USBR WTMP Summary Report

Study: WTMP_SacramentoTrinity

Simulation: ResSim-May2024Fcst

Simulation Date: October 08, 2025 11:18

Report Date: October 08, 2025

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Introduction

This report presents an overview of temperature model results for the following conditions.

Project: WTMP_SacramentoTrinity

Simulation: ResSim-May2024Fcst

Analysis Period: 15 May 2024, 00:00 to 30 November 2024, 24:00

Models:

      Study Summary: ResSim

      Summary of Models: ResSim

      Iterations: ResSim

Simulation Date: October 08, 2025 11:18

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Study Summary

Study: WTMP_SacramentoTrinity
Upper Sacramento River models include Shasta Lake and Keswick Reservoir on the Sacramento River, Whiskeytown Lake on Clear Creek, Sacramento River from Keswick Dam to above Clear Creek, Trinity Lake and Lewiston Reservoir on the Trinity River and Trinity River from Lewiston Dam to Helena, California. Models also include interbasin transfers from Lewiston Reservoir to Whiskeytown Lake (Clear Creek Tunnel) and Whiskeytown Lake to Keswick Reservoir (Spring Creek Tunnel).
Simulation Group: May2024Fcst
May 2024 Forecast Simulation Group
WatAlternative: ResSim

Analysis Period: May2024Fcst (15 May 2024, 00:00 - 30 November 2024, 24:00)
May 2024 Forecast Analysis Period

Summary of Models

Iteration Summary

Iteration and member number are used interchangeably.

Table 1. Iteration run information.

Member Number	Operations	Met Set	Temp Target
1	May90_WY2024	L3MTO_May-2024	Above Clear Creek

Shasta Lake Outflow Temperature Summary
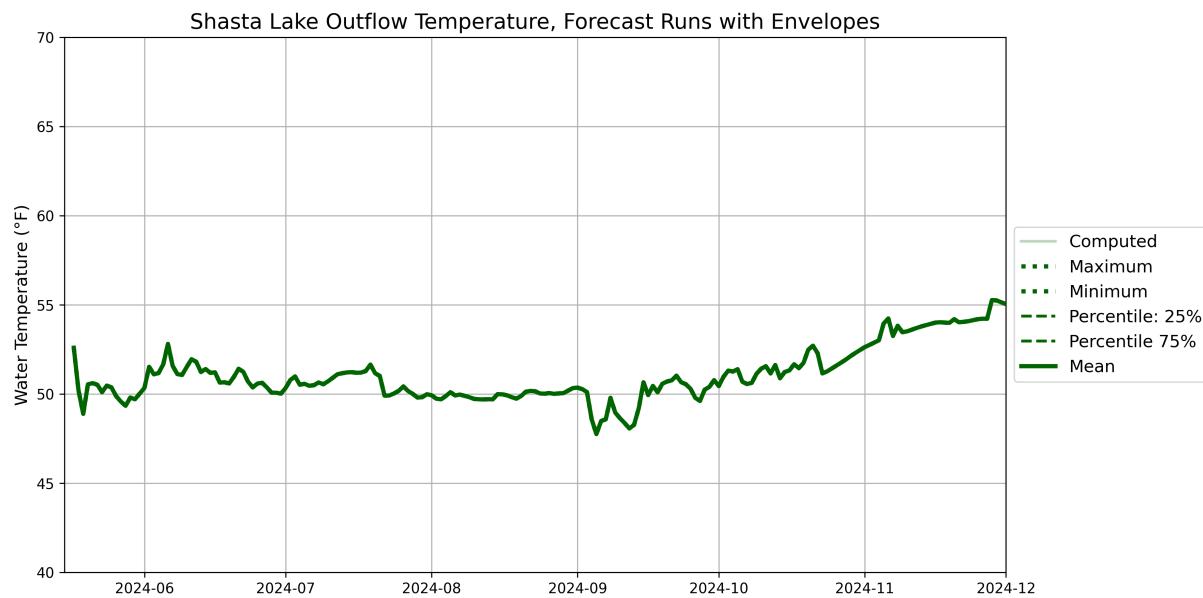
Figure 1. Shasta Lake outflow temperature, forecast runs (variable input) with percentile envelopes computed. ResSim.
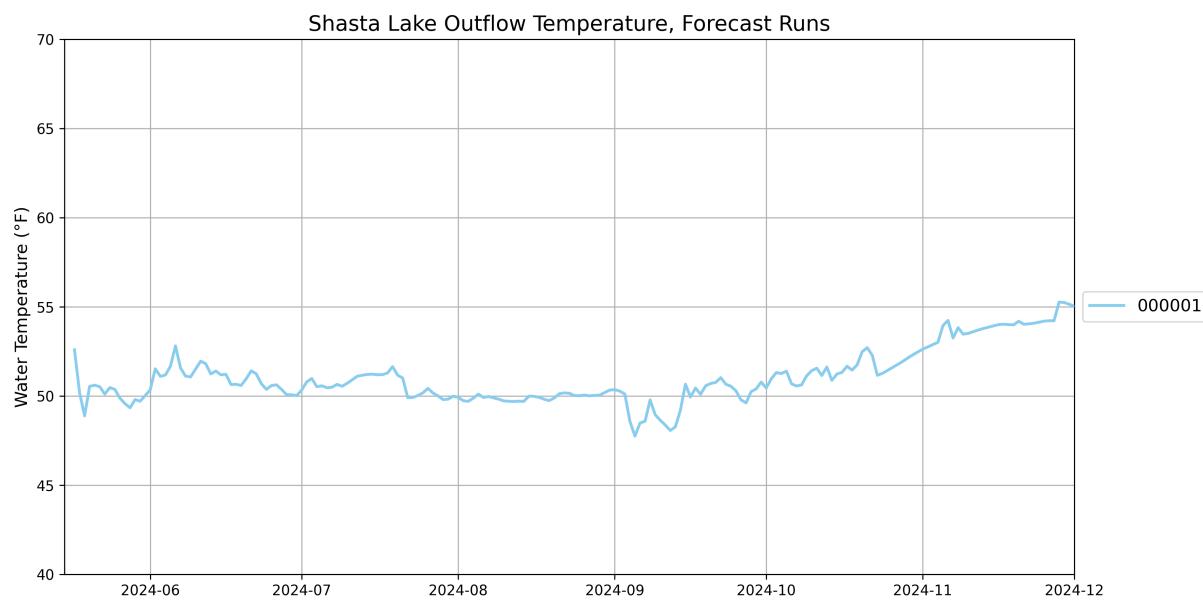
Figure 2. Shasta Lake outflow temperature, forecast runs (variable input), by iteration. ResSim.

