-41 and Section 3 (Biological Resources), starting on page 3.10-19.

Please see Master Response 5 (Marine Outfall) which addresses BEAUTI, HABS, domoic acid, and related concerns. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-20 – Biological Resources

This comment expresses concern over potential loss of prey biomass for listed salmonids from the Humboldt Bay Intakes and dioxin, PCB, and ammonia from the Ocean Discharge site yet provides no evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

The DEIR addressed effects of the Humboldt Bay Water Intakes on impacts to marine resources in close proximity to the Humboldt Bay Water Intakes, including EFH, in Section 3.3 (Biological Resources), starting on page 3.3-50, and 3.3-61. The Humboldt Bay Water Intakes would not cause populations of prey species, including larval stages of Coastal Pelagic Species, to fall below self-sustaining levels or otherwise eliminate such species.

Entrainment from the proposed project's intake would not result in a substantial decrease in marine populations that could be detected over natural variability. Impingement of organisms would be avoided with the low intake velocity relative to the high exchange rate of Humboldt Bay, and screen design proposed. The description of how the Humboldt Bay Water Intakes is specifically designed to meet NMFS screening, is discussed in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52, and thus would not impact marine resources within the vicinity.

The location of the intake is subject to strong tidal currents both on flood and ebb tides, and the intake volume is relatively low in comparison to the exchange rate in Humboldt Bay. The Humboldt Bay Water Intakes also add features to modernize and meet applicable design for fish screens, discussed in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), page 2-52. The water intakes would be screened with a slot size of 1.00 mm with a minimum open area across the screen of 36%, and a manifold system inside the screen modules to equalize pressure across the entire screen surface as described in Section 3.3.3 (Biological Resources, Regulatory Setting), page 3.3-47 and Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), page 2-52. These design features result in a low approach velocity of 0.2 fps (6 centimeters per second) to avoid impacts to most fish species.

The intake screens meet the design criteria assuming the presence of fish and invertebrates, including anadromous salmonid fry and juvenile longfin smelt, outlined in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), page 2-52. It is therefore not expected for the Humboldt Bay Intakes to alter planktonic invertebrate biomass and would not threaten the ESA-listed species that forage in Humboldt Bay. Refer to Master Response 7 for additional detail on Humboldt Bay Water intakes biologic productivity and intake salmonids.

The DEIR also evaluated effects of the Ocean Discharge on EFH in Section 3.3 (Biological Resources), starting on page 3.3-35. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated levels

of temperature and nutrients, including ammonia loading, are limited in spatial scale and thus unlikely to threaten marine resources and special status fishes in the highly dynamic coastal waters. The Project would also employ a high level of water treatment in the facilities recirculating aquaculture systems (RAS), as stated in Section 2 (Project Description), starting on page 2-41 and Section 3 (Biological Resources), starting on page 3.10-19. The RAS systems include both aerobic and anaerobic biological treatments for breaking down ammonia to less harmful nitrite. That nitrite is further broken down to even less harmful nitrate, and then denitrified into nitrogen gas, removing approximately 90% of total nitrogen from the water. Refer to Master Response 5 (Marine Outfall) for additional detail on the ocean discharge.

The DEIR addresses the issue of biosecurity in Section 2 (Project Description), starting on page 2-41 describing the treatment of the effluent water, which is designed to prevent PCBs, dioxins, and viruses from being discharged into wild habitats. Effluent is treated prior to reaching the Ocean Discharge site via onsite wastewater infrastructure, including a moving bed biofilm reactor, a membrane bioreactor, and UV-C sterilization that would eliminate bacteria from discharge. The effluent would also be treated using 300 mJ/cm² disinfection and treated using 0.04-micron ultrafiltration MBRs. These processes are referenced in DEIR Appendix D (Marine Resources Biological Evaluation), Section 4.3 (Offshore Effluent Discharge Evaluation), starting on page 10 and 11.

The Humboldt Bay Water Intakes takes extra precautions to ensure dioxin and PCBs cannot enter the NAFC facility. The ultrafiltration, Ozonation, and 250 mJ/m² UV disinfection for its intake water would remove sediment, fine particles, parasites and inactive pathogens, referenced in DEIR Appendix D (Marine Resources Biological Evaluation), Section 4.3 (Offshore Effluent Discharge Evaluation), starting on page 10. Please refer to Master Response 4 regarding fish health and biosecurity.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-21 – Humboldt Bay Water Intakes

The comment states that the DEIR did not evaluate the impingement of smaller aquatic species, impacts to Dungeness crab zoeae. Impingement is addressed in DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53. Also see Master Response 7, Intake Biologic Productivity and Intake Salmonids.

The comment states that the DEIR should calculate biomass and prey-base removal. As described in DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53, larvae entrainment would not result in a substantial decrease in marine populations that could be detected over natural variability. This includes for prey species.

The comment states that the DEIR did not adequately assess impacts to planktonic species and related effects to the food web and aquatic species. Effects to planktonic species are assessed in the empirical transport model (DEIR Section 3.3.6, Pages 3.3-50 to 3.3-53 and DEIR Appendix P). In summary, larvae entrainment would not result in a substantial decrease in marine populations that could be detected over natural variability. Additionally, the proposed facility would only remove 0.14% of the volume of water moving through the channel over a tidal cycle. Also see Master Response 7 (Intake Biologic Productivity, Intake Salmonids).

See Master Response 7 (Intake Biologic Productivity, Intake Salmonids) with regards to impacts to Dungeness crab zoea. Please also see Master Responses 8 and 9 regarding substantial evidence, speculation, and unsubstantiated opinion, and level of detail in an EIR and response to comments.

This comment addresses concerns related to the Humboldt Bay Water Intakes and water sourced from the Mad River. Please see Master Response 7 (Intake Biologic Productivity, Intake Salmonids) which specifically addresses the Humboldt Bay Water Intakes.

As discussed on page 3.3-65 of Section 3.3 (Biological Resources), water supplied to the Project from the Humboldt Bay Municipal Water District is authorized under the following plans and permits, under which the Humboldt Bay Municipal Water District has allocated water rights to extract freshwater and supply to local customers:

- Humboldt Bay Municipal Water District 2021 Urban Water Management Plan (HBMWD 2021)
- Humboldt Bay Municipal Water District 2004 Habitat Conservation Plan (HBMWD 2004)
- Humboldt Bay Municipal Water District 2012 California Department of Fish and Wildlife Long-Term Lake and Streambed Alteration Agreement No. R1-2010-0093 (HBMWD 2012)

Additionally, the Humboldt Bay Municipal Water District operates under a Biological Opinion issued by NOAA Fisheries. The operations and withdrawal of water from the Mad River have already been vetted by appropriate regulatory agencies to ensure compliance with applicable state and federal lawmaking, thereby avoiding illegal impacts to waters and habitats of the Mad River.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 679-22 – Energy

This comment states the energy use stated in the DEIR is incorrect and makes their own calculations based on assumptions and information from the NAF project in Maine. The Project's annual electricity use based on the anticipated average demand is estimated to be 195 GWh per year at full build out. The earliest the Project would reach full production levels and energy use would be 2030. The rooftop solar installation is included in the total annual energy consumption number provided.

The comment compares the water use of the Samoa facility with the water use for the facility proposed in Maine and uses that incorrectly to make estimates of energy use for the Samoa facility. The comment states that additional water use in Samoa as compared to Maine will equate to additional energy use by the Project; however, the additional water in Samoa will allow for more energy efficient water to water cooling to be used and limiting more energy intensive air to water cooling.

Please see Master Response 2 (Greenhouse Gas and Energy). Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Please see Master Response 10 (Fish Feed). Please see Master Response 11 for clarification regarding waste handling and disposal.

The Facility Truck Traffic subsection of the Project Description on page 2-27 identifies weekly outgoing trucks. Table 3.12-4 Project and Existing with Project Traffic and Heavy Vehicles on page 3.12-14 of the Transportation section also lists these trucks as part of the cumulative traffic from the Project. GHGs are evaluated under section 3.7 of the DEIR including emissions for trucking. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-23 – Chemical Use

The comment on chemical use in the Project Facility and concern over potential discharge of harmful compound through the discharge. Please see page 3.9-18 of the DEIR to "All of the chemicals and compounds described below would be used in a manner to ensure they are fully consumed in its use and not discharged from the facility." Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-24 – Alternatives Analysis Energy, Emissions, Species, Environmental, Wildlife

This comment identifies the following three areas of concern with the analysis within DEIR Section 4 (Alternatives Description and Analysis): GHG impacts, biological risk to wild salmonids and marine habitat, and impacts to plankton and ichthyoplankton.

As provided in DEIR Section 4 (Alternatives Description and Analysis), the analysis is guided by CEQA Guidelines Section 15126.6. CEQA Guidelines provide that:

An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives.

Among alternatives to be evaluated, the CEQA Guidelines require a No Project Alternative be evaluated. Additionally, CEQA Guidelines Section 15126.6(d) state:

The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project.

The comment identifies the qualitative descriptions of the No Project Alternative's GHG and energy resource impacts relative to the Proposed Project from DEIR Section 4.3.1 (Alternative 1: No Project Alternative) starting on page 4-7. The DEIR No Project Alternative appropriately states:

The No Project Alternative would not result in any significant unmitigable impacts or eliminate any significant unmitigable impacts of the proposed Project, as none exist.

Additionally, the DEIR No Project analysis appropriately states that a No Project Alternative would not result in any construction or operational related air quality, GHG, and energy impacts on the Samoa Peninsula. The analysis further qualitatively describes the existing conditions of fresh fish import. The section provides a high-level comparison of the GHG and energy impacts of existing import conditions relative to what would occur under the Project. The Project's energy impacts were evaluated in DEIR Section 3.5 (Energy) and were found to be less than significant. The Project's GHG impacts were evaluated in DEIR Section 3.7 (Greenhouse Gas Emissions) and were found to be less than significant. Please see Master Response 2 (Greenhouse Gas and Energy) for additional information regarding NAFC's commitment to 100% renewable and/or non-carbon energy, the energy intensity factor applied, and GHG inventories. The GHG impact analysis for the Project, as contained in DEIR Section 3.7 uses correct and appropriate information. Please see Master Response 3, fish escape and Master Response 9 regarding standards of adequacy of an EIR. The evaluation of the No Project Alternative appropriately describes the No Project conditions for GHG emissions and energy.

The comment expresses concern regarding the comparative analysis for biological risk as presented in DEIR Table 4-2 and comparative risks presented in Table 4-3. This comment expresses concern regarding the Project's impacts to salmonids, critical habitat, and the marine ecosystem but offers no substantial evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). Please see Master Response 7 for information regarding the Humboldt Bay Water intake biologic productivity and salmonids. Please see also Response to Comment 510-9, Response to Comment 513-2, Response to Comment 514-4, and Response to Comments 517-13 for impacts to marine species and habitat. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-25 – Eulachon and Coho Salmon

This comment claims that the Project should include eulachon as a special status species with a potential to occur in the vicinity of the Project and calls for the Marine Resources Biological Report to consider the trophic relationship between Coho Salmon and Longfin Smelt. As indicated in DEIR Appendix C (Terrestrial Biological Resources Report), Section 5.3.2 (Wildlife Survey and Wildlife Habitat Evaluation Results, Special Status Wildlife), starting on page 16 in Table 5.1, there is no potential for eulachon to occur in the Project vicinity. Their southernmost spawning distribution is the Mad River. The Project thus does not interfere with their critical habitat, as they are not expected to be found near the Humboldt Bay Water Intakes nor the Ocean Discharge site. The Coho Salmon are considered in DEIR Appendix D (Marine Resources Biological Evaluation Report) as a listed species with 'high potential' to be in the Project vicinity, and longfin smelt 3.3-6.1. Please response to comment 679-16 for analysis pertaining to potential impacts to special status species connected with the food web. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additional mitigations are not necessary as the proposed measures described in the DEIR are comprehensive and appropriate.

Response to Comment 679-26 – Planktonic Invertebrates and Other Concerns

This comment expresses concerned the DEIR underemphasizes the importance of planktonic invertebrates in the marine ecosystem and overly relies on the swim away argument as a justification for less than significant impacts. Concerns related to planktonic invertebrates are addressed in comment 679-29 below. Impact analysis for marine organisms in the DEIR was based on much more than a swim away argument. Extensive modeling (DEIR Appendix E) was completed to demonstrate water quality near the diffuser will be compliant with the governing requirements in the California Ocean Plan and Thermal Plan. Thus, even if the fish and other marine species in question did not swim away from the diffuser, they would remain unharmed, as the water quality remains within acceptable levels regardless. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

The comment is concerned about the exclusion of Humboldt Bay from the DIER Appendix D (Marine Resources Biological Evaluation Report). The DEIR Appendix D focuses on the marine environment related to the treated effluent discharge only and does not include analysis specific to the Humboldt Bay water intakes. However, the DEIR addressed effects of the Humboldt Bay water intakes on potential impacts to marine resources in close proximity to the Humboldt Bay water intakes, including EFH, in Section 3.3 (Biological Resources), starting on page 3.3-50, and 3.3-61. The dilution target of 200-fold for water quality degradation is not predicted to enter Humboldt Bay as described in Sections 6.9.2 and 6.10.2 of DEIR Appendix E. Thus, there is no potential for the treated effluent discharge in the Pacific Ocean to affect Humboldt Bay.

Response to Comment 679-27 – Endangered Species Act

The comment is expressing concern that Section 7 of the Endangered Species Act is not a permitting process. The purpose of the introductory text is to indicate that review under Section 7 of the Endangered Species Act is a required regulatory process that is triggered by a federal action, including the requirement to obtain a federal permit. Applicability of Section 7 of the Endangered Species Act to the Project is specifically discussed in response to comment 679-16 above. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-28 – Ocean Effluent, Contaminants, and Fish Feed

This comment expresses concern over the Ocean Discharge effluent, specifically as it relates to effluent containing high viral loads, dioxins, and PCBs. It also expresses concern that the DEIR does not consider wave dynamics and oceanographic conditions in the effluent discharge evaluation. Numerical modeling (DEIR Appendix E) demonstrated that effluent loading is limited in spatial scale and thus unlikely to threaten marine resources in the highly dynamic coastal waters potentially affected by the Project. The DEIR also states that dilution and mixing would be greater than predicted because of tides, currents, stratification, and winds, which is stated in DEIR Appendix D (Marine Resources Biological Evaluation), Section 4.3 (Offshore Effluent Discharge Evaluation), starting on page 13. Thus, numerical modeling (DEIR Appendix E) is conservative when asserting that water quality impacts are very low, regardless of considering upwelling. Refer to Master Response 5 (Marine Outfall) further information on the treated effluent discharge, including the use of BEUTI.

The DEIR addresses the issue of biosecurity in Section 2 (Project Description), starting on page 2-41 describing the treatment of the effluent water, which is designed to prevent viruses from being discharged into wild habitats. Please see Master Response 4 regarding fish health and biosecurity and Master Response 10 (Fish Feed).

Effluent is treated prior to reaching the Ocean Discharge site via onsite wastewater infrastructure, including a moving bed biofilm reactor, a membrane bioreactor, and UV-C sterilization that would eliminate bacteria from discharge. The effluent would also be treated using 300 mJ/cm² disinfection and treated using 0.04-micron ultrafiltration MBRs. These processes are referenced in DEIR Appendix D (Marine Resources Biological Evaluation), Section 4.3 (Offshore Effluent Discharge Evaluation), starting on page 10 and 11. The Humboldt Bay Water Intakes takes extra precautions to ensure dioxin and PCBs cannot enter the NAFC facility. The ultrafiltration, Ozonation, and 250 mJ/m² UV disinfection for its intake water would remove sediment, fine particles, parasites and inactive pathogens, referenced in DEIR Appendix D (Marine Resources Biological Evaluation), Section 4.3 (Offshore Effluent Discharge Evaluation), starting on page 10. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-29 – Summary of General Biological Resources

This comment raises concern over the lack of evidence to adequately determine how the Humboldt Bay Water Intakes would impact the marine environment, specifically with regards to planktonic invertebrates. The locations of the Humboldt Bay Water Intakes are subject to strong tidal currents both on flood and ebb tides, and the intake volume is relatively low in comparison to the exchange rate in Humboldt Bay and is thus not expected to alter planktonic invertebrate biomass. The Humboldt Bay Water Intakes also add features to modernize and meet applicable design for fish screens, discussed in DEIR Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. They would be screened with a slot size of 1.00 mm with a minimum open area across the screen of 36%, and a manifold system inside the screen modules to equalize pressure across the entire screen surface as described in Section 3.3.3 (Biological Resources, Regulatory Setting), starting on page 3.3-47 and Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. These design features result in a low approach velocity of 0.2 fps (6 centimeters per second) to avoid impacts to most fish species. The intake screens meet the design criteria assuming the presence of fish and invertebrates, and their larvae, including anadromous salmonid fry and juvenile longfin smelt, outlined in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52. Refer to Master Response 7 for additional detail on

Humboldt Bay Water intake biologic productivity and intake salmonids. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

Response to Comment 679-30 – Marine Resource Evaluation Results

This comment raises multiple concerns, addressed individually below.

- Appendix D shortcomings

This comment expresses concern over the effect of Humboldt Bay Water Intakes and effluent associated with the Ocean Discharge on marine resources. DEIR Appendix D focuses on the marine environment related to the treated effluent discharge only and does not include analysis specific to the Humboldt Bay Water Intakes. However, the DEIR addressed effects of the Humboldt Bay Water Intakes on impacts to marine resources in close proximity to the Humboldt Bay Water Intakes, including EFH, in Section 3.3 (Biological Resources), starting on page 3.3-50, and 3.3-61.

- Impacts related to the Humboldt Bay Water Intakes

The Humboldt Bay Water Intakes would not cause populations of target species, including larval stages of Coastal Pelagic Species, to fall below self-sustaining levels or otherwise eliminate such species. Entrainment from the proposed project's intake would not result in a substantial decrease in marine populations that could be detected over natural variability. Impingement of organisms would be avoided with the low intake velocity and screen design proposed. The Humboldt Bay Water Intakes are specifically designed to meet NMFS screening, have relatively low volume in comparison to the exchange rate of Humboldt Bay, which is discussed in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), starting on page 2-52, and thus has minimal impact on marine resources within the vicinity.

- Impacts related to oyster farming

Oyster farming is not an environmental impact as defined by CEQA. Please see Master Response 6 regarding statements unrelated to environmental issues as defined under CEQA.

- Impacts to prey fish and larvae

The comment includes concern regarding entrainment of prey fish such as sculpin and sandlance, as well zoea and larvae. The location of the intake is subject to strong tidal currents both on flood and ebb tides, and the intake volume is relatively low in comparison to the exchange rate in Humboldt Bay. The Humboldt Bay Water Intakes also add features to modernize and meet applicable design for fish screens, discussed in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), page 2-52. They would be screened with a slot size of 1.00 mm with a minimum open area across the screen of 36%, and a manifold system inside the screen modules to equalize pressure across the entire screen surface as described in Section 3.3.3 (Biological Resources, Regulatory Setting), page 3.3-47 and Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), page 2-52. These design features result in a low approach velocity of 0.2 fps (6 centimeters per second) to avoid impacts to most fish species, including sculpin and sandlance. The intake screens meet the design criteria assuming the presence of fish and invertebrates, and their larvae, including anadromous salmonid fry and juvenile longfin smelt, outlined in Section 2.4.4 (Humboldt Water Intakes, Intake Design Conditions), page 2-52. The Humboldt Bay Intakes would therefore not significantly alter planktonic invertebrate biomass and would not threaten the ESA-listed species that forage in Humboldt Bay.

- Changes to Table 5.1 (in DEIR Appendix D)

DEIR Appendix D focuses on the marine environment related to the treated effluent discharge only and does not include analysis specific to the Humboldt Bay Water Intakes. However, the DEIR addressed effects of the Humboldt Bay Water Intakes on impacts to marine resources in close proximity to the Humboldt Bay Water Intakes, including Essential Fish Habitat, in Section 3.3 (Biological Resources), starting on page 3.3-50, and 3.3-61.

- Impacts to Green Sturgeon

Numerical modeling (DEIR Appendix E) demonstrates that elevated levels of temperature and nutrients are limited in spatial scale in the highly dynamic coastal waters in the vicinity of the Ocean Discharge site, and thus unlikely to cause significant adverse effects to designated critical habitat of Green Sturgeon. ESA consultation for Green Sturgeon is not required, as addressed above in response to comment 679-16.

- Impacts to Eulachon

This comment claims that the Project should include eulachon as a special status species in with potential to occur in the vicinity of the Project and calls for the Marine Resources Biological Report to consider the trophic relationship between Coho Salmon and Longfin Smelt. As indicated in DEIR Appendix C (Terrestrial Biological Resources Report), Section 5.3.2 (Wildlife Survey and Wildlife Habitat Evaluation Results, Special Status Wildlife), starting on page 16 in Table 5.1, there is no potential for eulachon to occur in the Project vicinity. Their southernmost spawning distribution is the Mad River. The Project thus does not interfere with their critical habitat, as they are not expected to be found near the Humboldt Bay Water Intakes nor the Ocean Discharge site. The Coho Salmon are considered in DEIR Appendix D (Marine Resources Biological Evaluation Report) as a listed species with 'high potential' to be in the Project vicinity, and longfin smelt 3.3-6.1.

- Impacts to juvenile and adult salmonids in Humboldt Bay; impacts to Humboldt Bay critical habitat for salmonids

The dilution target of 200-fold for water quality degradation is not predicted to enter Humboldt Bay as described in Sections 6.9.2 and 6.10.2 of DEIR Appendix E. Thus, there is no potential for treatment chemicals to impact macroalgae or eelgrass beds in Humboldt Bay. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of temperature and nutrients are limited in spatial scale, and thus unlikely to result in significant impacts to salmonids (smolts and adults), salmonid critical habitat, and other marine resources in the highly dynamic coastal waters potentially affected by the Project, or in Humboldt Bay (analyzed in Section 3.3, Biological Resources), starting on page 3.3-26.

- Food web concerns

Please response to comment 679-16 for analysis pertaining to potential impacts to special status species connected with the food web.

- Steelhead exposure to viruses

Please see Master Response 4 regarding fish health and biosecurity.

- Domoic acid

Please see Master Response 5 (Marine Outfall) which addresses the issue of domoic acid. Additionally, the DEIR evaluated effects of the ocean discharge on EFH in Section 3.3 (Biological Resources), starting on page 3.3-35. Numerical modeling (DEIR Appendix E) clearly demonstrated that elevated

levels of temperature and nutrients, including ammonia and nitrogen loading, are limited in spatial scale and thus unlikely to reduce prey availability and threaten marine resources in the highly dynamic coastal waters potentially affected by the Project or in EFH Conservation Areas. The Project would also employ a high level of water treatment in the facilities recirculating aquaculture systems (RAS), as stated in Section 2 (Project Description), starting on page 2-41 and Section 3 (Biological Resources), starting on page 3.10-19. The RAS systems include both aerobic and anaerobic biological treatments for breaking down ammonia to less harmful nitrite. That nitrite is further broken down to even less harmful nitrate, and then denitrified into nitrogen gas, removing approximately 90% of total nitrogen from the water. The limited spatial scale of thermal pollution and organic loading detailed in the numerical modeling (DEIR Appendix E) further suggests that the environment is not suitable to support high phytoplankton biomass nor domoic acid production. Discharge would occur approximately 1.55 miles offshore of the peninsula and approximately 3.5 miles north of the entrance to Humboldt Bay, as shown in Figures 2-1 and 2-2 referenced in Section 2.0 (Project Description). Thus, there is minimal risk of effluent supporting domoic acid production because the effluent 1) enters the Pacific Ocean at an Offshore Discharge site, and 2) is dispersed at a fast enough rate to avoid supporting increases in phytoplankton abundance outside of Humboldt Bay.

– Disagreement with impact determinations

The comment generally disagrees with impact determinations for marine resources, commercial species, and recreational species yet provides no evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion).

Refer to Master Response 7 for further information on the Humboldt Bay Water intake biologic productivity and intake salmonids and Master Response 5 (Marine Outfall) for further information on effluent from the ocean discharge. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Additionally, no additional mitigations are warranted.

Response to Comment 679-31 – Ocean Discharge and Wastewater Treatment

This comment addresses concerns regarding the predicted area of impact from the discharge of treated effluent through the ocean outfall and includes incorrect information about the effluent-affected area. The predicted spatial area of impact/effect. The three-dimensional hydrodynamic model simulates the region shown Section 6.2 of DEIR Appendix E, which comprises a north-south distance of greater than 40 miles and east-west distance of greater than 15 miles at the southern boundary to greater than 30 miles at the northern boundary. The area of impact is based on the predicted dilution to meet the water quality objective for water quality degradation as described in Section 3 of Appendix E.

The comment notes the DEIR does not address monitoring of wastewater treatment efficacy. While NAFC will operationally monitor and maintain their wastewater treatment facility, including biofilters, the regulatory standards, associated monitoring requirements, and effluent limits remain stable.

The comment states the DEIR does not include a plan for remediation or mitigation of the 0.04-micron filtration standard is not met. Master Response 5 (Marine Outfall) addresses the treated ocean discharge and specifically notes the DEIR has conservatively accounted for adaptive management specific to unanticipated water quality detrimental effects. On page 3.9-23 (Contingency Protocols for Water Quality Protection), the DEIR describes NAFC management actions that would be taken to address any unanticipated detrimental effects to marine water quality.

The comment also includes concerns related to the cumulative effects from upwelling on the nitrate levels yet provides no substantial evidence. Please see Master Response 8 (Substantial Evidence, Speculation, and Unsubstantiated Opinion). The use of Entrance Bay baseline data implicitly incorporates the effects of nitrate inputs from upwelling, as discussed in Master Response 5 (Marine outfall). The water quality objective expressed as the required dilution of the effluent in the receiving marine waters is based on the 80th percentile of background data (upper allowable limit of nutrient enrichment), the 50th percentile of background data (characteristic average nutrient concentrations) and the effluent concentration. The background dataset occurs over a multi-year period (2012-2015) and implicitly includes the effects of nutrient upwelling (and river inflow events) on the nearshore coastal nutrient climate.

Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment. Given the information discussed above, no additional mitigations are warranted.

Response to Comment 679-32 – Empirical Transport Model, DEIR Appendix P

Comment 679-32 focuses on the May 13, 2021, Tenera Environmental report titled “Empirical Transport Modeling of Potential Effects on Ichthyoplankton Due to Entrainment at the Proposed Samoa Peninsula Water Intakes” (DEIR Appendix P).

The first part of the comment questions the use of the Empirical Transport Model (ETM) in the Tenera Environmental report (DEIR Appendix P). The comment states that the ETM is misrepresented as empirical since it does not include direct observations on the biological organisms in the vicinity of the intake. Similar to DEIR Appendix P, the original formulation and example uses of the ETM by scientists with the US Fish and Wildlife Services (Boreman 1978, Boreman 1981) were based primarily on the hydrodynamics of the waterbody where an intake is located. The model examples in these publications were similar to the intended use of the ETM in DEIR Appendix P by focusing primarily on the hydrodynamics of the waterbody being affected. The example used in the original Boreman et al. papers was an intake on a river where water was continually transported past an intake. This is likely the reasoning behind the naming of the model.

The intended use of the ETM example in DEIR Appendix P was to provide approximate estimates of the intake losses to planktonic organisms using example organisms with a range of larval durations. The choice of organisms used in the report was based on the availability of data on lengths of fish larvae that could be used to estimate the larval durations used in the modeling. As no extensive data on larval fish lengths from Humboldt Bay were available, data from a study in San Francisco Bay were used. Section 5.2 Conclusions in Appendix P discusses the intended use and the assumptions of the model including the use of data from San Francisco Bay.

The next paragraph of Comment 679-32 focuses on impingement at the intake. These comments in this paragraph are addressed in the general response on Impingement.

The next several paragraphs of Comment 679-32 focus on the issue of impacts to other planktonic organisms including early stages of fish and invertebrate larvae that may be important components of the food chain for other groups such as birds. These parts of the comment are generally addressed by the responses on Entrainment of Planktonic Organisms and Entrainment of Dungeness Crab Larvae.

These sections of Comment 679-32 incorrectly state that the ETM does not include any consideration of other planktonic organisms, including egg and early life stages of fishes. The calculated larval durations used in the modeling in DEIR Appendix P include the full range of larvae subject to entrainment from the post-hatch yolk-sac to post-flexion larvae. The calculated larval durations used in the modelling also include

the estimated larval durations of egg stages for the species with planktonic eggs. Therefore, the ETM modeling in DEIR Appendix P fully accounts for all of the larval stages in the fishes included in the study.

These sections of Comment 679-32 also state that early zoeal stages of Dungeness Crab are not considered in the modeling. As pointed out in the general response on Entrainment of Dungeness Crab Larvae, the zoeal stages of Dungeness crab largely occur in offshore water. This distribution is supported in the study done by Berger et al. (Berger 2021).

The next several paragraphs of Comment 679-32 focus on the species selected for analysis in DEIR Appendix P and argue that fish species important as forage for salmon, steelhead and other species be included. The intake assessment study that was started in January will be used to determine impacts on a wider range of species using data collected in the vicinity of the intakes and at source water locations throughout Humboldt Bay. The results of the study can be used to estimate potential effects on fishes, such as sandlance, but only if the data on a species meets specific criteria for analysis. These criteria include having adequate estimates of abundance at the intake and source water locations over several surveys. Finally, even if adequate data are not available from the study for a species of concern, the final step in the assessment is the calculation of the APF from the estimates of impact from the ETM. The final APF is based on an average from estimate of impacts that should result in mitigation for a broad range of organisms including small planktonic organisms not included in the sampling.

Finally, the last paragraph of Comment 679-32 references a single paragraph in DEIR Appendix P that mentions eelgrass and oyster farming. This was only included in Section 2.0 of DEIR Appendix P that provides background on the resources and activities in Humboldt Bay. The report in DEIR Appendix P does not state that its purpose was to address impacts on oyster farming and impacts on oyster farming due to the intakes are not mentioned in the report.

Response to Comment 679-33 – Concluding Remarks

This is a concluding remark. Specific issues reiterated in this concluding remark are addressed in detail in response to comments 679-1 through 679-32, above. Given the information referenced above, no further analysis or modifications to the DEIR are proposed specific to this comment.

2.5. Individual Support Letters Received During Circulation

This section includes copies of the comment letters and e-mails received in support during the 60-day public review period for the DEIR from individuals. Responses to each comment are provided after each letter

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

701-1



Laura Lyster
2325 Ridgewood Drive
Eureka 95503

Response to Comment 702-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

702-1



Caleb Aguilar
2311 Lee Ln.
Eureka CA

Response to Comment 702-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

703-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

Rachel Aguiar
Rachel Aguiar

P. O. Box 9046 Eureka 95502



Response to Comment 703-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

704-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



James Ammon

207 Salyer 95563

530-739-3828

Response to Comment 704-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

705-1

Janet Arrington
2026 Mustang Ln
Arcata CA 95521



Response to Comment 705-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

706-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Brian Arrington

4A Fellman

Eureka Ca. 95503

Response to Comment 706-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

707-1



Gilbert Barff
2311 Lee Ln
Eureka Ca 95503

Response to Comment 707-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

708-1



MALCOLM BARKER.

3545 BARTLETT LANE,

FORTUNA, CA. 95540

Response to Comment 708-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

709-1



THOMAS D. BASLOPHEA

1305 BEL NOR RD.

McKinleyville CA 95519

Response to Comment 709-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

710-1



Kade Baskette

Kade Baskette

Kade Baskette

1723 Market St

Response to Comment 710-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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711-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



ZYAN BERTI

1705 BLUE JAY CT

FORTUNA, CA 95540

Response to Comment 711-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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712-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Kyle Brown
Kyle Brown
Electrician

Response to Comment 712-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

713-1



Aaron Burns

4951 Lyndblade dr

Eureka CA 95503

Response to Comment 713-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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714-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Adam Burns

4951 Lyndblade dr

Eureka, Ca 95503

Response to Comment 714-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

715-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

William Burns
William Burns
P.O. Box 3055 Eureka
95502



William Burns
P.O. Box 3055
Eureka, CA 95502

Response to Comment 715-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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716-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

Lars Burnside

1161 High St.

Fortuna, CA. 95540



Response to Comment 716-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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717-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Joel Byrns

4951 Lundblode dr

Eureka, CA. 95503

Response to Comment 717-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

718-1



Colleen Carper
1860 Park St Arcata
707-599-4311

Response to Comment 718-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

719-1



Ken Carper
1860 Park St Arcata
707 599-4312

Response to Comment 719-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

720-1

Peter Chapman
543 Rigby ave
Rio Dell, CA 95562



Response to Comment 720-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Les Charter <lcharter8@gmail.com>
Sent: Tuesday, February 15, 2022 7:45 AM
To: CEQAResponses
Subject: Support letter for Nordic Aquafarms
Attachments: Nordic Aquafarms support letter 2-15-22.pdf

Hi Cade,
Please accept the attached letter into the record.

