

4.2 BIOLOGICAL RESOURCES

This section analyzes impacts of the proposed project related to biological resources based on a review of existing studies and site reconnaissance by biologists with Dudek, and a spring nesting bird survey conducted at the Wharf by Kittleson Environmental Consulting and Bryan Mori Biological Consulting. The spring nesting survey is included in Appendix C. The Santa Cruz Wharf extends into Monterey Bay. None of the improvements identified in the Wharf Master Plan include development on land. Therefore, this section focuses on potential impacts to the marine environment.

This section also draws from the City of Santa Cruz *General Plan 2030* EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on sensitive species and habitats within the City. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 101, Santa Cruz, California) during business hours: Monday through Thursday, 7:30 AM to 12 PM and 1 PM to 3 PM. The General Plan EIR is also available online on the City's website at: <http://www.cityofsantacruz.com/Home/Components/BusinessDirectory/BusinessDirectory/102/1775>.

Public and agency comments related to biological resources were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

- The effects of pile driving on marine mammals and fish as a result of noise during installation should be examined.
- Concerns were expressed regarding pile coatings and potential impacts to marine species, including Pacific salmonids.
- Concerns were expressed regarding potential impacts to birds during nesting, particularly from human use of the proposed Westside Walkway, and potential disturbance to roosting birds due to human activity and the new Westside Walkway.
- Concerns were expressed regarding potential impacts to marine mammals including: impacts to sea lions due to human use of the proposed Westside Walkway; impacts of wharf expansion and additional boating, including potentially larger boats, on whales and sea otters; and impacts to marine mammals from additional human activity in the evenings, including lights and noise, such as from concerts.
- Impacts to fish and other species should be assessed.
- Concern was expressed about impacts to existing sea lion use of the support beams below the wharf.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised

by responsible agencies, they are identified and addressed within this EIR. Public comments received during the public scoping period are included in Appendix A.

4.2.1 Environmental Setting

Regulatory Setting

Federal Regulations

Federal Endangered Species Act (FESA). The federal Endangered Species Act (FESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, is administered by the United States Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries¹). This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. The FESA defines an endangered species as “any species that is in danger of extinction throughout all or a significant portion of its range.” A threatened species is defined as “any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”

FESA prohibits federal agencies from authorizing, permitting or funding any action that would result in biological jeopardy to or take of a species listed as threatened or endangered. NOAA Fisheries jurisdiction under the FESA is limited to the protection of marine mammals and anadromous fish; all other species are within USFWS jurisdiction. Under the provisions of Section 9(a)(1)(B) of the FESA (16 U.S.C. 1531 et seq.), it is unlawful to “take” any listed species. Take is defined as, “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Exemptions to the prohibitions against take may be obtained through coordination with the USFWS through interagency consultation for projects with federal involvement (i.e., funded, authorized, or carried out by a Federal agency) pursuant to Section 7 of the FESA or through the issuance of an incidental take permit under Section 10(a)(1)(B) of the FESA if the applicant submits a habitat conservation plan (HCP) that meets statutory requirements including components to minimize and mitigate impacts associated with the take. In a case where a property owner seeks permission from a federal agency for an action that could affect a federally listed plant or wildlife species, the property owner and agency are required to consult with USFWS. Take prohibitions in Section 9 of the ESA (16 U.S.C. 1531 et seq.) do not expressly encompass all plants.

Marine Mammal Protection Act. The Marine Mammal Protection Act of 1972 (MMPA), as amended, establishes a federal responsibility for the protection and conservation of marine mammal species by prohibiting the “take” of any marine mammal. The MMPA defines “take” as the act of hunting, killing, capture, and/or harassment of any marine mammal, or the attempt at such. The MMPA also imposes a moratorium on the import, export, or sale of any marine

¹ Formerly referred to as National Marine Fisheries Service.

mammals, parts, or products within the U.S. The USFWS and NOAA Fisheries are jointly responsible for implementation of the MMPA; USFWS is responsible for the protection of sea otters, and NOAA Fisheries is responsible for protecting pinnipeds (seals and sea lions) and cetaceans (whales and dolphins).

Under Section 101(a)(5)(D) of the MMPA, an incidental harassment permit may be issued for activities other than commercial fishing that may impact small numbers of marine mammals. An incidental harassment permit covers activities that extend for periods of not more than 1 year, and that will have a negligible impact on the impacted species. Amendments to the MMPA in 1994 statutorily defined two levels of harassment. Level A harassment is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal in the wild. Level B harassment is defined as harassment having potential to disturb marine mammals by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

Federal Regulation of Wetlands and Waters of the U.S. The U.S. Army Corps of Engineers (ACOE) has regulatory authority for activities within wetlands under the Clean Water Act (CWA, 1977, as amended), which serves as the primary federal law protecting the quality of the nation’s surface waters. Section 404 of the CWA establishes a program to regulate discharge of dredged or fill material into “waters of the United States,” which is administered by the ACOE. The term “waters” includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations. In general, a permit must be obtained under Section 404 of the CWA before fill can be placed in wetlands or other waters of the U.S. The type of permit depends on the amount of acreage and the purpose of the proposed fill, subject to discretion of the ACOE. Under Section 404, general permits may be issued on a nationwide, regional, or state basis for particular types of activities that will have only minimal adverse impacts. Individual permits are required for projects with potentially significant impacts.

Under Section 401 of the CWA, the California Regional Water Quality Control Boards (RWQCB) have regulatory authority over actions in waters of the U.S. through issuance of water quality certifications, which are issued in combination with permits issued by the ACOE under Section 404 of the CWA. A 401 Certification is required from the RWQCB whenever improvements are made within Jurisdictional Waters of the U.S.

Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Sections 1801–1884) of 1976, as amended in 1996 and reauthorized in 2007, is intended to protect fisheries resources and fishing activities within 200 miles of shore. The amended law, also known as the Sustainable Fisheries Act (Public Law 104-297), requires all federal agencies to consult with the Secretary of Commerce on proposed projects authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat (EFH). The main purpose of the EFH provisions is to avoid loss of fisheries due to disturbance and degradation of the fisheries habitat. Monterey Bay is designated as EFH by the Pacific Fisheries Management Council to protect and enhance

habitat for coastal marine fish, and macroinvertebrate species that support commercial fisheries. Managed fish found in the project vicinity include, but are not limited to, salmonid species, rockfish, groundfish, and flatfish (URS Corporation, May 2013).

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) was originally passed in 1918 as four bilateral treaties, or conventions, for the protection of a shared migratory bird resource (16 U.S.C. 703–712). The primary motivation for the international negotiations was to stop the “indiscriminate slaughter” of migratory birds by market hunters and others. Each of the treaties protects selected species of birds and provides for closed and open seasons for hunting game birds. The MBTA protects over 800 species of birds, which are listed in the Code of Federal Regulations (50 CFR 10.13). The MBTA prohibits the “take” of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, take is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so. Two species of eagles that are native to the United States, the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*), were granted additional protection within the United States under the Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668–668d) to prevent the species from becoming extinct. The U.S. Fish and Wildlife Service is currently in the process of revised rulemaking for the MBTA² and has proposed redefining the definition of a “take” under the MBTA. Wharf operations will continue to operate within federal guidelines implementing the MBTA as will implementation of the Wharf Master Plan.

California Regulations

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA) and protects streams and water bodies through the Streambed Alteration Agreement under Section 1600 of the California Fish and Game Code (CFGC).

California Endangered Species Act. The CESA (CFGC Section 2050-2100), passed in 1970 and last amended in 1984, declares that deserving plant or animal species be given protection by the State because they are of ecological, historic, educational, recreational, aesthetic, economic, and scientific value to the people of the State. The CDFW administers the CESA which prohibits the “take” of plant and animal species designated by the Fish and Game Commission as endangered, threatened, or candidate species in the state of California. Under CFGC Section 86, “take” is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

CESA (CFGC Sections 2062, 2067, and 2068) provides definitions of endangered, threatened, and candidate species. CESA also emphasizes, consistent with its goal to conserve species, that it is policy of the State of California to acquire lands for habitat for endangered and threatened species. Sections 2081(b) and 2081(c) of the CFGC authorize take of endangered, threatened, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met.

² Additional information on the federal rulemaking proposal is available at the following link: <https://www.regulations.gov/docket?D=FWS-HQ-MB-2018-0090>.

These provisions also require CDFW to coordinate consultations with the USFWS for actions involving federally listed species that are also state-listed species. In certain circumstances, Section 2080.1 of the CFGC allows CDFW to adopt a federal incidental take statement or a FESA Section 10(a) permit as its own based on its findings that the federal permit adequately protects the species and is consistent with state law.

Species of Special Concern, Fully Protected Species and Other State Code Provisions. In addition to lists of designated Endangered, Threatened, and Rare plant and animal species, the CDFW maintains a list of animal “Species of Special Concern,” most of which are species whose breeding populations in California may face extirpation. Although these species have no legal status under the CESA, the CDFW recommends considering these species during analysis of proposed project impacts to protect declining populations, and to avoid the need to list them as threatened or endangered in the future. These species may “be considered rare or endangered [under CEQA] if the species can be shown to meet the criteria”.

Additionally, the CFGC contains lists of vertebrate species designated as “Fully Protected” (California Fish & Game Code 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]. According to Sections 3511 and 4700 of the CFGC, which regulate birds and mammals, respectively, a “Fully Protected” species may not be taken or possessed without a permit from the Fish and Game Commission. Incidental take is not authorized under CFGC Section 2081 for species designated as Fully Protected, except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Pursuant to Section 3503.5 of the CFGC, it is unlawful to take, possess, or destroy any birds of prey; or to take, possess, or destroy any nest or eggs of such birds. Active nests of all other birds (except introduced species such as rock pigeons, Eurasian collared-doves, house sparrows, and European starlings) are similarly protected under CFGC Sections 3503 and 3513. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by the CDFW. This statute does not provide for the issuance of an incidental take permit.

Local Regulations

Section 24.14.080 of the City’s Municipal Code includes provisions to protect wildlife habitat and protected species for areas specified in the City’s General Plan or as identified through the environmental review process.

Regional Setting

Monterey Bay is part of the Monterey Bay National Marine Sanctuary (MBNMS), which was established and designated in 1992 for the purpose of resource protection, research, education and public use. The MBNMS is the largest of thirteen marine sanctuaries administered by the United States Department of Commerce National Oceanic and Atmospheric Administration (NOAA) and it extends from Marin County to Cambria, encompassing nearly 300 miles of shoreline

and 5,322 square miles of ocean, extending an average distance of twenty-five miles from shore. At its deepest point the MBNMS reaches down 10,663 feet (more than two miles) (Monterey Bay National Marine Sanctuary, 2008).

Monterey Bay is home to numerous mammals, seabirds, fishes, invertebrates, and algae in a remarkably productive coastal environment. Its natural resources include the nation's largest contiguous kelp forests, one of North America's largest underwater canyons and the closest-to-shore, deep ocean environment off the continental United States. It is home to some of the most diverse and productive marine ecosystems in the world, including a vast diversity of marine life, with 33 species of marine mammals, 94 species of seabirds, 345 species of fish, four species of sea turtles, 31 phyla of invertebrates, and more than 450 species of marine algae. During early spring to late summer, upwelling causes nutrient-rich water to rise to the surface. These nutrients in turn are consumed by planktonic organisms which support the entire food chain, giving rise to the incredible diversity at this site (Monterey Bay National Marine Sanctuary, 2008).

The nearshore zone extends from the surf out to waters that are approximately 100 feet deep. The continental shelf is the gradually sloping submerged margin of the continent that extends from the nearshore to the shelf break. Beyond the shelf break (at a depth of approximately 650 feet), the continental slope descends more steeply to the ocean floor (Monterey Bay National Marine Sanctuary-SIMoN, 2017).

MBNMS partially updated its 2009 Condition Report and released A New Assessment of the State of Sanctuary Resources in 2015. The 2009 Report provided an assessment of ecosystem health, status and trends within the Sanctuary. Both the 2009 Report and 2015 Condition Report Update assessed four areas of the sanctuary: estuarine (Elkhorn Slough), nearshore (<30 meters in depth), offshore (>30 meters) and the Davidson Seamount (70 miles offshore, southwest of Monterey). Sanctuary habitats and living resources were reported to be in excellent condition. Overall, the nearshore biogenic habitat (which extends from the shoreline boundary out to approximately 30 meters depth), including kelp, algae, and invertebrates are abundant and stable. There has been no introduction of new invasive species; key species are stable or slightly increasing; and water quality risks to human health decreased due to improved sewer infrastructure and non-point source controls. However, the 2015 Report downgraded the eutrophic conditions of sanctuary waters to "fair" due to the increasing nutrient enrichment and proliferation of harmful algal blooms (HABs). Concerns in the nearshore environment include ambient toxicity due to pesticides and pharmaceuticals; sea star declines; and effects of the following activities: sand mining, coastal armoring, inputs of contaminants, and marine debris. In the offshore environment the main concerns are impacts that have been detected due to the Oxygen Minimum Zone caused by acidification, warming and shoaling; pollutants, marine debris, and toxins from HABs found in some key species; impacts to sensitive species from human-caused noise and vessel traffic; long-term impacts of warmer water conditions; and trawling impacts on the benthic habitat (Monterey Bay National Marine Sanctuary, 2015).

Project Site Setting

The Santa Cruz Wharf extends into Monterey Bay for a distance of approximately 2,700 feet; the initial 200± feet span the City's Main Beach. A variety of species, marine mammals, and aquatic species use the Wharf and surrounding waters.

Birds

A variety of bird species use the Wharf and surrounding waters for nesting, roosting, and feeding. Nesting species are limited to a few species that may nest on human-made structures. Specifically, pigeon guillemot, rock pigeon, and western gull nest regularly on the Wharf. Pelagic cormorant (*Phalacrocorax pelagicus*) has also nested on Wharf. Several species are known to rest on rooftops, railings, and other parts of the structure, including California brown pelican (*Pelecanus occidentalis californicus*), California gull (*Larus californicus*), Heermann's gull (*Larus heermanni*), rock pigeon (*Columba livia*), and western gull (*Larus occidentalis*). Species that feed commonly in the surrounding waters include several of the above (such as pelagic cormorant, pigeon guillemot (*Cephus columba*), California gull, and western gull), in addition to Brandt's cormorant (*Phalacrocorax penicillatus*), double-crested cormorant (*Phalacrocorax auritus*), Clark's grebe (*Aechmoporus clarkia*), western grebe (*Aechmophorus occidentalis*), eared grebe (*Podiceps nigricollis*), pigeon guillemot, common loon (*Gavia immer*), Pacific loon (*Gavia pacifica*), and red-throated loon (*Gavia stellata*).

Studies have been conducted in recent years to document how birds use the Wharf and surrounding waters. From February 2012 to February 2014, the Center for Sustainable Energy and Power Systems at the University of California, Santa Cruz (UCSC) conducted point count plot surveys around the Wharf to monitor the potential avian impacts of a vertical axis wind turbine installed on the Wharf in 2011 (Wise-West and Rinkert, 2014). The five-minute point counts were conducted two to four times per month at each of six locations around the Wharf, to document abundance, diversity, and behavior of birds. Survey plots included portions of the Wharf itself, as well as surrounding waters.

During two years of surveys, the UCSC study documented 61 bird species within the six survey plots. Of these, 24 were considered common during at least one season (see Table 4.2-1). Four species were confirmed breeding during the study: pelagic cormorant, pigeon guillemot, rock pigeon, and western gull. Although pelagic cormorant was observed year-round, this species was not observed to nest regularly. Only one nest was detected during the surveys, underneath the deck on the west side of the Wharf (Wise-West and Rinkert 2014). This was only the second known occurrence of this species nesting in the county at a location other than coastal cliffs during the previous 30 years (Ibid.).

As part of the preparation of this EIR, Kittleson Environmental Consulting and Bryan Mori Biological Consulting conducted nesting season surveys from April to July 2017 (Kittleson Environmental Consulting, Bryan Mori Biological Consulting, 2017; Appendix C). These surveys

were conducted to not only identify species present around the Wharf and their abundance, but also to collect information on which species were breeding on the Wharf and their nesting locations. The surveys included day-time pedestrian surveys following the perimeter of the Wharf and recording information on all birds within an area encompassing the Wharf and waters within 100 meters (approximately 328 feet) of the Wharf, as well as two kayak surveys that provided views underneath the Wharf to document nesting birds that may otherwise not have been visible. In addition, the report for these surveys provided a compilation of data from the online, citizen science project eBird (Cornell Lab of Ornithology and National Audubon Society 2017), a publicly accessible source where observers all around the world enter data.