Table 2. Shasta Lake outflow temperature, iteration statistical summary, May - Nov 2024 (°F). ResSim.

Iteration	Maximum	Mean	Minimum
000001	55.3	51.1	47.8

Keswick Reservoir Outflow Temperature Summary
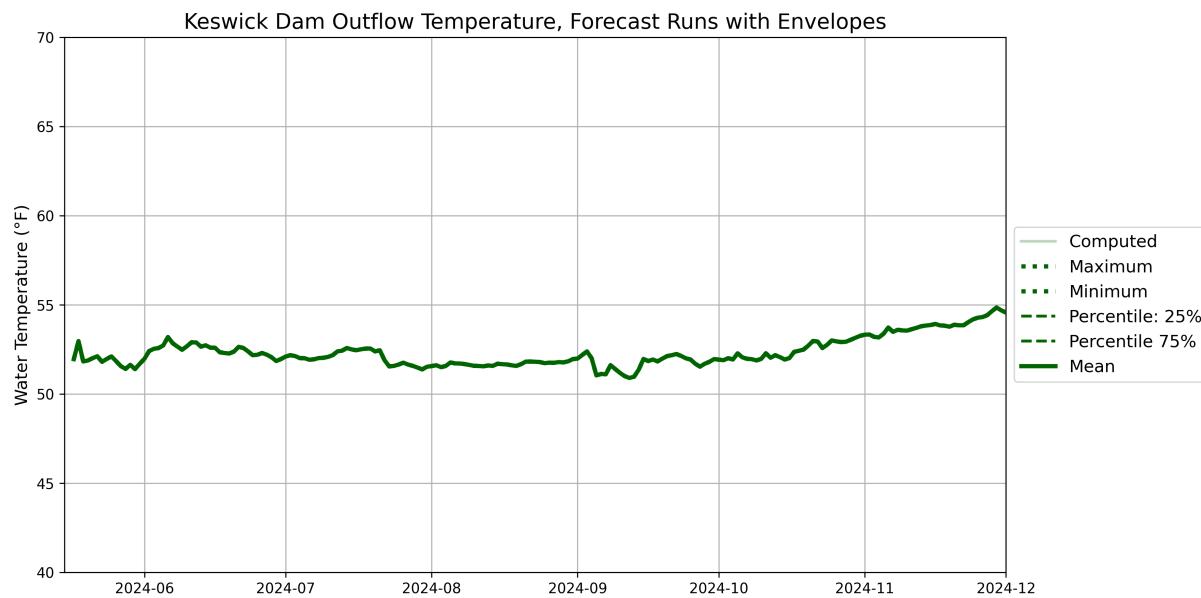
Figure 3. Keswick Dam outflow temperature, forecast runs (variable input) with percentile envelopes computed. ResSim.
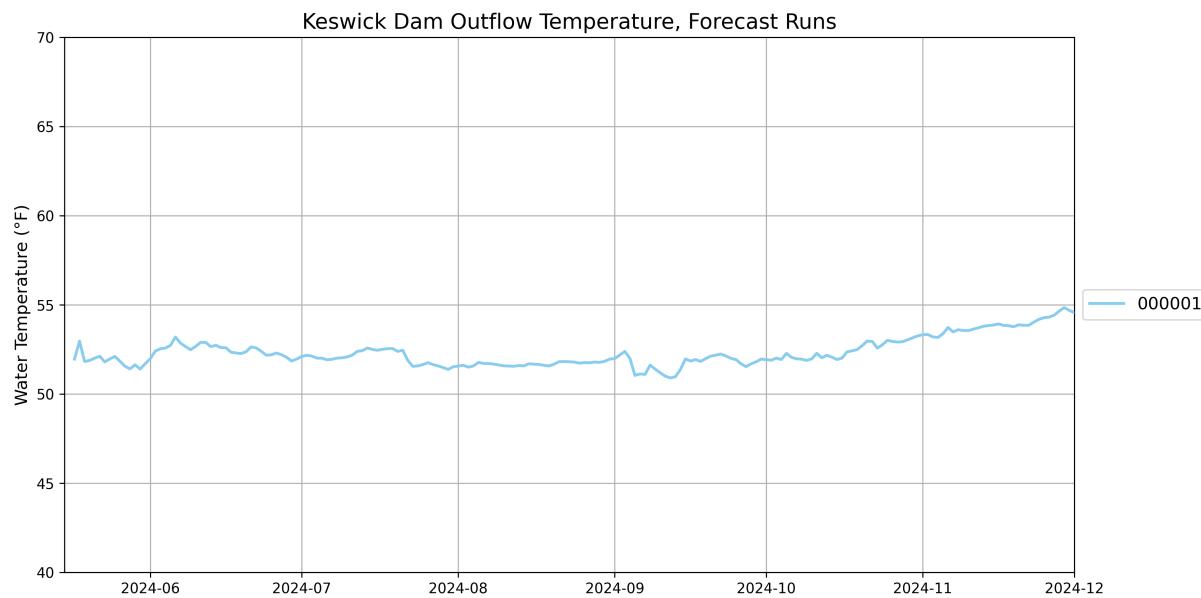
Figure 4. Keswick Dam outflow temperature, forecast runs (variable input), by iteration. ResSim.

