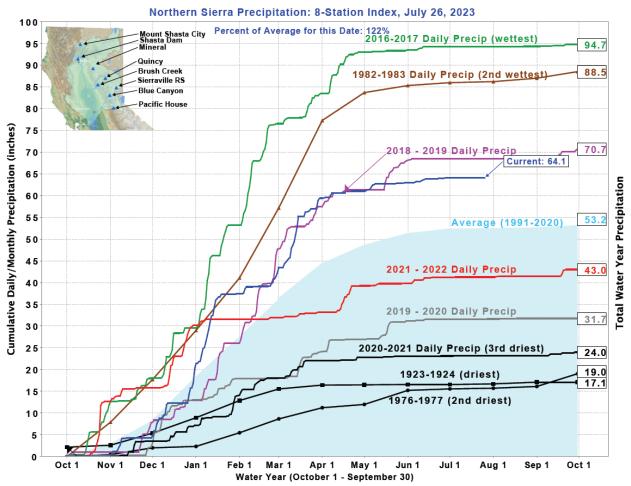


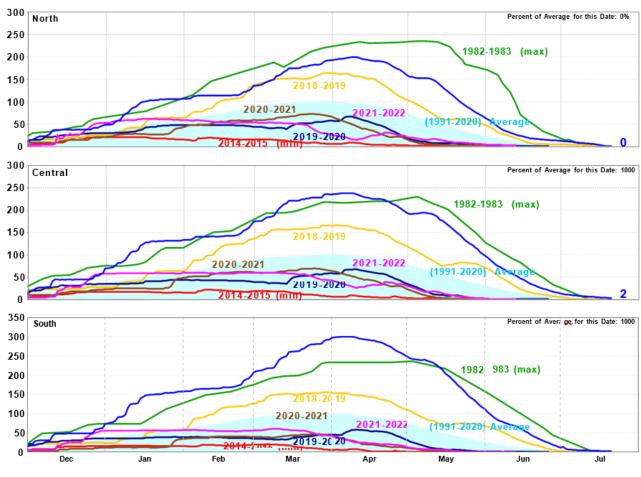
Sacramento River Temperature Task Group Meeting Packet

July 27, 2023



Northern Sierra Precipitation: 8-Station Index, April 26, 2023

This figure shows a line graph precipitation at the Northern Sierra 8-station Index. The graph includes the current cumulative daily and monthly precipitation, 61.0 (127% average for this date), in inches, average for 1991-2020 (53.2), daily precipitation for 2016-2017 (94.7 wettest), 1982-1983 (88.5 2nd wettest), 2018-2019 (70.7), 2021-2022 (43.0), 2019-2020 (31.7), 2020-2021 (24.0 3rd driest), 1976-1977 (19.0 2nd driest), and 1923-1924 (17.1 driest).



Statewide Percent of Average for Date: 250%

California Snow Water Content, April 26, 2023, Percent of April 1 Average

This figure shows three line graphs of percent snow water content for North, Central, and Southern California December – July. The graph shows 178%, 214%, and 264% of current April 1 average for North, Central, and Southern California, respectively. The graph also shows 1991-2020 average, 1982-1983 (max), 2014-2015 (minimum), 2018-2019, 2019-2020, 2020-2021, and 2021-2022.

