Appendix 5A-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts

1 Introduction

The assumptions for all Sites model simulations are summarized in Appendix 5A Attachment 1 Model Assumptions.

1.1 HEC5Q and Reclamation Temperature Modeling Assumptions Callouts

The following matrix summarizes the assumptions used for the HEC5Q and Reclamation Temperature models:

- No Action Alternative 011221
- Alternative 1A 011221
- Alternative 1B 011221
- Alternative 2 011221
- Alternative 3 020121

	No Action Alternative (NAA)	Alternative 1A (ALT 1A)	Alternative 1B (ALT 1B)	Alternative 2 (ALT 2)	Alternative 3 (ALT 3)
Period of simulation	(NAA) 82 years (1922-2003)	(ALT 1A) Same as NAA	(ALT 1B) Same as NAA	Same as NAA	(ALT 3) Same as NAA

	No Action Alternative (NAA)	Alternative 1A (ALT 1A)	Alternative 1B (ALT 1B)	Alternative 2 (ALT 2)	Alternative 3 (ALT 3)
Climate	Current climate conditions	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)				Alternative 3 (ALT 3)
Boundary flows and storages	Monthly timeseries (from CalSim II output).	Monthly timeseries (from CalSim II	Monthly timeseries (from CalSim II	Monthly timeseries (from CalSim II	

	No Action Alternative (NAA)	Alternative 1A (ALT 1A)	Alternative 1B (ALT 1B)	Alternative 2 (ALT 2)	Alternative 3 (ALT 3)
Trinity Lake	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output). Limited to physical	timeseries (from CalSim II output). Limited to physical	timeseries (from CalSim II output). Limited to physical	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.

		Alternative 1A (ALT 1A)	Alternative 1B (ALT 1B)		Alternative 3 (ALT 3)
Lewistown Lake	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output).	CalSim II output). Limited to physical	timeseries (from CalSim II output). Limited to physical specifications of	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.
	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output).	timeseries (from CalSim II output). Limited to physical	timeseries (from CalSim II output). Limited to physical specifications of	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.
Shasta Lake	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output).	timeseries (from CalSim II output). Limited to physical	timeseries (from CalSim II output). Limited to physical specifications of	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.

	No Action Alternative (NAA)	Alternative 1A (ALT 1A)		Alternative 2 (ALT 2)	Alternative 3 (ALT 3)
Keswick Reservoir	Monthly timeseries (from	Monthly	Monthly	Monthly	Monthly
	CalSim II output). Limited	timeseries (from	timeseries (from	timeseries (from	timeseries (from
	to physical specifications	CalSim II output).	CalSim II output).	CalSim II output).	CalSim II output).
	of reservoir.	Limited to physical	Limited to physical	Limited to physical	Limited to physical
		specifications of	specifications of	specifications of	specifications of
		reservoir.	reservoir.	reservoir.	reservoir.
Black Butte Lake	Monthly timeseries (from	Monthly	Monthly	Monthly	Monthly
	CalSim II output). Limited	timeseries (from	timeseries (from	timeseries (from	timeseries (from
	to physical specifications	CalSim II output).	CalSim II output).	CalSim II output).	CalSim II output).
	of reservoir.	Limited to physical	Limited to physical	Limited to physical	Limited to physical
		specifications of	specifications of	specifications of	specifications of
		reservoir.	reservoir.	reservoir.	reservoir.
Shasta	Temperature schedules	Temperature	Temperature	Temperature	Temperature
Temperature	developed to match	schedules	schedules	schedules	schedules
Management	Shasta Summer Cold	developed to	developed to	developed to	developed to
	Water Pool Management	match Shasta	match Shasta	match Shasta	match Shasta
	in 2019 NMFS BiOp.	Summer Cold	Summer Cold	Summer Cold	Summer Cold
		Water Pool	Water Pool	Water Pool	Water Pool
		Management in	Management in	Management in	Management in
		2019 NMFS BiOp.	2019 NMFS BiOp.	2019 NMFS BiOp.	2019 NMFS BiOp.

		Alternative 1A (ALT 1A)	Alternative 1B (ALT 1B)	Alternative 2 (ALT 2)	Alternative 3 (ALT 3)
Trinity Temperature Management	lower, auxiliary outlet when normal outlet release are too warm.	Releases allowed from lower, auxiliary outlet when normal outlet release are too warm.	Releases allowed from lower, auxiliary outlet when normal outlet release are too warm.	Releases allowed from lower, auxiliary outlet when normal outlet release are too warm.	Releases allowed from lower, auxiliary outlet when normal outlet release are too warm.
Lake Oroville	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output).	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.
Thermalito Afterbay	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output).	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output). Limited to physical	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.

	No Action Alternative (NAA)	Alternative 1A (ALT 1A)		Alternative 2 (ALT 2)	Alternative 3 (ALT 3)
Folsom Lake	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output).	CalSim II output). Limited to physical	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.
Lake Natoma	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output).		Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.
Folsom Temperature Management	Similar to 2009 NMFS BiOp Appendix B (See 2015 LTO for details).	•		Similar to 2009 NMFS BiOp Appendix B (See 2015 LTO for details).	Similar to 2009 NMFS BiOp Appendix B (See 2015 LTO for details).
New Melones Lake	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	timeseries (from CalSim II output).	Limited to physical	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.

					Alternative 3 (ALT 3)
Lake Tulloch	Monthly timeseries (from	Monthly	Monthly	Monthly	Monthly
	CalSim II output). Limited	timeseries (from	timeseries (from	timeseries (from	timeseries (from
	to physical specifications		CalSim II output).	CalSim II output).	CalSim II output).
	of reservoir.	Limited to physical	Limited to physical	Limited to physical	Limited to physical
		specifications of	specifications of	specifications of	specifications of
		reservoir.	reservoir.	reservoir.	reservoir.
Goodwin Reservoir	Monthly timeseries (from	Monthly	Monthly	Monthly	Monthly
	CalSim II output). Limited	timeseries (from	timeseries (from	timeseries (from	timeseries (from
	to physical specifications	CalSim II output).	CalSim II output).	CalSim II output).	CalSim II output).
	of reservoir.	Limited to physical	Limited to physical	Limited to physical	Limited to physical
		specifications of	specifications of	specifications of	specifications of
		reservoir.	reservoir.	reservoir.	reservoir.