Table 4.2-1. Bird Species Observed During Green Wharf Study (2012-2014)

| Spring | Summer | Fall | Winter |
|--|---|---|---|
| red-throated loon Pacific loon | | red-throated loon Pacific loon | surf scoter red-throated loon Pacific loon common loon horned grebe eared grebe |
| western grebe Brandt's cormorant double-crested cormorant pelagic cormorant California brown pelican | Brandt's cormorant double-crested cormorant pelagic cormorant California brown pelican | western grebe Brandt's cormorant double-crested cormorant pelagic cormorant California brown pelican snowy egret | western grebe Brandt's cormorant double-crested cormorant pelagic cormorant California brown pelican snowy egret |
| Whimbrel Heermann's gull | Heermann's gull | Heermann's gull mew gull | Heermann's gull mew gull |
| western gull California gull | western gull California gull | western gull California gull | western gull California gull herring gull glaucous-winged gull |
| Caspian tern | Caspian tern elegant tern | elegant tern | |
| pigeon guillemot rock pigeon | pigeon guillemot rock pigeon cliff swallow | rock pigeon | rock pigeon |
| TOTAL | 14 | 12 | 14 |

SOURCE: Wise-West and Rinkert, July 2014

The 2017 surveys conducted recorded 27 species within the survey area, which included the Wharf and all waters within 100 meters. Species recorded included species mentioned above, in addition to several other common species, such as American crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), and European starling (*Sturnus vulgaris*) (Kittleson Environmental Consulting, Bryan Mori Biological Consulting 2017). Common rock pigeons, western gulls and pigeon guillemots made up the bulk of the birds observed in the 2017 survey.

Breeding species were the same as the common species noted above: pigeon guillemot, western gull, and rock pigeon. A combined species list from the two studies is included in Appendix D. The Kittleson Environmental Consulting study also included all species recorded from the Wharf in eBird (Appendix C). However, many of these species may have been observed a substantial distance from the Wharf, and therefore species reported in eBird and not recorded in Kittleson Environmental Consulting (2017) or Wise-West and Rinkert (2014) are not included in the Wharf bird species list in Appendix D.

Nesting Species. Of the nesting species recorded at the Wharf, one (rock pigeon) is a non-native species not typically considered to be protected under the MBTA or the CFGC. Kittleson Environmental Consulting (2017) recorded locations of nesting by both pigeon guillemot and western gull, but did not record locations for rock pigeon. Recent efforts to physically exclude pigeon nesting in the beach and shallow water areas have effectively reduced potential nesting areas, but pigeons were found to nest throughout the areas underneath the Wharf farther from shore.

Ten western gull nests with young were observed on buildings and on inaccessible walkways on the west side of the Wharf, as well as near the south end of the Wharf (see Figure 4.2-1³). Nine pigeon guillemot nests were observed during the surveys. Pigeon guillemots are cliff-side cavity nesters. Although no young were observed in nests, adults were regularly observed carrying food to the identified nest sites and presence of young was inferred. The nine nests identified were spread relatively evenly throughout the outer two thirds of the Wharf, underneath the deck of the Wharf (see Figure 4.2-1). Pigeon guillemot nests are difficult to detect because they are located in small dark spaces under the Wharf and have minimal nesting material present (Kittleson, personal communication, 2019).

Pelagic cormorant is found year-round in the vicinity of the Wharf and has been recorded nesting there. This species was observed nesting underneath the Wharf deck in 2013, one of only two times in 30 years it was observed nesting in Santa Cruz County on substrates other than at its more typical nesting habitat in vertical cliffs (Wise-West and Rinkert, 2014). The species was not observed nesting at the Wharf during the 2017 survey, but was observed nesting on the Wharf in 2019 (Kittleson, personal communication, 2019).

Marine Habitats and Species

The marine habitats in the vicinity of the Santa Cruz Wharf consist of various intertidal, kelp forest, and open-water habitats. Bottom substrates in the project vicinity are predominantly soft, sandy sediments. Species diversity in the intertidal zone is generally low because organisms are subject to daily tidal fluctuations causing varying wet and dry conditions and fluctuations in temperature and salinity (URS Corporation, May 2013). Common species include polychaete worms (e.g.,

³ All figures are included in Chapter 7 at the end of the document for ease of reference as some figures are referenced in multiple sections.

Apoprionospio sp., *Mediomastus* sp.), anemones, and oligochaete and nematode worms (Ibid.). Kelp forest habitat is located to the southwest of the Wharf adjacent to Lighthouse Point. The kelp forest is composed of the giant kelp (*Macrocystis pyrifera*), bull whip kelp (*Nerocystis luetkeana*), and other red and brown algae (Ibid.). Farther offshore, soft-bottom subtidal areas are characterized by benthic (bottom dwelling) organisms typical of the open-coast soft-bottomed community off much of the California coast (Ibid.).

The open water, or pelagic zone, encompasses the entire water column extending from the surface nearly to the bottom substrate. Many species are associated with open-water habitats over both rocky and sandy substrates, including plankton, invertebrates, and fish. Plankton are generally microscopic plants and animals, free-floating in the open water, and represent the lower levels of the food chain and are important to many marine species, including benthic organisms, fish, and mammals. A variety of pelagic marine invertebrates occur within the project vicinity, including squid (*Loligo opalescens*), jellyfish, and shrimp. Fish commonly found in open water in the vicinity of the Wharf include anchovies (*Engraulis mordax*), sardines (*Sardinops sagax*), and adults of several species of anadromous fish such as the Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*) (URS Corporation, May 2013).

Monterey Bay is an important stop-over point for migratory birds and 94 species of native and non-native seabirds are known to occur regularly in Monterey Bay. Along the continental shelf, the dominant species are sooty shearwaters (*Ardenna grisea*), western grebes, Pacific loons, California brown pelicans, and western gulls. During summer to fall, species such as black-footed albatross (*Phoebastria nigripes*), ashly storm-petrel (*Oceanodroma homochroa*), and Scripps's murrelet (*Synthliboramphus scrippsi*) can be found foraging over deeper waters of Monterey Bay (URS Corporation, May 2013).

Several marine mammal species are known to occur within or have the potential to occur in Monterey Bay include the Pacific harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus*), Steller sea lion (*Eumetopius jubatus*), northern fur seal (*Callorhinus ursinus*), northern elephant seal (*Mirounga angustirostris*), gray whale (*Eschrichtius robustus*), blue whale (*Balaenoptera musculus musculus*), humpback whale (*Megaptera novaeangliae*), killer whale (*Orcinus orca*), southern sea otter (*Enhydra lutris nereis*), harbor porpoise (*Phocoena phocoena*), and common bottlenose dolphin (*Tursiops truncatus*) (SIMoN, 2017). The northern fur seal migrates in offshore waters and is rarely seen near Land (Monterey Bay National Marine Sanctuary, SIMoN, 2017). The California sea lion and the Pacific harbor seal are the most commonly observed marine mammals in project vicinity.

A CDFW study found only five species of marine mammals in nearshore (<1 km [0.6 mile]) waters of Monterey Bay. These were, in order of abundance: California sea lion, harbor porpoise, sea otter, harbor seal, and bottlenose dolphin; gray whales also were observed (Henkel and Harvey 2008). Seasonal abundance of harbor porpoise in the nearshore waters was greatest during winter, pinnipeds were most abundant during autumn, and sea otters were most abundant during spring and autumn (Ibid.). Santa Cruz is a well-known pinniped hot spot (SIMoN, 2017), and

California sea lions often haul out (rest) on the support beams under the Wharf. This Wharf area is also a well-known area for harbor porpoises, and is near the annual northward gray whale migration route (Ibid.). Table 4.2-2 summarizes the range/population of marine mammal species with potential to occur within the project vicinity.

Special Status Species

Special-status species include species listed as Threatened or Endangered under provisions of the FESA and species listed as Rare, Threatened, or Endangered by the state of California under provisions of the CESA. This section also considers: 1) any species identified as Fully Protected Species or Species of Special Concern as identified by the CDFW; 2) locally-designated sensitive species; and 2) marine mammals protected under the MMPA.

Table 4.2-2. Summary of Population of Marine Mammals Near the Wharf

| Common Name | Scientific Name | Status | Range and Population [1] | |
|--|---------------------------------|----------------|---|----------------------|
| | | | Range | Estimated Abundance |
| Blue Whale (Eastern N. Pacific Stock) | <i>Balaenoptera musculus</i> | Endangered [1] | Gulf of Alaska to eastern tropical Pacific | 1,496 |
| California Sea Lion* (U.S. Stock) | <i>Zalophus californianus</i> | Not Listed [2] | Canada to California | 257,606 |
| Common Bottlenose Dolphin* (CA Coastal Stock) | <i>Tursiops truncatus</i> | Not Listed [2] | Central California to San Quintin, Mexico | 515 |
| Gray Whale* | <i>Eschrichtius robustus</i> | Not Listed [2] | North Pacific from Alaska to Mexico | 26,960 |
| Harbor Porpoise* (Monterey Bay Stock) | <i>Phocoena</i> | Not Listed [2] | Monterey Bay | 3,455 |
| Harbor Seal* (Eastern Pacific subspecies, CA Stock) | <i>Phoca vitulina richardii</i> | Not Listed [2] | Alaska to Baja California | 30,968 in California |
| Humpback Whale (California/ Oregon/ Washington Stock) | <i>Megaptera noveangliae</i> | Endangered [1] | California, Oregon and Washington to Hawaii, Baja California and Mexico | 2,900 |
| Killer Whale (Orca) (Eastern N. Pacific Southern Resident Population) | <i>Orcinus orca</i> | Endangered [1] | Alaska to Monterey, California | 75 |
| Southern Sea Otter* | <i>Enhydra lutris nereis</i> | Threatened [1] | Pigeon Pt. to Pt. Conception, California | 3,272 |
| Steller Sea Lion (Eastern Stock) | <i>Eumetopias jubatus</i> | Not Listed [2] | Alaska to California | 1,562 |
| <p>* Species with High Potential to Occur Near Wharf</p> <p>[1] From "U.S. Pacific Marine Mammal Stock Assessments: 2014-2018." June 2019, August 2015. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service unless otherwise noted.</p> <p>[2] Not listed as "endangered" or "threatened" under the Endangered Species Act nor as "depleted" under the Marine Mammal Protection Act.</p> | | | | |

Listed Endangered and Threatened Species

No special status plant species are expected to occur on or adjacent to the Santa Cruz Wharf.

Aquatic and Marine Mammal Wildlife Species. Table 4.2-3 identifies listed marine species occurring or potentially occurring in Monterey Bay. Species that are listed under the FESA or CESA that have a high potential to occur in the vicinity of the Wharf include coho and Chinook salmon, steelhead, green sturgeon, and southern sea otter (URS Corporation, May 2013). Other special-status species with a potential to occur are Steller sea lions, humpback whales, and killer whales.

Coho Salmon (Oncorhynchus kisutch). The Central California Coast Coho Salmon Evolutionary Significant Unit (ESU) is a federally-listed endangered species that occurs from Punta Gorda in Northern California, south to—and including—the San Lorenzo River that flows into Monterey Bay south of the Wharf. Coho salmon historically have occurred in San Lorenzo River. Coho generally return to their natal streams between November and December. Immigration continues into March, generally peaking in December and January. Coho salmon typically spend two growing seasons in the ocean before returning to their natal streams to spawn. Coho salmon smolts migrate to the ocean from March through June, peaking in April and May.

Chinook Salmon (Oncorhynchus tshawytscha). Chinook salmon historically ranged from the Ventura River in California to Point Hope, Alaska, on the eastern edge of the Pacific and in the western portion of the Pacific Ocean from Japan to Russia. Four Chinook salmon ESUs have potential to migrate through and forage in Monterey Bay: California Coastal (federally listed threatened species), Sacramento River Winter-Run (state and federally-listed endangered species), Central Valley Spring-Run (state and federally-listed threatened species), and Central Valley Fall/Late Fall-Run (state and federal Species of Special Concern).

Steelhead (Oncorhynchus mykiss). Steelhead, the anadromous form of rainbow trout, steelhead has been divided into distinct population segments (DPSs) along the Pacific coast based upon genetic similarities and watershed boundaries. Three of these DPS are known to occur in the San Lorenzo River and Liddell, Laguna, and Majors Creeks, and have the potential to occur in Monterey Bay. The Central Coastal California steelhead DPS, a federally listed threatened species, occurs in river basins from the Russian River to Aptos Creek. Although variation occurs in coastal California, steelhead usually live in freshwater for one to three years in central California, then spend an additional one to three years in the ocean before returning to their natal stream to spawn. Adult CCC steelhead typically migrate from the ocean to freshwater between December and April, peaking in January and February, and juveniles migrate as smolts to the ocean from January through May, with peak emigration occurring in April and May.

Green Sturgeon (Acipenser medirostris). Green sturgeon southern DPS is a federally-listed threatened species, and a state-listed species of special concern. Green sturgeon are anadromous fish that spend most of their lives in saltwater, and return to spawn in freshwater. The entire Monterey Bay up to a depth of 110 feet was designated as critical habitat for green sturgeon by the National Marine Fisheries Services (NMFS) in 2009.

Table 4.2-3. Special Status Marine Species Observed or Potentially Occurring in the Santa Cruz Wharf Vicinity

| Scientific Name | Common Name | Status Federal/State / Local | Primary Habitat Associations | Occurrence Near Santa Cruz Wharf | Potential to Occur |
|---------------------------------|-----------------------------|------------------------------------|---|--|--|
| Marine Mammals | | | | | |
| <i>Arctocephalus townsendii</i> | Guadalupe fur seal | T/None/None | Rocky coasts and associated caves. Ranges from Point Reyes National Seashore, California to Puerto Guerrero near the Mexico/Guatemala border. Commonly found from the Channel islands, California to Cedros Island, Baja California, Mexico | Nearest observation at Fort Ord in Monterey Bay, 23 miles from the wharf | Low: Foraging habitat is present in the project vicinity. |
| <i>Balaenoptera borealis</i> | Sei whale | E/None/None | Pacific Ocean pelagic marine waters | Observed in the submarine canyon approx. 10 miles from the Wharf | Low: Foraging and migration habitat is present in the project vicinity |
| <i>Balaenoptera musculus</i> | Blue whale | E/None/None | Pacific Ocean pelagic marine waters | Hotspot is located approx. 8 miles from the Wharf along the edge of Soquel Canyon | Low: Foraging and migration habitat is present in the project vicinity |
| <i>Balaenoptera physalus</i> | Fin whale | E/None/None | Pacific Ocean pelagic marine waters | Observed in the submarine canyon approx. 10 miles from the wharf | Low: Foraging and migration habitat is present in the project vicinity |
| <i>Enhydra lutris nereis</i> | Southern sea otter | T/None/None | Pacific Ocean nearshore marine waters | Usually observed less than 1 km (0.6 mile) from shore; Observed near the Wharf | High: Known to occur in project vicinity |
| <i>Eumetopias jubatus</i> | Steller (northern) sea lion | T/None/None | Isolated shoreline and nearshore marine waters | Observed at Ano Nuevo Island approx. 23 miles from the wharf | Low: Foraging habitat is present in the project vicinity |
| <i>Megaptera novaeangliae</i> | Humpback whale | E/None/None | Pacific Ocean pelagic marine waters | Observed within 50 yards of the Wharf; hotspot is located approx. 5 miles south of the Wharf towards the edge of Soquel Canyon | Low: Foraging and migration habitat is present in the project vicinity when conditions allow for prey switching to fish in nearshore areas |
| <i>Orcinus orca</i> | Killer Whale | E/None/None | Pacific Ocean pelagic marine waters | Sightings approx. 4 miles from the Wharf, usually sighted in offshore waters close to the submarine canyon | Moderate: Foraging and migration habitat is present in the project vicinity |

Table 4.2-3. Special Status Marine Species Observed or Potentially Occurring in the Santa Cruz Wharf Vicinity

| Scientific Name | Common Name | Status Federal/State / Local | Primary Habitat Associations | Occurrence Near Santa Cruz Wharf | Potential to Occur |
|-------------------------------|--|------------------------------------|---|--|---|
| <i>Eubalaena glacialis</i> | North Pacific right whale | E/None/None | Pacific Ocean pelagic marine waters | Last sighting was in La Jolla (Oct. 2017) >400 miles from Wharf; Have also been seen Pt. Piedras Blancas (1995) 104 miles from the Wharf | Low: Foraging and migration habitat is present in the project vicinity |
| <i>Physeter macrocephalus</i> | Sperm whale | E/None/None | Pacific Ocean pelagic marine waters | Generally 18 miles from shore; has been sighted closer to shore due to proximity of submarine canyon approx. 10 miles from the Wharf | Low: Foraging and migration habitat is present in the project vicinity |
| Fish | | | | | |
| <i>Acipenser medirostris</i> | Green Sturgeon | T/SSC/None | This population spawns in the Sacramento River system. After leaving natal waters, juveniles and adults inhabit estuaries and nearshore marine waters. | Year-round presence of adults/subadults in Monterey Bay | High: Adults may migrate and/or forage in the project vicinity |
| <i>Oncorhynchus kisutch</i> | Central California Coast Coho Salmon | E/E/None | Between Punta Gordo and San Lorenzo River. | The closest creeks to the Wharf are: San Lorenzo Creek is approx. 0.4 miles, Scott Creek is approx. 14 miles from the Wharf | Moderate to High: Adults and juveniles may migrate and/or forage in project vicinity; but are more likely to be present further offshore. |
| <i>Oncorhynchus mykiss</i> | Central California Coast steelhead DPS | T/None/None | River basins from Russian River to Aptos Creek. | San Lorenzo Creek is approx. 0.4 miles, Soquel Creek is 4 miles and Aptos Creek is 6 miles from the Wharf | Moderate to High: Adults and juveniles may migrate and/or forage in project vicinity; but are more likely to be present further offshore. |
| | Central Valley steelhead DPS | T/None/None | Includes all naturally spawned anadromous <i>O. mykiss</i> (steelhead) populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San | Originates from the Sacramento River and its tributaries | Moderate to High: Adults may migrate and/or forage in project vicinity; but are more likely to be present further offshore. |