Statewide Percent of April 1: 1%

Sacramento River Station Temperature Summary Report

Date	MDWT TCD ¹			MDWT KWK	-						MDWT LWS	MDWT DGC ³	MDWT NFH	Shasta Genera-	MDR Spring Creek PP	Keswick			MDAT RDB
Jun	50.6	49	50.8	50.8	51.4	52.2	54.9	57.2	59.1	54.5	53.6	N/A	59.3	8173	107	9002	77.4	73.4	73.3
07/01	49.8	48.3 ^B	51	50.5	51.2	52.1	54.7	57.3	59.7 ^B	56.5	53.3	С	65.2	9275	535	9914	92	86.2	86.1
07/02	49.9	48.5 ⁸	51.2	50.4	51.1	52	54.6	57.3	59.8	56.5	53.1	С	65.7	9282	574	10409	93	86.6	86.7
07/03	49.9	48.5	51.2	50.4	51.2	52	54.5	57	59.5	56.1	53.3	С	65.2	9542	579	10397	88	83.9	83.5
07/04	50.1	48.3 ^B	51.1	50.4	51.1	52	54.5	57	59.5	56.2	53.5	С	65.7	9421	502	10380	87.5	82	80.5
07/05	50.3	48.7	51.3	50.4	51.1	52	54.4	56.9	59.4	56.3	53.2	С	66.1	9934	515	10391	84	78.4	77
07/06	50.9	49.2 ^в	51.3	С	51.4	52.3	54.7	56.9	58.8	56.2	53.2	С	66	9585	569	10390	82	77.4	76
07/07	50.4	48.9 ^B	51.4	С	51.9	52.7	55	57.2	59.3	56.1	53.5	С	65.8	9357	547	10395	81	75.9	74.3
07/08	50.4	48.7 ^в	51.4	51	51.8	52.7	55.1	С	59.7 ^в	56	53.7	С	64.9	9394	500	10493	81.5	76.4	74
07/09	50.4	49.2	51.4	50.8	51.6	52.5	54.8	С	59.5	56.1	53.9	С	65.1	9541	506	10494	77	72.9	70.8
07/10	50.5	49.4 ⁸	51.5	50.9	51.6	52.4	54.7	С	59.1	55.9	53.8	С	65	9794	509	10535	80.5	76	74.8
07/11	50.1	48.6 ^в	51.5	50.9	51.6	52.4	54.5	56.8	59.1	55.8	53.7	С	65.6	9378	560	10643	83	78.5	79.1
07/12	50.5	49.2 ^в	51.6	50.7	51.5	52.4	54.6	56.9	59.1	55.9	53.9	С	66	9370	491	10575	83	79	78.9
07/13	49.2	48 ^B	51.6	50.9	51.5	52.3	54.5	56.6	58.8	55.9	53.8	С	66.5	9498	493	10499	84.5	79.9	78.5
07/14	49.3	С	51.7	50.1	50.8	51.8	54.3	56.6	58.8 ^B	56.2	54.2	С	67.4	10053	543	10996	88.5	84.3	83
07/15	49.4	С	51.7	49.7	50.3	51.1	53.4	55.9	58.4	56.3	53.3	С	68.2	9998	701	10986	91.5	86	85.3
07/16	49.6	С	51.8	49.7	50.4	51.3	53.6	56	58.2 ^B	56.6	53	С	68.5	10005	550	10988	93.5	87.2	87.6
07/17	49.7	С	51.6	50	50.7	51.5	53.9	56.4	58.7	57.1	52.9	С	68	10374	337	10984	95	89	90.1
07/18	49.7	С	51.8	49.9	50.5	51.4	53.7	56.1	58.5	56.3	52.9	62.5	68	10300	305	10972	88.5	83	83.2
07/19	49.7	47.9 ^в	51.9	50	50.7	51.5	53.5	55.8	58	56	53.2	62.6	68.1	9682	370	10982	86	80.6	79.8
07/20	49.8	48.4 ⁸	52	50.2	50.7	51.5	53.6	55.7	57.8	55.9	53.8	62.7	67.8	10221	309	10722	86.5	81.5	82
07/21	49.6 ^B	48.2 ⁸	51.9 ^в	50.2 ^в	50.8 ^B	51.6 ^B	53.7 ^в	55.8 ^B	58 ^B	56.2 ^в	54.6	62.6 ^в	67.4 ^в	9633	563	10719	91	86.6	86
07/22	49.7	48.1 ^в	51.9	50.2	50.8	51.5	53.7	56	58.2	56.1	54.5	62.7 ^в	67.1	9915	430	10718	91	87	86.9
07/23	49.8	48.2 ^в	52.1	50	50.5	51.4	53.4	55.5	57.7 ^в	55.5	53.7	С	67.3	9684	563	10726	90	83.8	85.4

	MDWT	MDWT	MDWT	MDWT	MDWT	MDWT	MDWT	MDWT	MDWT	MDWT	MDWT	MDWT			MDR Spring Creek		MDAT	MDAT	MDAT
Date	TCD ¹	SHD	SPP ¹	KWK	SAC ²	CCR	BSF	BND	RBD	IGO	LWS	DGC ³	NFH	tion	PP	Total	RDD	BSF	RDB
07/24	50	48.4	52.1	50	50.7	51.5	53.6	55.6	57.7	56.1	53.5	С	66.4	10026	491	10725	83.5	79.5	78.1
07/25	50	48.3	52.3	50.4	51	51.7	53.7	55.7	57.9	56.2	53.4	С	66.9	9560	501	10739	84.5	79	78.8
Jul	49.9	48.5	51.6	50.3	51.1	51.9	54.2	56.4	58.8	56.2	53.6	62.6	66.5	9713	502	10631	86.7	81.6	81.1
													Total CFS	242822	12543	265772			
													Total AF	481628	24879	527148			