Table 3. Keswick Dam outflow temperature, iteration statistical summary, May - Nov 2024 (°F). ResSim.

Iteration	Maximum	Mean	Minimum
000001	54.8	52.3	50.9

Sacramento River above Clear Creek (CCR) Temperature Summary
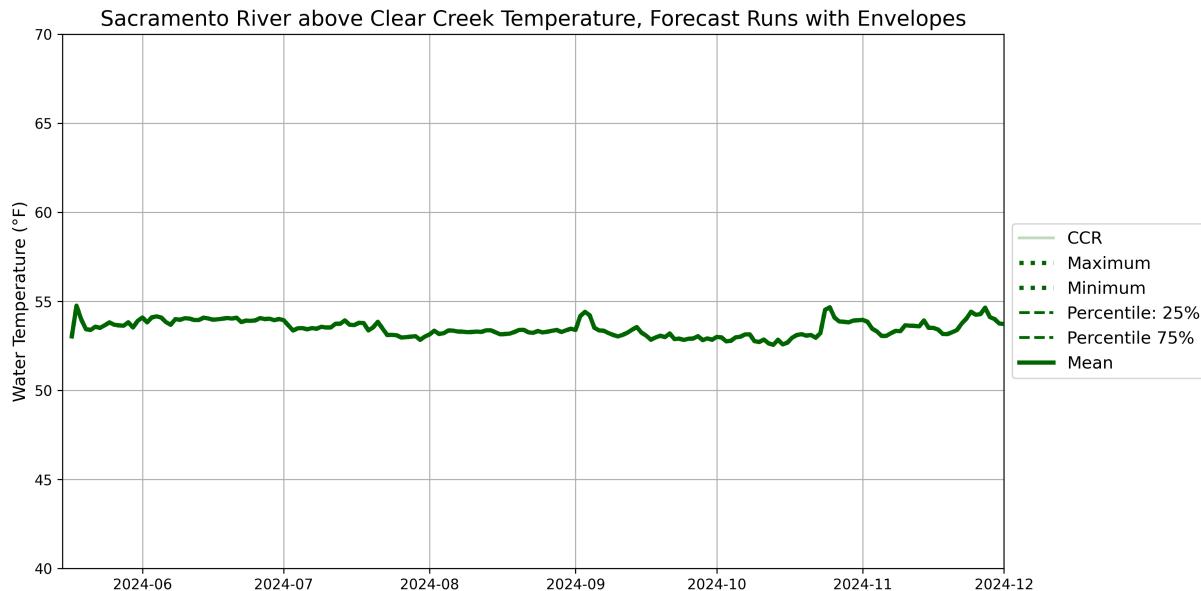
Figure 5. Sacramento River above Clear Creek (CCR) temperature, forecast runs (variable input) with percentile envelopes computed. ResSim.
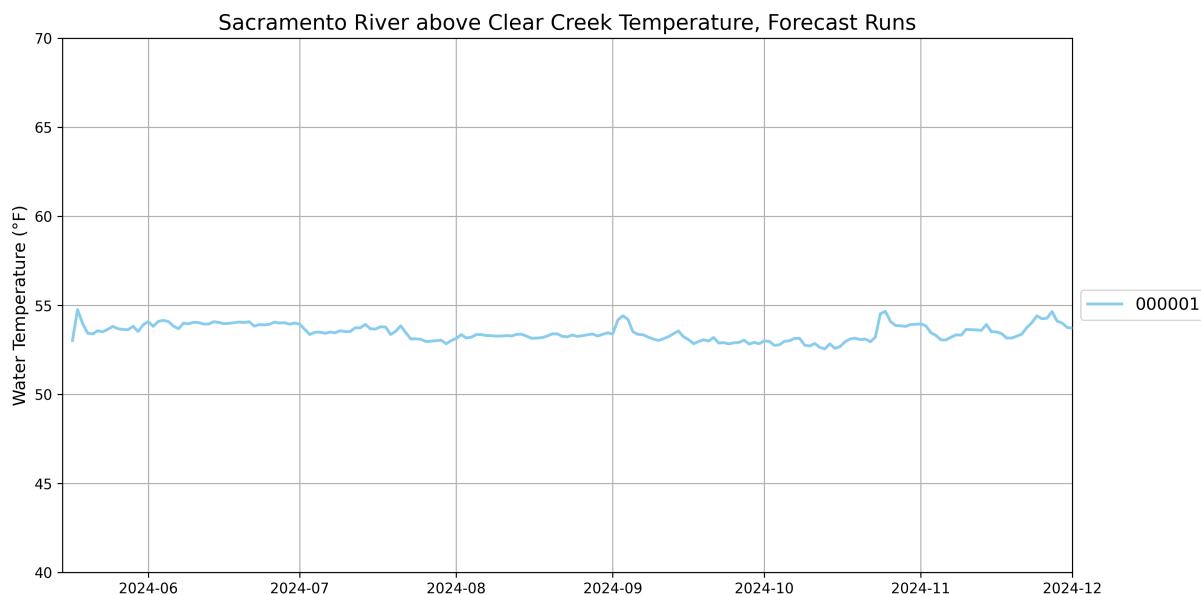
Figure 6. Sacramento River above Clear Creek temperature, forecast runs (variable input), by iteration. ResSim.

Table 4. Sacramento River above Clear Creek tempeature, iteration statistical summary, May - Nov 2024 (°F). ResSim.