Les Charter
(707) 496-0923

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street, Eureka, CA 95501
CEQAResponses@co.humboldt.ca.us
Support Letter for Nordic Aquafarms



This letter is to show support for the Nordic Aquafarms Project on the Samoa Peninsula at the old Pulp Mill. Nordic has expressed their desire to be as sustainable as they can and have shown this by selecting the location for their Aquafarm to be at the old Pulp Mill.

While it might seem like the Pulp Mill is not a good location for an Aquafarm, due to the amount of chemicals and toxic substances that were used when the Mill was operational, Nordic has completed many assessments on the soil and groundwater in the area. In the EIR they submitted, it was determined that existing contaminant levels from the Mill are low enough that it will not affect the project and has not infiltrated the groundwater. There are many agencies such as CalOSHA, CHP, and CalTrans that have laws/regulations in place for the handling and transportation of hazardous materials. Nordic has outlined the potential uses of these materials in their construction plan in the EIR and determined that they would be used in small quantities and would not be acutely hazardous. Also, many mitigation measures were outlined to ensure that there are Less than Significant impacts in regard to construction and hazardous materials transport.

Nordic Aquafarms has done extensive research into the existing soils and groundwater at the Samoa location, and into their own construction plan. They have found that with mitigation in place, there would be little to no impact from hazardous materials, and that they plan on following any regulations set forth by various agencies on the handling and transportation of these materials. I believe this project will not have a significant impact on welfare of the environment in or around the Aquafarm location on the Samoa Peninsula.

Sincerely,

Les Charter

PO Box 104

Samoa, CA 95564

721-1

Response to Comment 721-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

722-1



John Church
2918 HWY 36
Carlotto CA 95528

Response to Comment 722-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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723-1

Justin CLARY
P.O Box 21
Myers Flat CA
95554



Response to Comment 723-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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724-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

Mark Combs
25 Laurelwood Dr
McKinleyville CA
95519



Response to Comment 724-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

725-1



Ryan Cormier

Ryan Cormier

laborer 324

Response to Comment 725-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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726-1



Angie Craig
1143 K. Str. Eureka Apt 4
580-890-1099

Response to Comment 726-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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727-1



Tim Crowley Jr
ELK River Ct
Eureka CA 95821

Response to Comment 727-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Paula Crowley
Paula Crowley
4801 W END RD
Arcata, CA 95521

728-1

Response to Comment 728-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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A handwritten signature in blue ink, appearing to read "Tim Crowley".

Tim Crowley

4801 WEST END RD

Arcata CA 95521

729-1

Response to Comment 729-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

730-1

Annie Dougherty
2601 Copenhagen Rd.
Loleta, CA. 95551



Response to Comment 730-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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731-1



Scott Daugherty
2601 Copenhagen Rd
Lolita Ca. 95551

Response to Comment 731-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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732-1

Jessica Doyle
518 GAGLIFF
EUREKA 95503



Response to Comment 732-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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733-1

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William DOYLE
518 GAGLIFF
Eureka Ca. 95503



Response to Comment 733-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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734-1



Christopher Drop
987 SHEL DR. ARCATA CA 95521
707-444-3803

Response to Comment 734-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

735-1



Norman Dupret
[Signature]
386 Loleta Dr
Loleta 95551

Norman Dupret
386 Loleta Dr.
Loleta, CA. 95551

Response to Comment 735-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

736-1



Tom FAIRLS
131 Bellevue Ave
Rio Dell CA. 95562

Response to Comment 736-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

737-1



Rob Erickson
91 Ogle Ave.
Rio Dell Ca. 95962

Response to Comment 737-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

738-1



A handwritten signature in blue ink, appearing to read "Reid Fisher", written over a horizontal line.

Nob Hu Rd

Fortuna, CA

95840

Reid Fisher

Response to Comment 738-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Jon Flyer
1720 Table Bluff Road,
Loleta, CA 95551

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501

February 18, 2022

Dear County of Humboldt Planning and Building Department:

Please accept this letter to be included with the EIR for the Nordic Aquafarm project. This project is great for Humboldt County and fits in well with our coastal environment, access to water, and for the benefits it will have in our community and bay.

We need jobs, and this project is expected to create at least 150 positions at the facility alone, not to mention all of the other industries that will thrive because of this project. Construction, restaurants, schools, hair salons, etc., and a huge benefit to our tax base. The bay of Humboldt is perfect for this industry. I would personally much rather see this than a deep-water shipping port. Moreover, it will provide relief for our local wild fisheries, and increase the value of line caught fish.

There has been talk of this project requiring a large amount of power. What the critics don't mention is that they are installing solar panels, we have the potential of another wind farm, and they fail to mention the 300 million tons of dirty fuel that goes into shipping goods at sea from across the world to satisfy America's insatiable desire for cheap materials and food. This doesn't account for goods flown over on planes and the cost to the carbon footprint that air freight contributes. It is about time we start producing our products here, in our own backyard, rather than turning a blind eye to the cost of industry in some other land and pretending that we are living in a carbon free world. We need to start to take care of ourselves.

I have attended a number of the informational talks by Nordic Farms and they have done a great job of addressing the needs and concerns of the community. Our family is in full support of this project and are looking forward to having the toxic site cleaned up and the creation of new, well-paying jobs.

Thank you,
Jon Flyer

Jon Flyer

Response to Comment 739-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

740-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Brent Freitas
115 Stafford Rd.
Scotia 95565

Response to Comment 740-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

February 8, 2022

Humboldt County Planning and Building Department
3015 H Street
Eureka, CA 95501



RE: Nordic Aquafarm Support

Dear Comments Committee,

I am a Humboldt County resident since 1955 and community leader since 1974. I am strongly in favor of the Nordic Aquafarm Project as a great "fit " for the county. It makes sense on so many levels that writing this support letter seems odd, but I am happy to join the support side of the process.

741-1

Sincerely,

707-499-9843

Alan E. French, OD
Hydesville, CA 95547

Response to Comment 741-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

742-1

Chad Gaser
2606 Nst Funchy CA.
95501



Response to Comment 742-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

743-1



Mitchell Gildersleeve
1821 Boline Dr. #51
Imperial 95503

Response to Comment 743-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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744-1



Sherri L Good
S L Good
707 603 5308

Response to Comment 744-1 – Support

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Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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745-1



Desiray Guttery
1825 Park St Arcata, CA
(707) 599-5324

Response to Comment 745-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

746-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Karlie Harpin
Kulu Mapi
Labor's Union

Response to Comment 746-1 – Support

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

747-1



Gail Hawkins
1354-Bel Nor Rd ⁹⁵⁵¹⁹ Mchenlyville
707-834-8442

Response to Comment 747-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,


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748-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.


ERICA HEENAN
4801 W END RD
ARCATA, CA 95521



Response to Comment 748-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

749-1

Rian Heenan
Rian Heenan
3404 N Street
Eureka, CA 95503



Response to Comment 749-1 – Support

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Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

750-1

Ashleigh Herkert
1929 Layman #A
Eureka CA 95503



Response to Comment 750-1 – Support

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Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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751-1



Harry Harker
3702 Greenwood St
Eureka Ca. 95501

Response to Comment 751-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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752-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



A handwritten signature in dark ink, appearing to read "Jadin Herkert". The signature is stylized with long, sweeping strokes.

Jadin Herkert 3702 Glenwood
Eureka, CA 95501

Response to Comment 752-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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753-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

Kandice Herkert
5388 Alpine Ct.
Eureka, CA 95503



Response to Comment 753-1 – Support

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754-1



Kim Herkert
843 Ost
Fortuna Ca. 95540

Response to Comment 754-1 – Support

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Dear Members of the Humboldt County Planning Commission,

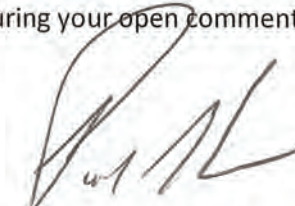
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Paul Herr
Celen St
Eureka, CA
95803

755-1

Response to Comment 755-1 – Support

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Doug Hooper


Kuska
5150 Myrtle

756-1

Response to Comment 756-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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757-1

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Larry Horner 95519
1699 Johnson Lane Mic
767-839-0246

Response to Comment 757-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

From: [CEQAResponses](#)
To: [McNamara, Cade](#)
Subject: FW: Comment
Date: Wednesday, February 09, 2022 6:14:09 PM
Attachments: [image002.png](#)



Laura McClenagan

Executive Secretary
Humboldt County Planning and Building Department
3015 H Street | Eureka, CA 95501
Phone: 707-268-3702 | Fax: 707-268-3792
Email: lmcclenagan2@co.humboldt.ca.us

From: Rees Hughes <rees.hughes@humboldt.edu>
Sent: Wednesday, February 09, 2022 12:11 AM
To: CEQAResponses <CEQAResponses@co.humboldt.ca.us>
Subject: Comment

To Whom It May Concern,

I can't pretend that I fully understand everything included in the DIER report but after spending a long evening wading through the document, it is clear that GHD independently concludes that the aquaculture facility (based upon the design and mitigations) would not significantly negatively impact Humboldt's environment. I was impressed by the thoroughness of the scope of the DIER -- from impacts on groundwater, water intake, stormwater runoff, hazardous materials, traffic, habitat modification, air quality, increased population and much more.

I also read and considered the cautionary concerns raised by Baykeeper (et al). I do think that it is important to aggressively monitor both the intake and the outfall for negative impacts with the understanding that adjustments would be made in the event that issues arise.

I toured the site of the facility late last summer curious to see for myself the scope and details of the project. It is a massive undertaking and includes cleaning up the complete mess left behind by the variety of pulp mill operators. That by itself is a huge bonus! Nordic uses an incredibly innovative approach that does not utilize the discredited approach to farming salmon that relies on massive pens in the ocean. Their use of immense, land-based closed tanks seems to address many of the traditional concerns about farmed salmon.

Of course, we all would love to see the wild salmon stock recover enough to meet consumer demand. But it is just not possible especially as demand continues to soar.

Based upon the homework that I have done, I am on board. If we are going to continue to overpopulate the world and overfish our oceans, I believe that this careful but bold and creative approach to raising salmon is an important response with important local benefits and minimal risks. It also seems that Nordic has been an honest and responsive partner with the community which I hope will continue.

Rees Hughes
1660 Brigid Lane
Arcata, CA 95521
826-0163

Response to Comment 758-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

759-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Yoshi Jensen
4150 BAILEY ST
EUREKA, CA 95503

Response to Comment 759-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

760-1



Jeff Joiner

223 Cherry Ln

Rio Del 95562

Response to Comment 760-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

761-1



Ronald T Jones

14 creek rd.

Klamath Ca 95548

mess. (707) 457-7119

Response to Comment 761-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

762-1



Johanny Kinder
1821 Bohne Dr. EUREKA, CA 95508

A handwritten signature in black ink that reads "Johanny Kinder".

Response to Comment 762-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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Kenneth L. Kittleson
3521 Teal Ln Eureka, CA
707-672-9246

763-1

Response to Comment 763-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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764-1



Eddie C. Koch, Jr.
Eddie C. Koch, Jr.
(707) 458-4715

Response to Comment 764-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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765-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Brad Lazott

1689 Calen Ln.

McKinleyville, CA. 95519

Response to Comment 765-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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766-1



Michael Lincoln
1205 West Ave, Eureka
707-443-1317

Response to Comment 766-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

767-1

Aaron Lowe

1157 MURRAY RD

McKinleyville, CA 95519



Response to Comment 767-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Chris MacDonald

2958 Spears Rd Eureka

CA 95503

768-1

Response to Comment 768-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

769-1



GAIL MACE
525 Herrick Ave #2 Eureka CA
95503
530-784-7878

Response to Comment 769-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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770-1



Paul Machado
1143 K St Eureka ca 1. Apt 4
1-580-890-1099

Response to Comment 770-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Rob McBeth <rmcbeth@omindustries.com>
Sent: Friday, February 11, 2022 10:53 AM
To: CEQAResponses
Subject: Nordic
Attachments: Nordic Aquafarms Letter 6.docx

Please accept the attached comment letter in support of the Nordic EIR

Rob McBeth | O&M Industries

5901 Ericson Way | Arcata, CA 95521

Phone: 707-822-8800 | E-mail rmcbeth@omindustries.com





Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street, Eureka, CA 95501
CEQAResponses@co.humboldt.ca.us
Nordic Aquafarms Support Letter

This letter is being submitted to show support for the Nordic Aquafarms Project on the Samoa Peninsula. It's always hard accepting a big company with a big project into such a small, tight-knit community. But, Nordic Aquafarms is not like other big business who are only concerned with their own profits.

One of the main concerns of community members is that the new development will so be massive that it will obstruct the view or become an eye sore to the area. Nordic has included a section in the EIR addressing aesthetics and the role that it will play in the process of constructing this Aquafarm. They specifically mention that the site is outside of the Coastal Scenic Area, Coastal View Area, and the Samoa Town Master Plan Land Use Plan boundaries. However, it is stated that the guidelines in these plans are healthy lighting principles, and they will include them into the project due to these visual qualities being important to the public. This further shows that Nordic is a company that cares about the community that they are entering and want to make sure that the public is happy with their presence, and that they are accommodating their plan to fit our specific needs/wants.

771-1

Including this section in their EIR cements the fact that Nordic is not putting their profits over the people who will be affected by their project. Making sure that the community is happy is one of their top priorities, and they are doing everything they can to address all concerns and modify their plans to meet all needs of the community.

Sincerely,

Rob McBeth

Response to Comment 771-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

772-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



DANNY MCKAY

2295 McKenley Ave

MCK CA

Response to Comment 772-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

773-1



Sandy McKay
2295 McKinleyville Ave
McKinleyville Ca 95519

Response to Comment 773-1 – Support

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Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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774-1

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JENNIFER MCKENZIE
Jennifer McKenzie
1818 CECIL AVE
FORTUNA, CA 95540

Response to Comment 774-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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775-1



Stephen E. McKinney III
9825 Hwy 199 #9
Gasquet, Ca. 95543

Response to Comment 775-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

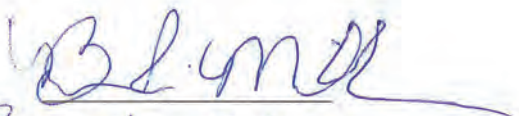
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776-1

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Brandi Miller
Po Box 1551
Willow Creek, CA
95573



Response to Comment 776-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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777-1

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Kayla Minnide
1706 Windsor Ave
Kayla Minnide
McKinneyville 95519



Response to Comment 777-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

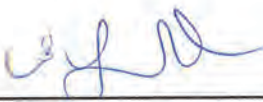
This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

778-1





Logan Minnick

1700 Windsor Avenue
McKinleyville, CA
95519

Response to Comment 778-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

779-1



Dejiana Moore
230 Wabash Ave #5
Eureka CA

A handwritten signature in blue ink, appearing to be "Dejiana Moore", with a long horizontal flourish extending to the right.

Response to Comment 779-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

780-1



Mike Moorehead
11037 West Ave
Eureka, CA 95501

Response to Comment 780-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

781-1



Mark Mora
26738 Dutcher Creek Rd
Claverdale CA. 95425

Response to Comment 781-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.



Jeff Moran

Jeff Moran

2134 Hodgeson Eureka Ca
95503

782-1

Response to Comment 782-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



JOSH NAHM
1403 ECLORA AVE
RIO DELTA CA 95562

783-1

Response to Comment 783-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

784-1

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.



David Ondracek
1821 Buhne Dr SP#18
Eureka

Response to Comment 784-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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785-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Greg Page
2098 Burns Dr
Eureka Ca 95503

Greg Page
2098 Burns Dr.
Eureka, CA. 95503

Response to Comment 785-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: K Payne <klpayne14@hotmail.com>
Sent: Friday, February 11, 2022 10:48 AM
To: CEQAResponses
Subject: Nordic Aquafarms support
Attachments: Nordic Aquafarms Letter 4.docx

This letter is being submitted to show support for the Nordic Aquafarms Project on the Samoa Peninsula.

Regards,

Kristopher L. Payne

Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street, Eureka, CA 95501
CEQAResponses@co.humboldt.ca.us
Nordic Support Letter



This letter is being submitted to show support for the Nordic Aquafarms Project on the Samoa Peninsula.

Nordic has done many assessments and have catered most of their EIR to mitigate for worst case scenarios, especially when it comes to the potential for ocean contamination and other types of water pollution. One of their main points is that there will not be any construction required for the discharge pipes. There is no risk of any contamination from under water construction because there will not be any construction on that aspect of the facility. The already existing outflow pipes will be used for discharge of highly treated wastewater that spits out about a mile and a half offshore. They have determined that their treated effluent meets all regulations and water quality guidelines. This data comes from the planned advanced wastewater treatment plant that will be built as part of the facility, with all floor drains throughout the campus being directed to this plant. With all wastewater and effluent being directed to the treatment plant, there will be very little chance of outside contamination due to the waste. The cleaning agents that will be used, as outlined in the EIR, will be consumed when they interact with organic materials in the water, and therefore will not be present in the discharge. If there were to be any cleaner present in the discharge, the levels would be so low that it will have little to impact on the environment.

786-1

Extensive planning has gone into the water contamination and discharge of the Aquafarm facility, and I am confident that Nordic has taken, and will take, all necessary precautions to ensure that there is very little impact from the wastewater disposal.

Sincerely,

Kristopher L. Payne

Response to Comment 786-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

787-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Travis Poletski

Juni Pate

Labor 324

Response to Comment 787-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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788-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Jeremy Powell
196 Hammer Ln
Arcata CA 95521

Response to Comment 788-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).



Dear Members of the Humboldt County Planning Commission,

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789-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

Tim Powell
Tim Powell
CARPENTER

Response to Comment 789-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

790-1



DOUG PULVER

Silverado

McKinleyville

95519

Response to Comment 790-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

791-1



Wayne Scott
Wayne Scott
(707) 954-5149

Response to Comment 791-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

792-1

Kaden Redner

Harrell Ave

McKinleyville CA

9597



Response to Comment 792-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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793-1

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Kevin Reynolds
3651 Dows Prairie Rd
707-839-5144

Response to Comment 793-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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794-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Tim Reynolds
1976 Peninsula dr
Arcata CA 95521

Response to Comment 794-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).



Cade McNamara
County of Humboldt Planning and Building Department, Planning Division
3015 H Street, Eureka, CA 95501
CEQAResponses@co.humboldt.ca.us
Support Letter- Nordic Aquafarms

This letter is being submitted to show immense support for the Nordic Aquafarms Project on the Samoa Peninsula. Nordic is a very responsible company and they have taken all of the necessary steps to ensure that their facility will have the lowest impact as possible.

Their facility is unique in that it is completely land based. This is important because it prevents any fish or waste products from being released into the natural environment. Unlike other fish farms, the fish at Nordic would not be raised in the Bay or in the rivers. The fish will have large tanks to swim freely, with water being recirculated to keep disease levels down and the fish healthy. There are inflow pipes that will be used to collect water from the ocean and the Mad River to use for the fish tanks, and there is one outflow pipe that will put filtered and disinfected water back into the ocean. They have determined with the EIR that this will have little to no impact on the existing ocean or land environment in the area, as the water will be clean before it is returned to the ocean. Studies have also been completed to show that there is little to no chance of the fish escaping from the facility, even during a tsunami event. If any fish were to escape, they wouldn't make it into the ocean due to its distance from shore.

Nordic Aquafarms has proven that their facility is safe, clean, and that it will not have a negative impact to the natural environment or the wild fish population. They are also trying to use as much existing infrastructure as they can to limit the impact that they will have. They are a sustainable company and have a very solid plan for their facility.

Sincerely,

Judy Rice

Response to Comment 795-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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796-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

Jane Richardson

986 Cobblecreek rd

Ferndale ca 95536



Response to Comment 796-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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797-1

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Wyatt Roach
1518 SANTA CLARA ST.
EUREKA CA 95501

Wyatt Roach
1518 Santa Clara St.
Eureka, CA. 95501

Response to Comment 797-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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798-1

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Aaron Robinson
5388 Alpine court
Eureka CA

Response to Comment 798-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

799-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

Frank Joe Rojas

Frank Joe Rojas

Mailing Add: P.O. BOX 5092 - Eureka 95502

707-616-3587

*Home is at: 1821 Park St
Munila Calif. 95521*



Response to Comment 799-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

800-1

Kristen Romani
3702 Glenwood St
Eureka CA 95501



Response to Comment 800-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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801-1



Brian Santche
1570 East Ave
Eureka CA 95501

Response to Comment 801-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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802-1



Kim Santche
1570 East Ave
Eureka, CA 95501

Response to Comment 802-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

803-1



Jesse Scales

2224 Lee Court

Fortuna, Ca. 95540

Response to Comment 803-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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804-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



Jason Schenkerberg

2104 Hurst Rd Eureka, CA

Response to Comment 804-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.

805-1



Sarah Schenkerberg
2104 Hurst Rd
Eureka CA 95503

Response to Comment 805-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



John Sears

80 Tierney Rd. Redcrest 95569

707-722-4390

806-1

Response to Comment 806-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

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807-1



Jared Soderman
1821 Buhne Dr.
Spk 25
Eureka, CA 95503

Response to Comment 807-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

808-1

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



LA Sousa

2332 LUCILLE LN.

EUREKA, CA 95501

Lawrence "Abe" Sousa
2332 Lucille Ln.
Eureka, CA. 95501

Response to Comment 808-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

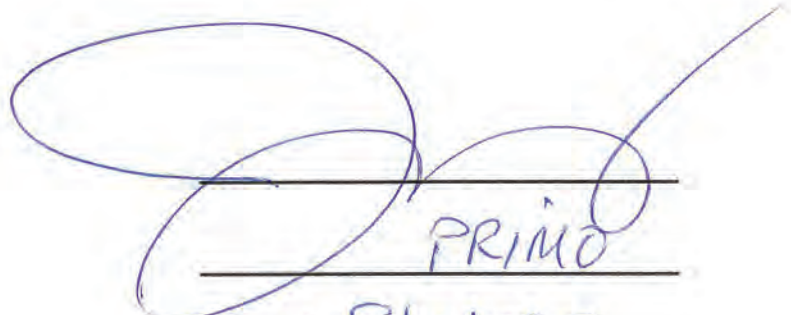
This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

809-1




PRIMO
JIM STIVERS
377937

Response to Comment 809-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

810-1



Brendan Storer
1456 Sea Bluff Pl. Apt B
Eureka, Ca 95503

Response to Comment 810-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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811-1

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John Tavares
3905 Stover Rd
Blue Lake, CA 95525
JOHN TAVASCI

Response to Comment 811-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

812-1

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.



DOUG TOLAND
3490 MONTGOMERY ST
ORVILA 95503

Response to Comment 812-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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813-1



Julie Toland
3490 Montgomery St
Eureka CA 95503

Response to Comment 813-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

814-1



Todd Long

2601 Pigeon Pt Rd

Eureka CA 95503

Response to Comment 814-1 – Support

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815-1

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Michael (Sara) Trainor
(707) 502-6302

Response to Comment 815-1 – Support

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Dear Members of the Humboldt County Planning Commission,

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816-1



Kurt Van Dyke
125 Tronect - Crescent City, CA
707-234-2281

Response to Comment 816-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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Janet Van Horn
PO Box 2625
McKinleyville Ca

Response to Comment 817-1 – Support

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818-1

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Miguel Vieyra
707 683 2761
1451 Foster Ave Aca77 CA

Response to Comment 818-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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819-1

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Chris Wade
720 China Creek, Whittier
530-575-6560

Response to Comment 819-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

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820-1

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Larry Ward
Larry Ward
Carpenter

Response to Comment 820-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

821-1



Steve Warhow
Johnnerville 9540
2668 Johnnerville
707-498-3536

Response to Comment 821-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.

822-1



Tina Webster
Tina Webster
14 creek rd Klennell
(707) 459 7119 CA 95548

Response to Comment 822-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

This project will not only help put people like me to work right here in my home community but it will also give training opportunities for apprentices so we can grow the next generation of skilled working people. We need good jobs like this in the community so we can support our families.

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Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



John White
Jim [Signature]
Electrician

823-1

Response to Comment 823-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

824-1

This fish farm project, and any others like it, is something this community desperately needs, not just for the jobs it will create to build the farm, but for the long-term maintenance jobs it will provide. This is the type of project that people can depend on, and they won't have to travel hundreds of miles away to get the work.

I also know a lot of skilled and local people who can build and maintain this project.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. If you do, in fact, make plans in this county's best interests, then count this project at the top of your list. Please take this letter of support into consideration during your open comment period.



CRAIG K. WILKINSON
P.O. BOX 12
HYDESVILLE, CA 95547
(707) 362-5465

Response to Comment 824-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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Ray Wilson
707 502 4122
1853 park

825-1

Response to Comment 825-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Justin Zabel <jzabel@mercerfraser.com>
Sent: Friday, February 18, 2022 4:58 PM
To: CEQAResponses
Cc: Justin Zabel
Subject: Nordic Fish Farms Letter of Support
Attachments: COH Nordic Support 02.17.22.pdf

Please see attached letter of support.

Please confirm receipt.

Thank You

MERCER-FRASER COMPANY
CONTRACTORS & ENGINEERS
Since 1870

February 17, 2022

Cade McNamara
County of Humboldt, Planning Division
3015 H Street
Eureka, CA 95501



Ref: Nordic Fish Farm

Sub: Public Comment-Letter of Support

To Whom It May Concern:

We are writing to express our support of the proposed Nordic Fish Farms project in Samoa. Mercer-Fraser Company was founded 152 years ago in Eureka. We are a local Union Company employing approximately 300 employees related to the various construction trades. Our County's economic viability and growth is vital in maintaining an adequate local skilled workforce that spends their money in the local community.

It's rare these days to find a developer of a project that checks all the boxes. Here, we have a company, Nordic, that is willingly performing a complete and exhaustive environmental review, is proposing to clean up the site environmentally on their own, construct with environmentally sound materials and practices, provide substantial construction job opportunities for local trades and local vendors; and after completion, providing steady full time jobs to a substantial amount of people, while producing a healthy and environmentally sustainable product.

We urge swift approval of this proposed project.

Sincerely,
MERCER-FRASER COMPANY

A handwritten signature in blue ink, appearing to read "Justin Zabel", is written over the printed name.

Justin Zabel
President

JZ:wp

826-1

Response to Comment 826-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

McNamara, Cade

From: Annalise <Annalise@mingtree.com>
Sent: Thursday, January 27, 2022 11:50 AM
To: CEQAResponses
Subject: Nordic Aquafarms project planned for the Samoa Peninsula
Attachments: Letter of Support for Nordic Aquafarms.docx

Dear County of Humboldt Planning and Building Department,

On behalf of myself, a Humboldt citizen and local Realtor, I am pleased to write this letter in support of Nordic Aquafarms' project planned for the Samoa Peninsula. Nordic Aquafarms focuses on fish welfare and environmental sustainability, and they employ proprietary recirculating aquaculture systems (RAS) with patented technology. The end-results are modules ready for truly large-scale RAS farming - and a key solution in contributing to increasing seafood supply without leaving a material environmental footprint.

The Nordic Aquafarms' project will provide many community benefits, including clean-up of a long-abandoned site containing hazardous materials, abandoned buildings and industrial debris. The project will also stimulate economic activity and provide a wide range of employment opportunities. In addition to what Nordic will directly contribute to our local economy, the Nordic project will be a draw for other aquaculture businesses on the peninsula, thereby increasing economic prosperity and employment opportunities for our region.

Nordic Aquafarms has been actively engaging in our community through public meetings, site tours and targeted outreach to stakeholders. Nordic is working closely with College of the Redwoods to revitalize their aquaculture program and with HSU to ensure a steady pipeline of local qualified professionals. Nordic is also working with the Humboldt County Office of Education to introduce information to students about careers in aquaculture and to offer support in classroom educational programs.

The Nordic team has gone to great lengths to be transparent, inclusive, and comprehensive in their research and sharing results throughout the public process and we are confident that they will be a benefit to our local economy as well as to our community. I am pleased to support this project.

Sincerely,

Annalise von Borstel

Realtor

1330 Highland Ave

Eureka CA 95503

Annalise von Borstel
Ming Tree, REALTORS®
509 J Street
Eureka, CA 95501
707-616-2548



827-1

01/27/2022

Cade McNamara

County of Humboldt Planning and Building Department, Planning Division
3015 H Street
Eureka, CA 95501



Dear County of Humboldt Planning and Building Department,

On behalf of myself, a Humboldt citizen and local Realtor, I am pleased to write this letter in support of Nordic Aquafarms' project planned for the Samoa Peninsula. Nordic Aquafarms focuses on fish welfare and environmental sustainability, and they employ proprietary recirculating aquaculture systems (RAS) with patented technology. The end-results are modules ready for truly large-scale RAS farming - and a key solution in contributing to increasing seafood supply without leaving a material environmental footprint.

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The Nordic team has gone to great lengths to be transparent, inclusive, and comprehensive in their research and sharing results throughout the public process and we are confident that they will be a benefit to our local economy as well as to our community. I am pleased to support this project.

Sincerely,

Annalise von Borstel

Realtor

1330 Highland Ave

Eureka CA 95503

Response to Comment 827-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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828-1

More than that this project will clean up an abandon site and turn it into something our community can be proud of. With this fish farm Humboldt County can continue our long tradition of help feed California, and do it in a sustainable way. With the decline of the timber industry we need projects like this to sustain the economic prosperity and employment opportunities in this region.

Humboldt County needs good-paying, long-term jobs, and the Nordic fish farm will give us that opportunity. Please take this letter of support into consideration during your open comment period.



GIA CARROZZI
1590 FIELDBROOK RD
FIELDBROOK CA 95519

Response to Comment 828-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I am writing in support of the Nordic fish farm being proposed on the property of the old Samoa Pulp Mill.

I live and work in Humboldt County. I have a family here. For years, I have watched the local economy struggle, as tourism has been on a decline, especially since COVID. Most of our youth cannot find careers in this county, so they leave town to earn a living wage. If they do live here, they commute for jobs and sometimes stay away weeks at a time, putting their hard-earned money into someone else's economy.

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829-1



Jason Davis
707 599-0324
2011 Hodgson
Sta. Furelka Ca. 95503

Response to Comment 829-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

Dear Members of the Humboldt County Planning Commission,

I work in Humboldt County's construction industry as a member of Operating Engineers Local 3, and I am writing today in support of the Nordic fish farm project, which would be built on the property of the old Samoa pulp mill facility.

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830-1



Steve Warnow

2668 Rehnerville Rd

Fortuna CA 95540

Response to Comment 830-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

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831-1



KEVIN SORIANO

32023 Grace Resort Rd.

Shingletown CA 96088

Response to Comment 831-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

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832-1

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Roger Z Sanderson

P.O. Box 777

Hoopn. C./I. 95546

Response to Comment 832-1 – Support

The comment is an expression of support which does not address concerns or items evaluated in the DEIR for the Nordic Aquafarms Project and does not require a response. Please see Master Response 6 (Statements Unrelated to Environmental Issues as Defined Under CEQA).

3. Comments Received Following Circulation

No written comments were received following circulation.

4. Errata

The purpose of this Errata is to document revisions to the DEIR that are intended to clarify project details since it was submitted to the Office of Planning and Research State Clearinghouse on December 20, 2021, and publicly circulated between December 20, 2021, through 5:00 p.m. on February 18, 2022. The following Project details are addressed in this Errata, as shown in Table 4.1, below.

The Errata includes excerpts of text from the DEIR that are proposed for modification and does not include the entire DEIR. Specifically, the entire subsection that contains the text proposed for modification is copied into the Errata, and newly proposed text in the Errata is **underlined and bolded**, deleted text from the original DEIR is stricken with ~~single-strike-through~~, and unchanged text remains in normal font. Only the subsections of the original DEIR that are proposed for modification are copied into the Errata.

