

1 **Appendix 9N**2 **Temperature Threshold Analysis**3 **9N.1 Temperature Threshold Methodology and**
4 **Assumptions**

5 Monthly temperature data described in Appendix 6B were used to calculate the
6 percentage of time (over the period 81-year simulation record) monthly
7 temperature thresholds for different fish species and life stages were exceeded on
8 the Trinity River, Clear Creek, Sacramento River, Feather River, American River,
9 and Stanislaus River.

10 **9N.2 Temperature Threshold Results**

11 Table 9N.B.1 shows the percentage of years, over the 81-year simulation period,
12 each of the different temperature thresholds was exceeded for the No Action
13 Alternative, Second Basis of Comparison (Alternative 1), Alternative 3, and
14 Alternative 5 as well as differences between the alternatives and the bases of
15 comparison. Columns A through H describe the specific temperature threshold by
16 species, life stage, river, reach, water year type, month, the actual temperature
17 objective, and the reference where the target came from. Columns I through R
18 show the threshold exceedances for each alternative and alternative comparison.

19 **9N.3 References**

- 20 DWR et al. (California Department of Water Resources, Bureau of Reclamation,
21 U.S. Fish and Wildlife Service, and National Marine Fisheries Service).
22 2013. *Environmental Impact Report/ Environmental Impact Statement for*
23 *the Bay Delta Conservation Plan. Draft. December.*
- 24 National Marine Fisheries Service 2009. *Biological Opinion and Conference*
25 *Opinion on the Long-Term Operations of the Central Valley Project and*
26 *State Water Project. June.*
- 27 USFWS (U.S. Fish and Wildlife Service). 1999. *Trinity River Flow Evaluation.*
28 *Final Report. June.*

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Table 9N.B.1. Temperature Threshold Exceedances

Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Spring-Run Chinook	Holding	Trinity	Lewiston to Douglas City Bridge	All	July	60	USFWS 1999	1%	1%	0%	1%	0%	-1%	0%	0%	-1%	0%
Spring-Run Chinook	Holding	Trinity	Lewiston to Douglas City Bridge	All	August	60	USFWS 1999	2%	2%	2%	0%	0%	0%	-2%	0%	0%	-2%
Spring-Run Chinook	Spawning	Trinity	Lewiston to Douglas City Bridge	All	September	56	USFWS 1999	9%	11%	9%	7%	2%	1%	-1%	-2%	-1%	-4%
Chinook	Spawning	Trinity	Lewiston to NF confluence	All	October	56	USFWS 1999	8%	6%	6%	7%	-1%	-2%	0%	1%	-1%	1%
Coho	Spawning	Trinity	Lewiston to NF confluence	All	October	56	USFWS 1999	8%	6%	6%	7%	-1%	-2%	0%	1%	-1%	1%
Steelhead	Spawning	Trinity	Lewiston to NF confluence	All	October	56	USFWS 1999	8%	6%	6%	7%	-1%	-2%	0%	1%	-1%	1%
Chinook	Spawning	Trinity	Lewiston to NF confluence	All	November	56	USFWS 1999	2%	2%	0%	2%	0%	-2%	0%	0%	-2%	0%
Coho	Spawning	Trinity	Lewiston to NF confluence	All	November	56	USFWS 1999	2%	2%	0%	2%	0%	-2%	0%	0%	-2%	0%
Steelhead	Spawning	Trinity	Lewiston to NF confluence	All	November	56	USFWS 1999	2%	2%	0%	2%	0%	-2%	0%	0%	-2%	0%
Chinook	Spawning	Trinity	Lewiston to NF confluence	All	December	56	USFWS 1999	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Coho	Spawning	Trinity	Lewiston to NF confluence	All	December	56	USFWS 1999	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Spawning	Trinity	Lewiston to NF confluence	All	December	56	USFWS 1999	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Clear Creek	Igo	All	June	60	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Clear Creek	Igo	All	July	60	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Clear Creek	Igo	All	August	60	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