Legend

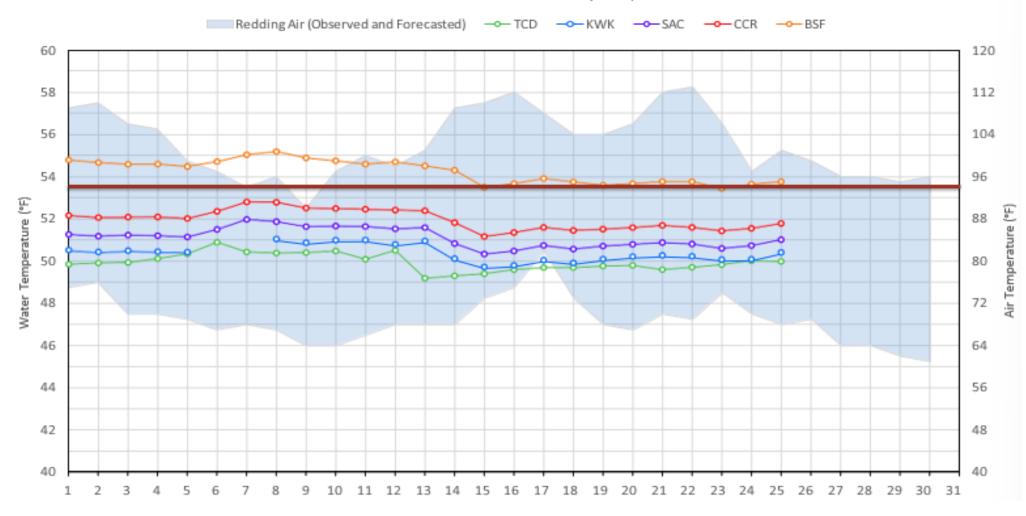
- A = 1-9 hours of data missing (Average includes estimations)
- B = 10 or more hours of data missing (Average not calculated)
- C = Station out of service
- D = Record high air temperature
- E = Record low air temperature
- MDWT = Mean Daily Water Temperature (Fahrenheit)
- MDR = Mean Daily Release (CFS)
- MDAT = Mean Daily Air Temperatures (Fahrenheit)

Notes

1 Temperatures are weighted averages based on individual penstock flow and temperature

X Highlighted cells in the TCD column indicate a TCD change was made on that day

- 2 Current Sacramento River control point (see page 4 for more details)
- 3 Data is currently being collected locally and periodically downloaded. Once downloaded and certified by USGS, missing data will be added.



Sacramento River Mean Daily Temperatures

Sacramento River Mean Daily Temperatures

This figure shows mean Sacramento River daily temperatures in degrees Fahrenheit at Shasta Power Plant and various stations 0.8, 4.8, 9.7, and 25 miles downstream of Keswick Dam for the past 25 days. It also includes a shaded area depicting observed and forecasted air temperatures in degrees Fahrenheit in Redding California.