Table 4.1 Summary of Proposed DEIR Text Modifications Captured in Errata

Section of Errata		Section of DEIR and Topic of Proposed Change
4.1 Section 2 Project Description	4.1.1	Section 4.4.1 – Length of Water Pipeline
	4.1.2	Section 2.1.6 – Longfin Smelt Listing Status
	4.1.3	Section 2.2.1 – Switchyard Upgrades
	4.1.4	Section 2.2.1 – Tenant Relocation
	4.1.5	Section 2.2.3 – Tenant Relocation During Phase 0
	4.1.6	Section 2.2.3 – Staging
	4.1.7	Section 2.2.4 – Project Operations / Facility Parking
	4.1.8	Section 2.2.4 – Project Operations / Facility Truck Traffic
	4.1.9	Section 2.2.4 – Project Operations / Access Roads
	4.1.10	Section 2.2.4 – Project Operations / Intake and Discharge Water
	4.1.11	Section 2.3 – Ocean Discharge
	4.1.12	Section 2.4.4 – Intake Design Considerations
	4.1.13	Section 2.5.4 – Project Construction
	4.1.14	Section 2.5.7 – Off-Site Compensatory Restoration
4.2 Section 3.3 Biological Resources	4.2.1	Section 3.3.6 – Water Quality Related to Special Status Marine Life
	4.2.2	Section 3.3.6 – Critical Habitat for the Humpback Whale and Southern Resident Killer Whale
	4.2.3	Section 3.3.6 – Number of Piles to be Removed
	4.2.4	Section 3.3.6 – Osprey Mitigation
4.3 Section 3.5 Energy Resources	4.3.1	Section 3.5.2 – Setting
	4.3.2	Section 3.5.7 – Cumulative Impacts
4.4 Section 3.7 Greenhouse Gases	4.4.1	Section 3.7.6 – Impacts and Mitigation Measures
	4.4.2	Section 3.7.6 – Impacts and Mitigation Measures

Section of Errata		Section of DEIR and Topic of Proposed Change
4.5 Section 3.12 Transportation	4.5.1	Section 3.12.2 – Setting / Roadways
	4.5.2	Section 3.12.2 – Setting / Pedestrian and Bicycle Facilities
	4.5.3	Section 3.12.3 – Regulatory Framework / Bicycle Plan
	4.5.4	Section 3.12.6 – Impacts and Mitigation Measures / Impact TR-c
	4.5.5	Section 3.12.6 – Impacts and Mitigation Measures / Impact TR-c
4.6 Section 4 Alternatives	4.6.1	Table 4-2 Draft EIR
4.7 Section Appendices	4.7.1	Section Appendix D – Marine Resources Biological Evaluation
	4.7.2	Section Appendix M – NOP Scoping and Comment Letters
	4.7.3	Section Contents

4.1. Section 2 – Project Description

4.1.1. Section 4.1.1 – Length of Water Pipeline

Within the DEIR, Section 2 (Project Description) stated the length of the water pipeline is 4,000 linear feet. In Section 3.3 (Biological Resources), the stated length is 4,650 linear feet. The correct length is 4,650 linear feet.

4.1.2. Section 2.1.6 – Longfin Smelt Listing Status

Section 2.1.6 of the Project Description states Longfin Smelt are regulated under the federal Endangered Species Act. This is an error. Longfin Smelt are not a federally listed species and are state listed only.

Special studies and initial permit submission were submitted to the agencies in September and October 2020 (See Table 2-2 for a summary of required permits and approvals). The finalization of this document will complete permit submittals. The permitting phase for the terrestrial development and ocean discharge is expected to generally be complete in 2022. The Harbor District is concurrently pursuing permits required for the two Humboldt Bay water intakes, as summarized above in Table 2-2. The water intakes require a Coastal Development Permit from the California Coastal Commission, a Clean Water Act Section 401 Water Quality Certification from the North Coast Regional Water Quality Control Board (NCRWQCB), and a Clean Water Act Section 10 permit from the US Army Corps of Engineers (USACE). A California Endangered Species Act (CESA) Incidental Take Permit (ITP) administered by the California department of Fish and Wildlife (CDFW) **is required to address potential take of Longfin Smelt. The ITP would be specific to Longfin Smelt, as the Project does not include take of other CESA-listed species, and/or** Formal or informal consultation with the National Marine Fisheries Service (NMFS)/National Oceanic and Atmospheric Association (NOAA) Fisheries and/or the US Fish and Wildlife Service (USFWS) under Section 7 of the federal Endangered Species Act (ESA) would also occur for the potential take of **federally listed species** Longfin Smelt (*Spirinchus thaleichthys*) ~~as a result of water intakes operations~~. Project civil engineering and design are currently underway and anticipated to be completed in due course after permits are obtained. Project construction for the terrestrial development would follow once the required agency approvals and permits are secured by NAFC. It is expected that demolition and construction would commence following final permit approvals, in 2022 or 2023. The Harbor District would commence construction required for the Humboldt Bay

water intakes in 2022. Ocean discharge would not commence until after the completion of Phase 1 construction, between 2024 and 2026.

4.1.3. Section 2.2.1 – Switchyard Upgrades

Language regarding reuse of the 60-kilovolt, 20-megawatt electrical switchyard and transformer has been adjusted to clarify that 5 megawatts of the expanded capacity will be dedicated to future Harbor District uses.

The following pulp mill industrial components are planned for reuse in association with the Project (general location onsite noted in parentheses):

60-kilovolt (KV), 20 Megawatt (MW) electrical switchyard and transformer (northwest portion of pulp mill site)

- a. The 60-KV switchyard is in a fenced area at the northwest corner of the former pulp mill site and connected to transmission lines that feed various structures within the Project Site. Modernization and upgrade of the substation will take place, if necessary, when NAFC is taking over the existing meter. The total capacity of the switchyard will be expanded to accommodate NAFC's peak capacity in future operations. **Approximately 5 MW of the total capacity would be reserved for future Harbor District uses.** The switchyard and transformer are currently owned by the Harbor District and will be transferred to NAFC ownership.

4.1.4. Section 2.2.1 – Tenant Relocation

Language regarding tenant relocation has also been clarified.

There are currently seven tenants leasing areas within the proposed Site under an Interim Non-Coastal Dependent Industrial lease with the Harbor District. Occupants would be relocated with the assistance of Harbor District and NAFC in compliance with the California Relocation Assistance and Real Property Acquisition Guidelines. **Current tenants would be allowed to relocate into the Harbor District's warehouse. The Harbor District would be authorized to construct new demise walls, interior offices and restrooms to accommodate these existing permitted interim uses.** Current tenants are permitted to remain on the property until demolition activities commence.

4.1.5. Section 2.2.3 – Tenant Relocation During Phase 0

Text has been updated to clarify tenants would be relocated during Phase 0, along with associated tenant-related renovations on the RMT II property.

Following receipt of permits, preparatory clearing and site work defined as Phase 0 could begin as early as September 2022. **Phase 0 would also include relocation of existing tenants and construction of new demise walls, interior offices, and restrooms in to accommodate existing permitted interim uses. Renovations would occur in other buildings on the RMT II property unaffected by Project demolition.** The Phase 1 construction could begin as early as 2024. Construction efforts would be ordered according to the facilities of most immediate need.

4.1.6. Section 2.2.3 – Staging

Text has been updated to clarify staging area locations.

Construction staging would occur at the former pulp mill (APN 401-112-021), **within the existing warehouse owned by the Harbor District on RMT II.** and potentially other “developed” adjacent properties. The staging areas would be used for contractor parking and supply and equipment storage. Staging areas would be located strategically to provide the most efficient access for construction operations and would be setback an appropriate distance from Humboldt Bay, wetlands and/or other sensitive areas. Storm drains located within or near Project staging areas would be protected using appropriate BMPs.

4.1.7. Section 2.2.4 – Project Operations / Facility Parking

Text has been updated to clarify how the number of parking spaces was determined.

Parking at the facility would be located throughout the central campus corridor between Building 1 and Building 2 providing access to all facility buildings. The facility would include a three-truck loading dock, seven-truck unloading/loading areas, 115 standard light vehicle parking spots, and six ADA accessible light vehicle parking spots. **The number of parking spaces was determined based on County Code 313-109 (Off-Street Parking) whereas a management office for industrial uses requires 1 parking space for every 300 square feet of gross floor area plus 1 per employee, and the remainder of light vehicle parking including ADA spaces was determined based on 1 parking space per employee at peak shift, resulting in 115 standard light vehicle parking spots and 6 accessible parking spots.** At full production there would be a maximum of 100 employees at the facility at any given time. That would include approximately 20 employees in the approximately 6,400 square foot office / management area of Building 4 and approximately 80 employees spread throughout the rest of the facility.

4.1.8. Section 2.2.4 – Project Operations / Facility Truck Traffic

NAFC has provided additional clarifying data related to weekly truck traffic for the daily truck trips calculation in Section 3.12 (Transportation), therefore this additional information is added to Section 2 (Project Description) on Page 2-27.

Facility operations would include regular deliveries to and shipments from the facility. Shipments would include finished product to market and byproduct streams to secondary use processing sites. While the final distribution strategy for the facility is still in development, initial estimates have been made based on knowledge of existing West Coast markets in relative proximity to the project site. At full production it is currently estimated that there would be 40 outgoing product delivery trucks per week **at 6 days/week for a total of 13 trips (in and out) per day** with approximately 30% going to the Seattle area, approximately 30% going to the Los Angeles area, and approximately 40% going to the San Francisco Bay Area. It is expected at full production there would be 32 outgoing trucks weekly carrying waste streams **at 7 days/week for a total of 9 trips (in and out) per day** to various secondary use processing sites within 150 miles of the facility. Deliveries to the facility include fish feed, shipping materials, and process chemicals. Deliveries of fish feed would consist of 20 trucks per week **at 5 days/week for a total of 8 trips (in and out) per day**. The final feed vendor would be selected later. Deliveries of shipping materials and process chemicals would consist of three trucks per week **at 3 days/week for a total of 2 trips (in and out) per day** likely originating in the Redding or San Francisco Bay area. As project design progresses NAFC would

refine its sourcing and distribution strategies to align with market demand and optimize logistics. Prior to construction, NFAC would submit an Operation and Construction Transportation Plan to the County for review.

4.1.9. Section 2.2.4 – Project Operations / Access Roads

Text has been added to clarify an existing access road will remain.

The Project Site is accessed from Vance Avenue via New Navy Base Road and LP Drive. Repair, resurfacing, and striping upgrades of Vance Avenue and LP Drive to support site access, construction, and operation is expected and will be funded by NAFC. **The existing Harbor District access road along the northern property lines from Vance Avenue to RMT II would remain.** Significant expansion of the paved surface of Vance Ave is not expected through the repair and resurfacing process.

4.1.10. Section 2.2.4 – Project Operations / Intake and Discharge Water

Text has been added to clarify the 0.02-micron filtration standard is specific to NAFC's uses only and not other users of the water intake.

Both intake and discharge water are subjected to strong biosecurity measures to prevent intake or discharge of pathogens or parasites. A detailed description of the proposed water treatment systems is provided in 2.2.4 Water Treatment. Both industrial freshwater and saltwater intakes to the facility would be subjected to 0.02-micron ultrafiltration and UV disinfection prior to being introduced to the production facilities. Within each RAS core a portion of the treated water would be continuously treated by filtering solids, ozone dosing, and UV disinfection. Wastewater from the production tanks would be directly piped to the wastewater treatment plant for final treatment prior to discharge, where it would be subjected to 0.04-micron ultrafiltration and a 300 mJ/cm² ELL UV dose before discharge (See Image 2-6). **Note the 0.02-micron ultrafiltration and UV disinfection standard would not apply to other mariculture users of the master water intake, as most mariculture operations prefer untreated water directly from Humboldt Bay.**

4.1.11. Section 2.3 – Ocean Discharge

Text has been updated to clarify the port exit velocity shall not exceed 15 feet per second.

Total water volume discharged at full operational capacity is estimated at a maximum of 12.5 Million gallons per day via the existing RMT II ocean outfall pipe, which extends 1.55 miles offshore to a diffuser array. The diffuser has 144 ports, each of 2.4-inch diameter. Ports are paired on either side of the pipe at a spacing of 12 ft (3.67 m) between ports. **Port exit velocity shall not exceed 15 feet per second.** The ports discharge at a 45-degree vertical angle relative to the seabed. Currently, the RMT II diffuser is used by DG Fairhaven Power Company for intermittent batch discharges (200-400 gallons per minute (GPM)) and for treated wastewater effluent disposal from Samoa, with eight diffuser pairs maintained open (16 open ports) to allow discharge from the permitted facilities.

4.1.12. Section 2.4.4 – Intake Design Considerations

Text has been updated to clarify water intake treatment would be limited to the NAFC and would not apply to other mariculture users of the seawater.

The baseline solution for intake water treatment **would not apply to other mariculture users of the sea water.** included in NAFC **intake water treatment** operations would include:

- First stage filtration
- Ozone treatment
- Ultrafiltration
- Ultraviolet (UV-C) dosing.

4.1.13. Section 2.5.4 – Project Construction

Text has been updated to clarify equipment to be used to remove sediment from the existing water intake structures (sea chests).

The intakes would be upgraded, new pumps installed, and pipeline installed prior to becoming operational for Phase 1. The intake structures would require manual sediment removal from within the structures. Sediment would be removed via heavy equipment or a diver **and could include use of a suction dredge inside the sea chests.** Construction would be staged from the dock or a barge or similar watercraft.

4.1.14. Section 2.5.7 – Off-Site Compensatory Restoration

Text has been updated to reflect the updated pile removal count. Mitigation specific to LFS is addressed in mitigation measure BIO-6a (Section 4.2.5).

There are a total of approximately **988 creosote piles and 151 crossbeams** that may be removed for the compensatory off-site restoration as described in the GHD Technical Memorandum – Pile and Cross Beam Removal Quantities (see Appendix C). Staging would occur south of South Bay Depot Drive in Fields Landing, in upland areas only. Wetlands previously mapped by Stantec (Stantec 2018) would not be temporarily or permanently impacted by the pile removal effort.

4.2. Section 3.3 – Biological Resources

4.2.1. Section 3.3.6 – Water Quality Related to Special Status Marine Life

An error in typography has been corrected in Section 3.3 (Biological Resources) to correct the number of diffuser pairs and ports included in the Project. The correct number of diffuser pairs and ports was included in other sections of the DEIR, such as Section 3.9 (Hydrology and Water Quality).

The Dilution Study (Appendix E, GHD 2021c) evaluated the toxicity mixing zone as the area in which water quality objectives for chronic or acute toxicity to marine organisms are likely to be exceeded in the marine waters due to the comingled discharge from the multiport diffuser. The toxicity mixing zone is expected to be limited in spatial extent in immediate proximity to the diffuser. The portion of the diffuser array (mixing zone) to be utilized by the Project would include **32 ports diffuser pairs and 64 ports** spaced 12 feet apart, totally 384 linear feet. As discussed in Chapter 3.9 (Hydrology) the Project will emit three constituents of concern, ammonia, salinity, and temperature. The concentration of ammonia (0.004 mg/l) is well below the 0.6 mg/l standard at the point of release from the diffuser. The Project is required to meet Ocean Plan Water Quality Objectives for salinity and temperature within ten percent of the mixing zone. Ten percent of 384

linear feet is approximately 38 feet. Ocean Plan Water Quality Objectives for salinity and temperature are both met within five feet of the diffuser, which is far less than the allowed threshold of 384 linear feet. Water Quality Objectives are met within five feet of the diffuser, which demonstrates that the potential impacts to marine habitat are less than significant.

4.2.2. Section 3.3.6 –Critical Habitat for the Humpback Whale and Southern Resident Killer Whale

Following preparation of the Marine Resources Biological Evaluation (DEIR Appendix D) which supports the impact analysis for marine species in the DEIR, critical habitat was designated for the Humpback Whale and the Southern Resident Killer Whale. Thus, the Marine Resources Biological Evaluation did not include discussion of critical habitat on either whale species. This analysis has been noted here and added to the Errata. The Project would not significantly impact critical habitat for either species.

Critical habitat was designated on April 21, 2021 for Humpback Whale (86FR21082). Critical habitat for two DPS's was designated off Humboldt, the Central America DPS and Mexico DPS, which extends offshore from the 50-m isobaths to a boundary drawn along the 2,000-m isobaths, and includes the marine waters off Del Norte County, CA, most of Humboldt County, CA, and borders a small portion of Curry County, OR. Unit 14 covers about 3,412 nmi² of marine habitat. Humpback Whale diet is primarily of krill and fish (e.g., anchovies), and essential features of critical habitat are prey species including euphausiids and forage fish e.g., sardine, anchovy, herring. The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on Coastal Pelagic Species EFH, which includes the prey species for Humpback Whale, in Section 3.3 (Biological Resources), starting on pages 3.3-36 and 3.3-60. The Ocean Discharge would not result in significant impacts to coastal habitat based on limited spatial area and organic loading, resulting in a low risk of adverse effects to the Coastal Pelagic Species EFH. The Humboldt Bay Water Intakes would not cause populations of target species, including larval stages of Coastal Pelagic Species, to fall below self-sustaining levels or otherwise eliminate such species. Entrainment from the proposed project's intake would not result in a substantial decrease in marine populations that could be detected over natural variability. Impingement of organisms would be avoided with the low intake velocity and screen design proposed.

Critical habitat was designated on August 2, 2021 for Southern Resident Killer Whale (SRKW) offshore between the 6.1-m and 200-m isobath contours, and includes waters off Del Norte and Humboldt counties in California (86FR41668). For six coastal areas identified in the critical habitat designation, essential features include 1) Water quality to support growth and development; 2) Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and 3) Passage conditions to allow for migration, resting, and foraging. However, the primary essential feature in proximity to the Project is prey, which is primarily Chinook salmon, a species also listed under the Endangered Species Act and described and analyzed in Section 3.3 (Biological Resources), starting on page 3.3-33 and Appendix D (Marine Resources Biological Evaluation Report, Sections 5.2.2 and 5.4). The DEIR analyzed effects of the Ocean Discharge and Humboldt Bay Water Intakes on Chinook Salmon and Pacific Coast Salmon EFH, which are the essential prey species for SRKW, in Section 3.3 (Biological Resources, Ocean Discharge), starting on pages 3.3-33 and 3.3-36, and Humboldt Bay Water Intakes, starting on page 3.3-50. The Ocean Discharge would not result in significant impacts to

coastal habitat based on limited spatial area and organic loading, resulting in a low risk of adverse effects to Chinook Salmon and Pacific Coast Salmon EFH. The Humboldt Bay Water Intakes are specifically designed to meet NMFS screening criteria and avoid impingement or entrainment of juvenile salmonids.

4.2.3. Section 3.3.6 – Number of Piles to be Removed

Throughout the Biological Resources section, it is stated that up to 1,007 piles would be removed. This is incorrect and inconsistent with the description of piles to be removed in Section 2.5.7 of the Project Description. As updated in this FEIR (Section 4.1.14), the correct pile removal count is provided below. Impact analysis is throughout the DEIR is unaffected by this detail.

A minimum of 1,007 piles Up to 988 piles and 151 crossbeams shall be removed for the compensatory off-site restoration.

4.2.4. Section 3.3.6 – Osprey Mitigation

To satisfy a request from CDFW, language in Mitigation Measure BIO-5a has been clarified.

Mitigation Measure BIO-5a: Protection of Osprey

Any new Osprey nests established within the Project Site that require relocation will be removed (after nesting has occurred) and replaced at a 1:1 ratio in consultation with CDFW. The Harbor District shall develop an Osprey Management Plan for current and future osprey nests. The Osprey Management Plan shall include performance criteria such as no-net-loss of osprey breeding territories with sufficient alternative nest sites within the Project area, and that any created nest sites are of equal or higher quality than nests removed.

4.2.5. Section 3.3.6 – Longfin Smelt Mitigation

Mitigation Measure BIO-6a was incorporated into the Project requiring the Harbor District to mitigate for the potential loss of Longfin Smelt larvae. As defined in DEIR Section 3.3.6, the text of Mitigation Measure BIO-6a previously read as follows:

Mitigation Measure BIO-6a: ~~Protection of Longfin Smelt~~

~~The Humboldt Harbor District shall mitigate for the potential loss of Longfin Smelt larvae by removal of pilings to achieve a 1:1 mitigation ratio of potential larvae taken. The mitigation for each 200 Longfin Smelt larvae is four pilings (43.1 square feet of habitat area). The Project mitigation is a minimum removal of four pilings. The pilings shall be removed prior to operation of Phase 1 of the facility. If after conducting appropriate surveys as part of the Incidental Take Permit (ITP), additional larvae may be taken than projected here, the mitigation ratio shall be utilized to compensate to the additional take of Longfin Smelt larvae.~~

Based on input from CDFW, Mitigation Measure BIO-6a has been revised to incorporate habitat creation or enhancement for Longfin Smelt spawning, rearing, or nursery habitat. Further, piling removal has been removed from this mitigation measure. The following mitigation measure text replaces the previous text (above) for Mitigation Measure BIO-6a (DEIR Section 3.3.6):

Mitigation Measure BIO-6a: Protection of Longfin Smelt

The Humboldt Bay Harbor District shall mitigate for the potential loss of Longfin Smelt larvae due to entrainment by the intakes. The number of larvae that could potentially be entrained by the intakes is currently estimated to be approximately 24,000. A more precise number will be confirmed when monthly larval surveys are completed in December 2022 followed by entrainment modeling.

Mitigation shall consist of the following:

1. Habitat creation or enhancement to provide Longfin Smelt spawning, rearing, or nursery habitat capable of producing the number of Longfin Smelt larvae lost to entrainment. Habitat creation or enhancement shall be within tributaries of Humboldt Bay in areas of fresh and/or brackish water and shall create habitat suitable for spawning and may include debris (e.g., pile) removal.
2. The area of habitat to be provided will be based on the area needed to support the number of spawning female Longfin Smelt needed to provide the target number of larvae. The mitigation will be based on an estimate that a single female Longfin Smelt requires 43 square feet (4 square meters) for spawning.
3. For this mitigation measure, the number of larvae produced per female is 1,000.
4. The total mitigation area will be calculated on a 1:1 basis. The equation to determine mitigation area will be: $(\text{larvae entrained}) / (1,000 \text{ larvae per female}) * (43 \text{ square feet})$. Based on current sampling and calculations the mitigation area would be $(24,000 / 1,000) * 43 = 1,032 \text{ square feet of habitat replacement area}$.

Habitat restoration to mitigate for Longfin Smelt entrainment shall be completed prior to operation of Phase 1 of the facility.

4.3. Section 3.5 – Energy Resources

4.3.1. Section 3.5.2 – Setting

The text on DEIR page 3.5-3 has been updated to reflect the RCEA's energy goals, consistent with the discussion of RCEA's goals throughout the balance of the DEIR. Impact analysis throughout the DEIR is unaffected by this detail.

This timeline coincides with the SB 100 law requiring 60 percent of the power purchased by California utilities to come from renewable sources by 2030, and **follows** RCEA's goal of their power mix consisting of 100% **combination state-designated renewable energy and state-designated** net-zero-carbon-emission renewable sources by **2025** ~~2030~~.

4.3.2. Section 3.5.2 – Setting / Nordic Energy Mix Commitments

The text on DEIR page 3.5-5 has been updated to reflect the NAFC's energy mix commitments, consistent with the discussion of such commitments throughout the balance of the DEIR. Impact analysis throughout the DEIR is unaffected by this detail. The following text is incorporated as a new subsection of DEIR Section 3.5.2:

NAFC Samoa Facility Energy Mix Commitments

Nordic proposes the following binding conditions:

- **Purchase renewable and/or non-carbon energy through RCEA, relying on its available portfolio**
- or**
- **Purchase a 100% non-carbon/renewable portfolio from one of the other Energy Service Providers (ESPs) in California.**
 - o **Baseline would be the ESP's component of non-carbon/renewable + purchase of credits to ensure a 100% non-carbon/renewable portfolio.**
 - o **In addition, as technically and commercially feasible, Nordic would enter into Power Purchase Agreements (PPAs) with the proposed offshore wind project and/or other non-carbon, renewable electricity sources located in Humboldt County.**

Condition: PPAs with an offshore wind provider and/or other non-carbon, renewable electricity sources located in Humboldt County can't increase the total cost of energy more than 10% above what Nordic could buy in the market of 100% renewable/non-carbon energy (baseline for this alternative).

4.3.3. Section 3.5.7 – Cumulative Impacts

The text on DEIR page 3.5-10 has been updated to reflect the RCEA's energy goals, consistent with the discussion of RCEA's goals throughout the balance of the DEIR. The updated analysis is non-consequential, and the findings of a less than significant impact (Impact ENG-c-1) remain.

This coincides with major milestones for both SB 100, a California law mandating 60% of the power purchased by California utilities to come from renewable sources by 2030, and 100% by 2045, as well as **follows** RCEA's goal of their power mix consisting of 100% **combination state-designated renewable energy and state-designated** net-zero-carbon-emission renewable sources by **2025** 2030. The environmental impacts of producing the energy consumed by the facility will be drastically reduced through these measures. As a condition of the Coastal Development Permit, NAFC will be required to meet RCEA and the State of California's goals incorporating non-carbon-based energy by **2025**2030.

4.4. Section 3.7 – Greenhouse Gases

4.4.1. Section 3.7.6 – Impacts and Mitigation Measures

The text on DEIR page 3.7-13 has been updated to reflect the RCEA's energy goals, consistent with the discussion of RCEA's goals throughout the balance of the DEIR. The updated analysis is non-consequential, and the findings of a less than significant impact (Impact GHG-a) remain.

The RCEA has further committed to achieving a 100% renewable and net-zero carbon emissions sources by **2025**2030. As a condition of the Coastal Development Permit, NAFC will be required to meet RCEA and the State of California's goals of utilizing non-carbon-based energy sources by Greenhouse Gas Emissions **2025**2030.

4.4.2. Section 3.7.6 – Impacts and Mitigation Measures

The text on DEIR page 3.7-14 has been updated provide clarity and reduce confusion about the quantitative GHG analysis. The change does not affect the analysis.

~~The proposed Project will deliver product to local (west coast) markets, thereby lessening the need for these markets to import seafood from long distances. Farmed Atlantic Salmon is imported to the west coast and United States from Europe and South America a local source will reduce GHG emissions from air freight and other transportation traffic. Greenhouse gases have a global cumulative effect regardless of where they emanate from. Production of the same product in the two most dominant Atlantic Salmon farming areas, Chile, and Norway, would require the same resources and GHG as farming the same product locally, however the shipping of the fresh product by airplane 7,000 and 5,000 miles from these countries to the west coast market effectively doubles the CO2 footprint versus a domestic production operation that can distribute to customers in the immediate region by truck. This replacement of existing, higher emitting sources of importing farmed salmon is not incorporated into the Proposed Project's quantitative analysis; therefore, the emissions analysis is overly conservative.~~

4.5. Section 3.12 – Transportation

4.5.1. Section 3.12.2 – Setting / Roadways

The attribution of SR 255 as a designated truck route was not included in the text describing the roadways and presents important information regarding truck traffic and incompatible uses which support the findings. The addition of this information is non-consequential as it relates to the findings, and less than significant impacts (Impact TR-c and Impact TR-e) remain.

The Samoa Peninsula has limited vehicular access. New Navy Base Road is the primary route that links development along the peninsula. Immediately north of the Town of Samoa, New Navy Base Road intersects with SR 255 and splits, resulting in one route southeast over the Samoa Bridge to Eureka and US 101, and one route north through the remainder of the Samoa Peninsula where it connects to US 101 in Arcata. These are the only two routes available for employees, visitors, and freight traffic to access the Project Site. **New Navy Base Road has a posted speed limit of 55 mph. SR 255 between US 101 in Eureka and the Samoa peninsula, and north through Manila and Arcata is a designated truck route (Caltrans 65' Legal Route) per the Caltrans Truck Networks Map for District 1 (Caltrans 2019) with a posted speed limit of 55 mph through the majority of the route. In Eureka, SR 255 has a posted speed limit of 30 mph from US 101 to the A.M. Bistrin Memorial Bridge, and in Arcata SR 255 has a posted speed limit of 35 mph. Additionally, US 101 is designated a Terminal Access Route (STAA) through the majority of the County, apart from the Richardson Gove segment (Caltrans 2019).** Immediate access to the Project Site is provided by Vance Avenue, which runs parallel to a portion of New Navy Base Road. Vance Avenue is connected to New Navy Base Road primarily by Bay Street and LP Drive (or Samoa Pulp Lane).

4.5.2. Section 3.12.2 – Setting / Pedestrian and Bicycle Facilities

Specific roadway geometry was not included in the text and presents important information regarding truck traffic and incompatible uses which support the findings. There was also a typographic error in the description of the proposed Class I facility which has been corrected. The addition of this information is non-

consequential as it relates to the findings; Less than Significant Impacts (Impact TR-c and Impact TR-e) remain.

The Humboldt County Regional Bicycle Plan identifies ~~New Navy Base Road~~ **Vance Avenue** adjacent to the Project Site as a proposed future Class I bike path, which is defined as a separated, surfaced right-of-way designated exclusively for non-motorized use (can be solely for bicyclists, or can be shared with pedestrians and/or equestrians). The minimum width for each direction is eight feet (2.4 meters), with a five foot (1.5 meter) minimum width for a bi-directional path. The proposed Class I bike path would continue north along SR 255 to the City of Arcata (HCAOG 2018). Roadways in the Project Area do not currently include sidewalks, so pedestrians are limited to the roadway shoulder or in the road right-of-way. **New Navy Base Road has varying shoulder width, typically eight feet. There are currently traffic calming and speed reduction measures through Manila with warning signs and pavement markings (peripheral transverse lines). SR 255 through Manila has sufficient shoulder width of approximately eight feet to safely accommodate pedestrian and bicyclist travel. SR 255 in Arcata has sidewalks and bike lanes.**

4.5.3. Section 3.12.2 – Setting / Transportation Management Plan

Development of a transportation management plan, describing alternative transportation incentives and operational strategies that NAFC has voluntarily committed to, was developed by NAFC working in collaboration with stakeholder NGOs. As such, the text in DEIR Section 3.12 has been updated to include the transportation management plan. Impact analysis is throughout the DEIR is unaffected by this detail. Project Description has been updated to reference the transportation management plan that NAFC has voluntarily committed to in association with the Project. The addition of this information is non-consequential as it relates to the findings. As described in the DEIR, no additional mitigation measures are warranted.

The following text is incorporated as a new subsection of DEIR Section 3.12.2:

Transportation management plan

Nordic Aquafarms facility is located at the former Georgia Pacific Pulp Mill site on the Samoa Peninsula. The proposed farm is located approx. 5 miles from Downtown Eureka and approx. 9 miles from Downtown Arcata. Nordic anticipates that future employees will live in various areas within Humboldt County with an average VMT of 10.5 per employee per day.

To incentivize Nordic employees to use alternative modes of transportation to commute to work, the following transportation management plan is developed.

All employees qualify to participate in the program but must register in the online system/app provided for by Nordic Aquafarms California. Employees who use and register alternative modes of transportation to and from work (including rideshare passengers and drivers) more than eight times per month will qualify for the Nordic Aquafarms California's transportation incentive program. Details of the incentive program will be developed by the HR department in collaboration with participating employees once the program is up and running.

The transportation management plan is subject to yearly audit and approval by the planning department in Humboldt County in consultation with the Humboldt County Association of Government (HCAOG) and the Humboldt Transit Authority (HTA). The Planning Department, in consultation with HCAOG and HTA, may approve changes to the initiatives due to lack of participation or other changes in context.

DEIR Table 3.12 Transportation Management Plan for Nordic Aquafarms Samoa Facility

Initiative	Description	Requirements
<u>Free Bus Passes</u>	<u>Nordic will provide bus passes, on a monthly basis, for employees who use public transportation to and from work.</u>	<u>An employee must have used the bus pass for commuting to work at least eight times over the last month or an average of eight times per month over the last three months to continue to qualify for bus passes, assessed quarterly.</u>
<u>Ride Sharing</u>	<u>Employees who provide ride to and from work for coworkers will be reimbursed IRS rates for mileage driven with a passenger.</u>	<u>Rides need to be registered in the system by the driver and passenger.</u> <u>Drivers (employees who drive) need to be able to confirm that she/he/they has a valid license, and that the vehicle is registered and insured.</u> <u>Nordic has no liability for any accidents or damages incurred during ridesharing.</u>
<u>Extension of Bus Route</u>	<u>Nordic has been in dialog with the Bus Authorities to provide an extension of the bus route to the facility.</u> <u>Bus route would be extended to correspond with beginning and end of main shifts.</u>	<u>Employees who ride the bus will qualify for guaranteed ride home program.</u>
<u>Van Pools</u>	<u>Nordic will provide vanpools to designated transportation hubs in Arcata and Eureka before main shift in the morning and after the end of the main shift in the afternoon.</u>	<u>Would require employees to register and sign up for trips in advance, but employees can ride with the van without signing up if there is available space.</u>
<u>Guaranteed Ride Home (GRH)</u>	<u>Guaranteed Ride Home (GRH) provides employees who regularly carpool, vanpool, bike, walk or take transit to work with a FREE and reliable ride home when one of life's unexpected emergencies arise.</u> <u>Commuters may take advantage of GRH up to six times per year to get home for unexpected emergencies such as a personal illness or a sick child.</u> <u>GRH is designed to rescue commuters who are worried about how they'll get home when an emergency arises. Knowing there's a guaranteed ride home allows one to use commuting options like transit and carpools with peace of mind and confidence.</u> <u>Source: Commuterconnections.org</u>	<u>To qualify, the employee must use one of the alternative transportation solutions at least twice a week or eight times per month.</u> <u>Qualifying commutes are based on the previous month or an average of the three previous months.</u> <u>The employee will be fully qualified the first month of participation in the program.</u>
<u>Free Ride Home for commuters when the employer mandates overtime</u>	<u>Employees who have registered in commuter program and who has commuted to work with a qualified means of transportation, is guaranteed a free ride home if unplanned overtime is mandated by the employer.</u>	<u>Overtime must be mandated by the employer and be of an unexpected or unplanned nature. If overtime is mandated by the employer but planned for in advance, transportation solutions home need prior approval.</u>

Initiative	Description	Requirements
<u>Charging stations for EV</u>	<u>Nordic will provide charging stations for electric vehicles on site for employees during working hours.</u>	<u>Employees will use app to register for charging.</u> <u>Priorities will be given to EVs over hybrid cars.</u> <u>To allow for the highest number of participants, employees may reserve space in advance and must be able to switch parking space after charging.</u>
<u>Bicycle parking facilities</u>	<u>There will be sheltered bicycle parking facilities on site.</u> <u>It will also be possible to charge electric bikes onsite.</u>	
<u>Showers & wardrobes for employees</u>	<u>Facilities will be provided for employees to shower and change to encourage waking, running, biking to work.</u>	
<u>Cafeteria on site</u>	<u>There will be a cafeteria onsite for employees to eat lunch.</u>	
<u>Incentive Program</u>	<u>Nordic will provide rewards or other incentives for employees who commute to work by modes other than single-occupancy vehicle.</u>	

4.5.4. Section 3.12.3 – Regulatory Framework / Bicycle Plan

Description of the proposed Class III Bicycle Route identified in the Humboldt Regional Bicycle Plan was requested to be considered in the DIER. The addition of this information is non-consequential as it relates to the findings; Less than Significant Impacts (Impact TR-a and Impact TR-c) remain.