Iteration	Maximum	Mean	Minimum
000001	54.8	53.5	52.6

Trinity Lake Outflow Temperature Summary
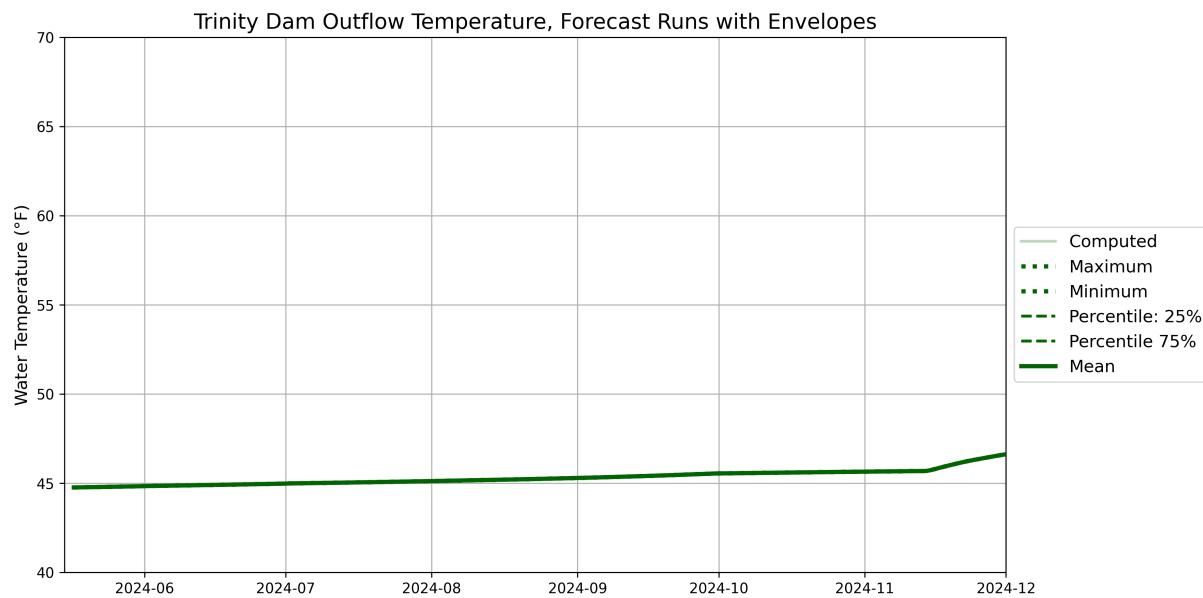
Figure 7. Trinity Dam outflow temperature, forecast runs (variable input) with percentile envelopes computed. ResSim.
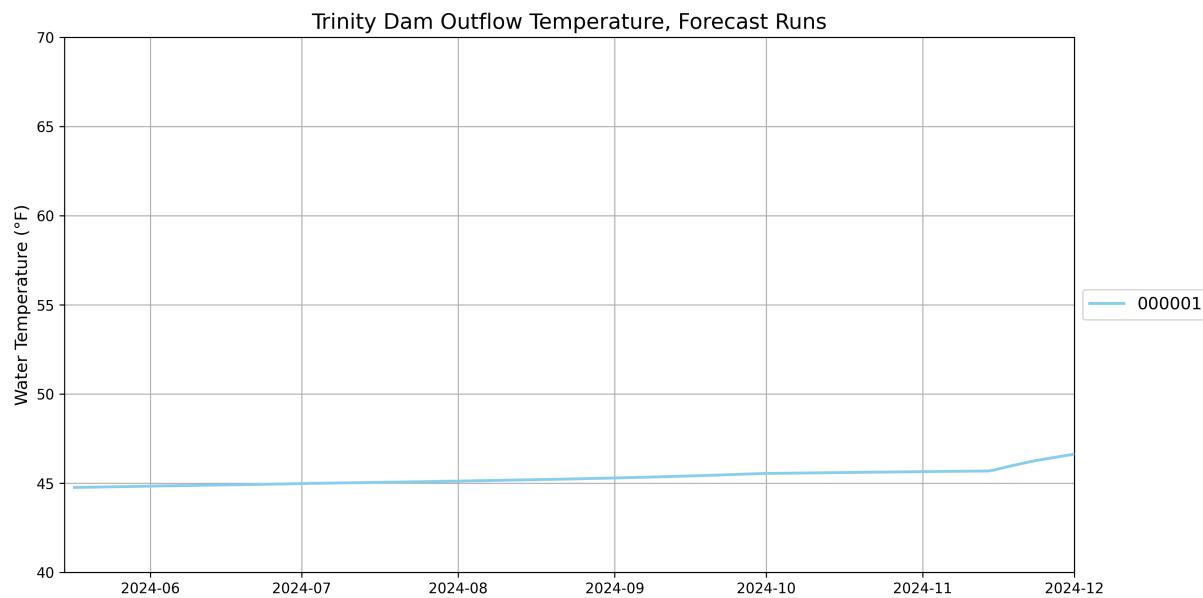
Figure 8. Trinity Dam outflow temperature, forecast runs (variable input), by iteration. ResSim.

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Table 5. Trinity Dam outflow temperature, iteration statistical summary, May - Nov 2024 (°F). ResSim.