Table 4.2-3. Special Status Marine Species Observed or Potentially Occurring in the Santa Cruz Wharf Vicinity

| Scientific Name | Common Name | Status Federal/State / Local | Primary Habitat Associations | Occurrence Near Santa Cruz Wharf | Potential to Occur |
|---------------------------------|--|------------------------------------|---|--|---|
| | | | Pablo Bays and their tributaries, as well as Fish Hatchery and Feather River Hatchery steelhead habitat. | | |
| | South-Central California Coast steelhead DPS | T/SSC/None | Includes all naturally spawned anadromous <i>O. mykiss</i> (steelhead) populations below natural and manmade impassable barriers in streams from the Pajaro River to, but not including, the Santa Maria River. | The closest streams to the Wharf occur in Monterey Bay; Pajaro River (14 miles from the Wharf) and Salinas River (18 miles from the Wharf) | Moderate to High: Adults and juveniles may migrate and/or forage in project vicinity; but are more likely to be present further offshore. |
| <i>Oncorhynchus tshawytscha</i> | Central Valley spring-run Chinook salmon ESU | T/T/None | Includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and its tributaries in California, including the Feather River, as well as the Feather River Hatchery spring-run program. | Originates from the Sacramento River and its tributaries | Moderate to High: Adults may migrate and/or forage in project vicinity; but are more likely to be present further offshore. |
| | California Coastal Chinook salmon ESU | T/None/None | Includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River to the Russian River, California, as well as artificial propagation programs. | Originates from the Klamath River to the Russian River in northern California | Moderate to High: Adults may migrate and/or forage in project vicinity; but are more likely to be present further offshore. |
| Invertebrates | | | | | |
| <i>Haliotes cracherodii</i> | Black abalone | E/None/None | Rocky, low intertidal zone up to 6 meters deep. | Observed 2.5 miles from the Wharf | Low: Suitable habitat not present. |
| <i>Haliotes sorenseni</i> | White abalone | E/None/None | Open low- or high-relief rock or bolder areas interspersed with sand channels. | Observed along the coastline in Santa Barbara County and the Channel Islands | None: Outside of geographical range. |
| Reptiles | | | | | |
| <i>Caretta caretta</i> | Loggerhead sea turtle | T/None/None | Open Ocean | Monterey Bay is part of their known distribution | Low: May migrate and/or forage in project vicinity. |

Table 4.2-3. Special Status Marine Species Observed or Potentially Occurring in the Santa Cruz Wharf Vicinity

| Scientific Name | Common Name | Status Federal/State / Local | Primary Habitat Associations | Occurrence Near Santa Cruz Wharf | Potential to Occur |
|------------------------------|---------------------------|------------------------------------|------------------------------|---|---|
| <i>Chelonia mydas</i> | Green sea turtle | E/None/None | Open Ocean | Has been observed at the commercial wharf in Monterey, 25 miles from the Santa Cruz Wharf | Low: May migrate and/or forage in project vicinity. |
| <i>Dermochelys coriacea</i> | Leatherback sea turtle | E/None/None | Open Ocean | Appears annually in Monterey Bay, has been observed in central and northern areas in the bay | Low: May migrate and/or forage in project vicinity. |
| <i>Lepidochelys olivacea</i> | Pacific ridley sea turtle | E/None/None | Open Ocean | Monterey Bay is part of their known distribution; has been observed at Pacific Grove, approx. 23 miles from the wharf | Low: May migrate and/or forage in project vicinity. |

Status Key:

Federal: BCC = USFWS bird of conservation concern
E = federal endangered
T = federal threatened

State: SSC = California species of special concern
FP = fully protected
SA = state special animal (CDFG 2017b)
E = California endangered
T = state threatened

Local: GPS = City General Plan sensitive species
LCPS = City Local Coastal Program sensitive species

Southern Sea Otter (Enhydra lutris nereis). The southern sea otter is a federally-listed threatened species and also is protected by the MMPA. Approximately 16,000 to 18,000 sea otters were formerly distributed along the California coastline. After extensive harvesting in the 18th and 19th centuries, less than 100 sea otters remained off the isolated coastline of Big Sur, California. Approximately 3,128 individuals now exist in the southern sea otter range, and they have expanded their range north of Santa Cruz to about Half Moon Bay (Hatfield et al. 2018). Sea otters are observed regularly in the area off of West Cliff Drive and the Santa Cruz Wharf.

Blue Whale (Balaenoptera musculus musculus). The blue whale is a federally-listed endangered species and also is protected by the MMPA. The blue whale, the largest animal on earth, became so scarce that in 1966 the International Whaling Commission declared them a protected species worldwide. The only population that may be thriving today is the one that summers off California, estimated at 2000 animals. In fact, in California waters researchers believe the population is increasing and moving back to its traditional feeding grounds. This was evidenced in 2004 when for the first time in 30 years sightings were confirmed in Alaskan waters with one individual previously photographed in California. Due to their enormous size, blue whales require larger prey patches than other balaenopterids. Krill aggregate during the day at depths of 150-200 meters, and thus blue whales feed in daylight hours and typically feed at depths over 100 meters. Blue whales arrive in Monterey Bay in the summer, precisely at the time when krill reach maturity.

Humpback Whale (Megaptera novaeangliae). The humpback whale is a federally-listed endangered species and also is protected by the MMPA. Humpback whales occur throughout the North Pacific; North Pacific breeding areas fall broadly into three regions: 1) western Pacific (Japan and Philippines); 2) central Pacific (Hawaiian Islands); and 3) eastern Pacific (Central America and Mexico). Along the U.S. west coast, one stock is currently recognized, which includes animals that appear to be part of two separate feeding groups, a California and Oregon feeding group and a northern Washington and southern British Columbia feeding group. Humpbacks from both groups have been matched to breeding areas off Central America, mainland Mexico, and Baja California. Population is estimated at approximately 1,918 animals for the California/Oregon/Washington stock (NOAA, 2015).

Humpbacks are commonly found feeding in Monterey Bay during summer and fall, and have been observed near the Santa Cruz Wharf. In July 2014, humpback whales were sighted 50 yards from the Wharf (Baxter, 2014), and recent sightings of humpback whales near the Wharf were reported in August 2017. Usually, humpback whales utilize predictable habitats offshore along the continental shelf break and slope where upwelling occurs where they feed on krill (Yen et al., 2004). However, when conditions change and krill isn't available, humpback whales are known to prey switch and feed on small schooling fish which occur in nearshore waters (Fleming et al., 2016; Monterey Bay National Marine Sanctuary, 2006).

Killer Whale (Orca) (Orcinus orca). The killer whale is a federally-listed endangered species and also is protected by the MMPA. The killer whale inhabits the upper layers of cooler coastal seas, preferring temperate and polar regions. There are three distinct classification types: transient,

resident and offshore populations. While all types of these pods are present year round, some individuals occupy very large ranges. Resident populations are the most commonly sighted and often observed in coastal waters. Killer whales eat a wide array of species as specific populations show a high degree of specialization on particular prey species. Prey items include large fish and small schooling fish, birds, squid, sea turtles, sea lions, seals, otters, whales, sharks, rays and even deer or moose, which they catch swimming across channels. Some pods largely depend on salmon, tuna or herring, while others patrol pinniped haul outs or follow migratory whale populations. Transient killer whales frequent Monterey Bay year-round. Over the past seventeen years, more than 150 different transient whales have been identified. Although killer whale occurrence is unpredictable, and the whales are seen between 2 to 8 times per month, they are frequently seen in Monterey Bay during the spring, corresponding to the migration of mother gray whales and their calves. When gray whales reach Monterey Bay, they generally cross the bay and the deep submarine canyon, where their migration path crosses the deep-water habitat of killer whales. The killer whales patrol the canyon edges in search of gray whale calves.

Black abalone (Haliotes cracherodii), a federally-listed endangered species, is one of seven species of abalone that occur in California and the only species that occurs primarily in shallow water depths no deeper than 15 to 20 feet. It occurs along the shoreline in intertidal habitats where it is found on the faces, overhangs, and cracks of rocks. The project area is located outside the designated critical habitat area; the closest designated area is Natural Bridges State Marine Reserve in Santa Cruz, approximately 2.5 miles west of the Wharf, where the critical habitat includes the rocky intertidal and subtidal habitats from the mean high water line to a depth of 19.7 feet below mean lower low water line. Individuals have been found locally at sites such as Natural Bridges and Terrace Point. The sandy bottom near the Wharf does not provide habitat for this species.

Coastal Birds. A search of the California Natural Diversity Database (CNDDDB) reveals that several special-status bird species occur in the area. The CNDDDB query included the U.S. Geological Survey (USGS) quad that includes the Wharf area (Santa Cruz quad) and all surrounding quads: Davenport, Felton, Laurel, and Soquel. Other sources, such as the *2017 Santa Cruz Municipal Wharf Bird Surveys* (Kittleon Environmental Consulting 2017) and *Monitoring Impacts of a Vertical Access Wind Turbine on Avifauna at the Santa Cruz Wharf: Final Report* (Wise-West and Rinkert 2014) also recorded special-status species in the vicinity of Wharf. For purposes of this EIR, special-status bird species include all species listed as endangered, threatened, and candidate species under FESA or CESA, as well as those that are considered:

- USFWS Birds of Conservation Concern (BCC): species USFWS considers to be of high conservation priority beyond those listed as threatened or endangered (U.S. Fish and Wildlife Service, 2008).
- California Species of Special Concern (SSC): vertebrate species that are of concern due to suspected declining populations, limited ranges, and or continuing threats that increase their chance of extinction or extirpation in California (California Department of Fish and Wildlife, 2017).

- California Fully Protected (FP) species: vertebrate species that the state identified for special protection prior to FESA or CESA protection due to rarity or a threat of extinction.
- Watch List (WL) species: species in a new category of “taxa to watch” that was created in the *California Bird Species of Special Concern* (Shuford and Gardali 2008). Species on the watch list are not currently state or federally listed as threatened or endangered, SSCs, or FP species (California Department of Fish and Wildlife, 2015).
- State Special Animals (SA): species that do not have other state designations (i.e., SSC, FP, WL) that are listed on the state Special Animals List (California Department of Fish and Wildlife, 2017). “Special animals” is also a general term for all species the CDFW is currently interested in tracking through the CNDDDB. CDFW therefore considers the state special animals list to be “species at risk” or “special-status species” (California Department of Fish and Wildlife, 2015).

Determining the potential for occurrence was based on habitat preferences and known ranges of the various species. Because the Wharf itself supports no naturally occurring habitat, and surrounding marine habitats do not support potential nesting by any bird species, the potential for any non-transient special-status bird species to occur at the Wharf is limited. Most of the special-status species recorded in the five-quad area of the CNDDDB query occur only in terrestrial or other on-shore habitats or have no potential to occur at the Wharf for the phase of their life cycle on which their special status is based (usually nesting). Also, most special-status bird species recorded at the Wharf during surveys do not have potential to occur there in the phase of their life cycle when their special status applies (e.g., nesting).

No CESA- or FESA-listed endangered or threatened bird species were detected during surveys and none are expected to occur during the phase of their life cycles when their special status applies. No species with any other state or federal status was observed in a phase of its life cycle on which its status is based, although one wintering merlin (*Falco columbarius*), a Watch List species for wintering, was recorded once in winter on eBird (Cornell Lab of Ornithology and National Audubon Society 2017). Species observed during surveys in 2012-2014 or in 2017, during other phases of their life cycles, included black swift (*Cypseloides niger*), brant (*Branta bernicla*), California brown pelican, common loon, Caspian tern (*Hydroprogne caspia*), double-crested cormorant, elegant tern (*Thalasseus elegans*), peregrine falcon (*Falco peregrinus*), rhinoceros auklet (*Cerorhinca monocerata*), snowy egret (*Egretta thula*), and Vaux's swift (*Chaetura vauxi*).

The following species potentially occurring in the vicinity are upland species with no potential to occur at the Santa Cruz Wharf or immediate vicinity during any phase of their life cycles:

- Burrowing owl (*Athene cunicularia*); USFWS bird of conservation concern (BCC), state species of special concern (SSC), City General Plan 2030 sensitive species (GPS), Local Coastal Program sensitive species (LCPS); occurs in grassland and other open upland habitats.

- California horned lark (*Eremophila alpestris actia*); stat Watch List (WL), GPS; occurs in grasslands, agricultural lands, and other open habitats
- Chipping sparrow (*Spizella passerina*); GPS; occurs in open woodlands.
- Cooper’s hawk (*Accipiter cooperi*); WL, GPS; breeds in dense woodland and forages in woodland and other upland habitats.
- Ferruginous hawk (*Buteo regalis*); WL, GPS; winters in grasslands and croplands.
- Golden eagle (*Aquila chrysaetos*); state fully protected (FP), WL, GPS; nests in large trees and cliff faces and forages in open hilly country.
- Hermit warbler (*Setophaga occidentalis*); state special animal (SA), GPS; breeds in conifer forests and occurs in winter and migration in a variety of wooded habitats.
- Long-eared owl (*Asio otus*); SSC, GPS; nests in dense woodland and forages in adjacent, open uplands.
- Oak titmouse (*Baeolophus inornatus*); SA, GPS; occurs in oak woodland, riparian, and suburban habitats.
- Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*); BCC, SSC, GPS; resident in saltmarsh.
- Sharp-shinned hawk (*Accipiter striatus*); WL, GPS; nests in woodlands; occurs in a variety of upland habitats in winter and during migration.
- Tricolored blackbird (*Agelaius tricolor*); BCC, SSC, state candidate (SC), GPS; nests in herbaceous habitats in wetlands and some croplands and some dense herbaceous habitats; forages in open uplands and wetlands.
- White-tailed kite (*Elanus leucurus*); FP, GPS; nests in woodland, forages in grasslands, some open wetlands, and other open upland habitats.
- Yellow warbler (*Setophaga petechia*); SSC; nests and winters mostly in riparian habitats and occurs in migration in a variety of wooded habitats.
- Yellow-breasted chat (*Icteria virens*); SSC; occurs in dense riparian habitats.

Other species have at least a low potential of flying over the Wharf or occurring on the Wharf during some phase of their life cycle (see Table 4.2-4). However, as shown in Table 4.2-4, nearly all of these species are designated as species-status species for nesting and have no potential to nest on the Wharf.

Fully Protected Species

The California Legislature has designated “fully protected” or “protected” species as those which, with limited exceptions, may not be taken or possessed under any circumstances. Species designated as fully protected or protected may or may not be listed as endangered or threatened. The classification of fully protected was the State of California’s initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists for fish, amphibians and reptiles, birds, and mammals were created at this time. Most fully protected species were later listed as threatened or endangered species under more

recent endangered species laws and regulations. Fully Protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take, except as a “covered species” pursuant to a Natural Community Conservation Plan (NCCP) developed under the Natural Community Conservation Planning Act.

The CDFW indicates that fully protected marine species in the vicinity of the Wharf area include: the southern sea otter, northern elephant seal (*Miroinga angustirostris*), California brown pelican, and the California least tern (*Sterna antillarum browni*). The northern elephant seal moves throughout Monterey Bay during the migration to and from their breeding grounds approximately 23 miles north at Año Nuevo State Park.