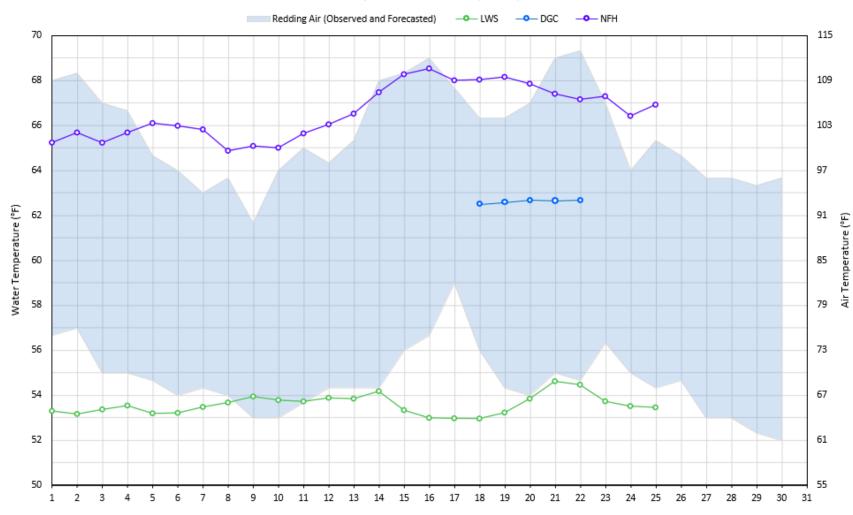
Station Details

Code	Body of Water	Location ¹
TCD	N/A	Shasta Power Plant
<u>SHD</u>	Sacramento River	0.3 miles downstream of Shasta Power Plant
SPP	N/A	Spring Creek Power Plant
<u>KWK</u>	Sacramento River	0.8 miles downstream of Keswick Dam
<u>SAC</u>	Sacramento River	4.8 miles downstream of Keswick Dam
<u>CCR</u>	Sacramento River	9.7 miles downstream of Keswick Dam
<u>BSF</u>	Sacramento River	25 miles downstream of Keswick Dam
JLF	Sacramento River	34 miles downstream of Keswick Dam
BND	Sacramento River	41 miles downstream of Keswick Dam
<u>RDB</u>	Sacramento River	58 miles downstream of Keswick Dam
<u>IGO</u>	Clear Creek	7.3 miles downstream of Whiskeytown Dam

Water Right Temperature Control Points

			Begin	
River	Point	Temp (°F)	Date	End Date
Sacramento	SAC	54.5	06/07/2022	05/14/2023
Sacramento	CCR	53.5	05/14/2023	TBD

Notes: ¹ Distances are approximate



Trinity River Mean Daily Temperatures

Trinity River Mean Daily Temperatures

This figure shows mean Trinity River daily temperatures in degrees Fahrenheit at stations 1.1, 19, and 37 miles downstream of Lewiston Dam for the past 25 days. It also includes a shaded area depicting observed and forecasted air temperatures in degrees Fahrenheit in Redding California.

Station Details

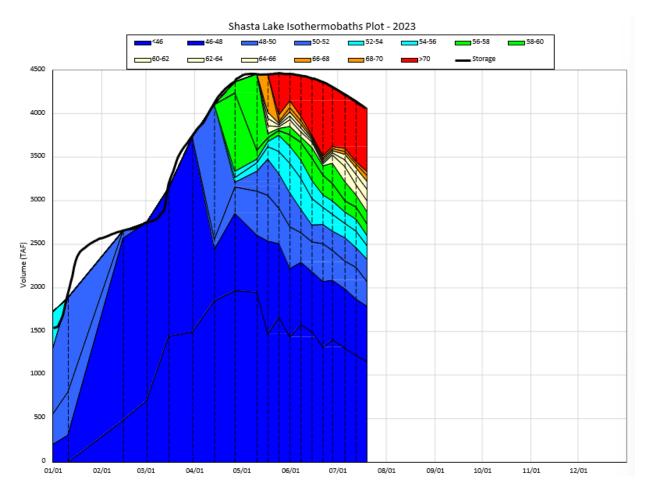
Code	Body of Water	Location ¹
<u>LWS</u>	Trinity River	1.1 miles downstream of Lewiston Dam
DGC	Trinity River	19 miles downstream of Lewiston Dam
NFH	Trinity River	38 miles downstream of Lewiston Dam

Water Right Temperature Control Points

Ri	ver	Point	Temp (°F)	Begin Date	End Date
Tri	inity	DGC ²	56	Sep-15	Oct-01
Tri	inity	NFH	56	Oct-01	Dec-31

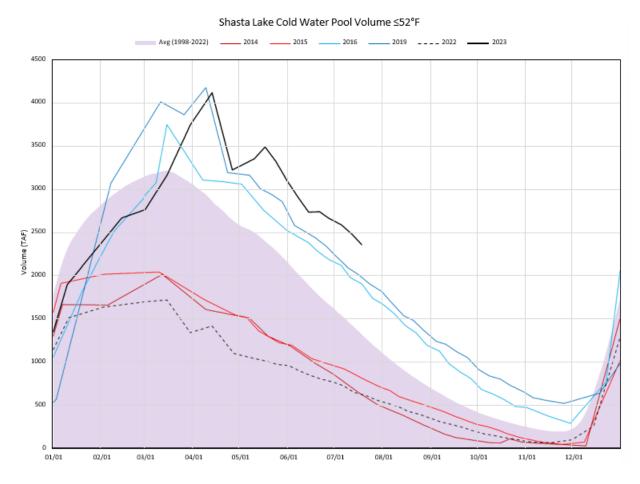
Notes: ¹ Distances are approximate

² DGC reporting incorrect water temperature from 03/14/23-07/17/23 and 07/23 – TBD due to prob being buried in fine sediment.