Iteration	Maximum	Mean	Minimum
000001	46.6	45.3	44.8

Lewiston Lake Outflow Temperature Summary
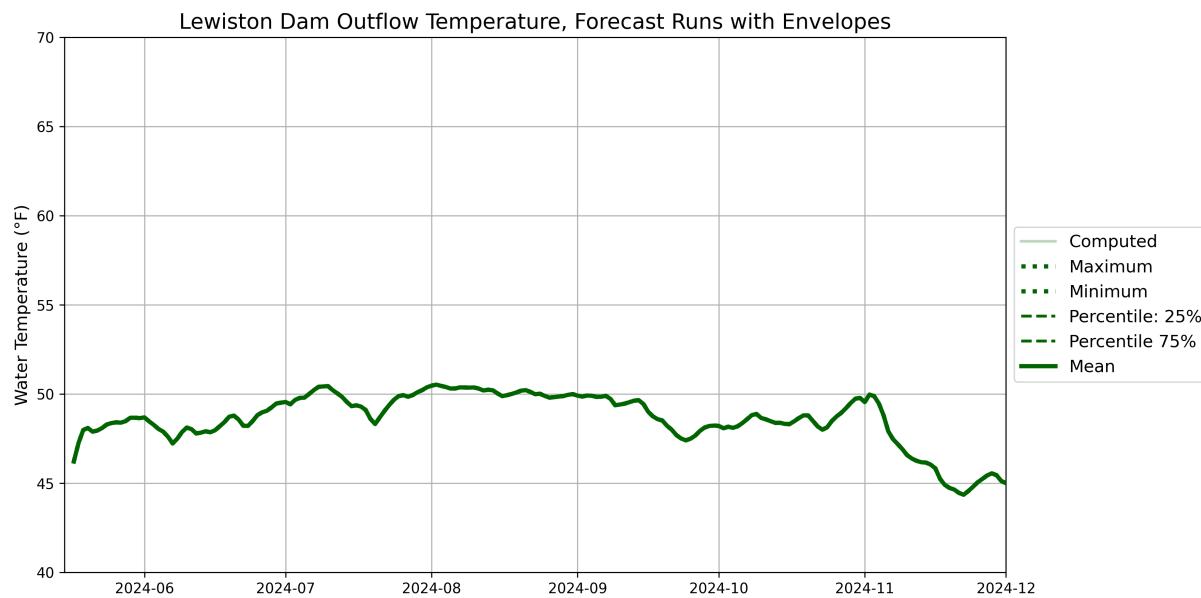
**Figure 9. Lewiston Dam outflow temperature, forecast runs (variable input) with percentile envelopes computed. ResSim.**
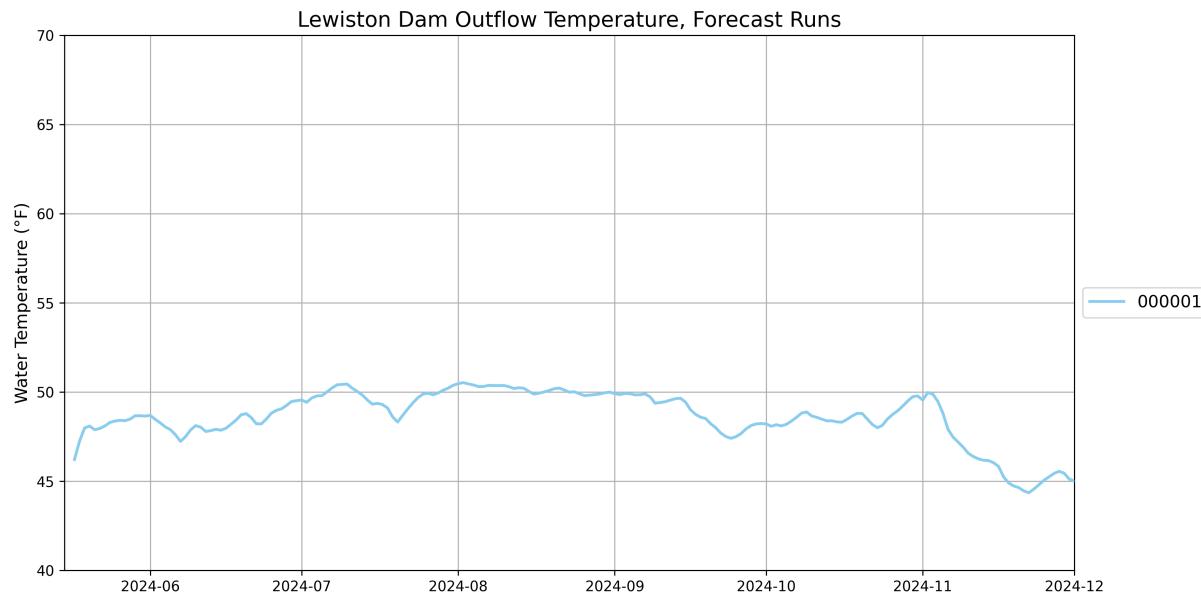

Figure 10. Lewiston Dam outflow temperature, forecast runs (variable input), by iteration. ResSim.

Table 6. Lewiston Dam outflow temperature, iteration statistical summary, May - Nov 2024 (°F). ResSim.