Locally-Designated Sensitive Species

To determine other potentially occurring special-status species, reviews were conducted of all bird species occurring on the Special Animals List and bird species considered as special-status in the City’s Local Coastal Program (LCP) and General Plan 2030. The City’s LCP Land Use Plan Map EQ-9, Sensitive Species and Habitats, identifies pigeon guillemot as a sensitive species, although the LCP map shows the species in an area near Lighthouse Point (City of Santa Cruz, 1994). It is a common species that is not a federally- or state-listed threatened or endangered species and does not possess any state or federal special-status species designation. However, it has been observed as nesting on the Wharf, and there are reports of numerous nests along the cliffs and rocky points between Cowell’s Cove and Natural Bridges State Park and nests along the cliffs west of Younger Lagoon (City of Santa Cruz, April 2012, DEIR Appendix F-1). The species is listed in the City’s General Plan 2030 EIR (City of Santa Cruz, April 2012, DEIR volume) as a species roosting or nesting on the Wharf, and the Wharf is identified as a sensitive habitat, Coastal Bird Habitat, in the General Plan 2030. For purpose of this EIR, the pigeon guillemot is considered a special-status species because of its local status in the City’s LCP and General Plan.

The City’s LCP also identifies California brown pelican as a sensitive species, and LCP Map EQ-9 identifies the Wharf as a location for the brown pelican. The City’s General Plan 2030 Table 1, Sensitive Management Protocols for Sensitive Species and Habitat, includes the brown pelican as a species that nests or roosts on the Wharf, although it does not describe the exact nature of the species’ use of the Wharf. As indicated above, the California brown pelican is a fully protected species for nesting and roosting. Although the General Plan EIR and the LCP include brown pelican on a list of nesting or roosting species for the Wharf, Appendix F-1 of the General Plan DEIR (*Biological Resources for the City of Santa Cruz General Plan Update*) describes the brown pelican in Santa Cruz only as a potential roosting species (Ecosystems West Consulting Group, 2009), and this species is not known to nest north of the Channel Islands off of southern California (74 FR 59447). The only communal roosts in the City are identified as occurring along West Cliff from Lighthouse Point to Younger Lagoon, although brown pelicans also are known to roost on the Wharf (*Ibid.*). As noted in Table 4.2-4, no more than four were observed perching on the Wharf during any survey. Because of the level of human activity at the Wharf, it is likely not suitable as a communal roost for this species.

Species Protected Under the Marine Mammal Protection Act

In addition to the listed endangered marine mammal species identified in the preceding section, other species are protected under the MMPA. Species that are not listed under the FESA or CESA but are protected under the MMPA that occur or have a high potential to occur in the vicinity of the Wharf include California sea lions, Pacific harbor seals, common bottlenose dolphins, harbor porpoises, and gray whales. With the exception of gray whales, which may pass within sight of the shore during their northern migration (Mid-February through May), other whale species (including killer whales) would typically be found much farther offshore beyond the project vicinity. Species ranges and populations are summarized in Table 4.2-2, and brief descriptions are provided in the following section. Listed species that have a low likelihood of occurrence in the area, but for which foraging and migration habitat is present includes: Guadalupe fur seal (*Arctocephalus townsendii*), blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), sei whale (*Balaenoptera borealis*), and right whale (*Beubalaena (=Balaena) glacialis*).

California Sea Lion (Zalophus californianus). The California sea lion is protected under the MMPA. California sea lions breed in Southern California and along the Channel Islands. On occasion, sea lions will pup on Año Nuevo Island in San Mateo County to the north. After the breeding season, males migrate up the Pacific coast and into Monterey Bay. The largest populations of sea lions are on Año Nuevo. Sea lions can be observed resting on offshore rocks throughout MBNMS. Some sea lions become accustomed to human environments and haul out on docks and piers. In Santa Cruz, sea lions often haul out (come ashore to rest) at the Santa Cruz Wharf and on Seal Rock, which is directly across from the Mark Abbot Memorial Lighthouse to the west of the Wharf.

Steller Sea Lion (Eumetopias jubatus). The eastern Distinct Population Segment (DPS) of the Steller sea lion was formerly a federally-listed endangered species but was delisted in 2013 due to population recovery. The western DPS remains endangered, and the eastern DPS remains protected by the MMPA. The Steller sea lion also is protected by the MMPA. The Steller sea lion, the largest members of the family Otariidae. The western and eastern populations consist of individuals inhabiting the Gulf of Alaska, Bering Sea, Russia and Japan and California, Oregon, British Columbia and Southeast Alaska respectively. Steller sea lions occupy deep and shallow coastal waters when feeding and migrating, and haul out on rocky reefs, ledges and beaches. The Steller sea lion forages close to continental and island coastlines and feeds mainly at night. On occasion, they have been found at the entrance of major rivers. Haul outs used for breeding, including exposed rocks and beaches, may also be used during other times of the year. Though this species occurs in waters throughout the MBNMS, the region of most common occurrence stretches from Monterey Bay north to the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries. Non-breeding individuals haul out at a few locations scattered throughout MBNMS (e.g., Sea Lion Rocks at Pt. Lobos, Lobos Rocks, and Cape San Martin). Año Nuevo Island is the only rookery located in the MBNMS. None have been observed hauling out on or near the Wharf.

Table 4.2-4. Special Status Bird Species Observed or Potentially Occurring in the Santa Cruz Wharf Vicinity

| Scientific Name | Common Name | Status Federal/State/ Local | Primary Habitat Associations | Occurrence on the Santa Cruz Wharf | Potential to Occur |
|---------------------------------|---------------------------------------|-----------------------------------|---|---|---------------------------------|
| <i>Ardea herodias</i> | great blue heron (nesting colony) | None/SA/None | Variety of habitats, but primarily wetlands; lakes, rivers, marshes, mudflats, estuaries, saltmarsh, riparian habitats. | 1 was observed in August 2012 during surveys (Wise-West and Rinkert 2014). Nesting habitat is absent from the Wharf. | Not expected to nest |
| <i>Brachyramphus marmoratus</i> | Marbled murrelet (nesting) | FE/SE/None | Nests high in trees in redwood and douglas-fir forests and feeds in breeding season in near-shore waters. | Regularly recorded in late fall in eBird includes reports from August to March, with frequent reports of up to 5 in November 2014 (Cornell Lab of Ornithology and National Audubon Society 2017), although it is unclear how close these individuals were to the Wharf. Suitable nesting habitat is inland. | Not expected to nest |
| <i>Branta bernicla</i> | Brant (wintering and staging) | None/SSC/None | Shallow estuaries and nearby marine waters. | Three observed outside the survey plot in March 2013 (Wise-West and Rinkert 2014). eBird reports are from the spring migratory period, when flocks of north-bound migrants occur in nearshore waters. The Wharf itself does not provide habitat for this species, although it may occasionally occur in surrounding waters. | Not expected to winter or stage |
| <i>Cephus columba</i> | pigeon guillemot | None/None/GPS, LCPS | Nests on rocky shores, occasionally on human-made structures; forages in subtidal and intertidal marine habitats. | Recorded regularly in spring and summer in surrounding waters, and nests under the Wharf deck. Surveys in 2017 recorded a minimum of 9 nests (Kittleson Environmental Consulting 2017). | Observed |
| <i>Cerorhinca monocerata</i> | rhinoceros auklet (nesting colony) | None/WL/None | Nests on undisturbed islands and probably in cliff caves of mainland; forages and winters mostly in offshore waters, but sometimes nearshore. | Observed once in July during breeding-season surveys in 2017 (Kittleson Environmental Consulting 2017). Uncommonly recorded at all seasons from the Wharf in eBird (Cornell Lab of Ornithology and National Audubon Society 2017). However, nesting habitat is absent on the Wharf. | Not expected to nest |
| <i>Chaetura vauxi</i> | Vaux's swift (nesting) | None/SSC/GPS | Late stage conifer forest and mixed conifer-deciduous forest. | 1 observed in flight in September 2012 (Wise-West and Rinkert 2017). May occasionally fly over the Wharf, but nesting habitat is absent. | Not expected to nest |

Table 4.2-4. Special Status Bird Species Observed or Potentially Occurring in the Santa Cruz Wharf Vicinity

| Scientific Name | Common Name | Status Federal/State/ Local | Primary Habitat Associations | Occurrence on the Santa Cruz Wharf | Potential to Occur |
|--|-----------------------------------|-----------------------------------|--|--|-----------------------------------|
| <i>Charadrius alexandrinus nivosus</i> | western snowy plover (nesting) | FT, BCC/SSC/None | On coasts, nests on sandy marine and estuarine shores; in the interior nests on sandy, barren, or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds. | Breeds on beaches in Santa Cruz County where human disturbance is limited, and winters at additional locations. No longer breeds on beaches adjacent to the Wharf, which also lacks suitable breeding and foraging habitat. | Not expected |
| <i>Cypseloides niger</i> | black swift (nesting) | BCC/SSC/GPS, LCPS | Nests in moist crevices or caves on sea cliffs or near waterfalls in deep canyons; forages over many habitats. | Nests in cliffs in the Santa Cruz area, and occasionally observed from the Wharf. Four were observed outside the survey plot during surveys in May 2013 (Wise-West and Rinkert 2014). However, suitable nesting habitat is absent. | Not expected to nest |
| <i>Egretta thula</i> | snowy egret (nesting colony) | None/SA/None | Nests in trees and dense marsh vegetation; forages in various shallow water and marsh habitats, including occasionally foraging from floating kelp in nearshore waters. | Commonly recorded in winter and fall in 2012-2014 surveys, and recorded once in April during surveys in 2017 (Wise-West 2014, Kittleson Environmental Consulting 2017). Nesting habitat is absent on the Wharf. | Not expected to nest |
| <i>Falco columbarius</i> | merlin (wintering) | None/WL/None | Coastlines, wetlands, woodlands, agricultural fields, and grasslands. | Not observed during surveys in 2012-2014 and in 2017. Recorded at the Wharf once in eBird, in February 2015. Likely only very rarely ventures away from upland habitats to Wharf. | Observed, but very rare in winter |
| <i>Falco peregrinus</i> | peregrine falcon (nesting) | BCC/FP/LCPS | Nests on cliffs, buildings, bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present. | Recorded several times during surveys and eBird includes occasional reports. Although suitable prey may be found at the Wharf and vicinity, suitable nesting habitat is absent. | Not expected to nest |
| <i>Gavia immer</i> | common loon (nesting) | None/SSC/None | Deep freshwater lakes for nesting; open water in lakes, rivers, and marine habitats for foraging and wintering. | Commonly recorded in waters surrounding the Wharf during winter surveys in 2012-2014 and recorded once during in spring 2017 (Wise-West and Rinkert 2014; Kittleson Environmental Consulting 2017). However, no nesting habitat occurs, and the species has never been recorded nesting in the region. | Not expected to nest |

Table 4.2-4. Special Status Bird Species Observed or Potentially Occurring in the Santa Cruz Wharf Vicinity

| Scientific Name | Common Name | Status Federal/State/ Local | Primary Habitat Associations | Occurrence on the Santa Cruz Wharf | Potential to Occur |
|--|--|-----------------------------------|---|--|---|
| <i>Haemotopus bachmani</i> | black oystercatcher | None/None/GPS | Rocky shore line, breakwaters. | Not observed during surveys in 2012-2014 or in 2017 and not recorded from the Wharf in eBird. Wharf may be marginally suitable foraging habitat. No nesting habitat present. | Low potential to occur |
| <i>Hydroprogne caspia</i> | Caspian tern (nesting colony) | BCC/SA/None | Undisturbed islands, levees, and shores for nesting, a variety of aquatic and nearshore marine habitats for feeding. | Recorded regularly in spring and summer during surveys in 2012-2014, but does not breed in the region. | Not expected to nest |
| <i>Larus californicus</i> | California gull (nesting colony) | None/WL/None | Islands in alkali or freshwater lakes and salt ponds for nesting; marine and aquatic habitats, landfills, fields, pastures for foraging. | Common year-round, but does not breed in the region. | Not expected to nest |
| <i>Nycticorax nycticorax</i> | black-crowned night-heron (nesting colony) | None/SA/GPS | Marshes, ponds, reservoirs, estuaries; nests in dense-foliaged trees and dense fresh or brackish emergent wetlands. | Not recorded during surveys in 2012-2014 and in 2017 and recorded only once at the Wharf in eBird (Cornell Lab of Ornithology and National Audubon Society 2017). Suitable nesting and foraging habitat are absent from the Wharf. | Not expected to nest |
| <i>Pandion haliaetus</i> | osprey (nesting) | None/WL/None | Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast. | Not recorded during surveys in 2012-2014 and in 2017, but several observations included in eBird (Cornell Lab of Ornithology and National Audubon Society 2017). Although the Wharf provides perch sites for foraging osprey, suitable nesting habitat is absent, and the Wharf is outside the known breeding range. | Not expected to nest |
| <i>Pelicanus occidentalis californicus</i> | California brown pelican (nesting colonies and communal roosts) | None/FP/GPS, LCPS | In California, nests on dry, rocky offshore islands. Forages in coastal marine environments and roosts in near-shore waters and on inaccessible rocks, as well as sandy beaches, wharfs, and jetties. | Commonly recorded year-round in waters surrounding the Wharf, and occasionally recorded perching on the Wharf during surveys in 2012-2014. However, no more than 4 were recorded perching on the Wharf during any survey, and due to human presence the Wharf does not provide suitable communal roosts. | Not expected to nest or to roost communally |

Table 4.2-4. Special Status Bird Species Observed or Potentially Occurring in the Santa Cruz Wharf Vicinity

| Scientific Name | Common Name | Status Federal/State/ Local | Primary Habitat Associations | Occurrence on the Santa Cruz Wharf | Potential to Occur |
|-----------------------------------|--|-----------------------------------|--|--|----------------------|
| <i>Phalacrocorax auritus</i> | double-crested cormorant (nesting colony) | None/WL/GPS | Lakes, rivers, reservoirs, estuaries, ocean; nests in tall trees, rock ledges on cliffs, rugged slopes. | Common year-round in waters surrounding the Wharf. However, | Not expected to nest |
| <i>Riparia riparia</i> | bank swallow | None/ST/None | Nests in lowland country with soft banks or bluffs; open country and water during migration. | No breeding records in the project vicinity since 1950, no observations during surveys in 2012-2014 or in 2017, and no nearby reports in eBird outside the migratory season. Suitable nesting habitat is absent from the Wharf. | Not expected to nest |
| <i>Sternula antillarum browni</i> | California least tern | FE/SE, FP/None | Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats. | Not known to nest at any location along the coast between San Francisco Bay and San Luis Obispo County (USFWS September 2006). None detected during surveys in 2012-2014 or during in spring 2017 (Wise-West and Rinkert 2014; Kittleson Environmental Consulting 2017). Occasional reports from along the coast of Santa Cruz during migration or post-breeding dispersal are included in eBird (Cornell Lab of Ornithology and National Audubon Society 2017). | Not expected to nest |
| <i>Thalasseus elegans</i> | elegant tern (nesting colony) | None/WL/None | Coastal waters, estuaries, large bays and harbors, mudflats. Also occurs in nearshore waters, such as during dispersal from breeding colonies. | Surveys in 2012-2014 and in 2017 mostly from July through October, with no breeding season reports. No nesting habitat occurs in the vicinity. | Not expected to nest |

Status Key:

Federal: BCC = USFWS bird of conservation concern

FE = federal endangered

FT = federal threatened

State: SSC = California species of special concern

FP = fully protected

SA = state special animal (CDFG 2017b)

SE = California endangered

ST = state threatened

WL = Watch List

Local: GPS = City General Plan sensitive species

LCPS = City Local Coastal Program sensitive species

Pacific Harbor Seal (Phoca vitulina richardii). The harbor seal is protected under the MMPA. Harbor seals are nonmigratory, and can be found along shorelines and in estuaries throughout North America. Pacific harbor seals use Monterey Bay year-round, where they engage in limited seasonal movements associated with hauling out, foraging, and breeding activities. Harbor seals forage in shallow, intertidal waters on a variety of fish, crustaceans, and a few cephalopods (e.g., octopus). They also consume benthic organisms and schooling fishes. Harbor seals haul out in groups ranging in size from a few individuals to several hundred. Habitats used as haul-out sites include tidal rocks, bayflats, sandbars, and sandy beaches.

Harbor seals are known to forage in the water and kelp around the Wharf. They are generally unable to haul out on elevated structures such as the Wharf supports, and are not documented to do so. The numbers of harbor seals occupying the Wharf vicinity are likely to be highest during late summer, fall and winter, outside of breeding (March - May) and molting (June - July) seasons. Individuals that are not sexually reproductive may remain near the Wharf later into the spring, until molting season. In an unpublished study of harbor seal prey base, harbor seals using the San Lorenzo River were found to use the river as their haul-out exclusively, foraging in the ocean and returning during the night when disturbances were at a minimum (Weise, M. personal communication, 2009 as cited in Caltrans 2015a). Nearby known haul-outs for the eastern Pacific harbor seal include Pleasure Point in Live Oak; the Cement Boat at Seacliff State Beach in Aptos; Table Rock, off Wilder State Park; as well as numerous other sites along the north coast from Wilder State Park to Ano Nuevo State Park (NOAA, 2007).