The 2018 Regional Bicycle Plan is a 20-year planning document that is updated every five years. The primary goal stated in the plan is to create the safest conditions for bicyclists by providing bikeways and improving roadways to eliminate barriers to bicycle travel (HCAOG 2018). Projects identified as priorities in the current Regional Bicycle Plan are anticipated to implemented within a five-year period. Planned facilities in the Project vicinity include a proposed Class I Bike Path (Humboldt Bay Trail – West Bay) along Vance Avenue in the Samoa Peninsula and adjacent to SR 255 north of New Navy Base Road to Arcata, and a proposed Class III Bicycle Route along SR 255 between US 101 in Eureka, and also along SR 255 north to Arcata. Additionally, a Class I trail is also proposed along SR 255 through Manila, and a Class I trail is proposed parallel to US 101 (Humboldt Bay Trail – East Bay).

4.5.5. Section 3.12.6 – Impacts and Mitigation Measures / Impact TR-c

NAFC has provided additional clarifying detail related to weekly and daily truck traffic. Additionally, an error in calculation has been corrected in Section 3.12 (Transportation) to account for the number Project-related truck trips per day (in and out) estimated on New Navy Base Road and segments of SR 255. The updated analysis is non-consequential, and the findings of a less than significant impact (Impact TR-c and Impact TR-e) remain.

As shown in Table 3.12-3, New Navy Base Road currently has a relatively high amount of heavy vehicle/truck traffic compared to the segments of SR 255. Based on the VMT analysis previously described, the Project is anticipated to add 205 automobile trips daily and ~~46~~ **32** trucks per day, based on correspondence with ~~Nordic Aquafarms (project applicant)~~ **NAFC** and the **as described in Section 2.0 (Project Description)** ~~Project Description~~. The daily project vehicular trips and daily project truck trips are then added to the existing roadway volumes, **based on where specific trucks will be going to and from as described in Section 2.0 (Project Description)**, and conservatively assume a 50/50 split for Project **employee commute** trips traveling on SR 255 either north of the Samoa Bridge (towards Arcata) or east towards Eureka. DEIR Table 3.12 presents the Project-added daily trips, and the resulting Existing with Project ADT and HV%.

DEIR Table 3.12 Project and Existing with Project Traffic and Heavy Vehicles

ID	Roadway	Location	Project-Added Daily Commute Trips	Project-Added Heavy Vehicles Truck Trips	Existing + Project ADT	Existing + Project Trucks Trips	Existing + Project Truck %
1	New Navy Base Road	n/o Cookhouse Rd	205	46 32	5,006 5,022	274 290	5.5 5.8%
2	New Navy Base Road	n/o LP Drive	205	46 32	3,394 3,407	238 254	7.0 7.5%
3	SR 255	e/o New Navy Base Rd	444 103	8 15	8,471 8,478	203 210	2.4 2.5%
4	SR 255/New Navy Base Rd	n/o SR 255	43 102	8 17	6,557 6,616	458 167	2.4 2.5%

As shown in DEIR Table 3.12, the Project's anticipated truck volumes are not expected to have ~~an a~~ **a significant** effect on the average daily percentage of truck traffic that currently exists. With the Project in place, New Navy Base Road ~~will remain at 7.0%~~ **is estimated to have 7.5%** heavy vehicle traffic daily north of LP Drive, closest to where the Project is located. **This is only an increase of no more than 0.5% from existing conditions and is therefore not substantial.** The Project does not present a significant intensification of use beyond what the road network currently experiences and accommodates. Further, the Project is proposed in an existing industrial area, and Project access formerly served 500+ wood chip trucks per day. The Project traffic and anticipated truck traffic are consistent with and compatible with the existing surrounding uses. ~~The estimated number of daily Project trucks (16) is not significant compared to the existing daily trucks travelling along New Navy Base Road (274).~~ **The Project anticipates 32 truck trips per day on New Navy Base Road, 17 truck trips per day on SR 255 north of New Navy Base Road towards Arcata, and 15 truck trips per day on SR 255 east towards Eureka. Comparing the Project truck trips to the existing 258, 150, and 195 truck trips per day on each of these roads, respectively, is not a significant increase in the amount of truck trips per day, and additionally would not**

result in a substantial increase in hazards based on the daily truck percentage increase of no more than 0.5% on New Navy Base Road and no more than a 0.2% increase on SR 255.

4.5.6. Section 3.12.6 – Impacts and Mitigation Measures / Impact TR-c

Additional review of collision data was requested along State Route 255 both north of and east of New Navy Base Road. The analysis presents information that supports the findings. The updated analysis is non-consequential, and the findings of a less than significant impact (Impact TR-c) remain.

Additionally, historical collision data over a five-year period from 2015-2019 was reviewed along New Navy Base Road **and SR 255** in the Project Vicinity **(non-intersection collisions)** for any potential safety implications. **Collision analysis is typically evaluated by transportation planners and engineering professionals based on 3-5 years of historical data, due to changing travel or infrastructure conditions. Caltrans calculates average crash rates based on five years of collision data (Caltrans 2018). Additionally, Caltrans requires the most recent three to five years of collision data for Benefit Cost Ratio projects for the Highway Safety Improvement Program.** The collision data was from the Transportation Injury Mapping System (TIMS), which provides access to the Statewide Integrated Traffic Records System (SWITRS). There were two minor-injury collisions reported along New Navy Base Road in the vicinity of LP Drive. None of the collisions involved trucks, pedestrians, or bicycles. Based on the roadway volumes and characteristics, two collisions over a five-year period does not present a significant concern related to safety.

Historical collision data was reviewed along SR 255 east of and north of New Navy Base Road. On SR 255, between New Navy Base Road and US 101, there were zero pedestrian- or bicyclist-involved collisions during the five-year period along the roadway. On SR 255, north of New Navy Base Road, there was 1 pedestrian-involved collision in 2017 approximately 850 feet south of the intersection of SR 255/Vance Avenue, and 1 bicycle-involved collision in 2018 approximately 530 feet north of SR 255/Young Lane. Further investigation into the bicycle collision presented that it was a “non-collision”, and no motor-vehicle was actually involved. Based on the roadway volumes and characteristics, one motor-vehicle vs. pedestrian collision over a five-year period does not present a significant concern related to safety on SR 255.

In addition, a review of 10-year collision history presented that none of the bicyclist or pedestrian-involved collisions on SR 255 also involved trucks, and that the majority of collisions on US 101 in Eureka occurred at intersections with pedestrians where either the driver failed to yield the right of way while turning, or the pedestrian crossed illegally or failed to obey crosswalk signals.

4.6. Section 4 – Alternatives

4.6.1. Table 4-2 Draft EIR

As requested by CDFW, the bottom row of DEIR Table 4.2 has been updated to note local concerns expressed regarding cultivation of Atlantic salmon. However, the selection of the Environmentally Superior Alternative in Section 4.4 of the DEIR is unaffected by this notation.

DEIR Table 4.2 Comparison of Potential Fish Species

	Atlantic Salmon (Seawater)	Steelhead (Trout in Seawater)	Rainbow Trout (Freshwater)	Yellowtail Kingfish
Treated Effluent Discharge	Use of about 200 liters per kilogram of feed consumed and an FCR* of 1.05-1.1.	Higher FCR* (1.4-1.5) results in higher amount of nutrients discharged	Higher FCR* (1.4-1.5) results in higher ratio of nutrients discharged Greater quantity of freshwater required for production.	Much higher water uses per pound of fish produced. Up to 50% higher FCR* with higher marine protein content in feed. Would require either a large amount of water for cooling or much higher energy use to cool discharge water to comply with regulations.
CO ₂ Impact	Would replace fresh fish imported with airfreight from South America or Europe. About 1/3 of total CO ₂ footprint.	There are no imports to replace, thus total CO ₂ impact would be higher.	There are no imports to replace, thus total CO ₂ impact would be higher.	Would replace some international imports, but still has a higher CO ₂ footprint than salmon. Higher consumption of energy and water will impact CO ₂ footprint negatively.
Egg Source	<ul style="list-style-type: none"> - Year-round supply with several sources to ensure reliability - Sufficient quantity - All female - RAS selected breeding program 	<ul style="list-style-type: none"> - Seasonal supply 7months/year (Oct-April) - All female - Standard breeding program 	<ul style="list-style-type: none"> - Year-round supply - All female - Breeding program for recreational fisheries 	<ul style="list-style-type: none"> - No commercial egg supplies - Requires brood-stock onsite - Requires complex hatchery production onsite to achieve fingerlings. - Mixed sex stock
Freshwater Use	Relatively low	Relatively low	Very high	Low – fish performs best in 20-26 parts per thousand (ppt) salinity.

	Atlantic Salmon (Seawater)	Steelhead (Trout in Seawater)	Rainbow Trout (Freshwater)	Yellowtail Kingfish
Seawater Use	Relatively high	Relatively high	Relatively low Seawater would only be used for cooling.	<ul style="list-style-type: none"> – Extremely high – Water use per pound of feed three times higher than Atlantic Salmon. – Large amounts needed for cooling. – A Yellowtail Kingfish facility in Maine is permitted (Maine Pollutant Discharge Elimination System Permit #ME0037559) for 28.7 MGD seawater discharge for 8,000 metric ton production.
Biological Risk	<p>Highly domesticated source stock and demonstrated farming success.</p> <p>Extensive R&D and experience base in raising this species in aquaculture, also in RAS.</p> <p>Genetics, feeds, fish health, and biosecurity measures are far advanced.</p>	<p>Limited demonstration with species in large seawater RAS.</p> <p>Survival and quality variable through smoltification in seawater.</p>	<p>Research, development, and farming experience is extensive.</p> <p>Limited experience with species in large RAS due to financial limitations</p>	<ul style="list-style-type: none"> – Limited R&D and farming experience. – Increasing experience in RAS. – No domesticated source stocks. – Survival rate and quality from hatchery can be variable.

	Atlantic Salmon (Seawater)	Steelhead (Trout in Seawater)	Rainbow Trout (Freshwater)	Yellowtail Kingfish
Survivability and Hybridization with Local Species if Escaped	<p>Non-native species to west coast.</p> <p>Low survivability as species is not native and fish are highly domesticated.</p> <p>Historic releases on the west coast with no viable, reproductive stock as a result. (Amos and Appleby 1999, Salmon Fish Now 2021).</p> <p>Hybridization experiments with Pacific salmon strains resulted in non-viable offspring.</p> <p>All-female stock prevents reproduction in nature.</p> <p>Impact on local species and habitat based on experience is low.</p>	<p>Native to West Coast saltwater and freshwater systems.</p> <p>Saltwater adapted steelhead have high survivability with potential to impact habitat and native stocks.</p> <p>Even though all-female, still reproductively viable.</p>	<p>Native to California freshwater systems.</p> <p>Can survive on the west coast but transition from fresh to salt water may be difficult to survive.</p> <p>Even though all female, still reproductively viable.</p>	<p>Limited experience on the west coast.</p> <p>Yellowtail Kingfish can survive in southern waters of the west coast, but domesticated fish seldom do (Miegel 2010).</p> <p>Possible breeding and predatory interaction with local marine fish species.</p>
Feed Conversion & Ingredients	<p>1.05-1.1 FCR*</p> <p>Commonly 15-20% marine ingredients in feed, although levels have been continuously subject to reduction.</p>	<p>1.2-1.4 FCR*</p> <p>Similar ingredients to salmon feed.</p>	<p>1.2-1.4 FCR*</p> <p>Similar ingredients to salmon feed.</p>	<p>1.5 FCR*</p> <p>Higher component of marine ingredients in feed.</p> <p>Nutrient requirements less understood.</p>
Local Concerns	<p>Local concerns expressed regarding Atlantic Salmon</p>	<p>Concerns voiced by local tribes, as Steelhead (<i>Oncorhynchus mykiss</i>) are considered sacred by some local tribes (Yurok Tribe 2021).</p>		

* FCR = Food Conversion Ratio

4.7. Section Appendices

4.7.1. Section Appendix D - Marine Resources Biological Evaluation

Ken Mierzwa did not contribute to the Marine Resources Biological Evaluation report associated with the Nordic Aquafarms DEIR. Mr. Mierzwa's name has been removed from the report as can be seen below on Page 53 of the Marine Resources Biological Evaluation (DEIR Appendix D).

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4.7.2. Section Appendix M – NOP Scoping and Comment Letters

The NOP comment letter from the Salmonid Restoration Federation dated July 6, 2021, has been included in Appendix B to the FEIR.

4.7.3. Section Contents

There was no Mandatory Findings of Significance in the DEIR, and it was incorrectly shown in the Contents on page i.

~~3.15 Mandatory Findings of Significance~~

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6. Report Preparers

6.1. Lead Agency

County of Humboldt

6.2. Applicants

6.2.1. Nordic Aquafarms

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Carter Cyr, Nordic Aquafarms Inc. – Production Manager

Cathal Dinneen, Nordic Aquafarms Inc. – Senior Vice President Production

David Noyes, Nordic Aquafarms Inc. – Senior Vice President of Technology

Edward Cotter, Nordic Aquafarms Inc. – Senior Vice President Engineering & Construction

John Hessler, Nordic Aquafarms Inc. – Project Manager / Engineer Maine

Nick King, Nordic Aquafarms Inc. – Vice President Operational Quality Control

Scott Thompson, NAFC – Project Manager/Engineer California

Steve Sachs, Nordic Aquafarms Inc. – Executive Vice President Engineering & Construction

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Illingworth & Rodkin, Inc.

Roscoe & Associates

Tenera Environmental

Wildlife Research Associates

Appendices

Appendix A

Draft NPDES Order

North Coast Regional Water Quality Control Board

**ORDER R1-2021-0026
NPDES NO. CA1000003
WDID NO. 1B20161NHUM**

Waste Discharge Requirements for the Nordic Aquafarms California, LLC Humboldt County

The following Discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Discharger	Nordic Aquafarms California, LLC
Name of Facility	Nordic Aquafarms California, LLC
Facility Address	1 TCF Drive Samoa, CA 95501 Humboldt County

Table 1. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North-South)	Discharge Point Longitude (East-West)	Receiving Water
001	Ocean Outfall	40° 49' 10"	-124° 13' 32"	Pacific Ocean

This Order was adopted on:	August 19, 2021
This Order shall become effective on:	October 1, 2021
This Order shall expire on:	September 30, 2026

The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than: **November 30, 2025**. The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, North Coast Region have classified this discharge as follows: **Minor**

THEREFORE, IT IS HEREBY ORDERED, that in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, Matthias St. John, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, North Coast Region, on the date indicated above.

Matthias St. John, Executive Officer

21_0026_Nordic_NPDES Permit

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1. FACILITY INFORMATION

Information describing the Nordic Aquafarms California, LLC (Facility) is summarized on the cover page and in sections 1 and 2 of the Fact Sheet (Attachment F). The Facility is Concentrated Aquatic Animal Production (CAAP) as defined in 40 Code of Federal Regulations (40 C.F.R.) section 122.24 and a Fish Processing Facility as defined in 40 C.F.R. section 408. Section 1 of the Fact Sheet also includes information regarding the Facility's permit application.

2. FINDINGS

The California Regional Water Quality Control Board, North Coast Region (Regional Water Board), finds:

2.1. Legal Authorities

This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 1 subject to the WDRs in this Order.

2.2. Background and Rationale for Requirements

The North Coast Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E are also incorporated into this Order.

2.3. Provisions and Requirements Implementing State Law

The provisions/requirements in subsections 4.2, 4.3, and 5.2 are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

2.4. Notification of Interested Parties

The Regional Water Board Name has notified the Permittee and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

2.5. Consideration of Public Comment

The North Coast Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

3. DISCHARGE PROHIBITIONS

3.1. Discharge Prohibition 3.1

The discharge of any waste not disclosed by the Permittee or not within the reasonable contemplation of the Regional Water Board is prohibited.

3.2. Discharge Prohibition 3.2

Creation of pollution, contamination, or nuisance, as defined by Water Code section 13050, is prohibited.

3.3. Discharge Prohibition 3.3

The Discharge of waste to Humboldt Bay is prohibited.

3.4. Discharge Prohibition 3.4

The discharge of domestic waste, treated or untreated, to surface waters is prohibited.

3.5. Discharge Prohibition 3.5

The discharge of waste to land that is not owned by the Permittee or under agreement to use by the Permittee is prohibited.

3.6. Discharge Prohibition 3.6

The discharge of waste at any point not described in Finding 2.2 of the Fact Sheet or authorized by a permit issued by the State Water Resources Control Board (State Water Board) is prohibited.

3.7. Discharge Prohibition 3.7

The maximum daily flow of waste through the Facility in excess of 12.5 mgd is prohibited. Compliance with this prohibition shall be determined as defined in sections 7.7 of this Order.

3.8. Discharge Prohibition 3.8

The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.

3.9. Discharge Prohibition 3.9

The discharge of waste resulting from cleaning activities is prohibited.

3.10. Discharge Prohibition 3.10

The discharge of detectable levels of chemicals used for the treatment and control of disease, other than salt (NaCl), is prohibited.

4. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS**4.1. Effluent Limitations – Discharge Point 001****4.1.1. Final Effluent Limitations – Discharge Point 001**

The discharge of treated wastewater shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location Eff-001, as described in the Monitoring and Reporting Program (MRP) (Attachment E).

Table 2. Effluent Limitations

Parameter (Table Note 1)	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd			12.5		
Biochemical Oxygen Demand 5-day @ 20°C (BOD ₅)	lbs/day	6,270 (Table Note 2)		10,230 (Table Note 2)		
Biochemical Oxygen Demand 5-day @ 20°C (BOD ₅)	lbs/day	12,566 (Table Note 3)		20,503 (Table Note 3)		
Total Suspended Solids	mg/L					60
Total Suspended Solids	lbs/day	1, 254 (Table Note 2)		2,145 (Table Note 2)		6,255
Total Suspended Solids	lbs/day	2,513 (Table Note 3)		4,299 (Table Note 3)		6,255
pH	standard units	---	---	---	6.0	9.0
Settleable Solids	mL/L	1.0	1.5	---	---	3.0
Oil and Grease	mg/L	25	40	---	---	75
Oil and Grease	lbs/day	248 (Table Note 2)		693 (Table Note 2)		
Oil and Grease	lbs/day	496 (Table Note 3)		1,389 (Table Note 3)		
Turbidity	NTU	75	100	---	---	225

Table Notes

1. See Definitions in Attachment A and Compliance Determination discussion in section 7 of this Order.
2. Effluent Limit Guidelines established in 40 C.F.R. section 408 subpart S establishes mass-loading technology-based effluent limitations (TBELs) for west coast salmon processing facilities. TBELs for Phase 1 are based on 165,000 lbs of fish processed per day.
3. Effluent Limit Guidelines established in 40 C.F.R. section 408 subpart S establishes mass-loading technology-based effluent limitations (TBELs) for west coast salmon processing facilities. TBELs for Phase 2 are based on 330,693 lbs of fish processed per day.

4.1.2. Interim Effluent Limitations – Not Applicable

This Order does not establish interim effluent limitations or schedules for compliance with final limitations.

4.2. Land Discharge Specifications – Not Applicable

This Order does not authorize discharges of waste to land.

4.3. Water Recycling Specifications and Requirements – Not Applicable

This Order does not authorize discharges of recycled water.

4.4. Other Requirements**4.4.1. Disinfection Process Requirements for Ultraviolet Light (UV) Disinfection System**

The Permittee shall operate the UV disinfection system to ensure that the UV design dose is met, and pathogens are not discharged to the receiving water.

- 4.4.1.1. Prior to initial discharge at Discharge Point 001, the Permittee shall submit, for Executive Officer approval, a copy of a letter from the UV supplier showing written acceptance of the UV system design specifications and capacity for the Facility
- 4.4.1.2. Provide continuous, reliable monitoring of flow, UV transmittance (UVT), UV intensity, UV dose, and UV power at Monitoring Location INT-001. The Permittee must demonstrate compliance with the UV dose requirement.
- 4.4.1.3. Operate the UV disinfection system to provide a minimum UV dose of 250 millijoules per square centimeter (mJ/cm²) at all times at Monitoring Location INT-001.
- 4.4.1.4. Visually inspect the quartz sleeves and cleaning system components per the manufacturer's operation manual for physical wear (scoring, solarization, seal leaks, etc.) and check the efficacy of the cleaning system.
- 4.4.1.5. Wipe/clean the quartz sleeves at fixed intervals following the manufacturer's procedures to ensure the minimum required UV dose delivery is consistently achieved. Cleaning intervals shall be increased as necessary to ensure compliance with permit requirements.
- 4.4.1.6. Operate the UV disinfection system in accordance with an approved operations and maintenance plan, which clearly specifies the operational limits and responses required for critical alarms. The Permittee shall maintain a copy of the approved operations plan at the treatment plant and make the plan readily available to properly trained operations personnel and regulatory

agencies. The Permittee shall post a quick reference plant operations data sheet at the treatment plant. The data sheet shall include the following information:

- 4.4.1.6.1. The alarm set points for high and low flow, UV dose and transmittance, UV lamp operation hours, and power.
- 4.4.1.6.2. The values of high and low flow, UV dose and transmittance, UV lamp operation hours, and power when flow must be diverted to waste.
- 4.4.1.6.3. The required frequency of calibration for all meters measuring flow, UVT, and power.
- 4.4.1.6.4. The required frequency of mechanical cleaning/wiping and equipment inspection.
- 4.4.1.7. Replace lamps per the manufacturer's recommendation, or sooner, if there are indications the lamps are failing to provide adequate disinfection. The Permittee shall maintain lamp age and lamp replacement records for a time period consistent with the record retention requirements in the Standard Provisions (Attachment D, section IV).
- 4.4.1.8. Properly calibrate flow meters and UVT monitors to ensure proper disinfection.
- 4.4.1.9. Inspect the UVT meter and check against a reference bench-top unit weekly to document accuracy.
- 4.4.1.10. Recalibrate the on-line UVT analyzer by a procedure recommended by the manufacturer if the on-line analyzer UVT reading varies from the bench-top spectrophotometer UVT reading by 2 percent or more.
- 4.4.1.11. Operate the UV disinfection system with a built-in automatic reliability feature that must be triggered when the system is below the target UV dose. If the measured UV dose goes below the minimum UV dose, the UV reactor in question must alarm and startup the next available row of UV lamps or UV lamp bank.
- 4.4.1.12. Not allow equivalent or substitutions of equipment to occur without an adequate demonstration of equivalent disinfection performance to the satisfaction and approval of the Executive Officer.
- 4.4.1.13. Ensure that flow through the UV disinfection system not exceed the peak design flow of the system as a daily maximum

5. RECEIVING WATER LIMITATIONS

Receiving water limitations are based on water quality objectives contained in the Ocean Plan (Surface Water Limitations) are a required part of this Order. Receiving water conditions not in conformance with the limitations are not necessarily a violation of this Order. Compliance with receiving water limitations shall be measured at monitoring locations described in the MRP (Attachment E). The Regional Water Board may require an investigation to determine cause and culpability prior to asserting that a violation has occurred.

5.1. Surface Water Limitations

Discharges from the Facility shall not cause the following in the receiving water upon completion of initial dilution (115:1):

5.1.1. Ocean Plan

5.1.1.1. Physical Characteristics

- 5.1.1.1.1. Floating particulates and oil and grease shall not be visible.
- 5.1.1.1.2. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.
- 5.1.1.1.3. Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste.
- 5.1.1.1.4. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

5.1.1.2. Chemical Characteristics

- 5.1.1.2.1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.
- 5.1.1.2.2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- 5.1.1.2.3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.
- 5.1.1.2.4. The concentration of substances set forth in chapter II, Table 1 of the Ocean Plan shall not be increased in marine sediments to levels which would degrade indigenous biota.

- 5.1.1.2.5. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.
- 5.1.1.2.6. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.
- 5.1.1.2.7. Discharges shall not cause exceedances of water quality objectives for ocean waters of the state established in chapter II, Table 1 of the Ocean Plan.
- 5.1.1.2.8. Discharge of radioactive waste shall not degrade marine life.
- 5.1.1.3. **Biological Characteristics**
 - 5.1.1.3.1. Marine communities, including vertebrate, invertebrate and plant species, shall not be degraded.
 - 5.1.1.3.2. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.
 - 5.1.1.3.3. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.
- 5.1.1.4. **General Standards**
 - 5.1.1.4.1. The discharge shall not cause a violation of any applicable water quality standard for the receiving waters adopted by the Regional Water Board or the State Water Board as required by the CWA and regulations adopted thereunder.
 - 5.1.1.4.2. Waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
 - 5.1.1.4.3. Waste discharged to the ocean must be essentially free of:
 - 5.1.1.4.3.1. Material that is floatable or will become floatable upon discharge.
 - 5.1.1.4.3.2. Settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life.
 - 5.1.1.4.3.3. Substances which will accumulate to toxic levels in marine waters, sediments or biota.
 - 5.1.1.4.3.4. Substances that significantly decrease the natural light to benthic communities and other marine life.

- 5.1.1.4.3.5. Materials that result in aesthetically undesirable discoloration of the ocean surface.
- 5.1.1.4.4. Waste effluents shall be discharged in a manner which provides sufficient initial dilution to minimize the concentrations of substances not removed in the treatment.
- 5.1.1.4.5. Location of waste discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:
 - 5.1.1.4.5.1. Pathogenic organisms and viruses are not present in areas where shellfish are harvested for human consumption or in areas used for swimming or other body-contact sports.
 - 5.1.1.4.5.2. Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.
 - 5.1.1.4.5.3. Maximum protection is provided to the marine environment.
 - 5.1.1.4.5.4. The discharge does not adversely affect recreational beneficial uses such as surfing and beach walking.

5.1.2. Thermal Plan

5.1.2.1. Temperature Objectives

The discharge shall not result in increases in the natural water temperature exceeding 4°F at (a) the shoreline, (b) the surface of any ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any complete tidal cycle.

6. PROVISIONS

6.1. Standard Provisions

6.1.1. Federal Provisions

The Permittee shall comply with all Standard Provisions included in Attachment D of this Order.

6.1.2. Regional Water Board Standard Provisions

The Permittee shall comply with the following Regional Water Board standard provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:

- 6.1.2.1. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this Facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- 6.1.2.2. In the event the Permittee do not comply or will be unable to comply for any reason, with any prohibition, final effluent limitation, receiving water limitation, or provision of this Order that may result in a significant threat to human health or the environment, such as inundation of treatment infrastructure, breach of pond containment, sanitary sewer overflow, etc., that results in a discharge to a drainage channel or a surface water, the Permittee shall notify Regional Water Board staff within 24 hours of having knowledge of such non-compliance. Spill notification and reporting shall be conducted in accordance with section 5.5 of Attachment D and section 10.5 of the MRP.

6.2. Monitoring and Reporting Program (MRP) Requirements

The Permittee shall comply with the MRP, and future revisions thereto, in Attachment E.

6.3. Special Provisions

6.3.1. Reopener Provisions

6.3.1.1. Standard Revisions

If applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, the Regional Water Board may reopen this Order and make modifications in accordance with such revised standards.

6.3.1.2. Reasonable Potential.

This Order may be reopened for modification to include an effluent limitation if monitoring establishes that the discharge causes, or has the reasonable potential to cause or contribute to, an excursion above a water quality criterion or objective applicable to the receiving water.

6.3.1.3. Whole Effluent Toxicity (WET)

This Order may be reopened to include a new narrative or numeric chronic toxicity limitation, acute toxicity limitation and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on that objective.

6.3.1.4. 303(d)-Listed Pollutants

If an applicable total maximum daily load (TMDL) (see Fact Sheet, section 3.4) program is adopted, this Order may be reopened and effluent limitations for the pollutant(s) that are the subject of the TMDL modified or imposed to conform this Order to the TMDL requirements.

6.3.2. Special Studies, Technical Papers, and Additional Monitoring Requirements**6.3.2.1. Disaster Preparedness Assessment Report and Action Plan**

Natural disasters, extreme weather events, sea level rise, and shifting precipitation patterns, some of which are projected to intensify due to climate change, have significant implications for industrial wastewater treatment and operations. Some natural disasters are expected to become more frequent and extreme according to the current science on climate change. In order to ensure that Facility operations are not disrupted, compliance with conditions of this Order are achieved, and receiving waters are not adversely impacted by permitted and unpermitted discharges, the Permittee shall submit a Disaster Preparedness Assessment Report and Action Plan to the Regional Water Board by **August 1, 2024** for Executive Officer review and approval.

The Permittee shall: (1) conduct an assessment of the wastewater treatment facility, operations, collection, and discharge systems to determine areas of short- and long-term vulnerabilities related to natural disasters and extreme weather, including sea level rise and other conditions projected by climate change science, if applicable; the assessment shall consider, as applicable, impacts to operations due to changing influent and receiving water quality, rising sea level, storm surges, fires, floods, earthquakes, tsunamis, back-to-back severe storms, and other extreme conditions that pose a risk to plant operations and water quality; (2) identify control measures needed to protect, improve, and maintain infrastructure, waste discharge compliance, and receiving water quality in the event of a natural disaster or, if applicable, under conditions resulting from climate change; (3) develop a schedule to implement necessary control measures. Control measures shall include, but are not limited to, emergency procedures, contingency plans, alarm/notification systems, training, backup power and equipment, and the need for planned mitigations to ameliorate potential risks associated with extreme weather events and changing conditions resulting from climate change; and (4) implement the necessary control measures per the approved schedule of implementation.

The Humboldt Bay Harbor, Recreation and Conservation District (HBHRCD) is pursuing a plan that would combine three separately permitted NPDES waste streams through the outfall at Discharge Point 001. Currently, the DG Fairhaven Power Facility and Samoa Wastewater Treatment Plant are

permitted to discharge wastewater through the same ocean outfall at Discharge Point 001. The Permittee may work with these Facilities and any additional dischargers that utilize the ocean outfall to develop and submit for Executive Officer review and approval a joint Disaster Preparedness Assessment Report and Action Plan for the Samoa Peninsula as it relates to the discharge point.

6.3.2.2. **New Chemical and Aquaculture Drug Use Reporting**

Based on information provided by the Permittee in their ROWD, CAAP potential chemicals and aquaculture drugs that may be used at the Facility include the following:

6.3.2.2.1. **Detergents**

6.3.2.2.1.1. Aqualife® Multipurpose Cleaner

A biodegradable, nonhazardous cleaner that is designed specifically for use in fish hatcheries, aquaculture facilities, fish & food processing plants, & agricultural farms. Active ingredients: sodium hydroxide (1-5%), the product is phosphate free, contains no volatile organic compounds and is NSF certified for use in food processing facilities. Used according to the label at dilutions of 1:20. Approximate annual use: 2,232 gallons/year.

6.3.2.2.1.2. Gil Save®

High-foaming chlorinated, alkaline, liquid detergent, Gil Save is designed for foam and high pressure spray cleaning of meat and poultry plants, breweries, dairies and canneries. It is a complete product containing alkalis, water conditioners, chlorine and high-foaming wetting agents. Gil Save is an effective cleaner of food processing equipment by removing fatty and protein soils, pectin, mold, yeast and organic greases. Active ingredients: sodium hydroxide (7-9%), sodium hypochlorite (3-4%). Use according to label at concentrations of 0.2-3% (1/4-4 oz/gallon). Approximate annual use: 678 gallons/year.