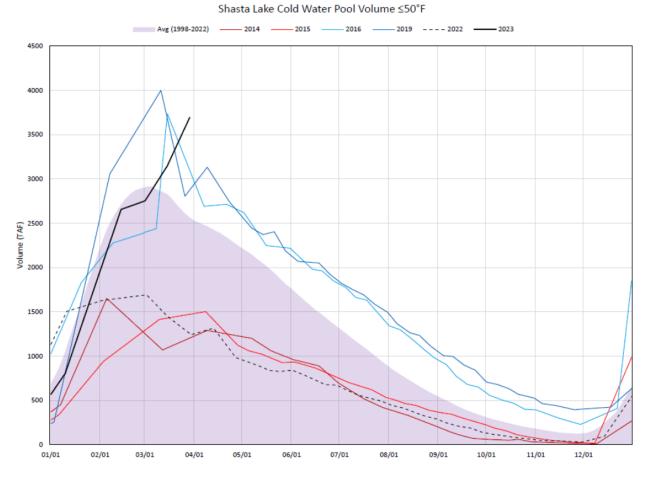
Shasta Lake Isothermobaths Plot - 2023

This figure is a chart showing Shasta Lake Isothermobaths with volume in Thousand Acre-Feet from 0-4500; with dates 01/01-12/01.



Shasta Lake Cold Water Pool Volume ≤52°F

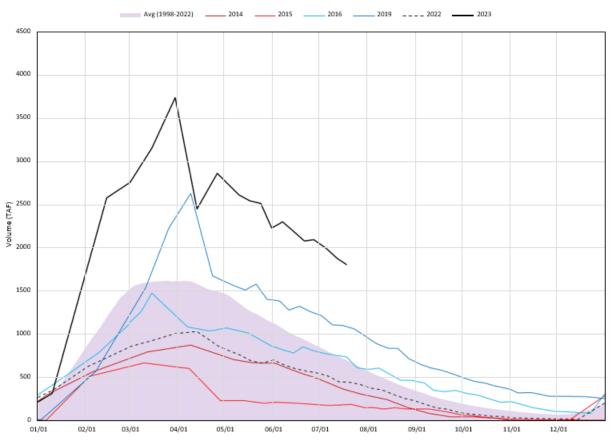
This figure is a line graph showing Shasta Lake Cold Water Pool Volume equal to or less than 52 degrees Fahrenheit from 01/01 to 12/01.



Shasta Lake Cold Water Pool Volume ≤50°F

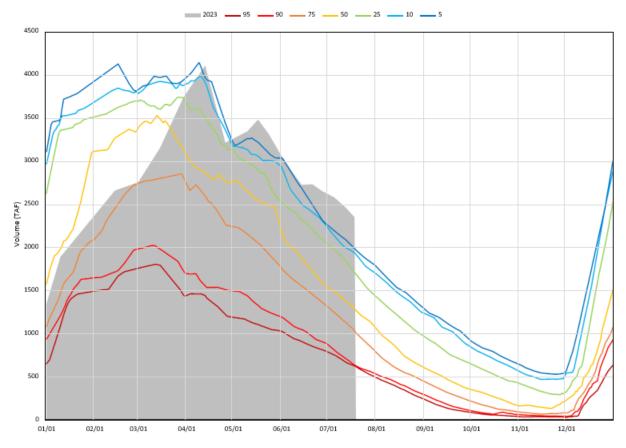
This figure is a line graph showing Shasta Lake Cold Water Pool Volume equal to or less than 50 degrees Fahrenheit from 01/01 to 12/01.

Shasta Lake Cold Water Pool Volume ≤48°F



Shasta Lake Cold Water Pool Volume ≤48°F

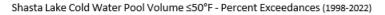
This figure is a line graph showing Shasta Lake Cold Water Pool Volume equal to or less than 48 degrees Fahrenheit from 01/01 to 12/01.