Common Bottlenose Dolphin (Tursiops truncatus). The bottlenose dolphin is protected under the MMPA. With a submarine canyon and its location within a major upwelling zone, Monterey Bay is an extremely rich and productive area, which provides food for thousands of dolphins. Of the six dolphin species that occur in Monterey Bay either year-round or seasonally, bottlenose dolphins are the only species that inhabits the shallow waters, usually just outside the surf line. They were first noticed in Monterey Bay during the 1982-1983 El Niño, and some of the dolphins were known individuals that had previously lived in warmer southern California waters. They are currently year-round residents (200-300 in population, with some moving in and out of the area) that travel in small groups (fewer than 15) and are often observed from shore throughout the inner bay (MBNMS 2005). Monterey Bay is an important area for dolphins. Their frequent occurrence and high abundance suggests that this rich region provides a predictable and abundant food source throughout the year.

Harbor Porpoise (Phocoena phocoena). The harbor porpoise is protected under the MMPA. In the Pacific, harbor porpoise are found in coastal and inland waters from Point Conception, California to Alaska and across to Kamchatka and Japan. Harbor porpoise appear to have more restricted movements along the western coast of the continental U.S. than along the eastern coast. It has been shown that harbor porpoise along the west coast of North America are not migratory, and movement is sufficiently restricted. A regular but hard-to-see species, harbor porpoise usually stay close to shore. These small porpoises (5-6 feet) usually travel in small groups and are very shy and tend to stay away from boats. Harbor porpoise occurred in greater densities in nearshore waters

of northern Monterey Bay which may be because abundance of northern anchovy, an important prey of harbor porpoise, was significantly greater north of the Pajaro River than to the south (Henkel and Harvey 2008). Their foraging success is enhanced in turbid water where they can easily locate prey but their prey cannot see them.

Gray Whale (Eschrichtius robustus). Gray whales are protected by the MMPA. Gray whales migrate between summer feeding grounds in the Bering and Chukchi seas, between Alaska and Russia, and winter calving areas in Baja California, Mexico. Gray whales move through Monterey Bay while migrating from southern winter calving areas to northern summer feeding grounds. They migrate north from mid-February through May, usually within three miles of shore. Most adult and juvenile whales pass Monterey on their way to Alaska by mid-April. Females heading north with their new calves pass Monterey in April and May. The population migrates south in the fall. During the southern migration, the whales tend to stay much farther offshore than during the northern migration, when they are regularly observed from West Cliff Drive. They are benthic feeders that swim along the bottom on their sides while scooping up sediment containing benthic invertebrates—primarily amphipods. The sediment and benthic amphipods are filtered through their baleen plates (URS Corporation, May 2013).

Killer Whale (Orca) (Orcinus orca). The killer whale is a federally-listed endangered species and also is protected by the MMPA. The killer whale inhabits the upper layers of cooler coastal seas, preferring temperate and polar regions. There are three distinct classification types: transient, resident and offshore populations. While all types of these pods are present year round, some individuals occupy very large ranges. Resident populations are the most commonly sighted and often observed in coastal waters. Killer whales eat a wide array of species as specific populations show a high degree of specialization on particular prey species. Prey items include large fish and small schooling fish, birds, squid, sea turtles, sea lions, seals, otters, whales, sharks, rays and even deer or moose, which they catch swimming across channels. Some pods largely depend on salmon, tuna or herring, while others patrol pinniped haul outs or follow migratory whale populations. Transient killer whales frequent Monterey Bay year-round. Over the past seventeen years, more than 150 different transient whales have been identified. Although killer whale occurrence is unpredictable, and the whales are seen between 2 to 8 times per month, they are frequently seen in Monterey Bay during the spring, corresponding to the migration of mother gray whales and their calves. When gray whales reach Monterey Bay, they generally cross the bay and the deep submarine canyon, where their migration path crosses the deep-water habitat of killer whales. The killer whales patrol the canyon edges in search of gray whale calves.

Northern Elephant Seal (Mirounga angustirostris). Elephant seals are protected under the MMPA. During winter months, northern elephant seals travel through the MBNMS on their way to and from breeding areas. Most elephant seals breed on the Channel Islands, while some travel as far south as Baja California. During the breeding season, elephant seals congregate at Año Nuevo and Piedras Blancas. Año Nuevo Island, the closest colony to the study site, supports a large elephant seal breeding colony, which researchers at UC Santa Cruz have monitored and studied since its inception in 1968. Elephant seals began pupping and breeding on the mainland at Año Nuevo, and

since then, several other mainland colonies have developed. At Año Nuevo, every year up to 10,000 elephant seals return to breed, give birth, and molt their skin amongst the dunes and beaches. Piedras Blancas has the largest mainland colony of northern elephant seals, with more than 14,000 individuals during the peak season (January to March).

Northern Fur Seal (Callorhinus ursinus). Fur seals are protected under the MMPA. In spring, northern fur seals migrate through the MBNMS to breeding areas in southern California and Baja California, including the Channel Islands National Marine Sanctuary. In August and September, they take advantage of late summer productivity along the central coast to travel to northern feeding areas. The northern fur seal migrates in offshore waters and is rarely seen near land (generally found tens or hundreds of kilometers from shore). However, in 2005, many individuals were within 10 to 20 kilometers of the central California coast during July 2005. It is possible that their prey was less available in offshore waters, leading them to move closer to shore in search of food. Similar patterns have been observed in the past for some whale species, which were found to concentrate in Monterey Bay when offshore productivity was low, such as during the 1997-1998 El Niño event (MBNMS 2006).

Sensitive Habitat Areas

The project site is the Santa Cruz Wharf that extends into Monterey Bay for a distance of approximately 2,700 feet from shore; approximately 200 additional feet of the Wharf span the City's Main Beach. The Coastal Act defines an "environmentally sensitive area" as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (Coastal Act section 30107.5). The City's existing certified LCP identifies the following sensitive habitats: wetlands, riparian habitat, grasslands, mima mounds⁴ and habitats that support Ohlone tiger beetle, tidewater goby, burrowing owl, California brown pelican, Monarch butterfly, pigeon guillemot, black swift, Santa Cruz tarplant or American peregrine falcon (City of Santa Cruz, 1994-Map EQ-9).

Four habitat types found within the City of Santa Cruz are recognized as sensitive habitat types in the City's General Plan 2030: freshwater wetland, salt marsh, riparian forest and scrub, and coastal prairie portions of grassland habitats. Except for freshwater wetland, these habitat types correspond to habitat types that the CNDDDB has designated as "high priority." Additionally, any area supporting a special status species would also be considered a sensitive habitat. Locally, the overwintering monarch butterfly habitat is considered sensitive due to its restricted range and CNDDDB ranking as rare. In addition, coastal bird habitat is considered a sensitive habitat because of high biological diversity. The City's General Plan identifies coastal bird habitat as a sensitive habitat along coastal bluffs, and rock outcrops along the shoreline from Cowell Beach to Younger Lagoon, which provide roosting and perching, foraging, and breeding habitat for numerous coastal

⁴ Mima mounds are A land form of small, distinct raised hummocks amidst shallow depressions, usually supporting native grasslands (City of Santa Cruz, 1994).

bird species. The General Plan sets forth protocols for evaluation of sensitive habitat and sensitive species.

The Wharf is identified as being a coastal bird habitat in the General Plan, and the General Plan EIR reports the following birds at the Wharf: pigeon guillemots, western gulls, and California brown pelicans. The City's LCP Land Use Plan Map EQ-9 identifies sensitive species and habitats, which includes brown pelican on the Wharf and pigeon guillemot along West Cliff Drive as previously discussed.

As part of an ecosystem based management approach, thirteen Sanctuary Ecologically Significant Areas (SESAs) have been identified within the MBNMS. These special areas encompass remarkable, representative and/or sensitive marine habitats, communities and ecological processes. They are focal areas for research and resource protection. The closest SESA to the Santa Cruz Wharf is SESA 6: Offshore Santa Cruz (approximately 8 nautical miles from the Wharf). This SESA has the highest habitat diversity and highest habitat richness. The water is highly productive, a hotspot for krill, and a foraging hotspot for Leatherback Sea turtle, Ashy Storm-Petrel, Sooty Shearwater, and marine mammals (e.g., Dall's porpoise, dolphins, seals and sea lions, blue whale, humpback whale, gray whale).

Essential Fish Habitat

Essential Fish Habitat (EFH) is regulated under the Magnuson-Stevens Fishery Conservation Management Act, protecting waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (Magnuson-Stevens Act, 16 U.S.C. 1801 et seq.), which also includes eelgrass (*Zostera marina*) beds. Substrates that are considered include sediment, hard bottom, structures underlying waters, and associated biological communities.

The Santa Cruz Wharf is located within an area designated as EFH in three fishery management plans (FMPs): the Coastal Pelagic Species FMP (PFMC 2018), the Pacific Coast Groundfish FMP (PFMC 2016a), and the Pacific Coast Salmon FMP (PFMC 2016). EFH is defined very broadly in these plans and includes the marine environment from the shoreline out to hundreds of miles offshore. Each of the FMPs is described below.

Pacific Coast Groundfish FMP. This FMP manages 85 species over a large and ecologically diverse area extending from the Pacific Coast border with Mexico to the Pacific Coast border between Washington and Canada (PFMC 2016a). Because the EFH determination from this FMP addresses such a large number of species, it covers areas out to 3,500 meters (11,483 feet) in depth, shoreline areas up to the Mean Higher High Water line, and areas up coastal rivers where ocean-derived salinity is at least 0.5 parts per thousand during average annual low flows. The FMP also identifies Habitat Areas of Particular Concern (HAPCs), considered high-priority areas for conservation, management, or research because they are rare, sensitive, stressed by development, or important to ecosystem function. The HAPC designation does not necessarily mean additional protections or restrictions are afforded an area, but they help to prioritize and

focus conservation efforts. HAPCs include, but are not limited to, estuaries, canopy kelp, seagrass, and rocky reefs. The Project is not located within a HAPC, though kelp beds are located within approximately 1,400 feet of the wharf to the southwest and approximately 1,800 feet of the wharf to the east. Data from Monterey Bay National Marine Sanctuary monitoring efforts suggest that species managed in the Pacific Coast Groundfish FMP have stable or increasing trends in abundance (see Figure 4.2-2).

Coastal Pelagic Species FMP. As of 2018, the Coastal Pelagic FMP covered one invertebrate (market squid) and four fish species (northern anchovy [*Engraulis mordax*], jack mackerel [*Trachurus symmetricus*], Pacific mackerel [*Scomber japonicus*], and Pacific sardine [*Sardinops sagax caerulea*]), as well as krill (*Euphausiacea*) (PFMC 2018). Pacific herring (*Clupea pallasii*) and jacksmelt (*Atherinopsis californiensis*) are also included in the Coastal Pelagic FMP as Ecosystem Component Species. Landings of these species are generally recorded on a broader basis than simply within Monterey Bay, as shown in Figure 4.2-3.

EFHs for Coastal Pelagics are defined as all marine and estuarine waters from the shoreline of the coasts of California, Oregon, and Washington offshore to the limits of the Exclusive Economic Zone and above the thermocline. Coastal pelagic species are generally associated with a range of thermal conditions that are not tied to any particular location; therefore, HAPCs have not been designated for this FMP. The FMP identifies three primary threats to EHF for these managed species: changes in fishing gear usage, climate change, and ocean energy development.

Pacific Coast Salmon FMP. Pacific coast salmon EFH includes those waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem. In the estuarine and marine areas, salmon EFH extends from the extreme high tide line in nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (200 nautical miles) offshore of Washington, Oregon, and California north of Point Conception. Generally, adult salmon begin to move toward coastal streams from November to January, and that is when they would potentially enter the Project vicinity.

4.2.2 Impacts and Mitigation Measures

Thresholds of Significance

In accordance with the California Environmental Quality Act (CEQA); State CEQA Guidelines (including Appendix G); City of Santa Cruz plans, policies and/or guidelines; and agency and professional standards, a project impact would be considered significant if the project would:

- BIO-1 Have a substantial adverse effect, either directly or through habitat modifications on; or substantially reduce the number or restrict the range of any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or

regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

- BIO-2 Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service;
- BIO-3 Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- BIO-4 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;
- BIO-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- BIO-6 Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan;
- BIO-7 Substantially reduce the habitat of a fish or wildlife species;
- BIO-8 Cause a fish or wildlife population to drop below self-sustaining levels; or
- BIO-9 Threaten to eliminate a plant or animal community or substantially reduce the number or restrict the range of a rare or endangered plant or animal.

Analytical Method

The impact analysis is based on review by Dudek wildlife and marine biologists and supplemented by local biologists, Gary Kittleson and Bryan Mori, regarding nesting birds.

Impacts and Mitigation Measures

Adoption and implementation of the Wharf Master Plan and future construction of proposed improvements would not directly or indirectly substantially interfere with terrestrial wildlife movement or with established wildlife corridors (BIO-4) due to the project location within Monterey Bay. The proposed project does not conflict with policies or regulations protecting biological resources (BIO-5); see Section 4.7, Land Use. There are no Habitat Conservation Plans or Natural Community Conservation Plans in the area (BIO-6).

The following impact analyses address potential impacts to special status species (BIO-1), sensitive habitat (BIO-2) and waters/wetlands of the U.S. (BIO-3), nesting species (BIO-4), and fish and wildlife species habitat and populations (BIO-7-9).

Impact BIO-1a: Special Status Aquatic Species-Pile Installation. Implementation of the Wharf Master Plan would lead to future expansion of the Wharf and structural improvements that would require installation of additional piles. Underwater sound levels resulting from pile installation could indirectly harm fish and marine mammals, including special status and protected species, if any are present at the time of construction and pile installation (BIO-1). Therefore, the project would result in a *potentially significant impact*.

Wharf Master Plan and Near-Term Projects

Implementation of the Wharf Master Plan and future construction of proposed improvements would result in new structural development, some of which would require installation of timber piles into marine waters, including construction of the two near-term planned projects – relocation of the Entry Gate and construction of the East Promenade. The project would not result in permanent direct or indirect adverse impacts on marine habitats or populations of any special status species or marine mammal known or expected to occur in the project area. Future construction of projects recommended in the Wharf Master Plan, including installation of piles, would have no effect on habitat of fully protected species as no habitat would be removed or altered. The project would not result in take or possession of any fully protected species. However, construction and resulting underwater sound levels, primarily resulting from installation of new Wharf piles, could indirectly affect special status species, protected marine mammals or fish species if any are present in the marine waters in the vicinity of the Wharf during construction activities. Although construction is not expected to harm or injure individual fish or marine mammals, underwater sound levels resulting from installation of piles could result in disturbance to special status species and protected marine mammals, and thus, this is considered a *potentially significant impact*.

Construction activities that could indirectly affect special status fish and marine mammal species include: 1) pile driving in which potential sound levels could impact fish and marine mammals; and 2) construction on the Wharf where sound levels could impact marine mammals. Species that could be affected are: federally-listed sea otters (threatened); other species protected under the MMPA (California sea lions, Pacific harbor seals, common bottlenose dolphin, harbor porpoise, and whale species that may occasionally be in the vicinity of the Wharf); and special status fish species if present in the area (Coho salmon, Chinook salmon, steelhead and green sturgeon). San Lorenzo River provides habitat for coho salmon, Chinook salmon and steelhead, and these species may be in the vicinity during times of migration to/from the river, which is located approximately nearly one mile east/southeast of the Santa Cruz Wharf.

Some new improvements recommended in the Wharf Master Plan would be supported by timber piles that extend into the marine waters, including expansion of the Wharf to create the East Promenade and a Westside Walkway, construction of two new boat landings, and structural support for a relocated entrance gate. Approximately 810 new piles will be installed to support these facilities as summarized below. In addition, the Master Plan anticipates replacement of

approximately 225 existing piles over time. Currently, plans are being developed to replace the existing Miramar Restaurant within the existing building footprint, including replacement of piles as needed.

- East Promenade: 525 new piles
- Westside Walkway: 112 new piles
- South Landing: 52 new piles
- Small Boat Landing: 74 new piles
- Relocated Wharf Entry: 30 new piles
- Lifeguard Headquarters Remodel/Expansion: 15 new piles

All piles utilized for Wharf improvements would be 12 to 16-inch timber piles, except for six piles for the relocated Wharf entrance gate that would be 14-inch steel piles. Generally, the piles are driven in water from depths of 0 to 35 feet and approximately 20 feet into the sand or until refusal is met. An 1,800 lb. drop hammer and a 400 lb. follower block are used for driving the pile into the sea floor. A wood cushion block would be used when driving piles to minimize noise generation. The relocation of the Wharf entrance gate and construction of the East Promenade are proposed as the first projects to be completed within three to five years. The timing of the other projects is not known.