6.3.2.2.2. **Clean in Place (CIP)**

6.3.2.2.2.1. Gil Super CIP®

A heavy-duty, chelated-liquid caustic cleaner for use in CIP, boil-out, soak, spray clean and atomization cleaning systems, Gil Super CIP is formulated to remove protein, fatty and carbonized soils typically found in dairy and food processing. Active ingredients: sodium hydroxide (49%). Used according to label at 0.1-3% (1/8-4 oz/gallon). Approximate annual use: 5,840 gallons/year.

6.3.2.2.2. Gil Hydrox®

A concentrated organic, liquid acid cleaner, Gil Hydrox rapidly removes milk/beer stone, alkaline/hard water film and stains/protein build-up from dairy and food processing equipment. It is specially formulated for use in CIP, spray and acid rinse operations. Active ingredients: glycolic acid (29-31%). Used according to label at 0.3-1.5% (½-2 oz/gallon). Approximate annual use: 5,840 gallons/year.

6.3.2.2.3. Disinfectants/Sanitizers**6.3.2.2.3.1. Bleach**

Active ingredient: sodium hypochlorite (8%) in concentrated form. Typically used at 100-1,000 ppm for general cleaning/disinfection. Approximate annual use: 1,500 gallons/year.

6.3.2.2.3.2. Ozone

Ozone is a naturally occurring gas that is unstable and so has a very short half-life. It is formed when an oxygen molecule (O₂) is forced to bond with a third atom of oxygen (O). The third atom is only loosely bound to the molecule, making ozone highly unstable. This property makes ozone an excellent oxidizing agent and ideal for use in water treatment. It reacts rapidly with organic materials (about 3,000 times faster than chlorine) and, unlike chlorine, there are no toxic residues. It reacts, then quickly disappears while the reaction by-product of ozone is oxygen.

Closed process equipment which comes in to contact with fresh or processed food such as pipes, vessels and evaporators and other food contact surfaces must be kept clean and sanitized to maintain a proper level of hygiene. Ozone has been granted Generally Recognized As Safe approval by both the USDA and FDA for direct contact with food and ozone's strongly oxidizing characteristics makes it a viable complete replacement for traditional chemical disinfectants used to sanitize fillet machines, cutting tables, knives, and all equipment that may be used in the seafood processing areas.

In addition, when used in the fish culture systems, ozone is responsible for reducing Total Suspended Solids and Dissolved Organic Carbon, as well as controlling the level of Biochemical Oxygen Demand / Chemical Oxygen Demand. Ozone breaks down large inorganic substances to smaller substances that are more readily biodegradable by bacteria contained in the recirculating aquaculture system (RAS) biological filters while ozone causes small organic particles to aggregate into larger particles which are more easily removed by filters. The combination of these factors leads to higher standards of environmental control and a

reduction in effluent volumes. Approximate annual use: TBD.
Concentration in discharge = 0 ppm.

6.3.2.2.3.3. Virkon® Aquatic

A powerful cleaning and disinfecting solution with efficacy against fish viruses, bacteria, fungi, and molds. Virkon® Aquatic is EPA registered (except in California where registration is pending) for the disinfection of environmental surfaces associated with aquaculture. Active ingredient: Potassium monopersulfate (21.4%). Used in accordance with label as a general cleaner and in footbaths. Working solution strengths normally range from 0.5% - 2.0%. Approximate annual use: 1,100 lbs/year (500 kg/year). Virkon Aquatic is conditionally approved for use once California approves registration and authorizes use.

6.3.2.2.3.4. Zep FS Formula 12167® Chlorinated Disinfectant and Germicide

A liquid chlorine sanitizer and deodorant for use in all types of food-handling establishments. Authorized as no rinse sanitizer for equipment. Provides deodorizing activity by destroying bacteria which generate many disagreeable odors. Can also be used to sanitize commercial laundry. Active ingredients: Sodium hypochlorite (5-10%) and sodium hydroxide (1-3%). Used according to label, effective at concentrations as low as 0.3% (1 oz/ 2 gallons). USDA applicable and EPA and Maine registered. Approximate annual use: 1,980 gallons/year.

6.3.2.3. **Drugs for Fish Treatment**

6.3.2.3.1.1. Parasite-S, Formalin-F, and Formacide-B. (Formalin)

Active ingredient 37% formaldehyde. Used periodically according to the label if needed to alleviate fish health issues due to saprolegniasis, external protozoa and monogenetic trematodes. Typical dose rates from 25 ppm to 1,000 ppm. Approximate annual use: 925 gallons/year.

6.3.2.3.1.2. Finquel® or Tricaine-S (Tricaine methanesulfonate)

Used periodically in accordance with the label to reduce stress on the fish when handling small numbers for examination. Typical dose rates of 15-330 mg/L. Approximate annual use: 1.1 lbs/year (500 gallons/year).

6.3.2.3.1.3. Ovadine® (PVP Iodine)

A buffered 1% Iodine solution (Iodophor) specifically formulated for use in disinfecting fish eggs. It contains a 10% Povidone-Iodine (PVP Iodine) complex, which provides 1% available iodine. Used according to the label at dose rates of 50 -100 ppm as available iodine solution. Estimated usage: 160 gallons/year (600 l/year).

Other chemicals and aquaculture drugs can only be authorized if the Permittee submits a written request to the Executive Officer to use a new drug or chemical. The request for new chemical usage shall contain the following:

- The common name(s) and active ingredient(s) of the drug or chemical proposed for use and discharge;
- The purpose for the proposed use of the drug or chemical (i.e., list the specific disease for treatment and specific species for treatment);
- The amount proposed for use and the resulting calculated concentration in the discharge;
- The duration and frequency of the proposed use;
- Safety Data Sheets (SDS) and available information; and
- Any related Investigational New Animal Drug (INAD), New Animal Drug Application (NADA) information, extra-label use requirements, and/or veterinarian prescriptions.

The Permittee shall also submit chronic toxicity test information on any new chemical or drug applied in solution for immersive treatment in accordance with methods specified in the U.S. EPA Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms (EPA-821-R-02-014) using *Ceriodaphnia dubia* and apply the Test of Significant Toxicity (TST) described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R10-003, 2010). The submission may include previous, valid chronic toxicity test results. Upon review of the written request for new chemical usage, the Executive Officer shall determine the suitability of the chemical(s) for use under this Order. If the chemical is deemed eligible for coverage, the Executive Officer shall issue approval in a letter to the Permittee.

6.3.3. Best Management Practices and Pollution Prevention

6.3.3.1. Best Management Practices (BMP) Plan

The Permittee must submit, 180 days prior to first discharge, or when Facility Operations change, a site-specific BMP Plan developed and implemented as required by 40 C.F.R. part 451, Subpart A. The Permittee shall develop and implements the BMP Plan to prevent or minimize the generation and discharge of wastes and pollutants to waters of the United States and waters of the State and ensure disposal or land application of wastes is in compliance with applicable solid waste disposal regulations. The Permittee shall review the BMP Plan annually and must amend the BMP Plan whenever

there is a change in the Facility or in the operation of the Facility which materially increases the generation of pollutants or their release or potential release to surface waters.

The BMP Plan must include, at a minimum, the following BMPs:

6.3.3.1.1. **Chemical and Solids Controls**

- 6.3.3.1.1.1. Feed management and feeding strategies must minimize the discharge of unconsumed food.
- 6.3.3.1.1.2. Holding tanks must be cleaned at such frequency and in such a manner to prevent the discharge of accumulated solids discharged to waters of the United States.
- 6.3.3.1.1.3. Fish grading, harvesting and other activities within the Facility must be conducted in such a manner to minimize the discharge of accumulated solids.
- 6.3.3.1.1.4. Fish mortalities must be removed and properly disposed of on a regular basis to prevent discharge to waters of the United States, except in cases where the discharge to surface waters is determined to benefit the aquatic environment. Procedures must be identified and implemented to collect, store, and dispose of fish and other solid wastes.
- 6.3.3.1.1.5. A description of practices used to minimize use of drugs and chemicals to the extent feasible.
- 6.3.3.1.1.6. All drugs and pesticides must be used in accordance with applicable label directions (Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) or Federal Food and Drug Administration (FDA)), except under the following conditions, both of which must be reported in writing to the Executive Officer:
 - Participation in Investigational New Animal Drug (INAD) studies, using established protocols; or
 - Extra-label drug use, as prescribed by a veterinarian.

6.3.3.1.2. **Materials Storage**

- 6.3.3.1.2.1. Ensure proper storage of drugs, chemicals, and feed in a manner designed to prevent spills that may result in the unauthorized discharge of drugs, pesticides or feed to land or waters of the United States.
- 6.3.3.1.2.2. Implement procedures for properly containing, cleaning, and disposing of any spilled material.

6.3.3.1.3. Structural Maintenance

- 6.3.3.1.3.1. Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.
- 6.3.3.1.3.2. Conduct regular maintenance of the production system and the wastewater treatment system in order to ensure that they are properly functioning

6.3.3.1.4. Recordkeeping

- 6.3.3.1.4.1. In order to calculate representative feed conversion ratios, maintain records for aquatic animal rearing units documenting the feed amounts and estimates of the numbers and weight of aquatic animals.
- 6.3.3.1.4.2. Keep records documenting the frequency of cleaning, inspections, maintenance and repairs.

6.3.3.1.5. Training

- 6.3.3.1.5.1. Train all facility personnel in spill prevention and how to respond in the event of a spill in order to ensure the proper clean-up and disposal of spilled material adequately.
- 6.3.3.1.5.2. Train personnel on the proper operation and cleaning of production and wastewater treatment systems including training in feeding procedures and proper use of equipment. The Permittee shall ensure that its operations staff are familiar with the BMP Plan and have been adequately trained in the specific procedures it requires.

6.3.3.2. Pollutant Minimization Program (PMP)

- 6.3.3.2.1. The Permittee shall, as required by the Executive Officer, develop and conduct a PMP, as further described below, when there is evidence (e.g., sample results reported as detected, but not quantified (DNQ) when the effluent limitation is less than the method detection limit (MDL), sample results from analytical methods more sensitive than those methods required by this Order, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either:
 - 6.3.3.2.1.1. A sample result is reported as DNQ and the effluent limitation is less than the RL; or
 - 6.3.3.2.1.2. A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP section 10.2.4.

6.3.3.2.2. The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

- 6.3.3.2.2.1. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;
- 6.3.3.2.2.2. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;
- 6.3.3.2.2.3. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;
- 6.3.3.2.2.4. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and
- 6.3.3.2.2.5. An annual status report that shall be submitted as part of the Annual Facility Report due March 1st to the Regional Water Board and shall include:
 - 6.3.3.2.2.5.1. All PMP monitoring results for the previous year;
 - 6.3.3.2.2.5.2. A list of potential sources of the reportable priority pollutant(s);
 - 6.3.3.2.2.5.3. A summary of all actions undertaken pursuant to the control strategy; and
 - 6.3.3.2.2.5.4. A description of actions to be taken in the following year.

6.3.4. **Construction, Operation and Maintenance Specifications**

6.3.4.1. **Proper Operation and Maintenance**

This Order (Attachment D, Standard Provision I.D) requires that the Permittee at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with this Order. Proper operation and maintenance includes adequate laboratory quality control and appropriate quality assurance procedures.

6.3.4.2. **Operation and Maintenance Manual**

The Permittee shall maintain an updated Operation and Maintenance (O&M) Manual for the operational components of the Facility. The Permittee shall submit the O&M Manual to the Regional Water Board **30 days prior to first discharge**, an update the O&M Manual, as necessary, to conform to changes in operation and maintenance of the Facility. The Permittee shall operate and

maintain the Facility in accordance with the most recently updated O&M Manual. The O&M Manual shall be readily available to operating personnel onsite and for review by state or federal inspectors. The O&M Manual shall include the following:

- 6.3.4.2.1. Description of the Facility's organizational structure showing the number of employees, duties and qualifications and attendance schedules (daily, weekends and holidays, part-time, etc.). The description should include documentation that the personnel are knowledgeable and qualified to operate the Facility so as to achieve the required level of treatment at all times.
- 6.3.4.2.2. Detailed description of safe and effective operation and maintenance of treatment processes, process control instrumentation and equipment.
- 6.3.4.2.3. Description of laboratory and quality assurance procedures.
- 6.3.4.2.4. Inspection and essential maintenance schedules for all processes and equipment.
- 6.3.4.2.5. Description of safeguards to assure that, should there be reduction, loss, or failure of electric power, the Permittee will be able to comply with requirements of this Order.
- 6.3.4.2.6. Description of preventive (fail-safe) and contingency (response and cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. These plans shall identify the possible sources (such as loading and storage areas, power outage, waste treatment unit failure, process equipment failure, tank and piping failure) of accidental discharges, untreated or partially treated waste bypass, and polluted drainage.
- 6.3.4.3. **New Facility Certification Report**

All proposed new treatment facilities shall be completely constructed and operable prior to initiation of the discharge from the new or expanded facilities. The Permittee shall submit a certification report, **once construction of the new Facility is complete and prior to first discharge**, for each new treatment facility, expansion of an existing facility, and design capacity re-ratings, prepared by the design engineer. For design capacity re-ratings, the certification report shall be prepared by the engineer who evaluated the treatment facility design capacity. The signature and engineering license number of the engineer preparing the certification report shall be affixed to the report.

The certification report shall:

- 6.3.4.3.1. Identify the dates when testing and full operation capacity of the new treatment facilities occurred.

- 6.3.4.3.2. Demonstrate that the Facility was constructed to meet the design criteria and identify any changes that occurred in relation to the original design plans. This may include submittal of the as-built drawings and a narrative description of any changes that occurred in relation to the original design plans.
- 6.3.4.3.3. Identify and certify the design capacity of the treatment facility; and
- 6.3.4.3.4. Certify the adequacy of each component of the treatment facility to meet requirements of this Order.
- 6.3.5. **Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable**
- 6.3.6. **Other Special Provisions**
 - 6.3.6.1. **Sludge Disposal and Handling Requirements**
 - 6.3.6.1.1. The application to land of collected screenings and other solids, including fish carcasses is not covered or authorized by this Order. Collected screenings and other solids, including fish carcasses shall be disposed of in a manner consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste , as set forth in Cal. Code Regs., tit 27, division 2, subdivision 1, § 20005, et seq.
 - 6.3.6.1.2. A report describing solids handling, disposal method, and final disposition of solids and/or fish carcasses shall be submitted to the Regional Water Board within 90 days of the issuance of the NOA authorizing coverage under this General Order. The report may be submitted in conjunction with the Permittee's BMP Plan.
 - 6.3.6.1.3. All aquaculture drugs and chemicals not discharged in accordance with the provisions of this General Order shall be disposed of in an environmentally safe manner, according to label guidelines, MSDS guidelines, and the Permittee's BMP Plan. Any other form of disposal requires approval from the Executive Officer.
 - 6.3.6.1.4. All collected solid waste removed from liquid wastes shall be removed from screens, sumps, and tanks as needed to ensure optimal plant operation and disposed of in accordance with applicable federal and state regulations.
 - 6.3.6.1.5. Solids treatment, storage, and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, and shall not result in groundwater contamination.
 - 6.3.6.1.6. Solids treatment and storage sites shall have facilities adequate to divert surface water runoff from adjacent areas to protect the boundaries of the site from erosion and prevent drainage from the treatment and storage site.

Adequate protection is defined as protection from a design storm with a 100-year recurrence interval and 24-hour duration.

- 6.3.6.1.7. The discharge of solids shall not cause waste material to be in a position where it is, or can be, conveyed from the treatment and storage sites and deposited in the waters of the state.

6.3.6.2. Storm Water

For the control of storm water discharges from the Facility the Permittee shall seek separate authorization to discharge under the requirements of the State Water Board's Water Quality Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, General Permit for Storm Water Discharges Associated with Industrial Activities (or subsequent renewed versions of the NPDES General Permit CAS000001), which is not incorporated by reference in this Order.

For control of storm water discharges from construction at the Facility the Permittee is required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ.

Best management practices (BMPs) to control the run-on and runoff of storm water to the Facility site shall be maintained and upgraded as necessary. The Permittee shall describe the effectiveness of these storm water BMPs, as well as activities to maintain and upgrade these BMPs during the previous year, in its annual report to the Regional Water Board.

6.3.7. Compliance Schedules – Not Applicable

This Order does not establish interim effluent limitations or schedules of compliance for final numeric effluent limitations.

7. COMPLIANCE DETERMINATION

Compliance with the prohibitions and effluent limitations contained in section 4 of this Order will be determined as specified below.

7.1. General

Compliance with effluent limitations for priority pollutants, when effluent limitations have been established, shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Permittee shall be deemed out of compliance with effluent limitations if the concentration of a pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported minimum level (ML).

7.2. Multiple Sample Data

When determining compliance with an AMEL for priority pollutants, and more than one sample result is available, the Permittee shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the Permittee shall compute the median in place of the arithmetic mean in accordance with the following procedure.

- 7.2.1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
- 7.2.2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two middle values unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ and a value of zero shall be used for the ND or DNQ value in the median calculation for compliance purposes only. Using a value of zero for DNQ or ND samples does not apply when performing

7.3. Average Monthly Effluent Limitation (AMEL)

If the average (or when applicable, the median determined by subsection B, above, for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation, though the Permittee will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Permittee will be considered out of compliance for that calendar month. The Permittee will only be considered out of compliance for days when the discharge occurs. If there are ND or DNQ results for a specific constituent in a calendar month, the Permittee shall calculate the median of all sample results within that month for compliance determination with the AMEL as described in section 7.2, above.

7.4. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge (or when applicable, the median determined by subsection B, above, for multiple sample data of a daily discharge) exceeds the MDEL for a given parameter, the Permittee will be considered out of compliance for that parameter for that 1 day only within the reporting period.

7.5. Instantaneous Minimum Effluent limitation

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Permittee will be considered out of compliance for that parameter for that single sample. Non-compliance for each

sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

If the Permittee monitors pH continuously, pursuant to 40 C.F.R. section 401.17, the Permittee shall be in compliance with the pH limitation specified herein provided that both of the following conditions are satisfied: (1) the total sum of time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (2) no individual excursion from the range of pH values shall exceed 60 minutes.

7.6. Instantaneous Maximum Effluent Limitation

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Permittee will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

If the Permittee monitors pH continuously, pursuant to 40 C.F.R. section 401.17, the Permittee shall be in compliance with the pH limitation specified herein provided that both of the following conditions are satisfied: (1) the total sum of time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (2) no individual excursion from the range of pH values shall exceed 60 minutes.

7.7. Flow Effluent Limitation

Compliance with the maximum daily effluent limitation of 12.5 MGD will be measured at monitoring location EFF-001.

ATTACHMENT A - DEFINITIONS

ARITHMETIC MEAN (M)

Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

$$\text{Arithmetic mean } (\mu) = \frac{\sum x}{n}$$

where: $\sum x$ is the sum of the measured ambient water concentrations, and n is the number of samples.

AVERAGE MONTHLY EFFLUENT LIMITATION (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

AVERAGE WEEKLY EFFLUENT LIMITATION (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

BIOACCUMULATIVE

Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

CARCINOGENIC

Pollutants are substances that are known to cause cancer in living organisms.

COEFFICIENT OF VARIATION (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

DAILY DISCHARGE

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a

constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

DETECTED, BUT NOT QUANTIFIED (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

DILUTION CREDIT

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

EFFLUENT CONCENTRATION ALLOWANCE (ECA)

ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as wasteload allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

ENCLOSED BAYS

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

ESTIMATED CHEMICAL CONCENTRATION

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

ESTUARIES

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

INLAND SURFACE WATERS

All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

INSTANTANEOUS MAXIMUM EFFLUENT LIMITATION

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

INSTANTANEOUS MINIMUM EFFLUENT LIMITATION

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

MAXIMUM DAILY EFFLUENT LIMITATION (MDEL)

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

MEDIAN

The middle measurement in a set of data. After the measurements are ranked in order, the median is the middle measurement if the number of measurements is odd. If the number of measurements is even, then the median is the arithmetic mean of the middle pair of ranked measurements.

METHOD DETECTION LIMIT (MDL)

MDL is the minimum concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results, as defined in 40 C.F.R. part 136, Attachment B.

MINIMUM LEVEL (ML)

ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

MIXING ZONE

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

NOT DETECTED (ND)

Sample results which are less than the laboratory's MDL.

PERSISTENT POLLUTANTS

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

POLLUTANT MINIMIZATION PROGRAM (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The <Regional Water Board Name> may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

POLLUTION PREVENTION

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State

Water Resources Control Board (State Water Board) or <Regional Water Board Name>.

REPORTING LEVEL (RL)

The RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the <Regional Water Board Name> either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

SOURCE OF DRINKING WATER

Any water designated as municipal or domestic supply (MUN) in a <Regional Water Board Name> Basin Plan.

STANDARD DEVIATION (Σ)

Standard Deviation is a measure of variability that is calculated as follows:

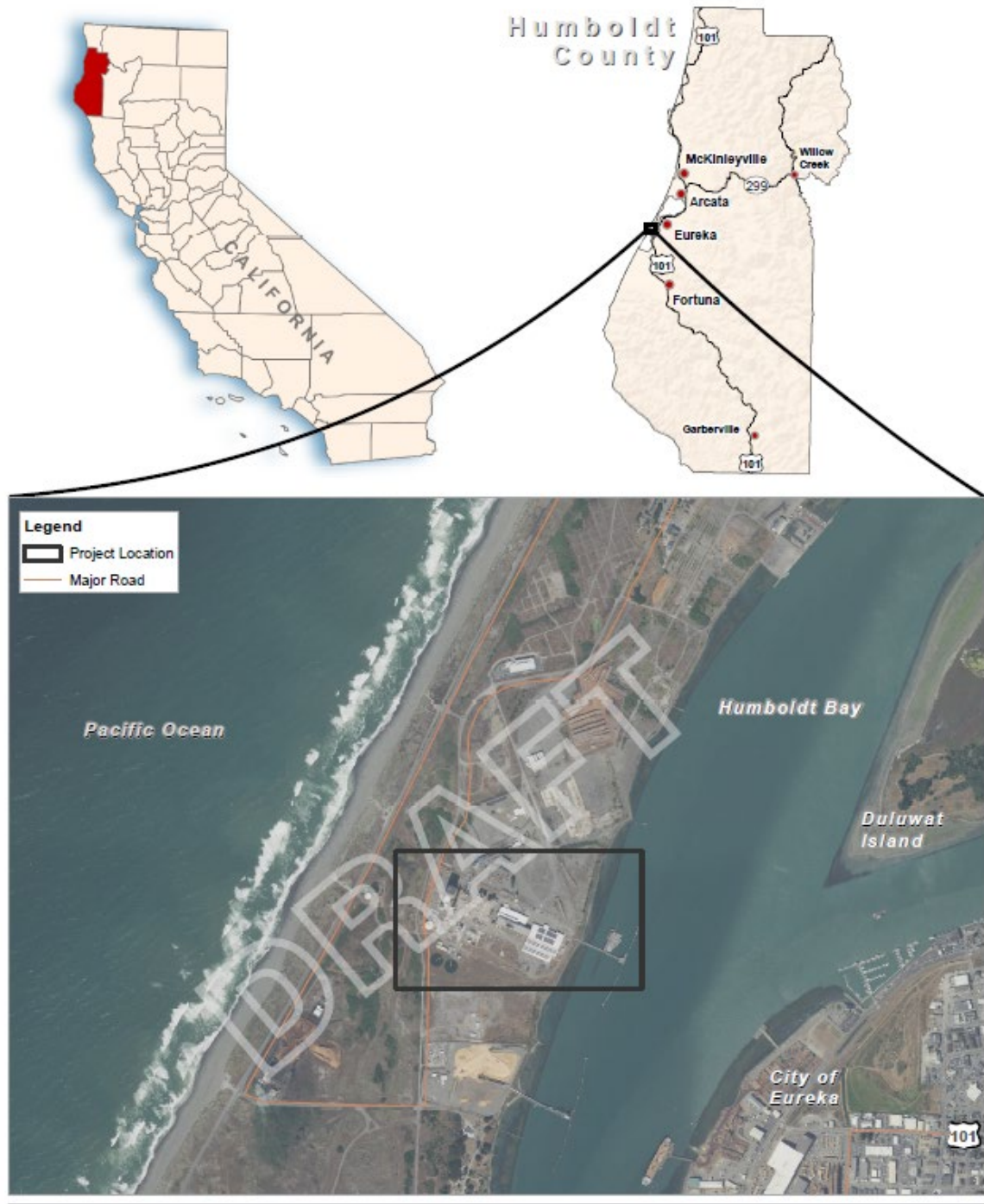
$$\text{Standard Deviation } (\sigma) = \frac{\Sigma(X-\mu)^2}{(n-1)^{0.5}}$$

where: x is the observed value; μ is the arithmetic mean of the observed values; and n is the number of samples.

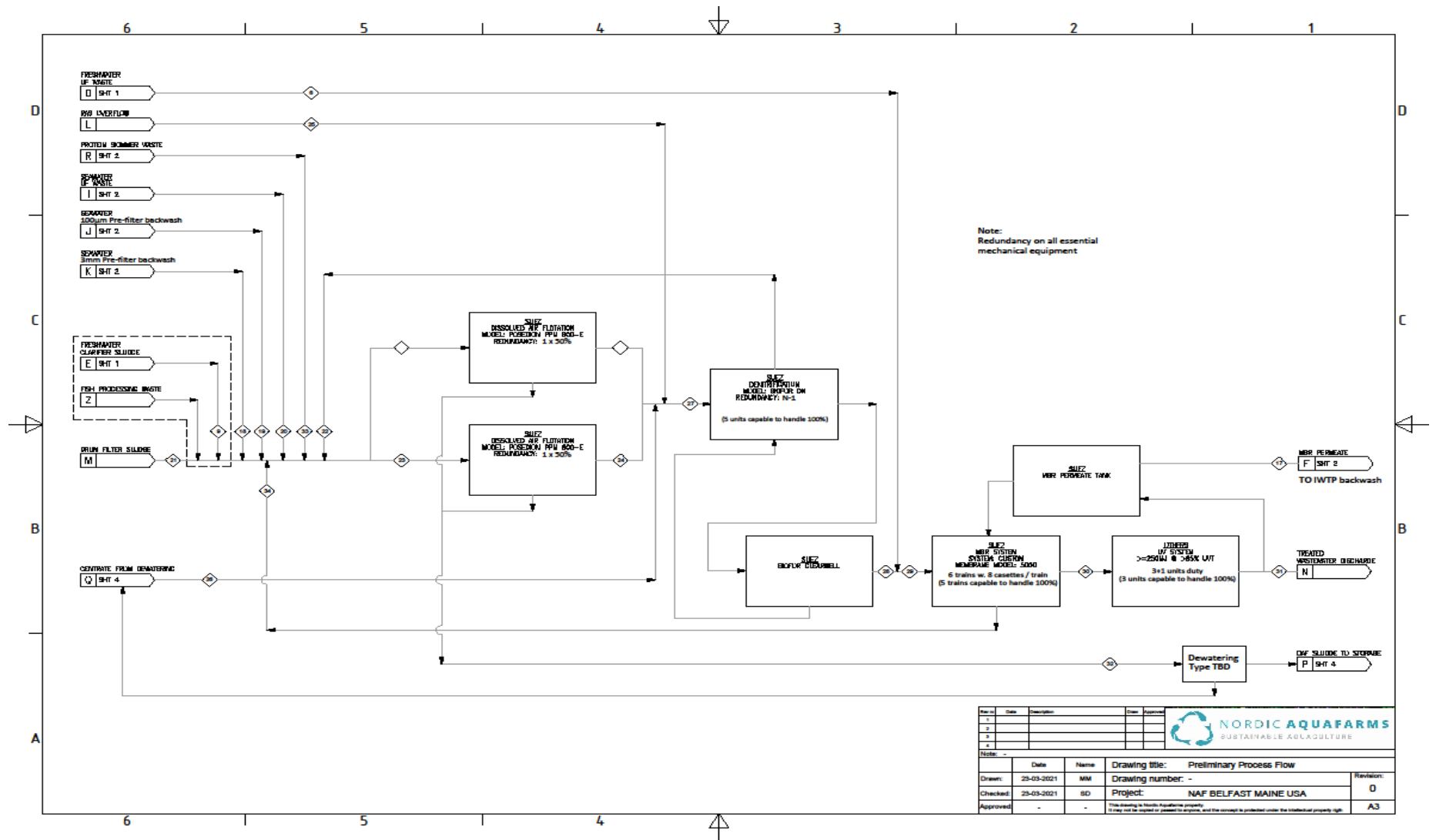
TOXICITY REDUCTION EVALUATION (TRE)

TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B - VICINITY MAP



ATTACHMENT C - FLOW SCHEMATIC



ATTACHMENT D - STANDARD PROVISIONS

1. STANDARD PROVISIONS – PERMIT COMPLIANCE

1.1. Duty to Comply

- 1.1.1. The Permittee must comply with all the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)
- 1.1.2. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

1.2. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

1.3. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

1.4. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Permittee only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

1.5. Property Rights

- 1.5.1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

- 1.5.2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

1.6. **Inspection and Entry**

The Permittee shall allow the Regional Water Board, State Water Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, §§ 13267, 13383):

- 1.6.1. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(i); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);
- 1.6.2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);
- 1.6.3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, §§ 13267, 13383); and
- 1.6.4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

1.7. **Bypass**

1.7.1. **Definitions**

- 1.7.1.1. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
- 1.7.1.2. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
- 1.7.2. **Bypass not exceeding limitations.** The Permittee may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not

subject to the provisions listed in Standard Provisions – Permit Compliance 1.7.3, 1.7.4, and 1.7.5 below. (40 C.F.R. § 122.41(m)(2).)

1.7.3. **Prohibition of bypass.** Bypass is prohibited, and the Regional Water Board may take enforcement action against a Permittee for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

1.7.3.1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

1.7.3.2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

1.7.3.3. The Permittee submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance 1.7.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

1.7.4. **Burden of Proof.** In any enforcement proceeding, the permittee seeking to establish the bypass defense has the burden of proof.

1.7.5. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance 1.7.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

1.7.6. **Notice**

1.7.6.1. **Anticipated bypass.** If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

1.7.6.2. **Unanticipated bypass.** The Permittee shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

1.8. **Upset**

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

- 1.8.1. **Effect of an upset.** An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance 1.8.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)
- 1.8.2. Conditions necessary for a demonstration of upset. A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):
- 1.8.2.1. An upset occurred and that the Permittee can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
- 1.8.2.2. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
- 1.8.2.3. The Permittee submitted notice of the upset as required in Standard Provisions – Reporting 5.5.2.2 below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
- 1.8.2.4. The Permittee complied with any remedial measures required under Standard Provisions – Permit Compliance 1.3 above. (40 C.F.R. § 122.41(n)(3)(iv).)
- 1.8.3. **Burden of proof.** In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

2. STANDARD PROVISIONS – PERMIT ACTION

2.1. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

2.2. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this Order after the expiration date of this Order, the Permittee must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

2.3. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Permittee and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. §§ 122.41(l)(3), 122.61.)

3. STANDARD PROVISIONS – MONITORING

- 3.1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)
- 3.2. Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. chapter 1, subchapter N. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N. For the purposes of this paragraph, a method is sufficiently sensitive when:
 - 3.2.1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter or the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or
 - 3.2.2. The method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. chapter 1, subchapter N, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. §§ 122.21(e)(3), 122.41(j)(4), 122.44(i)(1)(iv).)

4. STANDARD PROVISIONS – RECORDS

- 4.1. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or

application. This period may be extended by request of the <Regional Water Board Name> Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

4.2. Records of monitoring information shall include:

- 4.2.1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
- 4.2.2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
- 4.2.3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
- 4.2.4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
- 4.2.5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
- 4.2.6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

4.3. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

- 4.3.1. The name and address of any permit applicant or Permittee (40 C.F.R. § 122.7(b)(1)); and
- 4.3.2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

5. STANDARD PROVISIONS – REPORTING

5.1. Duty to Provide Information

The Permittee shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Permittee shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

5.2. Signatory and Certification Requirements

- 5.2.1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting 5.2.2, 5.2.3, 5.2.4, 5.2.5, and 5.2.6 below. (40 C.F.R. § 122.41(k).)

- 5.2.2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)
- 5.2.3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting 5.2.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- 5.2.3.1. The authorization is made in writing by a person described in Standard Provisions – Reporting 5.2.2 above (40 C.F.R. § 122.22(b)(1));
- 5.2.3.2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
- 5.2.3.3. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
- 5.2.4. If an authorization under Standard Provisions – Reporting 5.2.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting 5.2.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
- 5.2.5. Any person signing a document under Standard Provisions – Reporting 5.2.2 or 5.2.3 above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

- 5.2.6. Any person providing the electronic signature for documents described in Standard Provisions – 5.2.1, 5.2.2, or 5.2.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting 5.2, and shall ensure that all relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R. § 122.22(e).)