Iteration	Maximum	Mean	Minimum
000001	50.5	48.6	44.3

# Whiskeytown Lake Outflow Temperature Summary
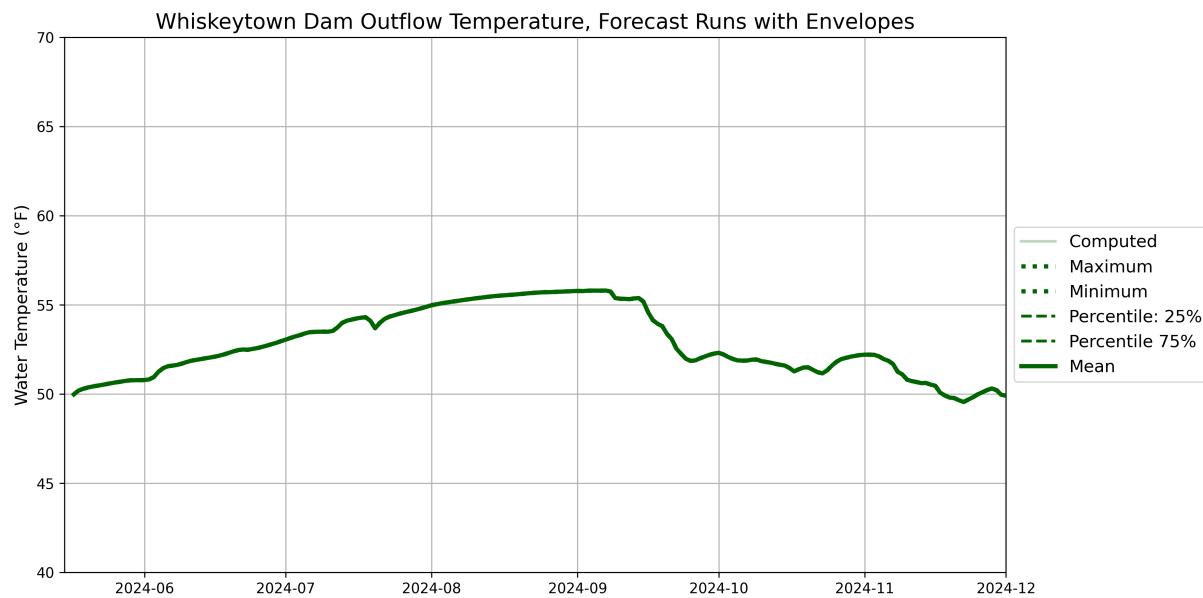
Figure 11. Whiskeytown Dam outflow temperature, forecast runs (variable input) with percentile envelopes computed. ResSim.
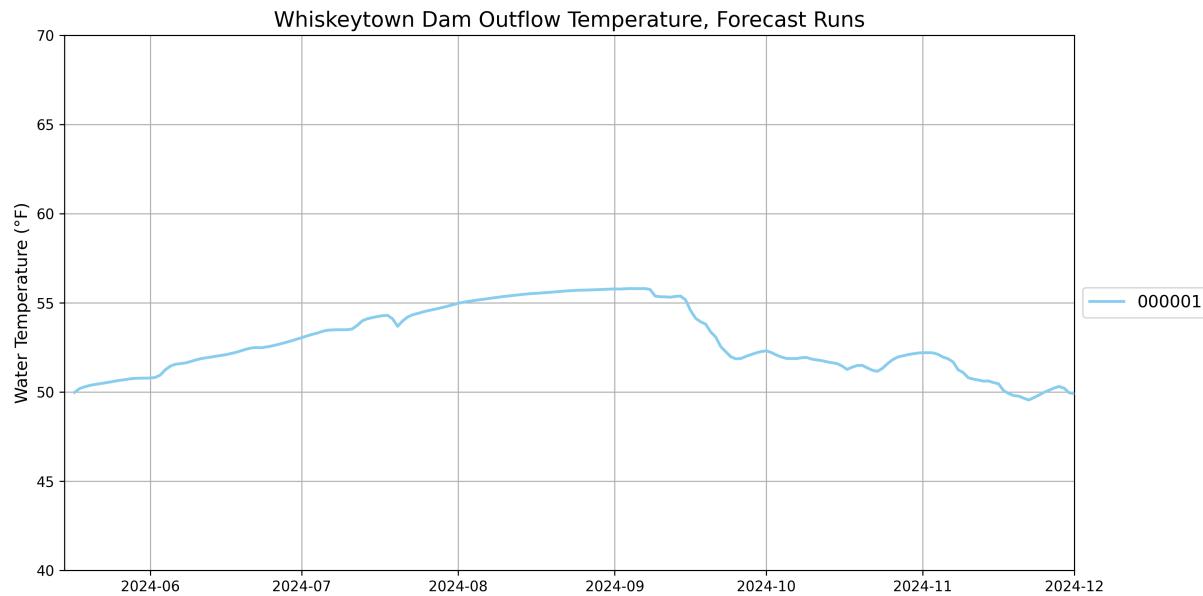

Figure 12. Whiskeytown Dam outflow temperature, forecast runs (variable input), by iteration. ResSim.

Table 7. Whiskeytown Dam outflow temperature iteration statistical summary, May - Nov 2024 (°F). ResSim.

Iteration	Maximum	Mean	Minimum
000001	55.8	52.8	49.6

Iterations

Table 8. Iteration 000001 run information.

Member Number	Operations	Met Set	Temp Target
1	May90_WY2024	L3MTO_May-2024	Above Clear Creek

Iteration 000001: Sacramento River System Flow

Sacramento River system results are presented as outflow from Shasta Lake and Keswick Reservoir and flow in the Sacramento River above Clear Creek (CCR).
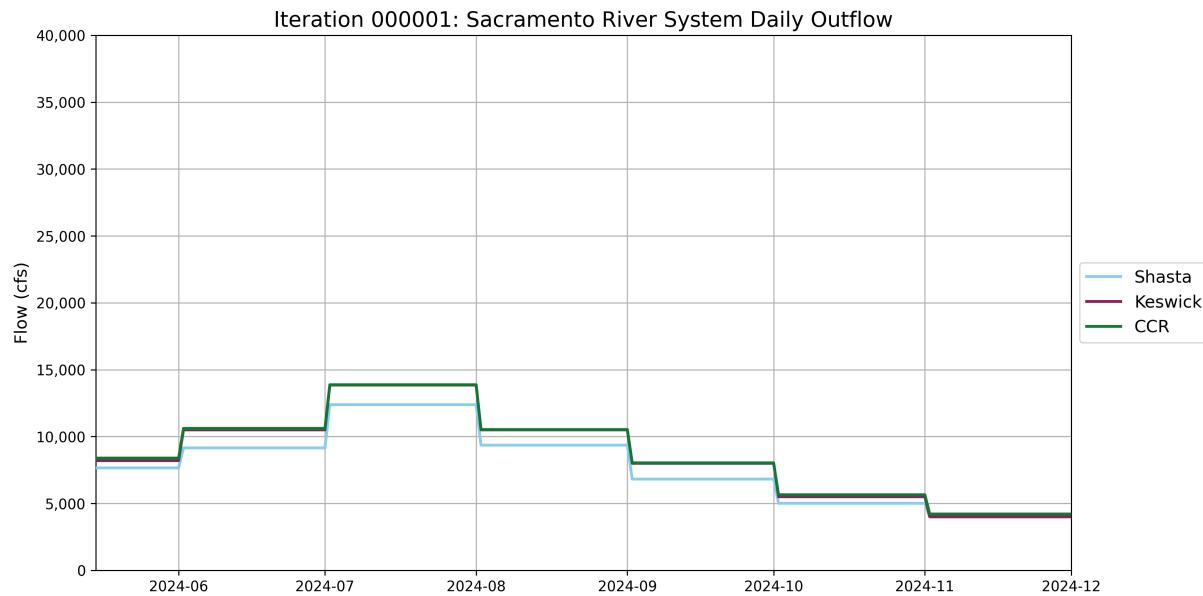
Figure 13. Iteration 000001: Sacramento River system daily flow, forecast 2024. ResSim.