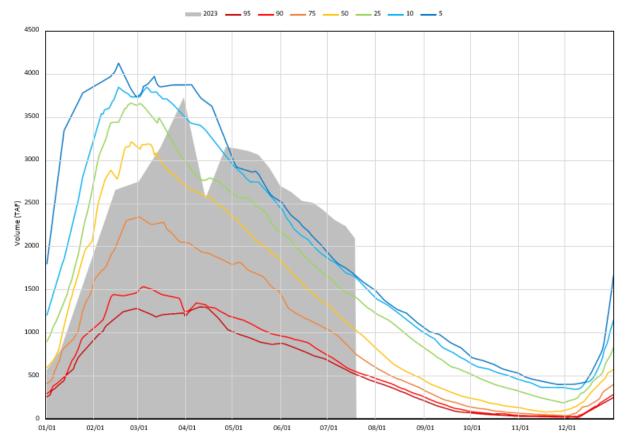


Shasta Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (1998-2022)

Shasta Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (1998-2022)

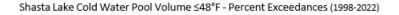
This figure is a line graph showing Shasta Lake Cold Water Pool Volume less than or equal to 52 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.

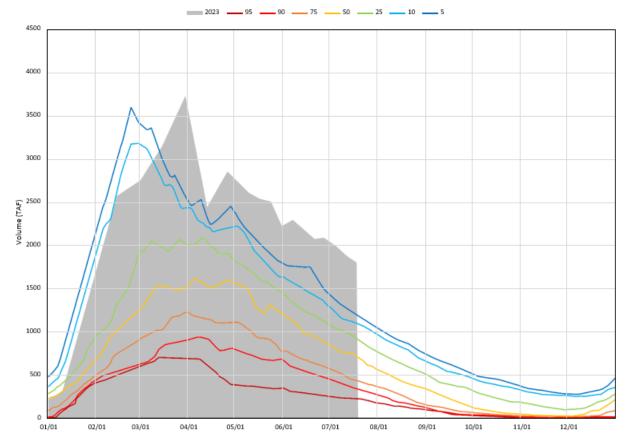




Shasta Lake Cold Water Pool Volume ≤50°F - Percent Exceedances (1998-2022)

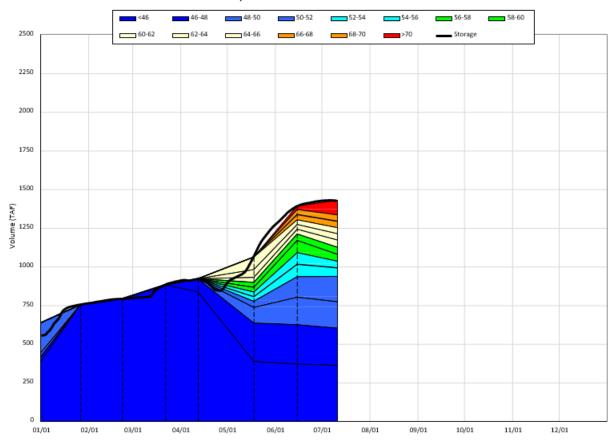
This figure is a line graph showing Shasta Lake Cold Water Pool Volume less than or equal to 50 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.





Shasta Lake Cold Water Pool Volume ≤48°F - Percent Exceedances (1998-2022)

This figure is a line graph showing Shasta Lake Cold Water Pool Volume less than or equal to 48 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.