5.3. Monitoring Reports

- 5.3.1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)
- 5.3.2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board. As of December 21, 2016, all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10 and comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(l)(4)(i).)
- 5.3.3. If the Permittee monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. chapter 1, subchapter N, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the Regional Water Board or State Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
- 5.3.4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

5.4. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

5.5. Twenty-Four Hour Reporting

- 5.5.1. The Permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Permittee becomes aware of the circumstances. A report shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
- 5.5.2. The following shall be included as information that must be reported within 24 hours:
 - 5.5.2.1. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
 - 5.5.2.2. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
- 5.5.3. The Regional Water Board may waive the above required written report on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

5.6. Planned Changes

The Permittee shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

- 5.6.1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or
- 5.6.2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).); or
- 5.6.3. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels 7.1.1). (40 C.F.R. § 122.41(l)(1)(ii).)

5.7. Anticipated Noncompliance

The Permittee shall give advance notice to the Regional Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

5.8. Other Noncompliance

The Permittee shall report all instances of noncompliance not reported under Standard Provisions – Reporting 5.3, 5.4, and 5.5 above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting 5.5 above.

5.9. Other Information

When the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or U.S. EPA, the Permittee shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

5.10. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the initial recipient defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 C.F.R. § 122.41(l)(9).)

6. STANDARD PROVISIONS – ENFORCEMENT

- 6.1. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

7. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

7.1. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Permittees shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

- 7.1.1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

- 7.1.1.1. 100 micrograms per liter ($\mu\text{g/L}$) (40 C.F.R. § 122.42(a)(1)(i));
- 7.1.1.2. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4 dinitrophenol and 2 methyl 4,6 dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));
- 7.1.1.3. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or
- 7.1.1.4. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)
- 7.1.2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):
 - 7.1.2.1. 500 micrograms per liter ($\mu\text{g/L}$) (40 C.F.R. § 122.42(a)(2)(i));
 - 7.1.2.2. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));
 - 7.1.2.3. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or
 - 7.1.2.4. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

ATTACHMENT E - MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (Water Code) section 13383 also authorizes the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations. The monitoring and reporting requirements included in this MRP are in effect once the Facility begins discharge to manhole 5 ending in discharge from the ocean outfall.

1. GENERAL MONITORING PROVISIONS

1.1. Wastewater Monitoring Provision

Composite samples may be taken by a proportional sampling device approved by the Executive Officer or by grab samples composited in proportion to flow. In compositing grab samples, the sampling interval shall not exceed 1 hour.

1.2. Supplemental Monitoring Provision

If the Permittee monitors any pollutant more frequently than required by this Order, using test procedures approved by 40 C.F.R. part 136 or as specified in this Order, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the monthly and annual discharge monitoring reports.

1.3. Data Quality Assurance Provision

Laboratories analyzing monitoring samples shall be certified by the State Water Resources Control Board (State Water Board) in accordance with the provisions of Water Code section 13176 and must include quality assurance / quality control data with their analytical reports. The Permittee may analyze pollutants with short hold times (e.g., pH, chlorine residual, etc.) with field equipment or its on-site laboratory provided that the Permittee has standard operating procedures (SOPs) that identify quality assurance/quality control procedures to be followed to ensure accurate results. The Permittee shall keep a manual onsite containing the steps followed in this program and must demonstrate sufficient capability to adequately perform these on-site laboratory and field tests (e.g., qualified and trained employees, properly calibrated and maintained on-site laboratory and field instruments). The program shall conform to U.S. EPA guidelines or other approved procedures.

1.4. Instrumentation and Calibration Provision

All monitoring instruments and devices used by the Permittee to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall

be calibrated no less than the manufacturer's recommended intervals or one-year intervals, (whichever comes first) to ensure continued accuracy of the devices.

1.5. Minimum Levels (ML) and Reporting Levels (RL)

Unless otherwise specified by this MRP, all monitoring shall be conducted according to test procedures established at 40 C.F.R. 136, Guidelines Establishing Test Procedures for Analysis of Pollutants. All analyses shall be conducted using the lowest practical quantitation limit achievable using U.S. Environmental Protection Agency (U.S. EPA) approved methods. For the purposes of the NPDES program, when more than one test procedure is approved under 40 C.F.R., part 136 for the analysis of a pollutant or pollutant parameter, the test procedure must be sufficiently sensitive as defined at 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). Where effluent limitations are set below the lowest achievable quantitation limits, pollutants not detected at the lowest practical quantitation limits will be considered in compliance with effluent limitations. Analysis for toxics listed in Table 1 of the Water Quality Control Plan for Ocean Waters of California, California Ocean Plan (2015) (Ocean Plan) shall also adhere to guidance and requirements contained in the Ocean Plan. However, there may be situations when analytical methods are published with MLs that are more sensitive than the MLs for analytical methods listed in the Ocean Plan. For instance, U.S. EPA Method 1631E for mercury is not currently listed in Ocean Plan Appendix II, but it is published with an ML of 0.5 ng/L that makes it a sufficiently sensitive analytical method. Similarly, U.S. EPA Method 245.7 for mercury is published with an ML of 5 ng/L.

2. MONITORING LOCATIONS

The Permittee shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
	INT-001	Location for monitoring ultraviolet light (UV) radiation dose and UV transmittance of the UV disinfection system.
001	EFF-001	A location where representative samples of the treated wastewater to be discharged to the Pacific Ocean at Discharge Point 001 can be collected at a point after treatment, including UV disinfection, and prior to Manhole 5 and commingling with wastewater discharges from other facilities in the Humboldt Bay Harbor District's outfall line.

3. EFFLUENT MONITORING REQUIREMENTS

3.1. Monitoring Location EFF-001

3.1.1. The Permittee shall monitor treated effluent at EFF-001 during periods of discharge to the Pacific Ocean at Discharge Point 001 as follows:

Table E-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method (Table Note 1)
Effluent Flow	MGD	Meter	Continuous	---
Biochemical Oxygen Demand 5-day @ 20°C (BOD ₅)	mg/L	24-hr Composite	Daily	Part 136
Biochemical Oxygen Demand 5-day @ 20°C (BOD ₅)	lbs/day	Calculation	Daily	
Oil and Grease	mg/L	Grab	Daily	Part 136
Oil and Grease	lbs/day	Grab	Daily	Calculation
pH	S.U.	Grab	Weekly	Part 136
Total Suspended Solids (TSS)	mg/L	24-hr Composite	Daily	Part 136
Ammonia Nitrogen, Total (as N)	mg/L	Grab	Monthly	Part 136
Unionized Ammonia (as N)	mg/L	Grab	Monthly	Calculation
Organic Nitrogen, Total (as N)	mg/L	Grab	Monthly	Part 136
Nitrate Nitrogen, Total (as N)	mg/L	Grab	Monthly	Part 136
Settleable Solids	ml/L	Grab	Weekly	Part 136
Turbidity	NTU	Grab	Weekly	Part 136
Temperature	°F	Meter	Continuous	Part 136
Ocean Plan Table 1 Pollutants	µg/L	Grab/Composite (Table Note 2)	Once per permit term (Table Note 3)	Part 136
Chronic Toxicity	µg/L	Composite	Annually	Part 136

Table Notes

1. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Regional Water Board or State Water Board, such as with the current

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method (Table Note 1)
<p>edition of Standard Methods for Examination of Water and Wastewater (American Public Health Administration).</p> <p>2. Grab samples shall be used for volatile chemicals listed in Table II-1 of the Ocean Plan (2019). Composite samples shall be used for all other Ocean Plan Table 1 parameters.</p> <p>3. Sampling shall be conducted within 1 year following commencement of discharges at Discharge Point 001.</p>				

4. **WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS**

4.1. **Chronic Toxicity Testing**

The Permittee shall conduct chronic toxicity testing in accordance with the following chronic toxicity testing requirements:

4.1.1. **Test Frequency**

The Permittee shall conduct chronic toxicity testing in accordance with the schedule established by this MRP while discharging at Discharge Point 001, as summarized in Table E-3, above.

4.1.2. **Discharge In-stream Waste Concentration (IWC) for Chronic Toxicity**

The chronic toxicity IWC for this discharge is 0.87 percent effluent.

4.1.3. **Sample Volume and Holding Time**

The total sample volume shall be determined by the specific toxicity test method used. Sufficient sample volume shall be collected to perform the required toxicity test. All toxicity tests shall be conducted as soon as possible following sample collection.

For toxicity tests requiring renewals (*Atherinops affinis*), a minimum of three samples shall be collected. The lapsed time (holding time) from sample collection to first use of each sample must not exceed 36 hours.

4.1.4. **Chronic Marine Test Species and Test Methods**

If effluent samples are collected from outfalls discharging to receiving waters with salinity >1 ppt, the Permittee shall conduct the following chronic toxicity tests on effluent samples at the discharge IWC in accordance with species and test methods in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms (EPA/600/R-95/136, 1995). Artificial sea salts or hypersaline brine prepared from natural seawater shall be used to increase sample salinity. In no case shall

these species be substituted with another test species unless written authorization from the Executive Officer is received.

- 4.1.4.1. A static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth Test Method 1006.0).
- 4.1.4.2. A static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus*, and the sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0), or a static non-renewal toxicity test with the mussel, *Mytilus spp* (Embryo-Larval Shell Development Test Method).
- 4.1.4.3. A static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth Test Method 1009.0).

4.1.5. **Species Sensitivity Screening**

Species sensitivity screening shall be conducted during this permit's first required sample collection. The Permittee shall collect a single effluent sample and concurrently conduct three chronic toxicity tests using the fish, an invertebrate, and the alga species identified in section V.A.4, above. This sample shall also be analyzed for the parameters required for the discharge. The species that exhibits the highest¹ "Percent (%) Effect" at the discharge IWC during species sensitivity screening shall be used for routine monitoring during the permit term.

4.1.6. **Quality Assurance and Additional Requirements**

Quality assurance measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are specified below.

- 4.1.6.1. The discharge is subject to determination of "Pass" or "Fail" and "Percent (%) Effect" for chronic toxicity tests using the TST approach described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R10-003, 2010), Appendix A, Figure A-1, and Table A-1. The null hypothesis (H_0) for the TST approach is: Mean discharge IWC response $\leq 0.75 \times$ Mean control response. A test result that rejects this null hypothesis is reported as "Pass". A test result that does not reject this null hypothesis is reported as "Fail". The relative "Percent (%) Effect" at the discharge IWC is defined and reported as: $((\text{Mean control response} - \text{Mean discharge IWC response}) \div \text{Mean control response}) \times 100$. The IWC for the chronic toxicity test is 0.87 percent effluent.
- 4.1.6.2. If the effluent toxicity test does not meet the minimum effluent or reference toxicant test acceptability criteria (TAC) specified in the referenced test method, then the Permittee shall re-sample and re-test within 14 days.

- 4.1.6.3. Dilution water and control water, including brine controls, shall be laboratory water prepared and used as specified in the test methods manual. If dilution water and control water is different from test organism culture water, then a second control using culture water shall also be used.
- 4.1.6.4. Monthly reference toxicant testing is sufficient. All reference toxicant test results should be reviewed and reported.
- 4.1.6.5. The Permittee shall perform toxicity tests on final effluent samples. Ammonia shall not be removed from the effluent sample prior to toxicity testing, unless explicitly authorized under this section of the MRP and the rationale is explained in the Fact Sheet (Attachment F).

4.1.6.6. **Ammonia Removal.**

Except with prior approval from the Executive Officer of the Regional Water Board, ammonia shall not be removed from bioassay samples. The Permittee must demonstrate the effluent toxicity is caused by ammonia because of increasing test pH when conducting the toxicity test. It is important to distinguish the potential toxic effects of ammonia from other pH-sensitive chemicals, such as certain heavy metals, sulfide, and cyanide. When it has been demonstrated that toxicity is due to ammonia because of increasing test pH, pH may be controlled using appropriate procedures that do not significantly alter the nature of the effluent. The following may be steps to demonstrate that the toxicity is caused by ammonia and not other toxicants before the Executive Officer would allow for control of pH in the test.

- 4.1.6.6.1. There is consistent toxicity in the effluent and the maximum pH in the toxicity test is in the range to cause toxicity due to increased pH.
- 4.1.6.6.2. Chronic ammonia concentrations in the effluent are greater than 4 mg/L total ammonia.
- 4.1.6.6.3. Conduct graduated pH tests as specified in the toxicity identification evaluation methods. For example, mortality should be higher at pH 8 and lower at pH 6.
- 4.1.6.6.4. Treat the effluent with a zeolite column to remove ammonia. Mortality in the zeolite treated effluent should be lower than the non-zeolite treated effluent. Then add ammonia back to the zeolite-treated samples to confirm toxicity due to ammonia.

4.1.7. **Notification**

The Permittee shall notify the Regional Water Board verbally within 72 hours and in writing within 14 days after the receipt of a result of "Fail" during routine or accelerated monitoring.

4.1.8. Accelerated Monitoring Requirements

Accelerated monitoring for chronic toxicity is triggered when a chronic toxicity test, analyzed using the TST approach, results in “Fail” and the “Percent (%) Effect” is ≥ 0.50 . Within 24 hours of the time the Permittee becomes aware of a summary result of “Fail”, the Permittee shall implement an accelerated monitoring schedule consisting of four toxicity tests—consisting of 5-effluent concentrations (including the discharge IWC) and a control—conducted at approximately 2-week intervals, over an 8-week period. If each of the accelerated toxicity tests results is “Pass,” the Permittee shall return to routine monitoring for the next monitoring period. If one of the accelerated toxicity tests results is “Fail”, the Permittee shall immediately implement the TRE Process conditions set forth in section V.B, below.

4.1.9. Reporting

4.1.9.1. Routine Reporting

Chronic toxicity monitoring results shall be submitted with the annual self-monitoring report (SMR) for the year in which chronic toxicity was performed. Routine reporting shall include the following in order to demonstrate compliance with permit requirements:

- 4.1.9.1.1. WET reports shall include the contracting laboratory’s complete report provided to the Permittee and shall be consistent with the appropriate “Report Preparation and Test Review” sections of the methods manual and this MRP. The WET test reports shall contain a narrative report that includes details about WET test procedures and results, including the following:
 - 4.1.9.1.1.1. Receipt and handling of the effluent sample that includes a tabular summary of initial water quality characteristics (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, chlorine, ammonia);
 - 4.1.9.1.1.2. The source and make-up of the lab control/diluent water used for the test;
 - 4.1.9.1.1.3. Any manipulations done to lab control/diluent and effluent such as filtration, nutrient addition, etc.;
 - 4.1.9.1.1.4. Tabular summary of test results for control water and each effluent dilution and statistics summary to include calculation of the NOEC, TUc, and IC25;
 - 4.1.9.1.1.5. Identification of any anomalies or nuances in the test procedures or results;
 - 4.1.9.1.1.6. WET test results shall include, at a minimum, for each test:

- 4.1.9.1.1.6.1. Sample date(s);
- 4.1.9.1.1.6.2. Test initiation date;
- 4.1.9.1.1.6.3. Test species;
- 4.1.9.1.1.6.4. Determination of “Pass” or “Fail” and “Percent (%) Effect” following the TST hypothesis testing approach in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010). The “Percent (%) Effect” shall be calculated as follows:

“Percent Effect” (or Effect, in %) = ((Control mean response – IWC mean response) ÷ Control mean response) x 100
- 4.1.9.1.1.6.5. Endpoint values for each dilution (e.g., number of young, growth rate, percent survival);
- 4.1.9.1.1.6.6. NOEC value(s) in percent effluent;
- 4.1.9.1.1.6.7. IC15, IC25, IC40, and IC50 values (or EC15, EC25...etc.) in percent effluent;
- 4.1.9.1.1.6.8. TUc values (100/NOEC);
- 4.1.9.1.1.6.9. Mean percent mortality (±s.d.) after 96 hours in 100 percent effluent (if applicable);
- 4.1.9.1.1.6.10. (10) NOEC and LOEC values for reference toxicant test(s);
- 4.1.9.1.1.6.11. IC50 or EC50 value(s) for reference toxicant test(s);
- 4.1.9.1.1.6.12. Available water quality measurements for each test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, ammonia);
- 4.1.9.1.1.6.13. Statistical methods used to calculate endpoints;
- 4.1.9.1.1.6.14. The statistical program (e.g., TST calculator, CETIS, etc.) output results, which includes the calculation of percent minimum significant difference (PMSD); and
- 4.1.9.1.1.6.15. Results of applicable reference toxicant data with the statistical output page identifying the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD and dates tested; the reference toxicant control charts for each endpoint, to include summaries of reference toxicant tests performed by the contracting laboratory; and any information on deviations from standard test

procedures or problems encountered in completing the test and how the problems were resolved.

4.1.9.2. **TRE/TIE Results**

The Executive Officer shall be notified no later than 30 days from completion of each aspect of TRE/TIE analyses. TRE/TIE results shall be submitted to the Regional Water Board within 60 days of completion.

4.2. **Toxicity Reduction Evaluation (TRE) Process**

4.2.1. **TRE Work Plan**

The Permittee shall prepare and submit to the Regional Water Board Executive Officer a TRE Work Plan by **October 1, 2023**. The Permittee's TRE Work Plan shall be reviewed and updated as necessary to remain current and applicable to the discharge and discharge facilities.

The Permittee shall notify the Regional Water Board of this review and submit any revisions of the TRE Work Plan within 90 days of the notification, to be ready to respond to toxicity events. The TRE Work Plan shall describe the steps the Permittee intends to follow if toxicity is detected and should include at least the following items:

- 4.2.1.1. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.
- 4.2.1.2. A description of the Facility's methods of maximizing in-house treatment efficiency, good housekeeping practices, and a list of all chemicals used in the operation of this Facility.
- 4.2.1.3. If a toxicity identification evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor).

4.2.2. Preparation an Implementation of a Detailed TRE Work Plan

If one of the accelerated toxicity tests described in section 5.1.8, above, results in “Fail”, the Permittee shall immediately initiate a TRE using EPA manual Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070, 1989) and, within 30 days of receipt, submit the accelerated monitoring results to the Regional Water Board Executive Officer. The Permittee shall also submit a Detailed TRE Work Plan, which shall follow the generic TRE Work Plan revised as appropriate for the toxicity event described in section 5.1.8 of this MRP. The Detailed TRE Work Plan shall include the following information and comply with additional conditions set by the Regional Water Board Executive Officer:

- 4.2.2.1. Further actions by the Permittee to investigate, identify, and correct causes of toxicity.
- 4.2.2.2. Actions the Permittee will take to mitigate effects of the discharge and prevent the recurrence of toxicity.
- 4.2.2.3. A schedule for these actions, progress reports, and the final report.

4.2.3. TIE Implementation

The Permittee may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test methods and, as guidance, EPA manuals: Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures (EPA/600/6-91/003, 1991); Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/080, 1993); Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/081, 1993); and Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document (EPA/600/R-96- 054, 1996). The TIE should be conducted on the species demonstrating the most sensitive toxicity response.

- 4.2.4. Many recommended TRE elements parallel required or recommended efforts for source control, pollution prevention, and storm water control programs. TRE efforts should be coordinated with such efforts. As toxic substances are identified or characterized, the Permittee shall continue the TRE by determining the sources and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with toxicity evaluation parameters.
- 4.2.5. The Permittee shall conduct routine effluent monitoring for the duration of the TRE process. Additional accelerated monitoring and TRE work plans are not required once a TRE has begun.

- 4.2.6. The Regional Water Board recognizes that toxicity may be episodic and identification of the causes and reduction of sources of toxicity may not be successful in all cases. The TRE may be ended at any stage if monitoring finds there is no longer toxicity.

5. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

This Order does not authorize discharges to land.

6. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

This Order does not authorize discharges of recycled water.

7. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

7.1. Surface Water Monitoring – Not Required

This Order does not require surface water monitoring at this time.

7.2. Groundwater Monitoring – Not Required

This Order does not require groundwater monitoring at this time.

8. OTHER MONITORING REQUIREMENTS

8.1. Disinfection Process Monitoring for UV Disinfection System

8.1.1. Monitoring

The UV transmittance of the effluent from the UV disinfection system shall be monitored continuously and recorded at Monitoring Location INT-001. The operational UV dose shall be calculated from UV transmittance and flow.

8.1.2. Compliance

Unless otherwise approved by the Regional Water Board Executive Officer, the UV dose shall not fall below 250 millijoules per square centimeter (mJ/cm²) at any time and the flow shall not exceed 12.5 mgd.

8.1.3. Reporting

The Permittee shall report daily average and lowest daily transmittance and operational UV dose on its monthly monitoring reports. The Permittee shall report daily average and minimum flow through the UV disinfection system. If the UV transmittance falls below 250 mJ/cm², the event shall be reported to the Regional Water Board by telephone within 24 hours.

8.2. Biological Survey

The Humboldt Bay Harbor District is pursuing a plan that would combine three separately permitted NPDES waste streams through the outfall at Discharge Point 001. Currently, the DG Fairhaven Power Facility and the Samoa Wastewater Treatment Plant are permitted to discharge wastewater through the same ocean outfall at Discharge Point 001.

The Permittee, either separately or in coordination with the Humboldt Bay Harbor District, DG Fairhaven Power, LLC, Samoa Wastewater Treatment Plant and any additional dischargers that utilize the ocean outfall at Discharge Point 001, shall conduct a comparative evaluation of indigenous biota in the vicinity of the outfall using a qualified aquatic biologist, at least once every 5 years. The biologist shall prepare a report of observations, including objectionable aquatic growths, floating particulates or grease and oil, aesthetically undesirable discoloration of the ocean surface, color of fish or shellfish, and any evidence of degradation of indigenous biota attributable to the rate of deposition of inert solids, settleable material, nutrient materials, increased concentrations of organic materials, or increased concentrations of Ocean Plan Table 1 substances. The Permittee shall submit to the Regional Water Board Executive Officer for approval a Biological Survey Work Plan no later than **August 1, 2023**, in order to complete the survey and prepare a final report by the due date for receipt of an application for permit renewal. The final report shall be submitted no later than **August 1, 2024**.

8.3. Solids Monitoring

- 8.3.1. Solids sampling shall be conducted according to the requirements specified by the location and type of disposal activities undertaken.
- 8.3.2. Sampling records shall be retained for a minimum of 5 years. A log shall be maintained for sludge quantities generated and handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for developing the Solids Handling and Disposal Report that is required as part of the Annual Report.

9. REPORTING REQUIREMENTS

9.1. General Monitoring and Reporting Requirements

- 9.1.1. The Permittee shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

9.2. Self-Monitoring Reports (SMRs)

The Permittee shall submit electronic Self-Monitoring Reports (eSMRs) using the [State Water Board's California Integrated Water Quality System \(CIWQS\) Program Website](#). The CIWQS Website will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal. The

Permittee shall maintain sufficient staffing and resources to ensure it submits eSMRs that are complete and timely. This includes provision of training and supervision of individuals (e.g., Permittee personnel or consultant) on how to prepare and submit eSMRs.

The Permittee shall report in the SMR the results for all monitoring specified in this MRP under sections 3 through 9. The Permittee shall submit monthly SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Permittee monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

All monitoring results reported shall be supported by the inclusion of the complete analytical report from the laboratory that conducted the analyses. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-3: Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	First day of second calendar month following the end of each quarter ¹ (February 1, May 1, August 1, November 1)
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	First day of second calendar month following the end of each quarter (February 1, May 1, August 1, November 1)

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	First day of calendar month through last day of calendar month	First day of second calendar month following the end of each quarter (February 1, May 1, August 1, November 1)
Once per permit term	Permit effective date	All	March 1 following the year that monitoring is completed (with annual report) and at least 180 days prior to permit expiration

9.2.1. Reporting Protocols.

The Permittee shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136.

The Permittee shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- 9.2.1.1. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- 9.2.1.2. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- 9.2.1.3. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
- 9.2.1.4. The Permittee is to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

9.2.2. Self-Monitoring Reports

The Permittee shall submit SMRs in accordance with the following requirements:

- 9.2.2.1. The Permittee shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The reported data shall include calculation of all effluent limitations that require averaging, taking of a median, or other computation. The Permittee is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Permittee shall electronically submit the data in a tabular format as an attachment.
- 9.2.2.2. The Permittee shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify:
- Facility name and address;
 - WDID number;
 - Applicable period of monitoring and reporting;
 - Violations of the WDRs (identified violations must include a description of the requirement that was violated and a description of the violation);
 - Corrective actions taken or planned; and
 - The proposed time schedule for corrective actions.
- 9.2.2.3. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the [CIWQS Program Website](#). In the event that an alternate method for submittal of SMRs is required, the Permittee shall submit the SMR electronically via [e-mail](#) to or on disk (CD or DVD) in Portable Document Format (PDF) file in lieu of paper-sourced documents. The guidelines for electronic submittal of documents can be found on the [Regional Water Board website](#).

9.2.3. Discharge Monitoring Reports

DMRs are U.S. EPA reporting requirements. The Permittee shall electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. DMRs shall be submitted quarterly on the first day of the second calendar month following the end of each quarter (February 1, May 1, August 1, and November 1). Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the [DMR website](#).

9.3. Other Reports

9.3.1. Special Study Reports and Progress Reports

Table E-4: Reporting Requirements for Special Provisions Reports

Order Section	Special Provision Requirement	Reporting Requirements
Special Provision 6.3.2.1	Disaster Preparedness Assessment Report and Action Plan	August 1, 2024
Special Provision 6.3.3.2	Pollutant Minimization Program	March 1 , annually, following development of Pollutant Minimization Program
Special Provision 6.3.4.2	Operation and Maintenance Manual	30 days prior to first discharge
Special Provision 6.3.4.3	New Facility Certification Report	Once construction is complete and prior to first discharge
MRP WET Testing Requirement 5.2.1	TRE Work Plan	October 1, 2023
MRP Other Monitoring Requirement 9.2	Biological Survey Workplan	October 1, 2023
MRP Other Monitoring Requirement 9.2	Biological Survey Report	October 1, 2024

ATTACHMENT F - FACT SHEET

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ATTACHMENT F - FACT SHEET

As described in section 2.2 of this Order, the Regional Water Board incorporates this Fact Sheet as findings of the Regional Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

1. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	1B20161NHUM
Discharger	Nordic Aquafarms California, LLC
Name of Facility	Nordic Aquafarms California, LLC
Facility Address	1 TCF Drive Samoa, CA 95501 Humboldt County
Facility Contact, Title and Phone	David Noyes, Vice President of Technology, 1 207-505-5728
Authorized Person to Sign and Submit Reports	Marianne Naess, Executive Vice President, 1 207-323-6733
Mailing Address	911 Third Street, Eureka, CA 95501
Billing Address	Same as Mailing Address
Type of Facility	Aquaculture Facility, SIC Code 0273 Animal Aquaculture
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	12.5 MGD
Facility Design Flow	12.5 MGD

Watershed	Eureka Plain
Receiving Water	Pacific Ocean
Receiving Water Type	Ocean Waters

Nordic Aquafarms California, LLC (hereinafter Permittee) is the owner and operator of Nordic Aquafarms California, LLC (hereinafter Facility), a land-based aquaculture facility.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Permittee herein.

The Permittee is authorized to discharge subject to waste discharge requirements (WDRs) in this Order at the discharge location described in Table 1 on the cover page of this Order. The Code of Federal Regulations at 40 C.F.R. section 122.46 limits the duration of National Pollutant Discharge Elimination System (NPDES) permits to be effective for a fixed term not to exceed five years. Accordingly, Table 2 of this Order limits the effective period for the discharge authorized by this Order. Pursuant to California Code of Regulations (CCR), title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending issuance of a new permit if all requirements of the federal NPDES regulations on continuation of expired permits are complied with.

The Permittee proposes to acquire water from a sea chest owned by the HBHRCD. The sea chest consists of a screened marine intake and pumping infrastructure, which provides bay water to the Facility via dock-mounted piping. HBHRCD intends to retrofit the sea chest and associated infrastructure as part of the project.

The Facility discharges filtered, ultraviolet (UV) disinfected wastewater to the Pacific Ocean, a water of the United States. This is a new NPDES permit for the Permittee and Facility. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

The Permittee filed a report of waste discharge and submitted an application for issuance of its waste discharge requirements (WDRs) and NPDES permit on August 17, 2020. Supplemental information was submitted on August 31, 2020 and November 9, 2020. The application was deemed complete on December 4, 2020.

2. FACILITY DESCRIPTION

The Facility is bounded on the west by the Pacific Ocean and the east by Humboldt Bay. The Facility is located on the eastern shore of the Samoa Peninsula, east of New Navy Base Road, and due west, across Humboldt Bay, from the City of Eureka. The Facility is accessed from Vance Avenue via New Navy Base Road and LP Drive.

The Permittee has redeveloped the site of the decommissioned Freshwater Tissue Samoa Pulp Mill facility in order to construct a land-based finfish recirculating aquaculture system (RAS) facility and install a three to five-megawatt photovoltaic solar panel array covering approximately 690,000 square feet of the facility roofs. The Facility consists of 36 acres that will be used for the land-based finfish aquaculture facility and associated infrastructure.

The proposed total water volume of effluent discharge is 12.5 million gallons per day (MGD), which would be comprised of 10 MGD seawater legally sourced from Humboldt Bay (salinity 30.0 to 33.5 parts per thousand (PPT)) and 2.5 MGD of freshwater sourced from the Humboldt Bay Municipal Water District (HBMWD) via the Mad River pumping station (salinity 0 PPT). Freshwater sourced from the HBMWD will include approximately 2 MGD of untreated Mad River surface water and approximately 0.5 MGD of treated domestic water.

Intake water will be treated in the following order to ensure that the water used in the Facility is of high quality.

- First stage drum filter filtration
- Ozone treatment
- Fine filtration
- Ultraviolet (UV-C) disinfection

The Facility will be developed in two phases and will have an annual production capacity of approximately 33,000 metric tons of whole fish. The Facility will include a complete process, from egg to harvestable fish in a single indoor location, and contains the following elements:

- A hatchery operation where eggs are hatched, and fish fry grow to juvenile size.
- A grow-out operation with large tanks where fish are grown to market size.
- A fish processing facility from which fish are processed and fresh product is shipped out five days a week while coproducts are chilled and stored for sale.
- Backup system to enable Facility functions to operate for many days in the event of a power outage.
- Oxygen generation plant and liquid oxygen storage.
- Water intake treatment to ensure clean water for the fish.
- An advanced wastewater treatment plant to treat the discharge water, including a Moving Bed Biofilm Reactor (MBBR), a membrane bioreactor (MBR) and UV-C disinfection.

The Facility will be built in two phases. Construction work associated with Phase 1 is anticipated to begin in 2021 and extend through 2023. Phase 1 will include construction of the Phase 1 hatchery and production modules and the central utility structures, including connection to the necessary intake and discharge infrastructure needed to bring water to the facility. Following the construction of the Phase 1 production modules, construction will commence on the fish processing and administrative building. Access roadways will be built and expanded during each phase of construction, as construction proceeds along the site. As the construction footprint expands, a corresponding expansion of the stormwater systems will be implemented to account for the increase in impervious surfaces.

Once Phase 1 construction and equipment installation is complete, commissioning and startup of the facility will begin. As the commissioning process is underway, the aquaculture facility site will undergo permanent stabilization measures including seeding of disturbed areas and slopes, establishment of the permanent stormwater system and native landscaping. Only once the Phase 1 region is fully stabilized and the facility is independently operating, will Phase 2 construction commence.

Construction work associated with Phase 2 is expected to begin one year after completion of Phase 1 (tentatively in 2025 and extend through 2027). Prior to the beginning of Phase 2 construction, additional clearing and demolition infrastructure within the proposed footprint will occur. An overall construction perimeter will be established to prevent impacts from development on the surrounding areas, and localized erosion and sediment control measures will be implemented as construction proceeds across the Project Site. The Phase 2 grow-out building footprint will be prepared for foundation and envelope construction. Access roads and supporting infrastructure will be expanded to facilitate the construction effort. The stormwater system developed for the Phase 1 facility will also be extended to encompass the Phase 2 area, with proper sediment collection basins established downgrade of the site. Once Phase 2 building construction is completed the site will undergo permanent stabilization measures similar to those implemented in Phase 1, and the permanent stormwater system will be established.

The largest buildings at the proposed aquaculture facility contain the grow-out modules. Maximum building height within the facility is expected to be approximately 60 feet. The footprint of the Phase 1 production modules is approximately 284,332 square feet, and the Phase 2 production module footprint is approximately 295,733 square feet. Construction of the grow-out modules will occur over two construction phases. Egg raising in the hatchery will begin as early as feasible during Phase 1, followed thereafter by the completion of remaining Phase 1 construction. The hatchery facility, located in the center of the site, will raise the fish from egg to juvenile stage, after which they will be transported to the grow-out modules via underground pipes to be raised to market size. The Facility will subject all influent and wastewater to a stringent treatment process, including fine filtration, biological treatment, and UV disinfection.