¹See section 9N.C for the full reference

Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Spring-Run Chinook	Rearing	Clear Creek	Igo	All	September	56	BDCP 2013	15%	13%	12%	14%	-3%	-4%	-2%	3%	-1%	1%
Spring-Run Chinook	Rearing	Clear Creek	Igo	All	October	56	BDCP 2013	12%	10%	11%	12%	-2%	-2%	0%	2%	1%	2%
Winter-Run Chinook	Egg incubation	Sacramento	Balls Ferry	All	April	56	NMFS BiOp 2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter-Run Chinook	Egg incubation	Sacramento	Balls Ferry	All	May	56	NMFS BiOp 2009	3%	4%	4%	3%	1%	1%	0%	-1%	0%	-1%
Winter-Run Chinook	Egg incubation	Sacramento	Balls Ferry	All	June	56	NMFS BiOp 2009	6%	4%	4%	7%	-2%	-2%	1%	2%	0%	3%
Winter-Run Chinook	Egg incubation	Sacramento	Balls Ferry	All	July	56	NMFS BiOp 2009	14%	11%	11%	13%	-3%	-3%	-1%	3%	0%	2%
Winter-Run Chinook	Egg incubation	Sacramento	Balls Ferry	All	August	56	NMFS BiOp 2009	32%	28%	28%	31%	-3%	-4%	0%	3%	0%	3%
Winter-Run Chinook	Egg incubation	Sacramento	Balls Ferry	All	September	56	NMFS BiOp 2009	42%	52%	49%	41%	10%	6%	-1%	-10%	-4%	-11%
Winter-Run Chinook	Egg incubation	Sacramento	Bend Bridge	All	April	56	NMFS BiOp 2009	4%	4%	4%	4%	-1%	-1%	0%	1%	0%	1%
Winter-Run Chinook	Egg incubation	Sacramento	Bend Bridge	All	May	56	NMFS BiOp 2009	44%	42%	44%	47%	-2%	0%	3%	2%	2%	5%
Winter-Run Chinook	Egg incubation	Sacramento	Bend Bridge	All	June	56	NMFS BiOp 2009	52%	44%	44%	54%	-8%	-8%	1%	8%	0%	10%
Winter-Run Chinook	Egg incubation	Sacramento	Bend Bridge	All	July	56	NMFS BiOp 2009	55%	59%	58%	54%	4%	3%	-1%	-4%	-1%	-5%
Winter-Run Chinook	Egg incubation	Sacramento	Bend Bridge	All	August	56	NMFS BiOp 2009	89%	85%	89%	90%	-4%	0%	1%	4%	4%	5%
Winter-Run Chinook	Egg incubation	Sacramento	Bend Bridge	All	September	56	NMFS BiOp 2009	62%	90%	87%	60%	29%	26%	-1%	-29%	-3%	-30%
Green Sturgeon	Egg incubation	Sacramento	Bend Bridge	All	May	63	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Egg incubation	Sacramento	Bend Bridge	All	June	63	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Green Sturgeon	Egg incubation	Sacramento	Bend Bridge	All	July	63	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Egg incubation	Sacramento	Bend Bridge	All	August	63	BDCP 2013	7%	6%	6%	7%	-1%	-1%	0%	1%	0%	1%
Green Sturgeon	Egg incubation	Sacramento	Bend Bridge	All	September	63	BDCP 2013	12%	10%	9%	12%	-3%	-3%	-1%	3%	-1%	2%
Spring-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	October	56	BDCP 2013	82%	79%	78%	80%	-4%	-4%	-2%	4%	0%	2%
Spring-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	November	56	BDCP 2013	8%	7%	8%	7%	-1%	0%	-2%	1%	1%	-1%
Spring-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	December	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	February	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	March	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	April	56	BDCP 2013	15%	13%	14%	14%	-2%	-1%	-1%	2%	1%	1%
Fall-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	October	56	BDCP 2013	82%	79%	78%	80%	-4%	-4%	-2%	4%	0%	2%
Fall-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	November	56	BDCP 2013	8%	7%	8%	7%	-1%	0%	-2%	1%	1%	-1%
Fall-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	December	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	February	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	March	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Fall-Run Chinook	Egg incubation	Sacramento	Red Bluff	All	April	56	BDCP 2013	15%	13%	14%	14%	-2%	-1%	-1%	2%	1%	1%