Installation of piles can result in indirect harm, disturbance or injury and/or harassment to marine mammals or fish, including special status species, which may be in the vicinity of the Wharf during pile installation, depending on the size and type of piles used and method of installation. The federal Endangered Species Act defines “harm” to include actions that would kill or injure fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, and sheltering. “Harass” is defined as any act that creates the likelihood of injury to a species to such an extent as to significantly disrupt normal behavior patterns such as feeding, breeding, or sheltering.

Current criteria for fish were established in 2008 by the Fisheries Hydroacoustic Working Group (FHWG), whose members include the National Marine Fisheries Service’s Southwest and Northwest Divisions, California, Washington, and Oregon Departments of Transportation, the California Department of Fish and Wildlife, and the U.S. Federal Highway Administration. Although these criteria are not formal regulatory standards, they are generally accepted as viable criteria for underwater noise effects on fish. The agreed upon criteria identify sound pressure levels of 206 decibels (db) peak and 187 db accumulated sound energy levels (SEL⁵) above for all fish, except those less than 2 grams in body weight, for which 183 dB were determined to be potentially detrimental to fish (National Oceanic and Atmospheric Administration, June 2008, Caltrans, November 2015). No threatened or endangered fish of less than 2 grams body weight were determined to be present in the project area in past surveys of the area, but larvae of fish species

⁵ SEL refers to sound exposure level that is the constant sound level over 1 second that has the same amount of acoustic energy, as indicated by the square of the sound pressure, as the original sound.

managed under the Magnuson-Stevens Act may be present (URS Corporation, May 2013), and thus, the 183 dB SEL threshold was used for this analysis. Behavioral effects are not covered under these criteria, but could occur at these levels or lower. Behavioral effects may include fleeing and the temporary cessation of feeding or spawning behaviors (Ibid.).

The MMPA makes it unlawful to take or import any marine mammal and/or their products. Under this federal law, an incidental harassment permit may be issued for activities other than commercial fishing that may impact small numbers of marine mammals. An incidental harassment permit covers activities that extend for periods of not more than one year, and that will have a negligible impact on the impacted species. Levels of harassment for marine mammals are defined in the MMPA as:

- ❑ Level A harassment is defined as “[A]ny act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild.”
- ❑ Level B harassment is defined as “[A]ny act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including but not limited to migration, breathing, nursing, breeding, feeding or sheltering.”

Any activities that may result in harassment of marine mammals under these guidelines would require an Incidental Take Authorization for fish and/or Incidental Harassment Authorization for marine mammals from NOAA Fisheries. NOAA is developing comprehensive guidance on sound characteristics likely to cause injury and behavioral disruption in the context of the Marine MMPA, FESA and other statutes. Until formal guidance is available, NOAA Fisheries uses conservative thresholds of received sound pressure levels from broad band sounds that may cause behavioral disturbance and injury. These conservative thresholds are applied in MMPA permits and FESA Section 7 consultations for marine mammals to evaluate the potential for sound effects. The criterion levels specified below are specific to the levels of harassment permitted under the MMPA (U.S., Department of Commerce, National Oceanic and Atmospheric Administration, August 2017.). The NOAA Fisheries criteria distinguish between impulse sound, such as that from impact pile driving, and continuous sounds, such as that from vibratory pile driving.

The Level A (injury) and Level B (disturbance) threshold levels used by NOAA Fisheries are summarized in Table 4.2-5 for cetaceans (whales, dolphins, and porpoises, phocid pinnipeds (e.g., harbor seal) and otarid pinnipeds (e.g., California sea lions). The criterion levels specified in Table 5 are specific to the levels of harassment permitted under the MMPA (NOAA, 2018)..

Currently, neither NOAA Fisheries nor USFWS have specific take criteria for harassment of sea otters, a federally listed threatened species. In the absence of noise thresholds specific to sea otters, USFWS has used the Level A 180 dB RMS threshold and the Level B 160 dB RMS threshold for impulse noise; and Level B 120 dB RMS for continuous noise (URS Corporation, June 2013).

NOAA is developing comprehensive guidance on sound characteristics likely to cause injury and behavioral disruption in the context of the MMPA, FESA and other statutes. Until formal guidance is available, NOAA Fisheries uses conservative thresholds of received sound pressure levels from broad band sounds that may cause behavioral disturbance and injury, and the criterion levels specified in Table 4.2-5 are specific to the levels of harassment permitted under the MMPA (NOAA, 2017).

Table 4.2-5. NOAA Fisheries Acoustic Thresholds

| Criterion | Criterion Definition | Threshold |
|--|---|---|
| <i>In-Water (Excluding Tactical Sonar and Explosives)</i> | | |
| Level A | Low-Frequency Cetaceans, Impulsive Noise | PK: 219 dB SEL _{cum} : 183 dB |
| | Low-Frequency Cetaceans, Non-Impulsive Noise | SEL _{cum} : 199 dB |
| | Mid-Frequency Cetaceans, Impulsive Noise | PK: 230 dB SEL _{cum} : 185 dB |
| | Mid-Frequency Cetaceans, Non-Impulsive Noise | SEL _{cum} : 198 dB |
| | High-Frequency Cetaceans, Impulsive Noise | PK: 202 dB SEL _{cum} : 155 dB |
| | High-Frequency Cetaceans, Non-Impulsive Noise | SEL _{cum} : 173 dB |
| | Phocid Pinnipeds, Impulsive Noise | PK: 218 dB SEL _{cum} : 185 dB |
| | Phocid Pinnipeds, Non-Impulsive Noise | SEL _{cum} : 201 dB |
| | Otaarid Pinnipeds, Impulsive Noise | PK: 232 dB SEL _{cum} : 203 dB |
| | Otaarid Pinnipeds, Non-Impulsive Noise | SEL _{cum} : 219 dB |
| Level B | Behavioral disruption for impulsive noise (e.g. impact pile driving) | 160 dB _{rms} ⁶ |
| Level B | Behavioral disruption for non-pulse noise (e.g. vibratory pile driving, drilling) | 120 dB _{rms} |
| <i>In-Air</i> | | |
| Level A | PTS (injury) conservatively based on TTS | None established |
| Level B | Behavioral disruption for harbor seals | 90 dB _{rms} |
| Level B | Behavioral disruption for non-harbor seal pinnipeds | 100 dB _{rms} |

SOURCE: NOAA Fisheries, 2019

Different types and diameters of piles produce different underwater sound levels when they are driven. The peak sound pressure levels from driving piles of different sizes and compositions have been measured; they generally range from approximately 172 to 180 dB (for 12- to 14-inch wood piles) to 205 dB (for a 30-inch steel pile) as measured 10 meters (about 33 feet) from the pile (Caltrans, November 2015). Monitoring of installation of 12- to 14-inch timber piles showed sound pressure levels ranging from 158 to 172 dB RMS at a distance of 10 meters at one location and 140-158 dB RMS at a second location (Ibid). Both locations used impact pile drivers. One site was

⁶RMS refers to the sound pressure level that is square root of the sum of the squares of the pressure contained within a defined period from the initial time to the final time. For marine mammals, the RMS pressure historically has been calculated over the period of the pulse that contains 90 percent of the acoustical energy (Caltrans, November 2015).

monitored with use of a vibratory pile driver, and the sound pressure levels ranged from approximately 127 to 142 db RMS at a distance of about 25 feet (Ibid.). Monitoring of 14-inch steel piles measured RMS of 180 dB at a distance of 10 meters (Ibid.). For the 12-inch timber pile installation, noise generation varied substantially with use of cushion blocks between the hammer and the pile, which were periodically replaced as they were worn.

Installation of 24-inch concrete piles at the Wharf was considered for an alternative pump station site for the former proposed scwd² Regional Desalination project. Analysis of that proposed installation identified a sound pressure level of 174 dB RMS at a distance of 33 feet from the pile, based on underwater sound measurements from other projects (URS Corporation, May 2013). Noise propagation from 18-inch timber piles was modeled for the Marine Structure Maintenance and Pile Replacement Program in Washington State, which noted Level B disturbance levels of 160 dB RMS could extend to 398 meters (1,300 feet) (Navy Region Northwest 2018)

Based on data from the above studies, the installation of 12-inch timber piles and six 14-inch steel timber piles would not be expected to exceed peak or cumulative Level A thresholds for impulsive noise that would cause injury to pinnipeds. Although the Level A threshold for high-frequency cetaceans would potentially be exceeded at 10 meters, pinnipeds are the species much more likely to be present near pile-driving activities. However, marine mammals could be exposed to sound levels exceeding the Level B harassment guidelines (160 dB RMS) in areas near the pile-driving activities.

Level B harassment guidelines for airborne noise may also be temporarily exceeded near the pile-driving activities. Applicable criteria for marine mammals regarding airborne noise for Level B (disturbance) threshold is 90 dB RMS for harbor seals and 100 dB RMS for all other pinnipeds (e.g., sea lions). Pile driving may result in airborne noise levels that exceed NOAA Fisheries thresholds for Level B harassment for Level B harassment of harbor seals and California sea lions. The crossbeams beneath the Wharf are used, primarily by California sea lions, as a haul-out location. Sea lions hauled-out near the pile driving activities conducted for construction of the East Promenade and buildings at the southern end of the Wharf may be exposed to airborne noise levels exceeding 100 dB in a radius of about 200 feet (URS Corporation, May 2013). This could result in behavioral disturbance to the marine mammals that may be present in the vicinity of construction sites and would be addressed in the Incidental Harassment Authorization (IHA) that would be required by NOAA Fisheries.

Useful information regarding pinniped response to pile driving is available from monitoring of California sea lions and harbor seals during impact installation and vibratory extraction of piles at NAVBASE Kitsap Bremerton in Washington state in February 2014 and November 2014 to February 2015 (Northwest Environmental Consulting 2014, 2015). In February 2014, California sea lions were observed basking on the port security barrier within the underwater behavioral disturbance zone (385 feet from the driven pile) and no behavioral harassment takes were documented because they did not enter the water. California sea lions and harbor seals were observed in the water during vibratory hammer activity. Marine mammal observers detected 160 individuals

during vibratory pile extraction within the 1,600-m vibratory disturbance zone, resulting in exposure to noise levels above the Level B threshold. Marine mammal observers detected 125 individuals during impact pile driving within the 117-m impact disturbance zone, resulting in exposure to noise levels above the Level B threshold. There were no shutdowns of pile driving activity because pinnipeds never entered the injury zones. No visible behaviors indicating a reaction to noise disturbance were observed. Behaviors observed included hauling-out (resting), foraging, milling, and traveling.

Pile driving would be expected to result in noise levels below 183 dB, the level above which has been determined to be potentially detrimental for fish species based on monitored sound levels in the Caltrans Guidelines (2015). The multiagency Fisheries Hydroacoustic Working Group sets sound pressure level safety criteria for fish for pile driving projects. The agreed-upon criteria consists of sound pressure levels of 206 dB peak and 187 dB (or 183 dB for fish less than 2 grams body weight), which was used in this analysis. As discussed above, sound levels from pile driving are expected to be below the above criteria based on monitored sound levels for the size and type of piles to be used at the Wharf.

Special-status and other fish in the same area may be exposed to temporary increased sound levels, but installation of piles would not be expected to cause physical injury or mortality to fish species. The activity associated with pile driving would likely drive fish from the immediate vicinity of the pile, reducing the likelihood of exposure to higher peak sound levels. Attempting to predict effects of pile driving noise on behavior of fish species is challenging, however. Some studies have been done in laboratory settings with mixed results (Turnpenny et al., 1994; Feist et al., 1992; McCauley et al., 2003; Santulli et al., 1999). Some studies have found evidence of increased stress hormones when fish are exposed to seismic survey noise, but McCauley et al. found no statistically significant changes when exposed to sound pressure levels above 158-163 dB RMS.

Comments from the CDFW on the Initial Study prepared for the project in 2016 indicate that the Department relies on guidance from the multiagency Fisheries Hydroacoustic Working Group for setting sound pressure level safety criteria for fish for pile driving projects and that the agreed upon criteria consists of sound pressure levels (SPL) of 206 decibels (dB) peak and 187 dB (or 183 dB for fish less than 2 grams body weight), which was used in this analysis. The CDFW has previously indicated that the agency prefers the use of the vibratory hammer for pile driving and recommends against using a dynamic or impact hammer. If an impact hammer is to be used, CDFW recommends the use of a bubble curtain to decrease sound levels and deter sensitive marine species during construction in addition to SPL monitoring. The CDFW also recommends monitoring for impacts to both marine mammals and fish during pile driving. As discussed above, sound levels from pile driving are expected to be below the above criteria based on monitored sound levels for the size and type of piles to be used at the Wharf, and monitoring is included in Mitigation Measure 4.2-1 below.

Mitigation Measures

Implementation of the following measure will reduce the impact of potential Level B marine mammal harassment to a less-than-significant level for each proposed facility construction project recommended in the Wharf Master Plan that requires installation of new piles. The measure would be refined in consultation with NOAA Fisheries.

MITIGATION BIO-1a-1 Prepare and implement a hydroacoustic, fish and marine mammal monitoring plan that implements measures to avoid exposure of marine mammals to high sound levels that could result in Level B harassment. Measures may include, but are not limited to, the following:

- ♦ Establishment of an underwater “exclusion zone”—defined as the distance where underwater sound levels exceed 180 dB SEL_{cum} if whales are present, and 185 dB SEL_{cum} dB if seals and sea lions are present—will be established. This will be refined based on hydroacoustic measurements in the field and in consultation with NOAA Fisheries.
- ♦ Pre-construction monitoring by a qualified biologist to update information on the animals’ occurrence in and near the project area, their movement patterns, and their use of any haul-out sites.
- ♦ Pre-construction training for construction crews prior to in-water construction regarding the status and sensitivity of the target species in the area and the actions to be taken to avoid or minimize impacts in the event of a target species entering the in-water work area.
- ♦ Marine mammal monitoring of the exclusion zone will be conducted prior to commencement of pile driving and underwater excavation activities.
- ♦ Pile-driving activities will not commence until marine mammals are not sighted in the exclusion zone for 15 minutes. This will avoid exposing marine mammals to sound levels in excess of the Level A criteria.
- ♦ Underwater noise will be measured with a hydrophone during pile-driving to verify sound levels and adjust the size of the exclusion zone as necessary. This measurement may be conducted once and the results applied to subsequent pile installations to determine the exclusion zone.
- ♦ In-water biological monitoring to search for target marine mammal species and halt project construction activities that could result in injury or mortality to these species.

- Prohibit disturbance or noise to encourage the movement of the target species from the work area. The City will contact USFWS and NOAA Fisheries to determine the best approach for exclusion of the target species from the in-water work area.
- Data collected during the hydroacoustic, fish and marine mammal monitoring will be reported to NOAA Fisheries in a post-construction monitoring report (usually required to be completed between 60 and 90 days after construction is complete). Observations and data will be reported more frequently, if required by NOAA Fisheries.

MITIGATION BIO-1a-2 A soft-start procedure will be used for impact pile driving at the beginning of each day's in-water pile driving or any time pile driving has ceased for more than 1 hour. The following soft-start procedures will be conducted:

- If a bubble curtain is used for impact pile driving, the contractor will start the bubble curtain prior to the initiation of impact pile driving to flush fish from the zone near the pile where sound pressure levels are highest.
- If an impact hammer is used, the soft start requires an initial set of three strikes from the impact hammer at 40 percent energy, followed by a one minute waiting period, then two subsequent 3 strike sets. The reduced energy of an individual hammer cannot be quantified because they vary by individual drivers. Also, the number of strikes will vary at reduced energy because raising the hammer at less than full power and then releasing it results in the hammer "bouncing" as it strikes the pile resulting in multiple "strikes".

MITIGATION BIO-1a-3 A cushion block will be used between the pile cap and the impact hammer. Layers of heavy plywood or baywood soaked in water on top of the pile cap served to dampen the sound of the hammer striking the wood as well as to dissipate friction; plywood not soaked in water was pounded to charred splinters that became very thin and had little value in attenuating sound.

Impact BIO-1b: Special Status Aquatic Species-Effects of Pile Coating. Use of polyurea coating on treated timber piles will prevent leaching of contaminants or indirect harm to fish and aquatic species, but piles could be damaged over time without adequate monitoring (BIO-1). Therefore, the project would result in a *less than significant impact*.

Wharf Master Plan and Near-Term Projects

Comments in response to the EIR NOP express concerns regarding impacts to marine species from potential leaching of contaminants from timber piles into the marine environment. All piles utilized for Wharf improvements would be 12 to 16-inch timber piles, except for six piles for the relocated Wharf entrance gate that would be 14-inch steel piles. The more recently installed replacement timber piles at the Wharf are treated with ACZA (ammoniacal copper zinc arsenate) and coated with a polyurea compound (Moffatt & Nichol, October 2014).