Saltwater will be supplied to the aquaculture facility from the HBHRCD sea chests located at the Facility and Red Tank docks. The sea chest pumps will supply seawater through piping affixed to the existing docks. The piping infrastructure will extend onshore underground at least 50 feet from the RMT II dock terminus. The aquaculture facility will tie into the sea chest piping at the northeast corner of the RMT II building.

2.1. Description of Wastewater and Solids Treatment and Controls

The Facility is designed to remove nutrients and provide UV disinfection before discharging to the Pacific Ocean.

The Facility will include biological anoxic denitrification of nitrate with an external carbon source, biological aerobic biochemical oxygen demand and ammonia removal, ferric coagulation for phosphorus removal, ultra-filtration membrane systems with 0.04 um pore openings and UV-C disinfection using a 300 mJ/cm² designed for 99.9 percent virus removal. This level of treatment is highly sophisticated and provides a high level of treatment before discharge.

If electrical power supply is shut down to the aquaculture facility, an onsite emergency backup power system would activate to maintain all critical functions for the fish and wastewater treatment. The Permittee will be constructing several natural gas turbines with a maximum capacity of up to 30 MW to supply emergency power to the fully developed facility. The fuel source will be natural gas from the existing 4-inch main on site. The backup generation system will be designed to rapidly respond to interruptions in the power supply to the facility and maintain critical equipment and infrastructure. Additional onsite power will be generated by the rooftop solar installation.

Dewatered sludge (feces and feed) will be a byproduct of the wastewater treatment process. The sludge will be recycled for other uses such as fertilizer, biogas, etc. The sludge is stored in sealed tanks for regular out-shipment and will not result in local odors or discharge from stormwater runoff.

2.2. Discharge Points and Receiving Waters

Process wastewater will be discharged at Discharge Point 001 at 40° 49' 10" N latitude and 124° 13' 32" W longitude to the Pacific Ocean. HBHRCD owns and maintains the 48-inch diameter outfall line with 64 diffuser ports that terminates approximately 1.5 miles off-shore.

HBHRCD acquired the ocean outfall during a property acquisition of Freshwater Tissue/Freshwater Pulp property in August 2013. The Permittee has entered into a lease agreement with the HBHRCD that allows the Permittee use and access to the outfall for Facility operations.

2.3. Summary of Existing Requirements and SMR Data

Since the Permittee is proposing a new discharge, there was no previous permit and, therefore, no existing requirements and SMR data.

2.4. Compliance Summary

Since the Permittee is proposing a new discharge, there was no previous permit and, therefore, no compliance history for the Facility.

2.5. Planned Changes

The Permittee will be constructing Phase 1 of the Facility once the permit is adopted. The Permittee is planning to construct Phase 2 of the Facility toward the end of this permit term.

3. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

3.1. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit authorizing the Permittee to discharge into waters of the United States at the discharge location described in Table 1 subject to the WDRs in this Order.

3.2. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code.

3.3. State and Federal Laws, Regulations, Policies, and Plans

3.3.1. Water Quality Control Plan

The Regional Water Board adopted a Water Quality Control Plan for the North Coast Region (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or

potentially suitable for municipal or domestic supply. Beneficial uses applicable to the Pacific Ocean are as follows:

Table F-2. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pacific Ocean	<p>Existing: Navigation (NAV); Water contact recreation (REC-1); Non-contact water recreation (REC-2); Commercial and sport fishing (COMM); Wildlife habitat (WILD); Rare, threatened, or endangered species (RARE); Marine habitat (MAR); Migration of aquatic organisms (MIGR); Spawning, reproduction, and/or early development (SPAWN); Shellfish harvesting (SHELL); and Aquaculture (AQUA).</p> <p>Potential: Industrial water supply (IND); Industrial process supply (PRO); and Preservation of Areas of Special Biological Significance (ASBS)</p>
---	Groundwater	<p>Existing: Municipal and domestic supply (MUN); Agricultural supply (AGR); Industrial service supply (IND); and Native American Culture (CUL).</p> <p>Potential Industrial Process Supply (PRO); and Aquaculture (AQUA)</p>

3.3.2. Thermal Plan

The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) on January 7, 1971 and amended this plan on September 18, 1975.

The Thermal Plan is applicable to the discharge from the Facility. The discharge from the Facility is considered to be a New Discharge of Elevated Temperature

Waste to Coastal Waters, as defined by the Thermal Plan. The Thermal Plan in section 3.B contains the following temperature objectives for new discharges to coastal waters:

- 3.3.2.1. *Elevated temperature wastes shall be discharged to the open ocean away from the shoreline to achieve dispersion through the vertical water column.*

The proposed discharge at Discharge Point 001 will occur through an existing outfall located 1.5 miles offshore, which meets the requirement of an open ocean discharge away from the shoreline.

- 3.3.2.2. *Elevated temperature wastes shall be discharged a sufficient distance from areas of special biological significance to assure the maintenance of natural temperatures in these areas.*

The Facility will not discharge in the vicinity of an area of special biological significance (ASBS).

- 3.3.2.3. *The maximum temperature of thermal waste discharges shall not exceed the natural temperature of receiving waters by more than 20°F.*

The proposed Facility will not discharge thermal waste, which is defined as cooling water and industrial process water used for the purposes of transporting waste heat. Therefore, this Thermal Plan requirement is not applicable to discharges from the Facility.

- 3.3.2.4. *The discharge of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at (a) the shoreline, (b) the surface of the ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any complete tidal cycle.*

These Thermal Plan requirements are established as receiving water limitations in this Order, as described in section 5.1.2. of this Fact Sheet.

- 3.3.2.5. *Additional limitations shall be imposed when necessary to assure protection of beneficial uses.*

This Order establishes effluent monitoring requirements for temperature to characterize the effluent temperature and potential impacts to water quality.

3.3.3. **California Ocean Plan**

The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, 2012, and 2015. The State Water Board adopted the latest amendment on May 6, 2015, and it became effective on January 28, 2016. The Ocean Plan is applicable, in its

entirety, to point source discharges to the Pacific Ocean. In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program for implementation. The Ocean Plan identifies the beneficial uses of ocean waters of the state to be protected as summarized below:

Table F-3: Ocean Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pacific Ocean	Existing: Industrial Water Supply; Water contact and non-contact recreation, including aesthetic enjoyment; Navigation; Commercial and sport fishing; Mariculture; Preservation and enhancement of designated Areas of Biological Significance (ASBS); Rare and endangered species; Marine habitat; Fish migration; Fish spawning; and Shellfish harvesting.

3.3.4. Antidegradation Policy

Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California"). Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

3.3.5. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which

limitations may be relaxed. Since this Order is a new NPDES Permit, anti-backsliding is not applicable to the issuance of this permit.

3.3.6. Endangered Species Act Requirements

This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state, including protecting rare, threatened, or endangered species. The Permittee is responsible for meeting all requirements of the applicable Endangered Species Act.

3.4. Impaired Water Bodies on the CWA section 303(d) List

Section 303(d) of the federal CWA requires states to identify water bodies that do not meet water quality standards and are not supporting their beneficial uses after implementation of technology-based effluent limitations on point sources. Each state must submit an updated list, the 303(d) List of Impaired Water Bodies, every two years. In addition to identifying the water bodies that are not supporting beneficial uses, the 303(d) list also identifies the pollutant or stressor causing impairment and establishes a schedule for developing a control plan to address the impairment. The CWA requires development of a total maximum daily load (TMDL) or alternate program of implementation for each 303(d)-listed pollutant and water body to remedy the impairment. TMDLs establish the maximum quantity of a given pollutant that can be added to a water body from all sources without exceeding the applicable water quality standard for that pollutant and determine waste load allocations (the portion of a TMDL allocated to existing and future point sources) and load allocations (the portion of a TMDL attributed to existing and future nonpoint sources).

On April 6, 2018, the U.S. EPA provided final approval of the 2014 and 2016 303(d) List of Impaired Water Bodies prepared by the state. The Pacific Ocean, in the vicinity of the discharge, is not listed as an impaired water body on the 303(d) list.

3.5. Other Plans, Policies and Regulations

- 3.5.1. Coverage under State Water Board Water Quality Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial Storm Water General Permit) is required. The Permittee meets the requirements for enrollment under the Industrial Storm Water General Permit due to storm water not being contained to the Facility property.

- 3.5.2. Coverage under State Water Board Water Quality Order No. 2009-0009-DWQ, NPDES General Permit No. CAS000002, General Permit for Discharges of Storm Water Associated with Construction Activities (Construction Storm Water General Permit) is required. The Permittee meets the requirements for enrollment under the Construction Storm Water General Permit for are of disturbed earth during construction of the Facility.

4. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the C.F.R.: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where a reasonable potential to exceed those criteria exist.

4.1. Discharge Prohibitions

4.1.1. Discharge Prohibition 3.1

The discharge of any waste not disclosed by the Permittee or not within the reasonable contemplation of the Regional Water Board is prohibited.

This Prohibition is based on the Basin Plan and State Water Board Order No. WQO 2002-0012 regarding the petition of WDRs Order No. 01-072 for the East Bay Municipal Utility District and Bay Area Clean Water Agencies. In State Water Board Order No. WQO 2002-0012, the State Water Board found that this prohibition is acceptable in Orders, but should be interpreted to apply only to constituents that are either not disclosed by the Permittee, or are not reasonably anticipated to be present in the discharge but have not been disclosed by the Permittee. It specifically does not apply to all constituents in the discharge that do not have “reasonable potential” to exceed water quality objectives.

The State Water Board has stated that the only pollutants not covered by this prohibition are those which were “disclosed to the permitting authority and...can be reasonably contemplated.” [In re the Petition of East Bay Municipal Utilities District et al., (State Water Board, 2002) Order No. WQO 2002-0012, p. 24]. In that Order, the State Water Board cited a case which held the Permittee is liable for the discharge of pollutants “not within the reasonable contemplation of the permitting authority...whether spills or otherwise...” [Piney Run Preservation Assn. v. County Commissioners of Carroll County, Maryland (4th Cir. 2001) 268 F. 3d 255, 268.] Thus, the State Water Board authority provides that, to be

permissible, the constituent discharged (1) must have been disclosed by the Permittee and (2) can be reasonably contemplated by the Regional Water Board.

4.1.2. Discharge Prohibition 3.2

Creation of pollution, contamination, or nuisance, as defined by Water Code section 13050, is prohibited.

This prohibition is based on section 13050 of the Water Code and section 5411 of the California Health and Safety Code.

4.1.3. Discharge Prohibition 3.3

The discharge of waste to Humboldt Bay is prohibited.

This prohibition is consistent with the Water Quality Control Policy for the Enclosed Bays and Estuaries of California (EBE Policy), established in 1974 and amended in 1995. The EBE Policy prohibits point source discharges to enclosed bays and estuaries unless specific exemption criteria are met.

4.1.4. Discharge Prohibition 3.4

The discharge of domestic waste, treated or untreated, to surface waters is prohibited.

This prohibition is based on the Basin Plan policy on the control of water quality with respect to on-site waste treatment and disposal practices.

4.1.5. Discharge Prohibition 3.5

The discharge of waste to land that is not owned by the Permittee or under agreement to use by the Permittee is prohibited.

This prohibition is established to prohibit unauthorized discharges to land.

4.1.6. Discharge Prohibition 3.6

The discharge of waste at any point not described in Finding 2.2 of the Fact Sheet or authorized by a permit issued by the State Water Resources Control Board or Regional Water Quality Control Board is prohibited.

This prohibition is established as a general prohibition that allows the Permittee to discharge waste only in accordance with WDRs. It is based on sections 301 and 402 of the Federal CWA and section 13263 of the Water Code.

4.1.7. Discharge Prohibition 3.7

The maximum daily flow of waste through the Facility in excess of 12.5 mgd is prohibited. Compliance with this prohibition shall be determined as defined in sections 7.7 of this Order.

This prohibition is established based on the maximum flow through the Facility as submitted in the Permittee's report of waste discharge. This prohibition, along with the flow effluent limitation, is established to protect water quality objectives and beneficial uses in and around the diffuser.

4.1.8. Discharge Prohibition 3.8

The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.

This prohibition is based on the discharge prohibitions contained in section III.I of the Ocean Plan and section 13375 of the Water Code.

4.1.9. Discharge Prohibition 3.9

The discharge of waste resulting from cleaning activities is prohibited.

This prohibition applies to the direct discharge of untreated cleaning waste to waters of the United States and is based on the Basin Plan's Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations.

4.1.10. Discharge Prohibition 3.10

The discharge of detectable levels of chemicals used for the treatment and control of disease, other than salt (NaCl), is prohibited.

This prohibition is based on the Basin Plan's Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations. When chemicals and aquaculture drugs used for the treatment and control of disease are used, the Permittee is required to submit a chemical use report documenting the method used to determine compliance with this prohibition.

4.2. Technology-Based Effluent Limitations

4.2.1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based

requirements based on Effluent Limitations Guidelines and Standards for the Concentrated Aquatic Animal Production Point Source Category in 40 C.F.R. part 451 and Best Professional Judgment (BPJ) in accordance with 40 C.F.R. section 125.3.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.

New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 C.F.R. section 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the Regional Water Board must consider specific factors outlined in 40 C.F.R. section 125.3.

4.2.2. Applicable Technology-Based Effluent Limitations

4.2.2.1. Best Management Practices (BMP) Plan

On August 23, 2004, U.S. EPA published ELGs for the Flow-Through and Recirculating Systems Subcategory of the Concentrated Aquatic Animal Production Point Source Category at 40 C.F.R. part 451, subpart A. The ELGs became effective on September 22, 2004. The ELGs establish national technology-based effluent discharge requirements for CAAP facilities that produce 100,000 pounds or more of aquatic animals in flow-through and recirculation systems based on BPT, BCT, BAT and NSPS. In its proposed rule, published on September 12, 2002, U.S. EPA proposed to establish numeric limitations for TSS while controlling the discharge of other constituents through narrative requirements. In the final rule, however, U.S. EPA determined that, for a nationally applicable regulation, it would be more appropriate to promulgate qualitative TSS limitations in the form of solids control BMP requirements.

In the process of developing the ELG, U.S. EPA identified an extensive list of pollutants of concern in discharges from the aquaculture industry, including several metals, nutrients, solids, BOD, bacteria, drugs, and residuals of federally registered pesticides. U.S. EPA did not include specific numeric limitations in the ELG for any pollutants on this list, believing that BMPs would provide acceptable control of these pollutants. U.S. EPA did conclude during the development of the ELG that control of TSS would also effectively control concentrations of other pollutants of concern, such as BOD, metals and nutrients, because other pollutants are either bound to the solids or are incorporated into them. And, although certain bacteria are found at high levels in effluents from settling basins, U.S. EPA concluded that disinfection is not economically achievable. U.S. EPA also allowed permitting authorities to apply technology-based limits for other pollutants and WQBELs for pollutants considered in the ELGs in order to comply with applicable water quality standards.

The ELGs at 40 C.F.R. part 451, subpart A require implementation of BMPs, including solids control, materials storage, structural maintenance, recordkeeping, and training requirements, to represent the application of BPT. Consistent with the ELGs at 40 C.F.R. part 451, subpart A, Special Provision 7.3.3.2 of this General Order requires the Permittee to maintain a BMP Plan.

EPA promulgated Seafood Processing Effluent Guidelines and Standards (a.k.a. Canned and Preserved Seafood Category; [40 CFR Part 408](#)) in 1974 and 1975. The regulation covers wastewater discharges from facilities that preserve and can seafood. Specifically, Part 408 subpart S regulates “West Coast Mechanized Salmon” that this Facility will be processing.

The ELGs at 40 C.F.R. part 408, subpart S require NSPS facilities to meet mass loading effluent limitations for BOD₅, TSS, oil and grease and pH. Phase 1 will process approximately 165,000 lbs of salmon daily while Phase 2 will process approximately 330,000 lbs of salmon daily. Consistent with 40 C.F.R. part 408, subpart S, mass-based effluent limitations for BOD₅, TSS, oil and grease have been established per 1,000 lbs of fish processed daily in Table 2 of this Order for both Phase 1 and Phase 2 of build-out.

4.2.2.2. Flow

A flow limitation of 12.5 mgd has been established as the maximum daily flow to be discharged per information provided in the Permittee's report of waste discharge. The flow limitation is required to ensure that the proper dilution ratio is achieved, water quality objectives are maintained, and beneficial uses are protected.

4.3. Water Quality-Based Effluent Limitations (WQBELs)

4.3.1. Scope and Authority

CWA Section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 C.F.R. requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water, as specified in the Ocean Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the Ocean Plan.

4.3.2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

4.3.2.1. Beneficial Uses

Beneficial use designations for receiving waters for discharges from the Facility are presented in section 3.3.1 and 3.3.3 of this Fact Sheet.

4.3.2.2. Ocean Plan Water Quality Objectives

Water quality criteria applicable to ocean waters of the Region are established by the Ocean Plan, which includes general provisions and water quality objectives for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. These water quality objectives from the Ocean Plan are incorporated as receiving water limitations in section V.A of the Order. Table 1 of the Ocean Plan contains numeric water quality objectives for 83 toxic pollutants for the protection of marine aquatic life and human health. Pursuant to NPDES regulations at 40 C.F.R. section 122.44(d)(1), and in accordance with procedures established by the Ocean Plan, the Regional Water Board has performed an Ocean Plan reasonable potential analysis (RPA) to determine the need for effluent limitations for the Table 1 toxic pollutants.

4.3.2.3. Minimum Initial Dilution

WDRs Order Nos. R1-2010-0033, R1-2018- 0013 and R1-2020-0005 for the Freshwater Tissue Company's Samoa Pulp Mill, DG Fairhaven Power, LLC, and the Samoa Community Services District and Samoa Pacific Group were previously regulated, or are currently regulated, for discharge out of the Ocean Outfall where the Permittee propose to discharge at Discharge Point 001. These previous Orders applied a minimum initial dilution of 115:1 (i.e., 115 parts ocean water to 1 part effluent) for discharges from the ocean outfall.

In 2020, the Permittee submitted a Numeric Modeling Report with their ROWD that included near field and three-dimensional modeling for dilution analysis to characterize the mixing zone at the Facility. The 2020 Report concludes that the proposed commingled discharge will be readily mixed within less than five feet of the diffuser with an exit velocity of approximately ten feet per second, which should keep the ports clear of sediment build-up and biofouling to maintain optimal levels of jet-induced near-field mixing.

A February 2016 Diffuser Performance Assessment Report for the Redwood Marine Terminal II Ocean Outfall prepared for the County of Humboldt and the Harbor District conducted on this outfall and diffuser suggest that a minimum initial dilution of 115:1 is appropriate for the discharge. The 2016 report indicated that greater than 100:1 dilution could be achieved for flows ranging up to 40 MGD, except where the effluent salinity is greater than 30 practical salinity units (similar to seawater) and effluent temperature is similar to the receiving water temperature. These high salinity/low temperature conditions

are not anticipated from the combined discharge from the existing dischargers and the Facility; therefore, this Order utilizes a minimum initial dilution of 115:1.

4.3.3. Determining the Need for WQBELs

NPDES regulations at 40 C.F.R. section 122.44(d) require effluent limitations to control all pollutants which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard.

4.3.3.1. Ocean Plan Reasonable Potential Analysis (RPA)

Procedures for performing an RPA for ocean dischargers are described in section III.C and Appendix VI of the Ocean Plan. In general, the procedure is a statistical method that projects an effluent data set while taking into account the averaging period of water quality objectives, the long-term variability of pollutants in the effluent, limitations associated with sparse data sets, and uncertainty associated with censored data sets. The procedure assumes a lognormal distribution of the effluent data set and compares the 95th percentile concentration at 95 percent confidence of each Table 1 pollutant, accounting for dilution, to the applicable water quality criterion. The RPA results in one of three following endpoints.

- Endpoint 1: There is “reasonable potential,” and a WQBEL and monitoring are required.
- Endpoint 2: There is “no reasonable potential.” WQBELs are not required, and monitoring is required at the discretion of the Regional Water Board.
- Endpoint 3: The Ocean Plan RPA is inconclusive. Existing WQBELs are retained, and monitoring is required.

The State Water Board has developed a reasonable potential calculator. The calculator ([RPcalc 2.2](#)) shall be used in conducting the RPA and considers several pathways in the determination of reasonable potential.

4.3.3.1.1. First Path

If available information about the receiving water or the discharge supports a finding of reasonable potential without analysis of effluent data, the Regional Water Board may decide that WQBELs are necessary after a review of such information. Such information may include: the facility or discharge type, solids loading, lack of dilution, history of compliance problems, potential toxic effects, fish tissue data, 303(d) status of the receiving water, or the presence of threatened or endangered species or their critical habitat, or other information.

4.3.3.1.2. **Second Path**

If any pollutant concentration, adjusted to account for dilution, is greater than the most stringent applicable water quality objective, there is reasonable potential for that pollutant.

4.3.3.1.3. **Third Path**

If the effluent data contains three or more detected and quantified values (i.e., values that are at or above the ML), and all values in the data set are at or above the ML, a parametric RPA is conducted to project the range of possible effluent values. The 95th percentile concentration is determined at 95 percent confidence for each pollutant and compared to the most stringent applicable water quality objective to determine reasonable potential. A parametric analysis assumes that the range of possible effluent values is distributed lognormally. If the 95th percentile value is greater than the most stringent applicable water quality objective, there is reasonable potential for that pollutant.

4.3.3.1.4. **Fourth Path**

If the effluent data contains three or more detected and quantified values (i.e., values that are at or above the ML), but at least one value in the data set is less than the ML, a parametric RPA is conducted according to the following steps:

- If the number of censored values (those expressed as a “less than” value) account for less than 80 percent of the total number of effluent values, calculate the ML (the mean of the natural log of transformed data) and SL (the standard deviation of the natural log of transformed data) and conduct a parametric RPA, as described above for the Third Path.
- If the number of censored values account for 80 percent or more of the total number of effluent values, conduct a non-parametric RPA, as described below for the Fifth Path. (A non-parametric analysis becomes necessary when the effluent data is limited, and no assumptions can be made regarding its possible distribution.)

4.3.3.1.5. **Fifth Path**

A non-parametric RPA is conducted when the effluent data set contains less than three detected and quantified values, or when the effluent data set contains three or more detected and quantified values but the number of censored values accounts for 80 percent or more of the total number of effluent values. A non-parametric analysis is conducted by ordering the data, comparing each result to the applicable water quality objective, and accounting for ties. The sample number is reduced by one for each tie,

when the dilution adjusted method detection limit (MDL) is greater than the water quality objective. If the adjusted sample number, after accounting for ties, is greater than 15, the pollutant has no reasonable potential to exceed the water quality objective. If the sample number is 15 or less, the RPA is inconclusive, monitoring is required, and any existing effluent limitations in the expiring permit are retained.

4.3.3.2. Reasonable Potential Determination

Since no effluent data is available for the proposed discharge to the Pacific Ocean at Discharge Point 001, a qualitative RPA using RPcalc 2.2 could not be conducted. The Monitoring and Reporting Program (MRP) (Attachment E) for this Order requires the Permittee to conduct monitoring for the parameters subject to water quality objectives in Table 1 of the Ocean Plan within 1 year following commencement of discharges from the Facility at Discharge Point 001 in order to obtain representative data to conduct an RPA. Results from the RPA will be used to determine the need for effluent limitations, in the next permit term, for Table 1 parameters given in the Ocean Plan. This Order may be reopened to establish new effluent limitations based on the monitoring results.

The Facility is a land-based aquaculture facility as defined in 40 C.F.R., part 451. Pollutants of concern from aquaculture facilities include conventional pollutants and certain toxic pollutants, such as ammonia. U.S. EPA's September 2010 NPDES Permit Writer's Manual, states, "*State Implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's Technical Support Document for Water Quality Based Toxics Control (TSD) also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*"

Based on the Permittee's design specifications, the Proposed Facility will be designed to achieve treatment of total ammonia nitrogen (as N) to concentrations of 0.004 mg/L in the effluent. Table 1 of the Ocean Plan includes 6-month median, daily maximum, and instantaneous maximum effluent limitations of 0.6 mg/L, 2.4 mg/L and 6.0 mg/L, respectively. It is uncertain whether the discharge from the Facility will exhibit reasonable

potential to cause or contribute to an exceedance of the water quality objectives in the Ocean Plan for ammonia. Therefore, this Order requires the Permittee to conduct monthly effluent monitoring for total ammonia nitrogen (as N) to collect sufficient data for conducting an RPA prior to the next permit renewal.

4.3.3.3. **Non-Table 1 Water Quality Objectives**

4.3.3.3.1. **Temperature**

The Ocean Plan has the following temperature water quality objective:

The discharge shall not result in increases in the natural water temperature exceeding 4°F at (a) the shoreline, (b) the surface of any ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any complete tidal cycle.

The Facility's effluent will range in temperature of from 68° F to 72° F. The Permittee performed near and far field dilution analysis for temperature discharged from the Facility combined with the current discharges from the Ocean Outfall.

$$\frac{(12.5 \text{ MGD} * 72^{\circ}\text{F}) + (1,425 \text{ MGD} * 46.6^{\circ}\text{F})}{1440.5 \text{ MGD}} = 46.7^{\circ}\text{F}$$

$$46.7^{\circ}\text{F} - 46.6^{\circ}\text{F} = 0.1^{\circ}\text{F} < 4^{\circ}\text{F}.$$

Based on these near field temperature calculations, temperature will not be included as an effluent limitation but continuous effluent monitoring will be required under this Order to collect sufficient data for conducting an RPA prior to the next permit renewal.

4.3.4. **WQBEL Calculations**

At this time, no effluent data for Ocean Plan Table 1 pollutants are available since the Facility has yet to be constructed. Therefore, this Order does not establish WQBELs applicable to the discharge to the Pacific Ocean at Discharge Point 001.

4.3.5. **Whole Effluent Toxicity (WET)**

Whole Effluent Toxicity monitoring triggers protect the receiving water from the aggregate effect of a mixture of pollutants that may be present in the effluent. There are two types of WET tests – acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic test is conducted over a longer period of time and may measure mortality, reproduction, and/or growth.

WET requirements are derived from the CWA, and the Basin Plan. The Basin Plan establishes a narrative water quality objective for toxicity that states “*All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, or aquatic life.*” Detrimental responses may include, but are not limited to, decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alterations in population, community ecology, or receiving water biota. For compliance with the Ocean Plan’s narrative toxicity objective (Waste discharged to the ocean must be essentially free of: (3) Substances which will accumulate to toxic levels in marine waters, sediments or biota), this Order requires the Permittee to conduct WET testing for chronic toxicity, as specified in the MRP (Attachment E, section 5).

The Ocean Plan contains toxicity testing requirements based on minimum initial dilution (Dm) factors in section III.C.4.c. Following the implementation procedures of the Ocean Plan, dischargers with Dm factors ranging from 100:1 to 350:1 are required to conduct chronic toxicity testing and may be required to conduct acute toxicity testing as necessary for the protection of beneficial uses of ocean waters. This Order allows for a Dm of 115 for the acute and chronic conditions. The Permittee has not completed construction of the Facility; therefore, neither acute nor chronic WET data representative of the permitted Facility is available. Since the planned Facility is an aquaculture and fish processing facility with a high level of treatment, and drugs will be used on an infrequent basis, there is a low potential for acutely toxic substances to be present in the treated industrial wastewater. Therefore, acute toxicity testing requirements are not required in this Order. In accordance with the Ocean Plan (section III.C, Implementation Provisions for Table 1), this Order establishes chronic toxicity monitoring requirements for the discharge at Discharge Point 001.

Test of Significant Toxicity (TST)

The Ocean Plan establishes a daily maximum chronic toxicity objective of 1.0 $TU_c = 100/NOEC$, using a five-concentration hypothesis test, and a daily maximum acute toxicity objective of 0.3 $TU_a = 100/LC50$, using a point estimate model. In 2010, U.S. EPA endorsed the peer-reviewed TST two-concentration hypothesis testing approach in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010) as an improved hypothesis-testing tool to evaluate data from U.S. EPA’s toxicity test methods. The TST hypothesis testing approach more reliably identifies toxicity—in relation to the chronic (0.25 or more) and acute (0.20 or more) mean responses of regulatory management concern—than the current NOEC hypothesis-testing approach used in the Ocean Plan.

This Order does not include effluent limitations for toxicity based on the TST approach. However, this Order does require the Permittee to monitor and report

results in a manner that will allow the Regional Water Board to conduct an RPA in accordance with the TST approach at the time of the next permit renewal.

The State Water Board is developing a toxicity amendment to the Water Quality Control Plan for Enclosed Bays and Estuaries of California that will standardize the regulation of aquatic toxicity for all non-oceanic surface waters. U.S. EPA's TST approach is an essential component of this draft toxicity amendment as it forms the basis for utilizing numeric water quality objectives and acts as the primary means of determining compliance with the proposed effluent limitations.

In a letter dated February 12, 2014, the State Water Board submitted an alternative test process (ATP) request to U.S. EPA Region 9 for the statewide use of a two-concentration toxicity test design when using the TST approach. This two-concentration test design is composed of a single effluent concentration and a control concentration. U.S. EPA approved the ATP request on March 17th, 2014. In June 2014, the approval was challenged in court on procedural grounds under the Administrative Procedures Act by the Southern California Alliance of Publicly Owned Treatment Works (SCAP) and the Central Valley Clean Water Association (CVCWA). U.S. EPA withdrew the approval and notified State Water Board in a memo dated February 11, 2015.

It is important to note that U.S. EPA's rescission of its approval of the ATP is not based on the substantive TST statistical analysis or the scientific validity of a two-concentration test design. The withdrawal letter also states that currently there is a proposed rulemaking to change the language in the ATP regulations at 40 C.F.R. part 136.

The benefits of requiring the TST in new or amended permits include improving the statistical power of the toxicity test and simplifying the analysis as compared to the traditional hypothesis statistical approaches or point estimates. The calculations are straightforward and provide a clear pass/fail result. With the withdrawal of the two-concentration test design approval, an NPDES permit can still require the TST for statistical analyses. If the two-concentration test design is approved at a future date, the MRP may be modified to remove the need for a five-concentration test. Toxicity tests shall be run using a multi-concentration test design in accordance with 40 C.F.R. section 136.3, and the TST shall be utilized with the biological responses from the permitted in-stream waste concentration (IWC) and the control (effluent concentration of zero). However, even with only two of the five concentration biological responses being used, cost savings in the form of time and effort are still realized for the statistical analysis and data interpretation carried out by the permittee, laboratory, and permit manager. This Order requires application of the TST for statistical analysis of whole effluent toxicity data.

Test of Significant Toxicity (TST) Design

The TST's null hypothesis for chronic toxicity is:

H0: Mean response (In-stream Waste Concentration (IWC) in % effluent) \leq 0.75 mean response (control)

Results are analyzed using the TST approach and an acceptable level of chronic toxicity is demonstrated by rejecting the null hypothesis and reporting "Pass" or "P".

The chronic IWC (in % effluent) for Discharge Point 001 is 0.87%.¹ The chronic toxicity trigger for Discharge Point 001 is expressed as a null hypothesis (H0) and regulatory management decision (b value) of 0.75 for the chronic toxicity methods in the MRP. The null hypothesis for this discharge is:

H0: Mean response (0.87% effluent) \leq 0.75 mean response (control)

The Permittee has not conducted chronic toxicity testing prior to construction of the Facility and reasonable potential to cause or contribute to an exceedance of water quality objectives for chronic toxicity cannot be assessed using the TST toxicity.

This Order requires monitoring for chronic toxicity twice during the permit term, within the first 2 years following commencement of discharges from the Facility at Discharge Point 001. Results shall be analyzed using the TST hypothesis testing approach in section V.A.6.a of the MRP. Compliance with this chronic toxicity limitation is demonstrated by rejecting the null hypothesis and reporting "Pass" or "P".

When the chronic toxicity test results in a "Fail" or "F," the Permittee must initiate accelerated monitoring as specified in the MRP (Attachment E, section V). After accelerated monitoring, if conditions of chronic toxicity are found to persist, the Permittee will be required to conduct a TRE, as described by the MRP.

Notification requirements for chronic WET testing include a 72-hour verbal notification requirement and a 14-day written report requirement, if test results indicate toxicity. The 14-day written notification is established in the U.S. EPA WET Guidance documents cited in the MRP. The 72-hour verbal notification requirement is being added to provide the Regional Water Board with knowledge of the toxicity in advance of the written report. The 72-hour requirement is intended to give the Permittee sufficient time to make a telephone call to Regional Water Board staff and accounts for non-working days (e.g., weekends). Verbal notification of WET test exceedances may be left by voice mail if the Regional Water Board staff person is not immediately available by telephone.