Spring-Run Chinook	Spawning	Sacramento	Red Bluff	All	October	56	BDCP 2013	82%	79%	78%	80%	-4%	-4%	-2%	4%	0%	2%
Spring-Run Chinook	Spawning	Sacramento	Red Bluff	All	November	56	BDCP 2013	8%	7%	8%	7%	-1%	0%	-2%	1%	1%	-1%
Spring-Run Chinook	Spawning	Sacramento	Red Bluff	All	December	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Spawning	Sacramento	Red Bluff	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Spawning	Sacramento	Red Bluff	All	February	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Spawning	Sacramento	Red Bluff	All	March	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Spawning	Sacramento	Red Bluff	All	April	56	BDCP 2013	15%	13%	14%	14%	-2%	-1%	-1%	2%	1%	1%
Fall-Run Chinook	Spawning	Sacramento	Red Bluff	All	October	56	BDCP 2013	82%	79%	78%	80%	-4%	-4%	-2%	4%	0%	2%
Fall-Run Chinook	Spawning	Sacramento	Red Bluff	All	November	56	BDCP 2013	8%	7%	8%	7%	-1%	0%	-2%	1%	1%	-1%
Fall-Run Chinook	Spawning	Sacramento	Red Bluff	All	December	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall-Run Chinook	Spawning	Sacramento	Red Bluff	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall-Run Chinook	Spawning	Sacramento	Red Bluff	All	February	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall-Run Chinook	Spawning	Sacramento	Red Bluff	All	March	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall-Run Chinook	Spawning	Sacramento	Red Bluff	All	April	56	BDCP 2013	15%	13%	14%	14%	-2%	-1%	-1%	2%	1%	1%
White Sturgeon	Spawning	Sacramento	Hamilton City	All	March	61	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
White Sturgeon	Spawning	Sacramento	Hamilton City	All	April	61	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Spawning	Sacramento	Hamilton City	All	May	61	BDCP 2013	55%	49%	49%	56%	-6%	-6%	1%	6%	0%	7%
White Sturgeon	Spawning	Sacramento	Hamilton City	All	June	61	BDCP 2013	86%	74%	74%	87%	-13%	-13%	1%	13%	0%	13%
White Sturgeon	Spawning	Sacramento	Hamilton City	All	March	68	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Spawning	Sacramento	Hamilton City	All	April	68	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Spawning	Sacramento	Hamilton City	All	May	68	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Spawning	Sacramento	Hamilton City	All	June	68	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Egg incubation	Sacramento	Hamilton City	All	March	61	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Egg incubation	Sacramento	Hamilton City	All	April	61	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Egg incubation	Sacramento	Hamilton City	All	May	61	BDCP 2013	55%	49%	49%	56%	-6%	-6%	1%	6%	0%	7%
White Sturgeon	Egg incubation	Sacramento	Hamilton City	All	June	61	BDCP 2013	86%	74%	74%	87%	-13%	-13%	1%	13%	0%	13%
White Sturgeon	Egg incubation	Sacramento	Hamilton City	All	March	68	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Egg incubation	Sacramento	Hamilton City	All	April	68	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Egg incubation	Sacramento	Hamilton City	All	May	68	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White Sturgeon	Egg incubation	Sacramento	Hamilton City	All	June	68	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Egg incubation	Feather	Robinson Riffle	All	September	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Spring-Run Chinook	Egg incubation	Feather	Robinson Riffle	All	October	56	BDCP 2013	98%	97%	97%	97%	-1%	-1%	-1%	1%	-1%	0%