Table 9. Iteration 000001: Sacramento River system daily flow statistical summary, May - Nov 2024 (cfs). ResSim.

Location	Maximum	Mean	Minimum
Shasta	12,383	7,793	3,999
Keswick	13,850	8,696	4,000
CCR	13,875	8,798	4,211

Table 10. Iteration 000001: Sacramento River system monthly average flow, 2024 (cfs). ResSim.

Month	Shasta (cfs)	Keswick (cfs)	CCR (cfs)
Apr	nan	nan	nan
May	7,657	8,200	8,391
Jun	9,103	10,423	10,539
Jul	12,279	13,742	13,770
Aug	9,457	10,608	10,634
Sep	6,906	8,083	8,119
Oct	5,069	5,581	5,728

Iteration 000001: Trinity River System Flow

Trinity River system results are presented as outflow from Lewiston Lake and flow in the Trinity River at Limekiln Gulch, Douglas City, and Helena.
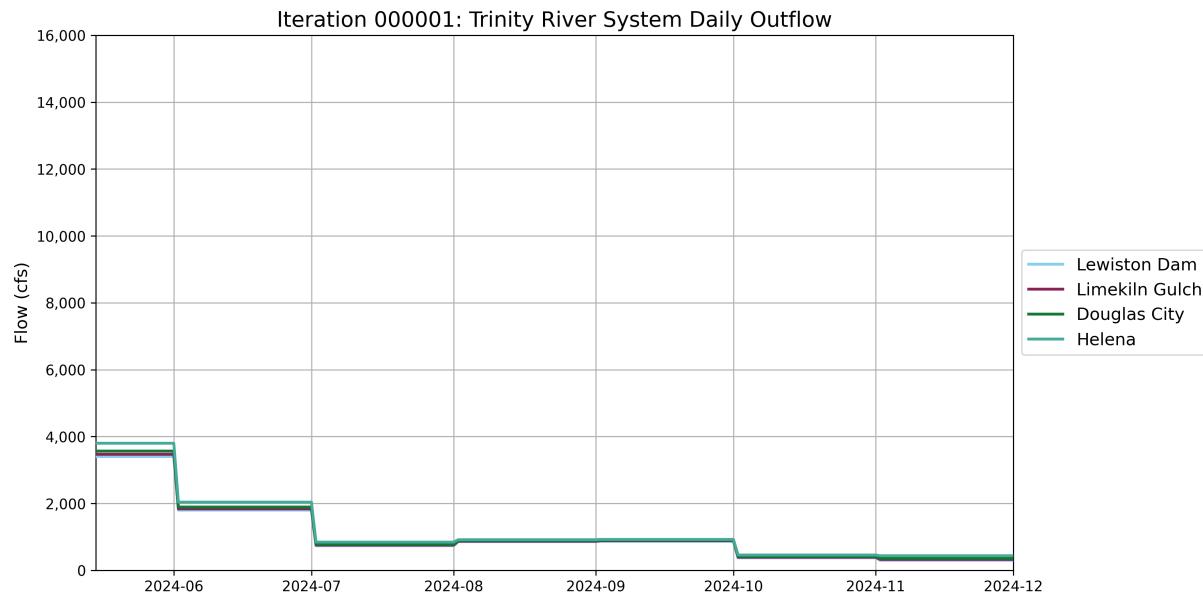
Figure 14. Iteration 000001: Trinity River system daily outflow, forecast 2024. ResSim.

Table 11. Iteration 000001: Trinity River system daily flow statistical summary, May - Nov 2024 (cfs). ResSim.

Location	Maximum	Mean	Minimum
Lewiston	3,403	1,051	300
Limekiln Gulch	3,469	1,076	325
Douglas City	3,566	1,110	357
Helena	3,800	1,190	436

Table 12. Iteration 000001: Trinity River system monthly average flow, 2024 (cfs). ResSim.

Month	Lewiston Dam (cfs)	Limekiln Gulch (cfs)	Douglas City (cfs)	Helena (cfs)
Apr	nan	nan	nan	nan
May	3,403	3,469	3,566	3,800
Jun	1,853	1,893	1,948	2,098
Jul	769	788	813	882
Aug	853	867	884	914
Sep	869	883	901	924
Oct	389	407	430	473