This Order requires the Permittee to conduct a screening test using at least one vertebrate, invertebrate, and plant species. After the screening test is completed, monitoring can be reduced to the most sensitive species.

Chronic WET limitations will be established if future monitoring results demonstrate that discharges from the Facility are causing or contributing to chronic toxicity in the receiving water.

4.4. Final Effluent Limitation Considerations

4.4.1. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Anti-backsliding requirements do not pertain to this Order, since the planned Facility is a newly regulated discharge.

4.4.2. Antidegradation Policies

The Permittee has requested authorization to discharge up to a maximum daily flow of 12.5 mgd from the Facility to the Pacific Ocean. As discussed below, the Regional Water Board conducted an antidegradation analysis to evaluate whether changes in water quality associated with the proposed discharge of treated wastewater to the Pacific Ocean is consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. The Regional Water Board followed the procedures established in State Water Board Administrative Procedures Update (APU) 90-004 to conduct the antidegradation analysis.

APU 90-004 specifies that a simple antidegradation analysis is sufficient and a complete antidegradation analysis is not required under certain conditions, including where a Regional Board determines that the proposed action will produce minor effects which will not result in a significant reduction in water quality and where the Regional Board determines that the reduction of water quality will be spatially localized or limited with respect to the waterbody; e.g., confined to the mixing zone. Based on the level of treatment provided, the use of an approved BMP Plan and modeling performed that shows the constituents of concern are below the water quality objectives within five feet of the diffuser, the Regional Water Board finds that the proposed discharge will produce minor effects which will not result in a significant reduction in water quality.

Additionally, construction of the Facility on the Samoa peninsula was evaluated as part of the **Nordic Aquafarms California, LLC Land-based Aquaculture Project** (State Clearinghouse No. 2021040532). Therefore, the Regional Water Board determined that a simple antidegradation analysis is sufficient. Findings of the antidegradation analysis are summarized below.

4.4.2.1. Water Quality Parameters and Beneficial Uses Which Will be Affected by the Proposed Expansion and the Extent of the Impact.

Compliance with this Order will not adversely impact beneficial uses of the receiving water. All beneficial uses will be maintained and protected. 40. C.F.R. section 131.12 defines the following tier designations to describe water quality in the receiving water body.

Tier 1 Designation: Existing instream water uses, and the level of water quality is necessary to protect the existing uses shall be maintained and protected. (40. C.F.R. §131.12)

Tier 2 Designation: Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control. (40 C.F.R. §131.12)

The tier designation is assigned on a pollutant-by-pollutant basis. Pollutants of concern in aquaculture facilities include conventional pollutants and certain toxic pollutants, such as ammonia. The Pacific Ocean is not identified on the 2014 and 2016 3030(d) list as impaired. Therefore, the Pacific Ocean is considered a Tier 2 receiving water for all pollutants considered.

Monitoring data for the pollutants of concern is not available to characterize the extent of their impact since the Facility has yet to be constructed. Nevertheless, this Order establishes terms and conditions to ensure that the discharge does not unreasonably affect the present and anticipated beneficial uses of the Pacific Ocean, including effluent limitations for TSS, oil and grease, settleable solids and pH. This Order includes effluent monitoring for ammonia, temperature and Ocean Plan Table 1 parameters. This Order may be reopened to include effluent limitations for ammonia and any parameters that indicate reasonable potential to cause or contribute to and exceedance of a water quality objective.

As discussed below, the antidegradation analysis evaluated whether allowance of the proposed discharge and associated increase in concentration and mass loading in this Order will result in the best practicable treatment or control of the discharge necessary to assure a pollution or

nuisance will not occur and the highest water quality consistent with the maximum benefit of the people of the State will be maintained.

4.4.2.2. Scientific Rational for Determining Potential Lowering of Water Quality

The Rationale used in the Antidegradation Analysis is based on 40 C.F.R. section 131.12, U.S. EPA Region 9 Guidance on Implementing the Antidegradation Provisions of 40 C.F.R. section 131.12 (U.S. EPA 1987), State Water Board Resolution No. 68-16, a State Water Board 1987 policy memorandum to the Regional Water Boards, and APU 90-004 issued by the State Water Board to the Regional Water Boards.

4.4.2.3. Alternative Control Measures Considered

The Regional Water Board has considered the feasibility of alternative treatment and control methods which might reduce, eliminate, or compensate for the negative impacts of the proposed discharge, including discharge to land and discharge to Humboldt Bay, under the Enclosed Bays and Estuaries Policy.

The land discharge alternative would require a higher level of treatment (i.e. Full Advanced Treatment) as compared to the proposed discharge. However, without Full Advanced Treatment, land discharge would have the potential to cause adverse effects to the municipal and domestic supply uses of the underlying groundwater. Furthermore, a discharge to Humboldt Bay would require the Permittee to develop a project that meets the criteria for a Enclosed Bays and Estuaries discharge prohibition exemption. The exemption project would increase construction and maintenance costs associated with showing that beneficial uses are promoted or enhanced further than without the proposed discharge.

The Regional Water Board finds that the environmental impacts associated with the proposed discharge alternative are lower than those associated with the land discharge alternative and the Humboldt Bay alternative. The treatment system is designed to achieve compliance with the requirements of the Ocean Plan. The utilization of UV disinfection on influent and effluent, along with micro-filtration of the effluent, will ensure compliance with applicable water quality objectives for those parameters in the Ocean Plan. Therefore, the Regional Water Board finds that the proposed discharge alternative will provide for the best practicable treatment or control of the discharge.

4.4.2.4. Socioeconomic Evaluation

The Regional Water Board performed a socioeconomic analysis to determine if the lowering of water quality in the Pacific Ocean is in the maximum interest of the people of the state. For the socioeconomic evaluation, the Regional Water Board considered:

- The social benefits and costs based on the ability to accommodate socioeconomic development in the Nordic ROWD and the Humboldt County Master Plan;
- The anticipated change in water quality from existing conditions, the water quality impacts, and expected effects on beneficial uses of the Pacific Ocean;
- The feasibility and effectiveness of reducing the lowering of water quality by implementing alternatives to lowering of Pacific Ocean water quality; and
- The economic costs of alternatives compared to the costs of the proposed discharge.

4.4.2.5. **Justification for Allowing Degradation**

The Regional Water Board finds that the proposed discharge and associated degradation is appropriate, as follows:

- The proposed discharge will accommodate important economic and social development in the area and provide maximum benefit to the people of the state. Specifically, the proposed discharge will provide 130 to 150 full-time jobs and increased tax revenue for Humboldt County, which supports multiple disadvantaged communities.
- The cleanup and redevelopment of an environmentally impacted site at the former Samoa Pulp Mill.
- The new discharge will not adversely affect existing or probable beneficial uses of the Pacific Ocean, nor will it cause water quality to fall below applicable water quality objectives.

The Regional Water Board finds that the proposed discharge of 12.5 mgd from the Facility is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the best practicable treatment or control of the discharges from the Facility.

4.4.3. **Stringency of Requirements for Individual Pollutants**

This Order contains technology-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on total suspended solids, settleable solids and pH. Restrictions on total suspended solids, settleable solids and pH are discussed in section 4.2 of the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order

contains effluent limitations for pH, TSS and settleable solids that are more stringent than the minimum, federal technology-based requirements but are necessary to meet water quality standards.

4.5. Interim Effluent Limitations

This Order does not establish interim effluent limitations or schedules for compliance with final effluent limitations.

4.6. Land Discharge Specifications

This Order does not establish land discharge specifications.

4.7. Recycling Specifications

This Order does not establish recycling specifications.

4.8. Other Requirements

4.8.1. Disinfection Process Requirements for Ultraviolet Light (UV) Disinfection System

This Order contains monitoring requirements for the UV disinfection system in section 4.4.1. These requirements are needed to ensure that the disinfection process achieves effective pathogen reduction per the design of the system.

UV system operation requirements are necessary to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses, bacteria) in the wastewater. UV dosage is dependent on several factors such as UV transmittance, UV power setting, and wastewater flow through the UV system. Minimum dosage requirements are based on the Permittee's proposed design specifications for the UV disinfection system, which identify site-specific UV operating specifications for virus inactivation necessary to protect Beneficial Uses. Minimum UV dosage requirements specified in section 4.4.1 of the Order ensure that adequate disinfection of wastewater will be achieved.

5. RATIONALE FOR RECEIVING WATER LIMITATIONS

5.1. Surface Water

CWA section 303 (a-c) requires states to adopt water quality standards, including criteria, where they are necessary to protect beneficial uses. The State Water Board adopted water quality criteria as water quality objectives in the Ocean Plan. Receiving water limitations within this Order reflect all applicable, general water quality objectives in the Ocean Plan.

The Ocean Plan includes numeric and narrative water quality objectives for various beneficial uses. This Order contains receiving water limitations for

discharges to the Pacific Ocean based on the Ocean Plan numerical and narrative water quality objectives for dissolved oxygen, floating particulates, oil and grease, pH, discoloration, natural lighting, deposition of solids, dissolved sulfides, organic materials in sediments, Table 1 parameters, nutrient materials, radioactive wastes, and biological characteristics.

5.2. Thermal Plan

The Thermal Plan is applicable to the discharge from the Facility. The discharge is considered to be a New Discharge of Elevated Temperature Waste to Coastal Waters, as defined in the Thermal Plan. Therefore, as described in section 3.3.2 of this Fact Sheet, the water quality objectives for new discharges to coastal waters at section 3.B.(4) of the Thermal Plan have been established as receiving water limitations in this Order.

6. RATIONALE FOR PROVISIONS

6.1. Standard Provisions

6.1.1. Federal Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The rationale for the special conditions contained in the Order is provided in section 6.2, below.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

6.1.2. Regional Water Board Standard Provisions

In addition to the Federal Standard Provisions (Attachment D), the Permittee shall comply with the Regional Water Board Standard Provisions provided in Standard Provisions 6.1.2 of this Order.

- 6.1.2.1. Order Provisions 6.1.2.1 identifies the State's enforcement authority under the Water Code, which is more stringent than the enforcement authority specified in the federal regulations (e.g., 40 C.F.R. sections 122.41(j)(5) and (k)(2)).
- 6.1.2.2. Order Provisions 6.1.2.2. requires the Permittee to notify Regional Water Board staff, orally and in writing, if the Permittee does not comply or will be unable to comply with any Order requirement. This provision requires the Permittee to make direct contact with a Regional Water Board staff person.

6.2. Special Provisions

6.2.1. Reopener Provisions

6.2.1.1. Standard Revisions (Special Provision 6.3.1.1)

Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, and include the following:

- 6.2.1.1.1. When standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision. Therefore, if revisions of applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such revised standards.
- 6.2.1.1.2. When new information that was not available at the time of permit issuance would have justified different permit conditions at the time of issuance.

6.2.1.2. Reasonable Potential (Special Provision 6.3.1.2)

This provision allows the Regional Water Board to modify, or revoke and reissue, this Order if present or future investigations demonstrate that the discharge governed by this Permit is causing or contributing to excursions above any applicable priority pollutant criterion or objective, or adversely impacting water quality and/or the beneficial uses of receiving waters.

6.2.1.3. Whole Effluent Toxicity (WET) (Special Provision 6.3.1.3.)

This Order may be reopened to include a narrative or numeric chronic toxicity limitation and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity objective is adopted by the State Water Board, this Order may be reopened to include numeric chronic toxicity effluent limitations based on that objective.

6.2.1.4. 303(d)-Listed Pollutants (Special Provision 6.3.1.4.)

This provision allows the Regional Water Board to reopen this Order to modify existing effluent limitations or add effluent limitations for pollutants that are subject of any future TMDL action.

6.2.2. Special Studies and Additional Monitoring Requirements

6.2.2.1. Disaster Preparedness Assessment Report and Action Plan (Special Provision 6.3.2.1)

Natural disasters, extreme weather events, sea level rise, and shifting precipitation patterns, some of which are projected to intensify due to climate change, have significant implications for wastewater treatment and operations. Some natural disasters are expected to become more frequent and extreme according to the current science on climate change. In order to ensure that Facility operations are not disrupted, compliance with conditions of this Order are achieved, and receiving waters are not adversely impacted by permitted and unpermitted discharges, this Order requires the Permittee to submit a Disaster Preparedness Assessment Report and Action Plan. The Permittee may complete the Disaster Preparedness Assessment Report and Action Plan as part of a collaborative effort with DG Fairhaven Power, LLC and any additional dischargers that utilize the ocean outfall.

6.2.2.2. New Chemical and Aquaculture Drug Use Reporting

The Effluent Limitation Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category at 40 C.F.R. part 451 include the following reporting and narrative requirements for CAAP facilities:

- Each facility must notify the permitting authority of any INAD or extra-label drug use where the use may lead to a discharge to waters of the United States.
- Each Facility must report for failure in or damage to the structure of an aquatic animal containment system, resulting in an unanticipated material discharge of pollutant to waters of the United States.
- Each facility must develop a BMP Plan for solids control, material storage, structural maintenance, record keeping and training.

Prior to using any new chemical or aquaculture drug at a CAAP facility, a Permittee is required to notify the Regional Water Board of the proposed use. The notification must contain the toxicity testing results of the new chemical or aquaculture drug as specified in Section 10.3.2.1 of this General Order. These reporting and toxicity testing requirements are needed for the Regional Water Board to determine if the discharge of a new drug or chemical by the Facility

has reasonable potential to cause, or contribute to an in-stream excursion above any chemical-specific water quality criteria, narrative water quality objective for chemical constituents from the Basin Plan, or narrative water quality objective for toxicity from the Basin Plan.

6.2.3. Best Management Practices and Pollution Prevention

6.2.3.1. Best Management Practices (BMP) Plan (Special Provision 6.3.3.1)

Provision 6.3.3.1 is established based on requirements in Effluent Limitations Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category at 40 C.F.R. part 451. CAAP facilities are required to develop and maintain a BMP Plan that addresses the following requirements: solids control, material storage, structural maintenance, record-keeping, and training. The Permittee must make the BMP Plan available to the Regional Water Board upon request and submit certification that the BMP Plan has been developed.

6.2.3.2. Pollutant Minimization Plan (Special Provision 6.3.3.2)

This provision is included in this Order pursuant to section III.C.9 of the Ocean Plan. The Regional Water Board includes provisions in all NPDES permits requiring development of a PMP when there is evidence that a toxic pollutant is present in the effluent at a concentration greater than an applicable effluent limitation.

6.2.4. Construction, Operation, and Maintenance Specifications

6.2.4.1. Operation and Maintenance (O&M) (Special Provision 6.3.4.1)

40 C.F.R. section 122.41(e) requires proper O&M of permitted wastewater systems and related facilities to achieve compliance with permit conditions. An up-to-date O&M Manual, as required by Provision 6.3.4.1 of this Order, is an integral part of a well-operated and maintained facility.

6.2.4.2. New Facility Certification Report

This provision requires the Permittee to certify the construction of the Facility and provide the Regional Water Board with as-built plans and records.

6.2.5. Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable

6.2.6. Other Special Provisions

6.2.6.1. Solids Disposal and Handling Requirements (Special Provision 6.3.6.1)

The disposal or reuse of wastewater treatment screenings, or other solids removed from the liquid waste stream is regulated by 40 C.F.R. parts 257, 258, 501, and 503, and the State Water Board promulgated provisions of title 27 of the CCR. Sludge generated at the Facility is currently proposed to be pumped into sealed holding tanks and likely used as a fertilizer/soil amendment, biogas or composting. The Facility will be producing two to four trucks daily at full production.

Dead fish are proposed to be ground and stored in storage tanks with a weak acidic solution to maintain a pH of 4 to prevent odor.

6.2.6.2. Storm Water (Special Provision 6.3.6.2)

This provision requires the Permittee, if applicable, to obtain coverage under the State Water Board's Water Quality Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, General Permit for Storm Water Discharges Associated with Industrial Activities (or subsequent renewed versions of the NPDES General Permit CAS000001).

The provision also requires the Permittee to obtain coverage under State Water Board Water Quality General Order No. 2009-0009-DWQ, General Permit for Discharges of Storm Water Associated with Construction Activity for control of storm water discharges from construction at the Facility.

The Order requires the Permittee to implement and maintain BMPs to control the run-on and runoff of storm water to the Facility and to describe the effectiveness of these storm water BMPs, as well as activities to maintain and upgrade these BMPs during the previous year, in its Annual Facility Report to the Regional Water Board.

6.2.7. Compliance Schedules – Not Applicable

This General Order does not establish interim effluent limitations or schedules of compliance for final numeric effluent limitations.

7. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement

federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

7.1. Effluent Monitoring

Effluent monitoring requirements are necessary to determine compliance with prohibitions and/or effluent limitations established by the Order. Monitoring at Monitoring Location EFF-001 is necessary to demonstrate compliance with effluent limitations and demonstrate whether or not the discharge poses reasonable potential for a pollutant to exceed any numeric or narrative water quality objectives for discharges to the Pacific Ocean.

- 7.1.1. Effluent monitoring requirements have been established for flow, oil and grease pH, TSS, settleable solids, and turbidity at Monitoring Location EFF-001 in order to determine compliance with applicable prohibitions and effluent limitations.
- 7.1.2. Ammonia is a pollutant of concern in domestic wastewater and is extremely toxic to aquatic life. The Facility is designed to achieve an ammonia concentration of 0.004 mg/L after dilution. This Order requires monthly effluent monitoring for ammonia to determine if discharges from the Facility exhibit reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for ammonia.
- 7.1.3. This Order requires effluent monitoring for Ocean Plan Table 1 pollutants annually during the permit term, within the first year following commencement of discharges from the Facility, at Monitoring Location EFF-001 to generate adequate data to perform an RPA. Samples for Ocean Plan Table 1 pollutants shall be collected as 24-hour composites, with the exception that grab samples shall be collected for those priority pollutants that are volatile.

7.2. Whole Effluent Toxicity Testing Requirements

WET monitoring requirements are established for discharges to the Pacific Ocean from Discharge Point 001 at Monitoring Location EFF-001 and are included in the Order to protect the receiving water quality from the aggregate effect of a mixture of pollutants in the effluent. Acute toxicity testing measures mortality in 100 percent effluent over a short test period and chronic toxicity testing is conducted over a longer time period and may measure mortality, reproduction, and/or growth. The Ocean Plan (section III.C.4.c.(3)) requires chronic toxicity testing where the minimum initial dilution of the effluent is between 100:1 and 350:1 and allows for the Regional Water Board to require acute toxicity testing as necessary to protect beneficial uses of ocean waters. This Order allows for a Dm of 115 for the acute and chronic conditions.

As described in section 4.3.5 of this Fact Sheet, since the planned Facility is an aquaculture and fish processing facility with a high level of treatment, and drugs will be used on an infrequent basis, there is a low potential for acutely toxic substances to be present in the treated industrial wastewater. Therefore, the

Regional Water Board has determined that acute toxicity testing requirements are not necessary to protect the beneficial uses of the ocean waters. In accordance with the Ocean Plan, WET monitoring shall consist of chronic toxicity testing only. This Order includes monitoring requirements for chronic toxicity to assess whether there is reasonable potential to exceed the Ocean Plan's narrative water quality objectives for toxicity. Consistent with Appendix III of the Ocean Plan, this Order requires chronic toxicity testing annually following the commencement of discharges at Discharge Point 001.

In addition to routine toxicity monitoring, this Order requires the Permittee to develop a TRE Work Plan, in accordance with appropriate U.S. EPA guidance, to ensure that the Permittee have a plan to immediately move forward with the initial tiers of a TRE in the event effluent toxicity is encountered in the future. The TRE is initiated by evidence of a pattern of toxicity demonstrated through the additional effluent monitoring provided as a result of an accelerated monitoring program.

7.3. Land Discharge Monitoring Requirements – Not Required

This Order does not authorize discharges to land.

7.4. Recycling Monitoring Requirements – Not Required

This Order does not authorize discharges of recycled water.

7.5. Receiving Water Monitoring – Not Required

This Order does not require surface water monitoring at this time.

7.6. Groundwater – Not Required

This Order does not require groundwater monitoring at this time.

7.7. Other Monitoring Requirements

7.7.1. Accelerated Monitoring Requirements

Table E-3 includes accelerated monitoring requirements for parameters that are required to be monitored weekly and monthly.

7.7.2. Biological Survey

This Order requires the Permittee to perform a biological survey of the outfall location once every 5 years. The Permittee may complete the biological survey in collaboration with the Humboldt Bay Harbor District, DG Fairhaven Power, LLC, Samoa Wastewater Treatment Plant and any additional dischargers that utilize the ocean outfall.

7.7.3. Flow Monitoring

Section I.D of the MRP requires proper installation, calibration, operation, and maintenance of flow metering devices.

8. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, North Coast Region (Regional Water Board) has considered the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Nordic Aquafarms California, LLC and the land-based RAS Facility. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs and has encouraged public participation in the WDR adoption process.

8.1. Notification of Interested Parties

The Regional Water Board notified the Permittee and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following posting on the [Regional Water Board's Internet](#).

8.2. Written Comments

Interested persons were invited to submit written comments concerning these tentative WDRs as provided through the notification process. Comments were due to the Regional Water Board Executive Office electronically via [e-mail](#). The guidelines for electronic submittal of documents can be found on the [Regional Water Board website](#).

To be fully responded to by staff and considered by the Regional Water Board, the written comments were due at the Regional Water Board office by 5:00 p.m. on **June 4, 2021**.

8.3. Public Hearing

The Regional Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **August 18, 2021**
Time: 8:30 a.m. or as announced in the Regional Water Board's agenda
Location: Regional Water Quality Control Board
5550 Skylane Blvd. Suite A
Santa Rosa, California

Interested persons were invited to attend. At the public hearing, the Regional Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested in writing. Please be aware that dates and venues may change. Our [Web address](#) is where you can access the current agenda for changes in dates and locations.

8.4. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be received by the State Water Board at the following address within 30 calendar days of the Regional Water Board's action:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

For instruction on how to file a petition for review see this [website](#).

8.5. Information and Copying

The ROWD, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address identified in section **8.3**, above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (707) 576-2220.

8.6. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this Facility, and provide a name, address, and phone number.

8.7. Additional Information

Requests for additional information or questions regarding this order should be directed to Justin McSmith at Justin.McSmith@waterboards.ca.gov or (707) 576-2082.

Appendix B

Letter from the Salmonid Restoration Federation



Salmonid Restoration Federation

July 6, 2021

Alyssa Suárez
Planner II
Humboldt County Planning & Building Department
3015 H Street Eureka, CA 95501

Submitted by email to asuarez@co.humboldt.ca.us

RE: Nordic Aquafarms Permits Scoping Comments

Dear Ms. Suárez:

The Salmonid Restoration Federation (SRF) is concerned that Nordic Aquafarms (Nordic) has not paid adequate attention to the needs of wild salmonids in their proposal to build an aquaculture facility (Project) to raise Atlantic salmon on the Samoa Peninsula in Humboldt County. Millions of dollars of government grant money have been spent on salmonid habitat restoration in Humboldt Bay: restoring estuaries and instream habitat, improving access to salmonid habitat, doing upslope erosion control, and decommissioning roads that increase erosion. Several of the waterbodies that are being restored, such as the estuaries of Elk River, Salmon Creek, and Freshwater Creek are likely to be exposed to effluent from the Project. The juvenile salmonids using that restored habitat may be at risk from the chemicals and diseases from Project effluent.

The mission of SRF is to promote restoration and stewardship of California's native salmon, steelhead, and trout populations and their habitat. To accomplish our mission, we have been working since 1986 to advance the art and science of habitat restoration for California's precious salmonid species. SRF provides crucial educational services for landowners, community-based restoration organizations, consultancies, and state and federal agencies. SRF participates in the development of state and federal salmonid fishery restorations plans, objectives, and policies. We advocate for changes in key government policies and regulations that hinder or obstruct the restoration of California's salmonid fisheries, including the protection of existing funding and the development of additional funding for the California Department of Fish & Wildlife's salmon, steelhead, and trout restoration programs and grants. In support of our mission, we urge the

Humboldt County Planning & Building Department and the Planning Commission to reduce Project impacts on wild coho salmon, Chinook salmon, and steelhead.

On May 24, 2021, SRF commented on the Nordic Aquafarms Initial Study/Mitigated Negative Declaration (IS/MND). In our letter, we expressed concern regarding the effluent stream of the Project and its impact on the survival of juvenile salmonids, the need for an adequate effects analysis and ESA consultation, and seismic and fish escapes concerns. Please include SRF's May 24, 2021, comment letter in the comment record and response for the draft Environmental Impact Report (DEIR). These comments are included as an attachment to the email submission of this letter in a file named "SRF Nordic MND Humboldt Planning Dept comments 05-24-2021."

In our May 24, 2021, comment letter, we expressed concerns that no modeling has been done to determine the impact of Project water withdrawals in the Mad River and modeling is incomplete for determining the effluent dispersal area.

We recommend that Humboldt County ensures that instream flow incremental methodology (IFIM) bathymetric surveys or comparable LiDAR surveys are conducted for the Mad River. The IFIM data or LiDAR data should then be used for modeling with flow data from USGS station 11481000, near Arcata, California, to quantify effects of the Project in Dry and Critically Dry Water Years and during episodic drought events. We further recommend that Humboldt County ensures that Nordic has a firm agreement from Humboldt Bay Municipal Water District to maintain flows in the lower Mad River during extreme drought events and critically dry water years. The flow agreement should depend upon temperature modeling agreed upon by NOAA fisheries to ensure that critical habitat for salmonids and eulachon is protected and conserved.

The current modeling on the Project's effluent dispersal is incomplete and not sufficient to do a full analysis on the effluent effects on the Mad River and Eel River, critical habitat protected under the Endangered Species Act, and dispersal into the Samoa State Marine Conservation Area, Trinidad Head Area of Special Biological Significance, or the South Cape Mendocino State Marine Reserve. Specifically, the preliminary modeling is only based on a southbound current and does not include northward flows or marine upwelling.

We recommend that upwelling modeling be conducted that addresses the combined impact of effluent-laden sediments, marine upwelling, tidal surge, and daily south to north current changes. To this end, we recommend the existing modeling be re-done to include local current shifts and that the Biologically Effective Upwelling Transport Index (BEUTI) be used to estimate upwelling and nutrient transport within the full dispersal area of Project effluent. The modeling results should be included in the DEIR and summarized in the final EIR.

To reduce impacts to wild salmonids and to conserve the remaining habitat for these threatened and endangered species, we urge the County to require enhanced treatment of the Project's effluent streams. For the effluent that has undergone sludge removal,

the effluent should be treated to remove the remaining orthophosphate, ammonia, reduced inorganic nitrogen, and oxidized inorganic nitrogen. Removal of these nutrients should significantly reduce the risk of harmful algal blooms and corresponding toxins, and the depressed dissolved oxygen conditions that could harm juvenile salmonids.

The effluent should be further treated to remove treatment chemicals, pathogens, and pathogen remnants that may pass through the biofiltration units. Effluent from the fish processing facility and the sludge removal should not enter the marine environment until it has been fully treated to remove fish diseases, oxidants, antibiotics, antifungals, and other treatment chemicals.

Similar to other high-density fish farming around the world, fish diseases may proliferate at Nordic, such as: Infectious Pancreatic Necrosis Virus, Infectious Salmon Anemia Virus, Salmonid Alphavirus, Piscine Orthoreovirus, Novel Totivirus, and Novel Piscine Reovirus, and bacterial kidney disease. All of these pathogens pose a risk to juvenile salmonids growing to adulthood in the marine habitat in the area of the diffuser pipe and exposed to effluent during tidal cycles in Humboldt Bay, Mad River estuary, and Eel River estuary. Exposing young fish to disease can destabilize salmonid populations and lead to run and cohort failure in wild fish. This is a significant effect salmonid survival and recovery that needs to be addressed through prevention, monitoring, mitigation, and remediation.

Conclusion

We respectfully ask that the Humboldt County Planning Department ensure that the Project includes measures to protect wild salmonids from exposure to Project effluent and that these measures are included in the DEIR and final EIR. We further request that ESA and CESA consultation and modeling of Project impacts is completed prior to the final EIR. It is our hope that impacts of the Project on salmonids and the sensitive ecosystems salmonids depend upon for their survival are fully addressed and mitigated.

Sincerely,

Dana Stolzman, Executive Director
Salmonid Restoration Federation

Email attachments:
SRF Nordic MND Humboldt Planning Dept comments 05-24-2021

Appendix C

Pile and Cross Beam Removal Quantities Technical Memorandum

Technical Memorandum

April 5, 2022

To	Larry Oetker	Tel	707.267.2275
Copy to	Misha Schwarz, Rob Holmlund	Email	Brett.Vivyan@ghd.com
From	Brett Vivyan PE	Ref. No.	11205607
Subject	Pile and Cross Beam Removal Quantities		

This memorandum summarizes the field methods and estimated quantities of pile and cross beam removal of the remnant Kramer Dock, in support of the Humboldt Bay Master Baywater Intake Offsite Compensatory Restoration. At the request of California Department of Fish and Wildlife (CDFW), field measurements and desktop analyses were conducted to evaluate the weight, surface area and volume of and cross beam removal at the Kramer Dock site in Humboldt Bay (Fields Landing, California). A total of 988 creosote-treated pilings and 151 creosote-treated cross beam supports, attached to the pilings are proposed for removal.

On March 25, 2022 GHD staff visited the site to confirm creosote treatment and measure pile and cross beam dimensions. Piles were partially submerged at the time of observation and a combination of desktop assessments and field measurements were used to determine ground elevations. Pile dimensions are provided in Table 1 and cross beam dimensions are provided in Table 2. Typical pile and cross beam configuration is shown in Figure 1. The piles and cross beams exhibited a faint smell of petroleum product and are all assumed to have been treated with creosote, as was common for piers, docks and floats for more than a century¹.

Table 1 *Typical pile dimensions.*

Description	Cross Section	Average Ground Elevation at Pile ²	Top of Pile Elevation	Length Above Ground	Length Below Ground ³
Pile	12-inch Diameter	-1.8 feet (NAVD)	7.5 feet (NAVD)	9.3 feet	20 feet

¹ www.dnr.wa.gov/publications/aqr_rest_creosote_factsheet_1019.pdf

² Ground elevation at the piles was determined based on the water depth measurements and tidal water levels, as reported at Station 9418723 Fields Landing, Humboldt Bay, CA and 9418767 North Spit, CA and then cross referenced to available LiDAR elevation data. Predicted tidal water levels at Fields Landing were -0.25 ft (NAVD88). Measured tidal water levels at the North Spit were shown to be 0.197 ft higher than predicted at 12:00 pm PDT, resulting in a water level of 0.07 feet (NAVD) at the Kramer Dock site. Water depth at the closest pile was measured to be 1.16 feet (14 inches), resulting in an approximate ground elevation of approximately -1.1 feet (NAVD). Ground elevation, was also evaluated using the 2019 Humboldt Bay LiDAR data set. At the time of LiDAR data collection, the piles were submerged and hydroflattening (water surface elevation captured) occurred at a water level of -0.4 feet. The adjacent ground, approximately 5 feet from the piles was not affected by hydroflattening. The slope of the adjacent ground, over a length of 30 feet was used to extrapolate elevations, resulting in a ground elevation of -1.05 feet (NAVD) at the same measurement location. Using this same method, the two piles located at approximately 6-foot spacing further west, resulted in ground elevations of -1.8 feet and -2.6 feet. Resulting average ground elevation is -1.8 feet.

³ Based on personal communication with Larry Oetker (Harbor District Executive Director) noting approximate length of piles below mud line during previous pile removal activities.

Table 2 Typical cross beam dimensions

Description	Cross Section	Length	Top Elevation	Bottom Elevation
Cross Beam	6-inch by 12-inch	12 feet	7.5 feet (NAVD)	0.5 feet (NAVD)



Figure 1 Typical piles and cross beams at mitigation site.

The resulting volume weight, and surface area of piles proposed for removal is summarized in Table 3. The proposed mitigation results in the removal and disposal of 1,139 creosote-treated piles and beams, totalling 23,650 ft³, 308 tons, and 96,530 ft² from Humboldt Bay.

Table 3. Resulting weight, surface area and volume calculations.

Description	Number Removed	Volume (ft ³)	Weight ⁴ (tons)	Surface Area Exposed to Average Daily Water Column ⁵ (ft ²)	Surface Area Above MHHW (ft ²)	Surface Area Below Ground (ft ²)
Piles	988	22,740	296	25,760	3,100	62,080
Cross Beams	151	910	12	4,900	690	NA
Totals	1,139	23,650	308	30,660	3,790	62,080

⁴ Assumed Coast Redwood with density of 26 lbs/ft³ (<https://www.wood-database.com/coast-redwood/>)

⁵ Based on ground elevation of -1.8 feet (NAVD) and Mean Higher High Water (MHHW) of 6.51 feet (NAVD) at Station 9418767 North Spit, CA



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