Spring-Run Chinook	Egg incubation	Feather	Robinson Riffle	All	November	56	BDCP 2013	27%	26%	26%	28%	-1%	-1%	1%	1%	-1%	2%
Spring-Run Chinook	Egg incubation	Feather	Robinson Riffle	All	December	56	BDCP 2013	1%	0%	0%	1%	-1%	-1%	0%	1%	0%	1%
Spring-Run Chinook	Egg incubation	Feather	Robinson Riffle	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Egg incubation	Feather	Robinson Riffle	All	February	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Egg incubation	Feather	Robinson Riffle	All	March	56	BDCP 2013	18%	20%	19%	19%	2%	1%	1%	-2%	-1%	-1%
Spring-Run Chinook	Egg incubation	Feather	Robinson Riffle	All	April	56	BDCP 2013	75%	75%	75%	75%	0%	0%	0%	0%	0%	0%
Steelhead	Egg incubation	Feather	Robinson Riffle	All	September	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Egg incubation	Feather	Robinson Riffle	All	October	56	BDCP 2013	98%	97%	97%	97%	-1%	-1%	-1%	1%	-1%	0%
Steelhead	Egg incubation	Feather	Robinson Riffle	All	November	56	BDCP 2013	27%	26%	26%	28%	-1%	-1%	1%	1%	-1%	2%
Steelhead	Egg incubation	Feather	Robinson Riffle	All	December	56	BDCP 2013	1%	0%	0%	1%	-1%	-1%	0%	1%	0%	1%
Steelhead	Egg incubation	Feather	Robinson Riffle	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Egg incubation	Feather	Robinson Riffle	All	February	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Egg incubation	Feather	Robinson Riffle	All	March	56	BDCP 2013	18%	20%	19%	19%	2%	1%	1%	-2%	-1%	-1%
Steelhead	Egg incubation	Feather	Robinson Riffle	All	April	56	BDCP 2013	75%	75%	75%	75%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	September	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	October	56	BDCP 2013	98%	97%	97%	97%	-1%	-1%	-1%	1%	-1%	0%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	November	56	BDCP 2013	27%	26%	26%	28%	-1%	-1%	1%	1%	-1%	2%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	December	56	BDCP 2013	1%	0%	0%	1%	-1%	-1%	0%	1%	0%	1%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	February	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	March	56	BDCP 2013	18%	20%	19%	19%	2%	1%	1%	-2%	-1%	-1%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	April	56	BDCP 2013	75%	75%	75%	75%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Robinson Riffle	All	September	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Robinson Riffle	All	October	56	BDCP 2013	98%	97%	97%	97%	-1%	-1%	-1%	1%	-1%	0%
Steelhead	Rearing	Feather	Robinson Riffle	All	November	56	BDCP 2013	27%	26%	26%	28%	-1%	-1%	1%	1%	-1%	2%
Steelhead	Rearing	Feather	Robinson Riffle	All	December	56	BDCP 2013	1%	0%	0%	1%	-1%	-1%	0%	1%	0%	1%
Steelhead	Rearing	Feather	Robinson Riffle	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Robinson Riffle	All	February	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Robinson Riffle	All	March	56	BDCP 2013	18%	20%	19%	19%	2%	1%	1%	-2%	-1%	-1%
Steelhead	Rearing	Feather	Robinson Riffle	All	April	56	BDCP 2013	75%	75%	75%	75%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	May	63	BDCP 2013	60%	51%	55%	57%	-9%	-5%	-2%	9%	4%	6%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	June	63	BDCP 2013	97%	97%	97%	97%	0%	0%	0%	0%	0%	0%