Iteration 000001: Sacramento River System Water Temperature
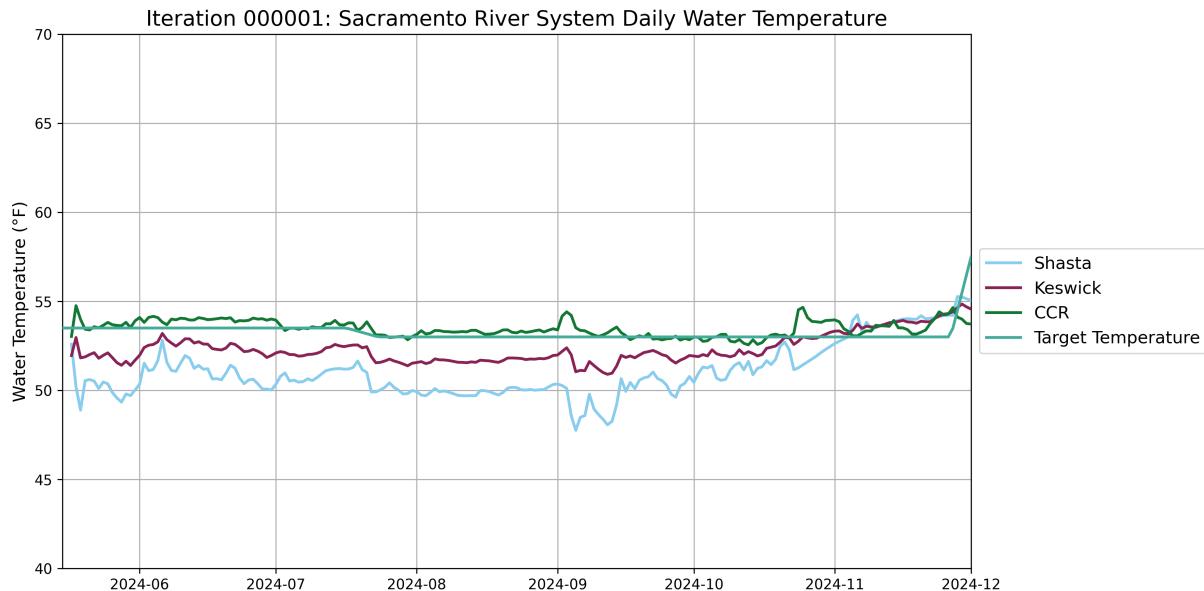

Figure 15. Iteration 000001: Sacramento River system daily water temperature, forecast 2024. ResSim.

Table 13. Iteration 000001: Sacramento River system daily water temperature statistical summary, May - Nov 2024 (°F). ResSim.

Location	Maximum	Mean	Minimum
Shasta	55.3	51.1	47.8
Keswick	54.8	52.3	50.9
CCR	54.8	53.5	52.6
Target	57.5	53.2	53.0

Table 14. Iteration 000001: Sacramento River system monthly average water temperature, 2024 (°F). ResSim.

Month	Shasta (°F)	Keswick (°F)	CCR (°F)	Target Temp (°F)
Apr	nan	nan	nan	nan
May	50.2	51.9	53.7	53.5
Jun	51.0	52.5	54.0	53.5
Jul	50.6	52.0	53.4	53.3
Aug	49.9	51.7	53.3	53.0
Sep	49.7	51.7	53.2	53.0
Oct	51.5	52.4	53.2	53.0

Iteration 000001: Trinity River System Water Temperature
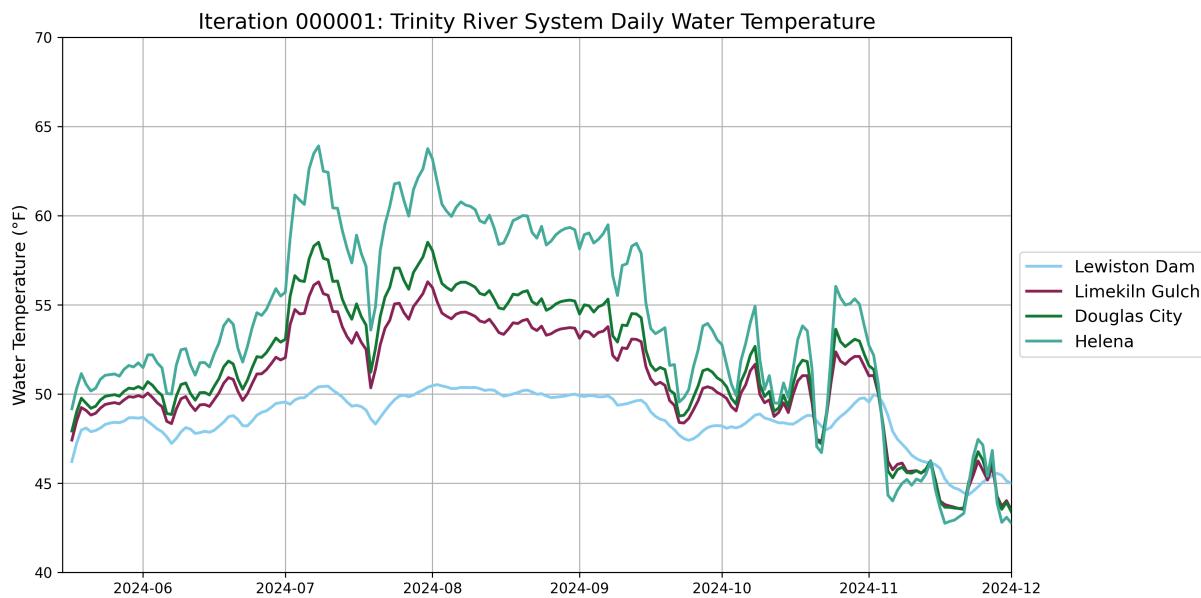
**Figure 16. Iteration 000001: Trinity River system water temperature, 2024. ResSim.**

Table 15. Iteration 000001: Trinity River system water temperature statistical summary, May - Nov 2024 (°F). ResSim.

Location	Maximum	Mean	Minimum
Lewiston	50.5	48.6	44.3
Limekiln Gulch	56.3	50.8	43.5
Douglas City	58.5	51.7	43.4
Helena	63.9	53.9	42.7

Table 16. Iteration 000001: Trinity River system monthly average water temperature, 2024 (°F). ResSim.

Month	Lewiston Dam (°F)	Limekiln Gulch (°F)	Douglas City (°F)	Helena (°F)
Apr	nan	nan	nan	nan
May	48.1	3,469	49.7	50.9
Jun	48.3	1,893	50.8	52.7
Jul	49.7	788	55.9	60.1
Aug	50.1	867	55.6	59.8
Sep	48.9	883	52.4	55.1
Oct	48.6	407	50.8	52.1