Timber piles in the marine (saltwater) environment are subject to attack by marine organisms that feed on the wood causing structural deterioration that can lead to total loss of the structural section. Over time, various methods have been employed to prevent this deterioration, consisting of treating the outer layer of timber with a chemical that resists the organism's consumption of the wood. The use of creosote was widespread prior to about 1980, including the original piles on Santa Cruz Wharf which was constructed in 1914. Creosote is very effective as a preservative but is odorous, sticky and has environmental concerns. Since about 1950 ACZA has been used as a preservative that largely replaced the use of creosote, which is injected into the wood. However, even with these treatments, marine organisms can penetrate the interior of the pile through splits in the timber and consume the interior of the pile weakening it to failure (Moffatt & Nichol, August 2017).

ACZA is a wood preservative derived from metal compounds and arsenic that preserve the wood from decay fungi, wood attacking insects, including termites, and marine borers through their toxic properties. These metal-arsenate chemicals are toxic and can produce adverse impacts when used where they can be leached from pilings into the aquatic environment (California Coastal Commission, 2012). Overwater uses of treated wood products can also contribute contaminants into the aquatic environment; overwater copper-treated products are expected to leach most of their contamination during the first year as a result of rainfall (Ibid.). The primary concern is potential effects of copper concentrations on Pacific salmonids, many of which are managed under the FESA and EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act (NOAA, 2009). Another species that is sensitive to leaching from copper-coated pilings are Pacific herring, which may spawn on pilings; however this species has not been documented as spawning in Monterey Bay.

Generally, concern regarding use of treated wood piles (either creosote or copper-treated) arises in estuarine and lake environments where current velocities are low and local concentrations surrounding the pilings can become elevated (NOAA, 2009). In the Pacific subtidal and intertidal zones, relatively high current velocities ensure quick and constant mixing. Available information also indicates that acute copper toxicity (i.e. mortality) typically decreases with increasing salinity (Eisler 2000, Stratus 2006a as cited in NOAA, 2009). However, juvenile salmonids are particularly sensitive to even low levels of copper above baseline concentrations, because copper affects their sensory capabilities and reduces their ability to evade predators (Sandahl et al. 2007 as cited in

NOAA, 2009). Olfactory function becomes impaired if salmon are unable to avoid even low levels of copper pollution within the first few minutes of exposure. If copper levels subsequently exceed a threshold for sensory cell death, it may take weeks before the functional properties of the olfactory system recover (Baldwin et al. 2003 as cited in NOAA 2009). However, juvenile salmonids which have not already experienced sensory loss strongly avoid waters with even slightly elevated copper levels, which substantially reduces the potential for impacts (Hansen et al. 1999a and 1999b as cited in NOAA 2009).

To eliminate risk of chemicals affecting water quality and to provide protection, methods to provide an inert barrier between the chemical treated timber and the water have been developed over the past 30-50 years, including pile wrapping, pile coating, and use of fiberglass shells. Pile coatings are a polyurea spray applied in a controlled factory. They adhere to the pile timber and can be applied in various thickness build ups. These are a more recent development in the past 10-15 years. Earlier formulations (cured brown in color) were subject to tearing and loss of adhesion to the timber. However, recent formulations (cured black in color) developed in the past 5-8 years have improved adhesion. The coating provides containment of chemical treatment of the wood piles and provides a barrier to organisms.

Although the polyurea spray coating is expected to minimize the possibility of copper leaching from the ACZA treated piles, the polyurea coating could be physically damaged or degrade and expose the underlying ACZA coating. However, even uncoated exposed copper-treated pilings leach relatively quickly, reaching low exposure levels in a matter of days to several weeks, depending mainly on formulation. For in water uses, the highest leaching occurs in the first few days. Therefore, if the polyurea coating is damaged and exposes the ACZA coating, copper levels would be diluted quickly away from the piling, the elevated levels would drop substantially over a few days, and potentially sensitive salmonids, if present, would avoid any locations that happen to have elevated copper. However, routine inspection and monitoring for damaged or deteriorated piles would allow for replacement.

Metals leached into sediments near copper-treated wood in aquatic environments have been found to accumulate in benthic and epibenthic organisms (Weis and Weis 2004 as cited in NOAA 2009). Other animals can acquire elevated levels of copper indirectly through trophic transfer, and may exhibit toxic effects at the cellular level (DNA damage), tissue level (pathology), organism level (reduced growth, altered behavior and mortality) and community level (reduced abundance, reduced species richness, and reduced diversity) (Weis et al. 1998, Weis and Weis 2004, Eisler 2000 as cited in NOAA 2009). However, effects decrease after the wood has leached a few months (Weis and Weis 2004 as cited in NOAA 2009). Weis and Weis (2004) determined that concentrations of copper in sediments near dock pilings, in moderately flushed areas, did not show accumulation of metals. The waters beneath the Wharf are highly flushed due to wave action.

Best Management Practices (BMPs) are recommended by NOAA (2009) as a way to reduce risk to an FESA-listed species and EFH from treated pilings, and would be followed during implementation of the Wharf Master Plan. These BMPs include: 1) selecting wood products that have been third-

party verified as containing no more than the minimum level of pesticide needed for the use; 2) wrapping or coating the pilings to form a physical barrier between the leachable material and the aquatic environment (such as the polyurea coating proposed for the project); 3) timing installation to avoid times when sensitive species might be present in the project vicinity (such as avoiding April through July when juvenile salmon might be moving from estuaries to the open ocean); and 4) employing construction practices that avoid input of sawdust or other treated wood debris into the environment.

Conducting site-specific modeling and risk assessments for larger projects proposing to use treated wood is also recommended. Models used by NOAA Fisheries indicate that installation of 100 or less uncoated copper-treated piles at current velocities of 10 cm/sec or more, are not likely to result in problematic water column concentrations, and thus, 100 uncoated copper-treated pilings has been used as the threshold recommended to trigger a site-specific risk assessment (NOAA, 2009). However, with pile coating, such as that proposed for the new piles at the Wharf, potential leaching into the marine environment would be avoided. Specifically, timber piles treated with a polyurea compound that is designed to encapsulate treated timber products will prevent toxins from leaching into the environment, and this coating system has been used for encapsulating ACZA-treated piles. This type of protection is now in wide usage on treated timbers and has been approved by regulatory agencies throughout California. Some locations include Stearns Wharf in Santa Barbara, Coast Guard Wharf in Alameda and Trinidad Pier in Humboldt County (Moffatt & Nichol, August 2017). Provided that coating remains intact, copper leaching from the ACZA piles would not be expected to occur. The NOAA Fisheries models also assume that all pilings would be installed in one event; whereas implementation of the Master Plan would include several smaller installations. This would further reduce any acute effects of new pilings. Therefore, placement of pilings would result in less than significant impact to special status aquatic species, but periodic inspection and monitoring is recommended.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified, but the following monitoring/inspection program is recommended for inclusion in Wharf maintenance activities.

- ❑ **RECOMMENDATION:** Required that piles be periodically inspected below the waterline for damage to the polyurea coating, at intervals of not more than one year. Inspection could be by diver survey, submersible camera, or other methods. If piling surfaces are covered by encrusting biota, the underlying coating will be assumed to be intact. If an incident causing physical damage to the piling occurs (e.g., boat collision, large storm-tossed debris), an inspection shall be conducted within two weeks of the collision to note the damage. Areas of damaged coating shall be promptly repaired using methods approved by NOAA Fisheries and other applicable regulatory agencies.

Impact BIO-1c: Special Status Species-Coastal Birds. Implementation of the Wharf Master Plan would lead to future expansion of the Wharf and potential coastal bird nesting area. Use of the Westside Walkway could adversely affect nesting coastal birds, but would be offset by the overall increase in Wharf area for nesting and roosting (BIO-1). This is considered a *less-than-significant impact*.

Wharf Master Plan and Near-Term Projects

As noted above, the City's LCP and General Plan 2030 identify the Wharf as a sensitive habitat – Coastal Bird Habitat. The LCP identifies pigeon guillemots and California brown pelicans as sensitive species, with the latter identified on the Wharf. Pigeon guillemots are known to nest on the Wharf. Although removal of nesting habitat for pigeon guillemot or roosting habitat for brown pelican could represent a significant impact, the proposed Master Plan improvements would result in expansion of the Wharf and would not result in removal of habitat. Therefore, implementation of the Master Plan would not result in direct impacts to habitat for special-status nesting bird species.

Expansion of the Wharf would also result in a net gain of roosting habitat for California brown pelican. In addition to its status as a sensitive species under the City's General Plan and LCP, California brown pelican is considered fully protected by CDFW for nesting and communal roosting. However this species does not nest in the Monterey Bay region. Also, as noted above, data for California brown pelican occurrence at the Wharf indicates only several individuals roosting at a time, and the Wharf does not provide suitable habitat for the larger communal roosts that are protected. Therefore, implementation of the Master Plan would not result in direct impacts to roosting habitat for California brown pelican. Any impacts to California brown pelican roosting from construction would be temporary, and pelicans would be able to avoid harm by avoiding the area during construction. Direct temporary impacts to nesting pigeon guillemots, and other nesting bird species, are discussed under Impact BIO-4.2-4.

Although the Master Plan would not result in direct habitat impacts, future development could result in indirect impacts that may reduce the ability of the pigeon guillemots to nest. Since this species is considered a sensitive species in the City's LCP, this would be a potentially significant impact. The Westside Walkway would be constructed in a section of the Wharf where human disturbance is currently low, and would be constructed at a lower level than the main Wharf deck (see Figure 3-4 in Chapter 3, Project Description). As a result, people on the walkway would have direct line-of-sight to the area below the Wharf. Birds favoring this area could potentially be deterred from nesting in this location after installation of the walkway due to human presence and noise.

Surveys for this EIR during the 2017 nesting season recorded locations of bird nests, specifically of western gull and pigeon guillemot (see Figure 4.2-1). The nine pigeon guillemot nests detected during the surveys were spread relatively evenly around the underside of the Wharf. Three of nine nests were located within the section of the Wharf where the walkway would be installed, and were closer to the western side than the eastern side. Three other nests in this section were closer

to the eastern side (the other three nests were closer to the south end of the Wharf, away from the area of the proposed western walkway). This suggests that pigeon guillemots do not prefer the undisturbed western side of the Wharf over other areas, and the introduction of human disturbance here may not affect their preference for nesting locations.

However, as the Westside Walkway would provide visual access to the Wharf structure underneath the deck, pigeon guillemots nesting underneath the deck could be deterred from nesting near the walkway, thus reducing the available nesting areas for this species. Any effect of pedestrian visual access would be minimized by the construction of a wide (28-foot) promenade on the east side of the Wharf. This would increase the ability of guillemots to nest away from the Westside Walkway, in addition to increasing the overall area available for nesting. Therefore, indirect impacts to pigeon guillemot nesting habitat would be less than significant, as project design would actually increase available habitat.

As shown in spring 2017 surveys, western gulls do prefer the less-disturbed western side of the Wharf, and at least two nests that produced young were in a narrow, currently inaccessible walkway most likely subject to disturbance from the new, public accessible western walkway. However, this species is not considered a special-status species by state and federal agencies or a sensitive species under the City's General Plan or LCP, although it is protected by the MBTA. In addition, extensive rooftop areas on the Wharf would remain available to the species.

As the project would result in an overall increase in suitable nesting habitat for pigeon guillemot and roosting habitat for California brown pelican, and as this overall expansion of suitable habitat would offset any indirect effects from human presence and noise along the western walkway, impacts to special-status species—coastal birds would be less than significant.

Future building construction also is not expected to result in buildings or windows that would pose hazards to birds. Although the Wharf Master Plan includes three structures that could reach a 45-foot height, two of which are expected to include a substantial amount of glass on the exterior, these buildings are not expected to provide hazards to birds. Glass windows on buildings of all kinds are a known hazard to birds and cause the deaths of as many as a billion birds a year in the United States alone (Klem, March 2009). The two primary hazards of glass for birds are reflectivity and transparency. Viewed from outside buildings, transparent glass often appears highly reflective. Reflective glass presents birds with the appearance of safe routes, shelter, and food. Buildings surrounded by lush landscaping may attract more birds, and reflections of vegetation in windows adjacent to these habitats may lure birds. Green spaces inside buildings, too, may entice birds to inaccessible habitat.

A notable, established monitoring program of bird-building collisions is NYC Audubon's Project Safe Flight in Manhattan. Project Safe Flight documented over 5,400 collisions between 1997-2008. Another study (Gelb and Delacretaz, 2009) analyzed this data to determine the critical contributing factors for the structures with the largest number of bird fatalities. The study looked at the 10 most deadly collision sites and found the combination of open space, vegetation, and

large windows (greater than 1 meter by 2 meter) to be more predictive of death than building height. The frequency of collisions is highest along façades that have lush exterior vegetation and either reflective or transparent windows. The majority of the collisions occurred during the daytime and involved migrant species. High-rise buildings and night lighting presented less risk than windows adjacent to open spaces two and half acres or greater in size. The majority of collisions are likely due to high collision sites that feature glass opposite exterior vegetation.

Two of the taller buildings proposed in the Master Plan would include relatively extensive areas of exterior glass: the Events Pavilion and the Landmark Wharf Building. Both buildings would be approximately 45 feet high. The Events Pavilion will include glass surrounding the lower level, with approximately the upper two-thirds of the exterior consisting mostly of a rooftop that slopes from a peak in the middle, downward to the building perimeter at the lower level. The Landmark Wharf Building will be a long, more-or-less rectangular structure with a façade at the south end that rises slightly above the level of the main part of the structure. Long, solid expanses of glass will cover most of the lower half to two-thirds of the building (excluding broad sections at the corner), but will not extend to the upper portion of the building. Other than surrounding ocean waters, no natural habitat will occur in the vicinity.

Birds occurring most commonly on the Wharf are mostly seabird species. The seabird species include pigeon guillemots (*Cephus columba*), several species of cormorants (*Phalacrocorax* sp.), brown pelicans (*Pelecanus occidentalis*), and several species of gull (*Larus* sp.). Western gull (*Larus occidentalis*) commonly occurs on the Wharf, and nests on rooftops there. Of these species, the guillemot (which nests under the Wharf) and the cormorants stay relatively low to the water and are not attracted to the portions of the Wharf that are above the deck. Brown pelicans sometimes roost on rails or elsewhere on the Wharf. This species and the several gulls that occur at the Wharf are not species that would seek cover in protected areas, but are species that stay in the open, even when nesting.

The most prominent upland species encountered is the rock pigeon (*Columba livia*), a non-native species well-adapted to urban environments and not typically considered protected under the Migratory Bird Treaty Act or corresponding parts of the California Fish and Game Code (Section 3503). Few other upland species are ever recorded at the Wharf. Although the Events Pavilion and the Landmark Wharf Building are relatively tall and include large areas of glass, the glass on these buildings will not extend far up the sides of the buildings. Unlike glass structures elsewhere that have been associated with a high bird-collision incidence, recommended Wharf structures are not near vegetation of any kind and therefore are not likely to result in many collisions.

Finally, the bird species attracted to the Wharf are generally not likely to collide with glass because these species mostly either fly low over the water or perch/loaf in open areas, and therefore, are unlikely to collide with glass that they perceive as providing cover resembling surrounding vegetation. Rock pigeons may have some potential to fly into glass, but this is a non-native species not protected under the Migratory Bird Treaty Act or the California Fish and Game Code. Although no structure with any amount of glass exterior can be designed to guarantee no bird collisions,

because of the design and location of the buildings included in the Wharf Master Plan, and the species occurring in the area, few collisions are likely to occur with construction of the new buildings recommended in the Wharf Master Plan.

It is noted that in 2019, City staff began implementing use of “Bird-Safe Building Design Standards” that would apply to any portions of buildings that require design review and are located within 300 feet of specified General Plan land use designations, including lands designated Commercial Recreation and waterways mapped in the City-wide Creeks and Wetlands Management Plan, or any area deemed by the Zoning Administrator to need consideration for bird-safe design due to proximity to natural features. With the project’s location above the waters of the bay (i.e., its proximity to natural features), the Bird-Safe Building Design Standards would be applied to new construction. These standards specify window and lighting treatments for buildings located near specified habitat areas in order to ensure that new buildings provide a safe design to prevent bird collisions in areas near natural features. The standards identify window glazing and lighting treatments to ensure design of bird safe buildings.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact BIO-2: **Sensitive Habitat.** Implementation of the Wharf Master Plan would not result in direct removal or loss of or substantial adverse effect to sensitive habitat (BIO-2). Therefore, *no impact* would occur.

Wharf Master Plan and Near-Term Projects

Implementation of the Wharf Master Plan and future construction of proposed improvements would result in new structural development, some of which would require installation of timber piles into marine waters, including construction of the two near-term planned projects – relocation of the Entry Gate and construction of the East Promenade. The project would not result in permanent direct or indirect adverse impacts on marine habitat.