¹See section 9N.C for the full reference

Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	July	63	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spring-Run Chinook	Rearing	Feather	Robinson Riffle	All	August	63	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Robinson Riffle	All	May	63	BDCP 2013	60%	51%	55%	57%	-9%	-5%	-2%	9%	4%	6%
Steelhead	Rearing	Feather	Robinson Riffle	All	June	63	BDCP 2013	97%	97%	97%	97%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Robinson Riffle	All	July	63	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Robinson Riffle	All	August	63	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall Chinook	Spawning	Feather	Gridley Bridge	All	October	56	BDCP 2013	98%	98%	98%	98%	-1%	-1%	0%	1%	0%	0%
Fall Chinook	Spawning	Feather	Gridley Bridge	All	November	56	BDCP 2013	26%	24%	23%	26%	-1%	-3%	0%	1%	-1%	1%
Fall Chinook	Spawning	Feather	Gridley Bridge	All	December	56	BDCP 2013	1%	0%	0%	1%	-1%	-1%	0%	1%	0%	1%
Fall Chinook	Spawning	Feather	Gridley Bridge	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fall Chinook	Spawning	Feather	Gridley Bridge	All	February	56	BDCP 2013	1%	0%	0%	1%	-1%	-1%	0%	1%	0%	1%
Fall Chinook	Spawning	Feather	Gridley Bridge	All	March	56	BDCP 2013	29%	28%	26%	29%	-2%	-4%	0%	2%	-2%	2%
Fall Chinook	Spawning	Feather	Gridley Bridge	All	April	56	BDCP 2013	85%	85%	85%	85%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Gridley Bridge	All	October	56	BDCP 2013	98%	98%	98%	98%	-1%	-1%	0%	1%	0%	0%
Steelhead	Rearing	Feather	Gridley Bridge	All	November	56	BDCP 2013	26%	24%	23%	26%	-1%	-3%	0%	1%	-1%	1%
Steelhead	Rearing	Feather	Gridley Bridge	All	December	56	BDCP 2013	1%	0%	0%	1%	-1%	-1%	0%	1%	0%	1%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Steelhead	Rearing	Feather	Gridley Bridge	All	January	56	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Rearing	Feather	Gridley Bridge	All	February	56	BDCP 2013	1%	0%	0%	1%	-1%	-1%	0%	1%	0%	1%
Steelhead	Rearing	Feather	Gridley Bridge	All	March	56	BDCP 2013	29%	28%	26%	29%	-2%	-4%	0%	2%	-2%	2%
Steelhead	Rearing	Feather	Gridley Bridge	All	April	56	BDCP 2013	85%	85%	85%	85%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Spawning	Feather	Gridley Bridge	All	May	64	BDCP 2013	65%	56%	57%	64%	-9%	-7%	-1%	9%	1%	7%
Green Sturgeon	Spawning	Feather	Gridley Bridge	All	June	64	BDCP 2013	97%	97%	97%	97%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Spawning	Feather	Gridley Bridge	All	July	64	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Spawning	Feather	Gridley Bridge	All	August	64	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Spawning	Feather	Gridley Bridge	All	September	64	BDCP 2013	48%	83%	81%	49%	35%	33%	2%	-35%	-2%	-33%
Green Sturgeon	Egg incubation	Feather	Gridley Bridge	All	May	64	BDCP 2013	65%	56%	57%	64%	-9%	-7%	-1%	9%	1%	7%
Green Sturgeon	Egg incubation	Feather	Gridley Bridge	All	June	64	BDCP 2013	97%	97%	97%	97%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Egg incubation	Feather	Gridley Bridge	All	July	64	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Egg incubation	Feather	Gridley Bridge	All	August	64	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Egg incubation	Feather	Gridley Bridge	All	September	64	BDCP 2013	48%	83%	81%	49%	35%	33%	2%	-35%	-2%	-33%
Green Sturgeon	Rearing	Feather	Gridley Bridge	All	May	64	BDCP 2013	65%	56%	57%	64%	-9%	-7%	-1%	9%	1%	7%
Green Sturgeon	Rearing	Feather	Gridley Bridge	All	June	64	BDCP 2013	97%	97%	97%	97%	0%	0%	0%	0%	0%	0%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Green Sturgeon	Rearing	Feather	Gridley Bridge	All	July	64	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Rearing	Feather	Gridley Bridge	All	August	64	BDCP 2013	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Green Sturgeon	Rearing	Feather	Gridley Bridge	All	September	64	BDCP 2013	48%	83%	81%	49%	35%	33%	2%	-35%	-2%	-33%
Juvenile steelhead	Rearing	American	Watt Ave Bridge	All	May	65	BDCP 2013	31%	31%	33%	32%	0%	2%	0%	0%	2%	0%
Juvenile steelhead	Rearing	American	Watt Ave Bridge	All	June	65	BDCP 2013	56%	57%	55%	56%	1%	0%	0%	-1%	-1%	-1%
