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	82 years (1922-2003)	Same as NAA	Same as NAA	Same as NAA	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 1A (ALT 1A)	Alternative 1B (ALT 1B)	Alternative 2 (ALT 2)	Alternative 3 (ALT 3)
Boundary flows and storages	Monthly timeseries (from CalSim II output).	Monthly timeseries (from CalSim II output).	Monthly timeseries (from CalSim II output).	Monthly timeseries (from CalSim II output).	Monthly timeseries (from CalSim II output).

	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.	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.	Monthly timeseries (from CalSim II output). Limited to physical specifications of reservoir.

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

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

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

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

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