The City’s General Plan 2030 identifies the Wharf as a sensitive habitat – Coastal Bird Habitat. The General Plan EIR reports the following birds at the Wharf: pigeon guillemots, western gulls, and California brown pelicans. Also, as noted above, pelagic cormorant has nested below the Wharf. Although removal of sensitive (nesting) habitat for pigeon guillemot, western gull, and pelagic cormorant or removal of roosting habitat for California brown pelican could represent a significant impact if this removal resulted in an overall reduction of habitat, the proposed Master Plan improvements would result in expansion of the Wharf that would result in a net increase in habitat.

Expansion of the Wharf would also result in a net gain of roosting habitat for California brown pelican. Therefore, the Master Plan would not result in direct impacts to roosting habitat for California brown pelican. This species would be able to occupy the Wharf after construction in the

same manner as previously. Although there would be potential temporary disturbances to California brown pelicans and pigeon guillemots as discussed in Impact BIO-4, there would be no loss or alteration of habitat for these species.

As noted in the discussion of direct impacts to nesting habitat for pigeon guillemots (Impact BIO-1c), the Master Plan would result in a net gain to nesting habitat for that species, as well as a net gain in roosting habitat for California brown pelicans, because it would result in an expansion of the Wharf. Therefore, there would be no direct impact to sensitive habitat for bird species. In addition, as noted in the discussion of indirect impacts to nesting special-status birds (Impact Bio-4), the expansion of the Wharf through the introduction of a 28-foot wide promenade on the east side of the Wharf would offset any new indirect disturbance to nesting birds underneath the Wharf by providing a new large area of relatively low disturbance on the side opposite the new western walkway. Therefore, indirect impacts to sensitive habitat would be less than significant.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact BIO-3: Sensitive Habitat - Wetlands. Implementation of the Wharf Master Plan would not result in a substantial adverse effect to direct removal or loss of wetland habitat (BIO-3). Therefore, *no impact* would occur.

Wharf Master Plan and Near-Term Projects

Implementation of the Wharf Master Plan and future construction of proposed improvements would result in new structural development, some of which would require installation of timber piles into marine waters, including construction of the two near-term planned projects – relocation of the Entry Gate and construction of the East Promenade. The project would not result in permanent direct or indirect adverse impacts on marine habitat.

The proposed project will not result in fill of wetlands as none were identified in the project area. However, the project will include temporary work within the waterway, which is considered a “water of the U.S.” The work in the waterway consists of pile driving, which will result in minor fill (approximately 650 square feet of surface area) to install approximately 810 new 12-inch timber piles to support the East Promenade, entrance relocation, and boat landings. (See section 4.4, Geology, Hydrology and Water Quality, regarding water quality impacts). However, marine habitat would not be substantially affected with this minor area of fill.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact BIO-4: **Wildlife Movement and Breeding.** Construction of future improvements at the Wharf could result in disturbance to nesting birds if any are present at the time of construction (BIO-4). This is considered a *potentially significant impact*.

Wharf Master Plan and Near-Term Projects

Adoption and implementation of the Wharf Master Plan, including the two near-term projects would not affect movement or breeding of species in the marine habitat surrounding the Wharf. Installation of the piles would be confined to the Wharf area and would not impede underwater movement of fish and marine mammals. Installation of piles as discussed in Impact BIO-1a would have potential temporary indirect construction impacts, but there would be no permanent alteration of habitat. Marine mammals do not breed near the Wharf. Therefore, the project would have no effect on marine wildlife movement or breeding.

Implementation of Wharf Master Plan projects would not interfere with the movement of bird species in the project vicinity, as birds could continue to move about the area freely. However, nests of pigeon guillemots and potentially other species (including western gull, which is also known to nest on the Wharf, and pelagic cormorant, which has nested at least once on the Wharf) are protected under the MBTA, and they are also protected under the CFGC Section 3503. In addition, the City General Plan specifies that coastal bird rookeries should be avoided. Individual adult pigeon guillemots or other birds are unlikely to be directly killed or injured during construction activities because they are highly mobile and would likely leave the area during construction. However, nesting activities by pigeon guillemots, western gulls, pelagic cormorants, and other native bird species could be disrupted, if construction occurs during the breeding season and the birds are present. Noise and vibration, such as from pile driving, could potentially disturb adult birds and result in abandonment of nests, eggs, and young, and in nesting failure. This would represent a violation of MBTA and the CFGC, and would be contrary to policies in the General Plan. Therefore, this impact would be potentially significant.

Mitigation Measures

Implementation of the following measure would reduce potential impacts to nesting pigeon guillemots and common bird species to a less-than-significant level.

MITIGATION BIO-4 Conduct a pre-construction survey for any construction that would occur during the nesting season. No more than seven days prior to initiation of construction activities, including pile-driving, scheduled to begin during the nesting season for pigeon guillemot, western gull, or other species potentially nesting on the Wharf (April 15 through August 30, or as determined by a qualified biologist), the City shall have a nesting bird survey conducted by a qualified biologist to determine if active nests of bird species protected by the

Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the disturbance zone or within 150 feet of the disturbance zone.

Pre-construction surveys for pigeon guillemots and pelagic cormorants shall include inspection of areas underneath the Wharf for indications of nesting (by kayak or other method adequate for examining remote crevices and pilings). Because pigeon guillemot are difficult to detect, adequate surveys will require surveyors to observe for multiple hours before forming conclusions about occupancy.

If active nests for pigeon guillemots or pelagic cormorants are found, establish a buffer of at least 150 feet between each nest and construction activities under the wharf deck that could disturb nesting birds, especially pile driving. Construction activities likely to disturb nesting western gull can be resumed when the nest is vacated and young have fledged, as determined by the biologist, and if there is no evidence of a second attempt at nesting.

If active nests for western gull or other species protected under the Migratory Bird Treaty Act and/or the California Fish and Game Code are found, establish a buffer of 100 feet between each nest and construction activities that could disturb nesting birds. Examples of such activities include pile-driving, use of power tools, and above-deck construction activities identified by a qualified biologist as likely to disturb the nesting western gulls. Construction activities likely to disturb nesting western gull can be resumed when the nest is vacated and young have fledged, as determined by the biologist, and if there is no evidence of a second attempt at nesting.

The nesting disturbance buffer for any species may be reduced if a qualified biologist, in consultation with CDFW, determines that the proposed construction is unlikely to disturb the nesting birds, considering factors including, but not limited to, level of existing ongoing disturbance, the temporary level of disturbance from construction, and visual and sound obstructions between the birds and the disturbance, such as rows of piles or existing buildings.

Impact BIO-7: Effects on Wildlife Populations. Adoption and implementation of the Wharf Master Plan and subsequent Wharf expansion and construction would not substantially reduce the habitat of a fish or wildlife species, cause a drop in

populations below self-sustaining levels, or a threaten local extirpation of a species (BIO-7-9). This is considered a *less-than-significant* impact.

Wharf Master Plan and Near-Term Projects

Impacts to Benthic and Fish Species. Benthic habitat would be removed where the new piles are installed in an amount of approximately 0.8 square feet per pile. Thus, installation of new piles would result in a loss of approximately 650 square feet of benthic habitat; replacement piles would not result in loss of benthic habitat. The loss due to installation of new piles is not considered significant as the location is under the wharf in an area of previous disturbance on a sandy substrate, where species diversity is low, and the area of disturbance is minimal and localized. Further, sandy bottom substrate is abundant in the Wharf vicinity and loss of 650 square feet would not substantially affect its availability for sandy bottom species.

During installation, benthic sediments would be temporarily disturbed in the immediate area of pile installation; installation is estimated to take approximately 15-30 minutes per pile. This may result in temporary discharge of sediments into surface waters, which could cause a very minor increase in the water's turbidity in the immediate vicinity on a temporary basis. Disturbance of benthic habitat would likely cause both listed and non-listed species of fish, foraging seabirds, and marine mammals to avoid the immediate construction area and areas of increased turbidity during pile installation. Any sediment in the water column would not be expected to be substantial given the temporary nature of the construction disturbance and that sediments are predominantly sandy; sand particles tend to settle quickly and do not generate large or long-lasting sediment plumes (URS Corporation, May 2013). Because marine organisms would be expected to avoid the immediate construction area and turbidity would be temporary and limited to the immediate construction zone, pile installation would not have a substantial adverse effect on special-status species that occur or have the potential to occur in the project area. Such activities also would not result in a substantial reduction in the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate such a population.

The existing piles provide vertical relief habitat for encrusting invertebrates, including barnacles, mussels, anemones, sponges, and others. Replacement of the existing pilings would remove these mature invertebrate communities and could affect the other species that depend on them such as mobile invertebrates (e.g., crabs) and fish. The coated piles that would be used as replacements may have reduced suitability as habitat for encrusting invertebrates. However, no studies were located that specifically examined "fouling" of coated piles by invertebrates. Anecdotal information from observing other polyurea pilings suggest that they remain suitable for encrusting organisms, would be recolonized from the surrounding remaining pilings, and that no long-term effect to the Wharf biota would result from the replacements.

As previously indicated, Monterey Bay is designated as EFH for coastal marine fish, and macroinvertebrate species that support commercial fisheries, including, but not limited to, salmonid species, rockfish, roundfish, and flatfish. Special status fish species utilizing San Lorenzo

River may also be present near the Wharf. Potential impacts to EFH and fish include disturbance due to underwater sound, temporary water quality degradation, and the alteration and removal of habitat. As discussed in Impact BIO-1a, the underwater sound produced during pile replacement work may cause disturbance to fish in the project vicinity, which may reduce feeding and cause a temporary reduction in the productivity of EFH during the construction period, but is not expected to result in direct harm or take of fish species. Further, as described above, future construction is not expected to result in harmful levels of turbidity or contamination due to coatings used on the piles. Installation of piles would result in a negligible amount of benthic habitat (650 square feet). With implementation of mitigation for underwater noise, the project would not result in a substantial reduction of habitat for fish or EHH.

Impacts to Marine Mammals. Expansion of the Wharf would not remove habitat for marine mammals, although sea lion use of portions of the Wharf may change with Wharf expansion and addition of the new boat landings. According to the Wharf Master Plan, NOAA Fisheries-approved sea lion deterrent devices will be provided around the new boat landing floats to prevent sea lion haul-out. Some existing haul-out areas associated with the existing boat landings may be removed for the new boat landings, and the new small boat landing would not provide haul-outs for marine mammals. However, the cross beams under the Wharf would remain available for haul-out and the ten structural outriggers proposed below the East Promenade may also provide new protected haul-out areas. There are no breeding or rookery haulouts at the Wharf, and sufficient haulout options would continue to be present.

Concerns were expressed regarding potential indirect impacts to marine mammals, including: impacts to sea lions due to human use of the proposed Westside Walkway; impacts of wharf expansion and additional boating, including potentially larger boats, on whales and sea otters; and impacts to marine mammals from human activity in the evenings, including lights and noise from night-time activities or events that may be held. Pedestrian use on the Westside Walkway, which would be lower than the main Wharf deck, would not be expected to impact sea lions that may be hauled out under the Wharf as generally this species has adapted to human presence and would have access to areas away from the walkway. Additionally, the Wharf is not a breeding or rearing location. It is noted that both sea lions and harbor seals have been observed hauled out at the Santa Cruz Harbor, an area with boating and other human activity.

No significant impacts to marine mammals are anticipated to occur from potential increased recreational use at the Wharf following implementation of the Wharf Master Plan. There are existing small boat uses at the Wharf and a variety of recreational uses within Monterey Bay near the Wharf, including boating. The Master Plan includes a proposal to construct a new boat landing for research and visitor vessels. At this time it is not known when this facility may be developed, and there is no known schedule of programs or operations that would occur. However, it would accommodate boats of sizes that occur within the Bay, and the Wharf is located in a heavily used area. All boat operators must comply with federal regulations regarding protection of marine mammals. It is also noted that a charter fishing/whale watching business was operated on the Wharf until October 2010.

The Wharf Master Plan includes policies and recommendations for lighting at the Wharf. A review of potential impacts of lighting on marine habitat and species was conducted and is included in Appendix E and summarized below. The Wharf and surrounding area, including the Santa Cruz Boardwalk, are currently illuminated. The Wharf has lighting at numerous locations along its entire length and width. Lighting includes overhead street-type and parking lot-type lighting, lighting for pedestrians, and business lighting. Existing lighting on the Wharf consists of 115 pedestrian and street lights that stand between 22 feet tall (street lights) and 14 feet tall (pedestrian lights). This includes lights on the western side from the parking gates to approximately 1,100 feet; along the entire eastern edge; along an approximate 1,800-foot long strip internally next to the business facades; and, another 400-foot strip within the East Parking Lot. Other lighting consists of business façade building lighting along the sidewalk adjacent to the buildings. Existing light fixtures include LED lights that are rated at 3100 lumens for the street light fixtures and 1875 lumens for pedestrian lights. Building lights are generally in the range of 900-1025 lumens each. The 2014 Wharf Engineering Report (a companion volume to the Wharf Master Plan) also notes that the Santa Cruz Wharf is clearly identified on the nautical chart, is well lit, and has two “obstruction” lights on each corner of the end and indicates that with these fixed aids to navigation (on chart, light and horn) the risk from collision due navigation error is low.

Generally, lighting has the potential to affect essential behavioral activities, physiology, population ecology, and ecosystems of both diurnal and nocturnal wildlife. These effects generally include orientation/disorientation and attraction/repulsion, reproduction, and communication at the behavioral and population ecology level, and competition and predation at the community ecology level, the effects of which would be expected to extend to the ecosystem level. However, while there will be the addition of downward-facing entrance gate lighting at the relocated parking gates, overall lighting associated with the final Master Plan design would be reduced from the current condition as discussed below. One of the goals of the Wharf Master Plan is to protect the night sky.

Construction of the East Promenade will move parking lot lighting further from the edge of the Wharf along most of the eastern side of the Wharf. Light structures along the eastern side of the Wharf where the East Promenade will be constructed will be set back from the edge by approximately 28 feet whereas they are currently situated at the Wharf deck edge directly adjacent to the bay. This will result in greater or total shading of the marine environment from the downward glare of the lights as shown on Figure 4.2-4. The Master Plan indicates that 32 new light fixtures in this area generally will be the of the same type and intensity as existing lights. New lights would replace some of the existing street lights along the eastern edge.

Limited lighting will occur along the boat ramps, and no lighting will be placed along the new Westside Walkway. Light structures adjacent to the buildings will no longer be required as they will be replaced by lights inserted into a continuous canopy adjacent to the building facades, which will direct light to the pedestrian paths only and will not be directly visible by the surrounding

marine environment. The store-front pedestrian lights will be changed from overhead lamp-post type lighting to integrated and shielded lighting within the pedestrian canopies.

Implementation of the proposed lighting and other Wharf Master Plan recommendations would result in the overall reduction of lights by removing lights from pedestrian areas near the buildings and lowering pedestrian lights along the eastern edge, and only includes smaller foot-level lights at ramp areas for safety. Due to relocation of street lights from the edge of the Wharf with the proposed East Promenade, some reduction of lighting on the west side and better placement of lighting adjacent to buildings, the long-term impacts of lighting at the Wharf would be reduced from existing conditions. Thus, potential impacts of lighting resulting from implementation of the Wharf Master Plan on marine and other species are considered to be less-than-significant.

Additionally, construction lighting is not anticipated as construction will not occur at night. Any security lighting used during construction would be directed at equipment and not the surrounding habitat. Lighting directed at the surrounding habitat would not be more intense than it currently is. Therefore, short-term lighting impacts related to construction are considered to be less-than-significant.

Conclusion. Future construction of projects recommended in the Wharf Master Plan, including installation of piles, would have no effect on habitat of fully protected species. Indirect impacts to marine mammals, coastal bird habitat and nesting birds that may be in the area related to pile driving are addressed in Impacts BIO-1a-1c, BIO-1c, and BIO-4. The project would not result in take or possession of any fully protected species. Impacts to special-status wildlife species are addressed under Impacts BIO-1a-c.

Several common wildlife species also occur at the Wharf, such as western gull, which nests on the Wharf structure, and common fish species using the surrounding waters. Substantial reductions to habitat for common species can, in some cases, result in a substantial reduction of the local population, or even extirpation from an area. However, as noted above, the project would result in a net gain in terrestrial habitats for birds, so that more habitat will be available for nesting and roosting. In addition, although a small area of marine habitat available for common fish and foraging seabirds will be removed for the installation of approximately 800 new piles, this area will be very small in relation to the extensive available habitat in the area. Finally, as these species are common in the region, impacts from the project would not substantially affect their populations. Potential impacts to common wildlife species would be less than significant. Implementation of the Wharf Master Plan, therefore, would not substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; or threaten to eliminate a plant or animal community, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.