Juvenile steelhead	Rearing	American	Watt Ave Bridge	All	July	65	BDCP 2013	99%	99%	99%	99%	0%	0%	0%	0%	0%	0%
Juvenile steelhead	Rearing	American	Watt Ave Bridge	All	August	65	BDCP 2013	93%	93%	93%	94%	-1%	0%	0%	1%	1%	1%
Juvenile steelhead	Rearing	American	Watt Ave Bridge	All	September	65	BDCP 2013	89%	96%	96%	90%	7%	7%	1%	-7%	0%	-6%
Juvenile steelhead	Rearing	American	Watt Ave Bridge	All	October	65	BDCP 2013	28%	28%	30%	28%	0%	2%	0%	0%	3%	0%
Steelhead	Adult Migration	Stanislaus	Orange Blossom Bridge	All	October	56	NMFS BiOp 2009	57%	85%	87%	58%	28%	31%	2%	-28%	2%	-27%
Steelhead	Adult Migration	Stanislaus	Orange Blossom Bridge	All	November	56	NMFS BiOp 2009	33%	28%	24%	36%	-5%	-9%	3%	5%	-4%	8%
Steelhead	Adult Migration	Stanislaus	Orange Blossom Bridge	All	December	56	NMFS BiOp 2009	0%	0%	0%	3%	0%	0%	3%	0%	0%	3%
Steelhead	Smoltification	Stanislaus	Knights Ferry (*Used Below Goodwin Dam)	All	January	52	NMFS BiOp 2009	0%	2%	2%	2%	2%	2%	2%	-2%	0%	0%
Steelhead	Smoltification	Stanislaus	Knights Ferry (*Used Below Goodwin Dam)	All	February	52	NMFS BiOp 2009	0%	2%	2%	0%	2%	2%	0%	-2%	0%	-2%
Steelhead	Smoltification	Stanislaus	Knights Ferry (*Used Below Goodwin Dam)	All	March	52	NMFS BiOp 2009	8%	9%	12%	8%	1%	4%	0%	-1%	3%	-1%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Steelhead	Smoltification	Stanislaus	Knights Ferry (*Used Below Goodwin Dam)	All	April	52	NMFS BiOp 2009	33%	31%	30%	37%	-2%	-2%	5%	2%	-1%	6%
Steelhead	Smoltification	Stanislaus	Knights Ferry (*Used Below Goodwin Dam)	All	May	52	NMFS BiOp 2009	63%	66%	63%	68%	3%	0%	5%	-3%	-3%	2%
Steelhead	Smoltification	Stanislaus	Orange Blossom Bridge	All	January	57	NMFS BiOp 2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Smoltification	Stanislaus	Orange Blossom Bridge	All	February	57	NMFS BiOp 2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Smoltification	Stanislaus	Orange Blossom Bridge	All	March	57	NMFS BiOp 2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Smoltification	Stanislaus	Orange Blossom Bridge	All	April	57	NMFS BiOp 2009	2%	8%	3%	0%	6%	1%	-2%	-6%	-4%	-8%
Steelhead	Smoltification	Stanislaus	Orange Blossom Bridge	All	May	57	NMFS BiOp 2009	18%	10%	17%	8%	-8%	-1%	-11%	8%	7%	-3%
Steelhead	Spawning	Stanislaus	Orange Blossom Bridge	All	January	55	NMFS BiOp 2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Steelhead	Spawning	Stanislaus	Orange Blossom Bridge	All	February	55	NMFS BiOp 2009	0%	0%	1%	0%	0%	1%	0%	0%	1%	0%
Steelhead	Spawning	Stanislaus	Orange Blossom Bridge	All	March	55	NMFS BiOp 2009	21%	16%	25%	21%	-5%	3%	-1%	5%	8%	4%
Steelhead	Spawning	Stanislaus	Orange Blossom Bridge	All	April	55	NMFS BiOp 2009	16%	34%	17%	7%	17%	1%	-9%	-17%	-16%	-26%
Steelhead	Spawning	Stanislaus	Orange Blossom Bridge	All	May	55	NMFS BiOp 2009	49%	43%	53%	40%	-5%	4%	-8%	5%	10%	-3%
Steelhead	Rearing	Stanislaus	Orange Blossom Bridge	All	June	65	NMFS BiOp 2009	6%	2%	4%	6%	-3%	-1%	0%	3%	2%	3%
Steelhead	Rearing	Stanislaus	Orange Blossom Bridge	All	July	65	NMFS BiOp 2009	16%	16%	19%	21%	-1%	3%	5%	1%	4%	6%

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Species	Lifestage	River	Reach	Water Year Type	Month	Temperature Objective (Degree F)	Temperature Objective Reference ¹	No Action Alternative	Second Basis of Comparison (Alternative 1)	Alternative 3	Alternative 5	Alternative 1 minus No Action Alternative	Alternative 3 minus No Action Alternative	Alternative 5 minus No Action Alternative	No Action Alternative minus Second Basis of Comparison	Alternative 3 minus Second Basis of Comparison	Alternative 5 minus Second Basis of Comparison
Steelhead	Rearing	Stanislaus	Orange Blossom Bridge	All	August	65	NMFS BiOp 2009	15%	13%	9%	21%	-2%	-6%	6%	2%	-4%	8%
Steelhead	Rearing	Stanislaus	Orange Blossom Bridge	All	September	65	NMFS BiOp 2009	11%	10%	7%	18%	0%	-4%	8%	0%	-3%	8%
Steelhead	Rearing	Stanislaus	Orange Blossom Bridge	All	October	65	NMFS BiOp 2009	7%	8%	4%	11%	1%	-3%	4%	-1%	-4%	3%
Steelhead	Rearing	Stanislaus	Orange Blossom Bridge	All	November	65	NMFS BiOp 2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

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