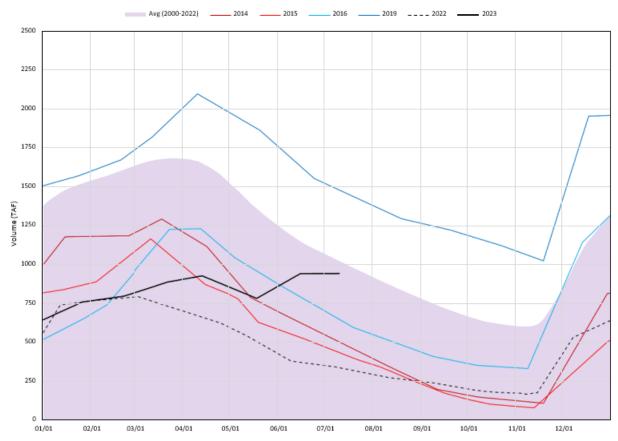


Trinity Lake Isothermobaths Plot - 2023

Trinity Lake Isothermobaths Plot - 2023

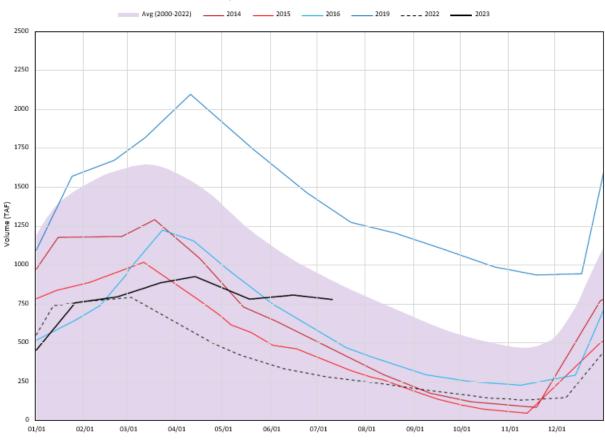
This figure is a chart showing Trinity Lake Isothermobaths with volume in Thousand Acre-Feet from 0-2500; with dates 01/01-12/01.

Trinity Lake Cold Water Pool Volume ≤52°F



Trinity Lake Cold Water Pool Volume ≤52°F

This figure is a line graph showing Trinity Lake Cold Water Pool Volume equal to or less than 52 degrees Fahrenheit from 01/01 to 12/01.

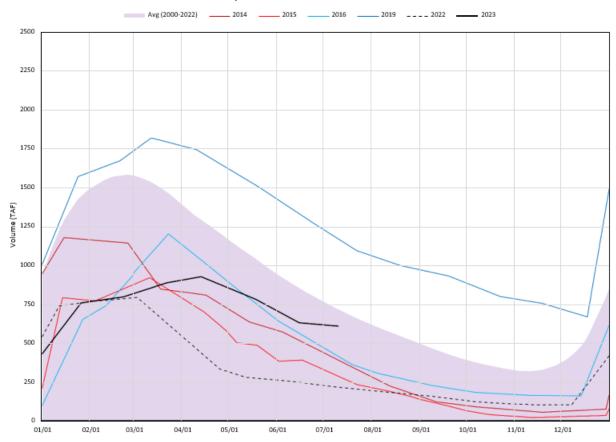


Trinity Lake Cold Water Pool Volume ≤50°F

Trinity Lake Cold Water Pool Volume ≤50°F

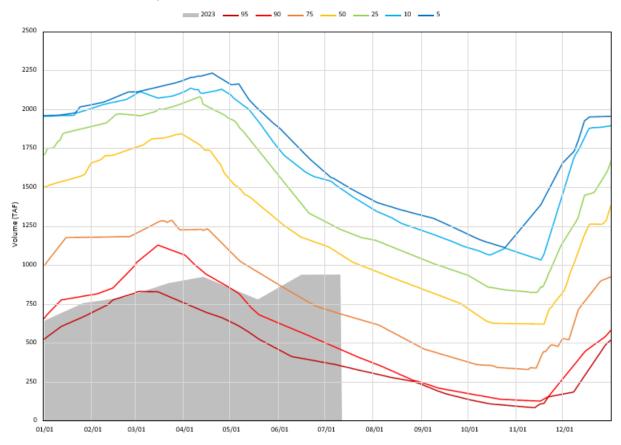
This figure is a line graph showing Trinity Lake Cold Water Pool Volume equal to or less than 50 degrees Fahrenheit from 01/01 to 12/01.

Trinity Lake Cold Water Pool Volume ≤48°F



Trinity Lake Cold Water Pool Volume ≤48°F

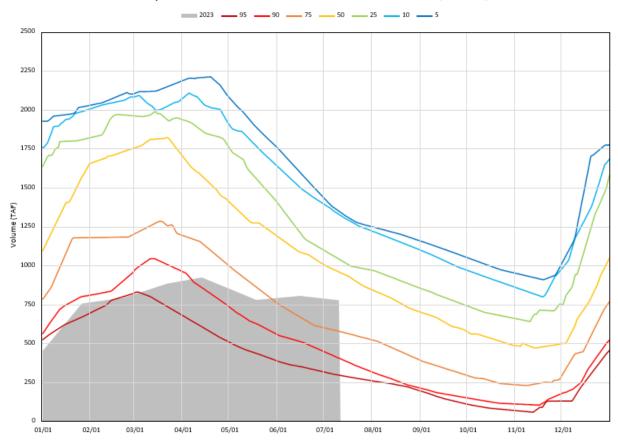
This figure is a line graph showing Trinity Lake Cold Water Pool Volume equal to or less than 48 degrees Fahrenheit from 01/01 to 12/01.



Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (2000-2022)

Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (1998-2022)

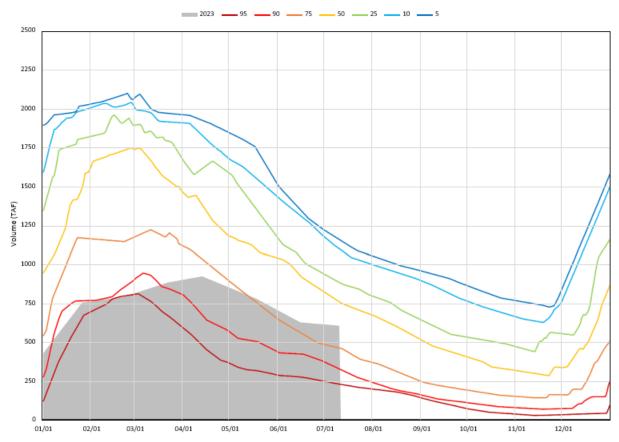
This figure is a line graph showing Trinity Lake Cold Water Pool Volume less than or equal to 52 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.



Trinity Lake Cold Water Pool Volume ≤50°F - Percent Exceedances (2000-2022)

Trinity Lake Cold Water Pool Volume ≤50°F - Percent Exceedances (1998-2022)

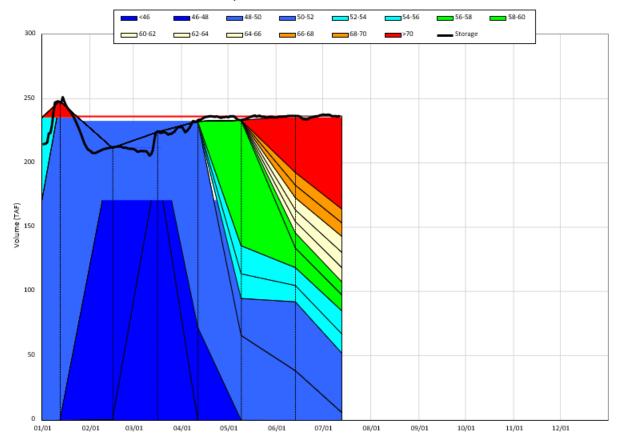
This figure is a line graph showing Trinity Lake Cold Water Pool Volume less than or equal to 50 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.



Trinity Lake Cold Water Pool Volume ≤48°F - Percent Exceedances (2000-2022)

Trinity Lake Cold Water Pool Volume ≤48°F - Percent Exceedances (1998-2022)

This figure is a line graph showing Trinity Lake Cold Water Pool Volume less than or equal to 48 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.



Whiskeytown Lake Isothermobaths Plot - 2023

Whiskeytown Lake Isothermobaths Plot - 2023

This figure is a chart showing Whiskeytown Lake Isothermobaths with volume in Thousand Acre-Feet from 0-300; with dates 01/01-12/01.

Whiskeytown Lake Cold Water Pool Volume ≤60°F



Whiskeytown Lake Cold Water Pool Volume ≤60°F

This figure is a line graph showing Whiskeytown Lake Cold Water Pool Volume equal to or less than 60 degrees Fahrenheit from 01/01 to 12/01.

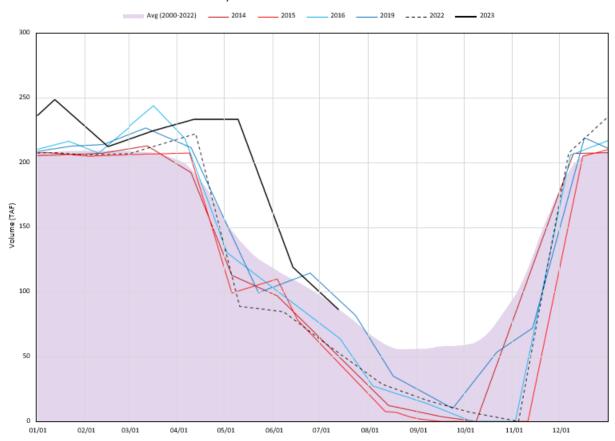
Whiskeytown Lake Cold Water Pool Volume ≤58°F



Whiskeytown Lake Cold Water Pool Volume ≤58°F

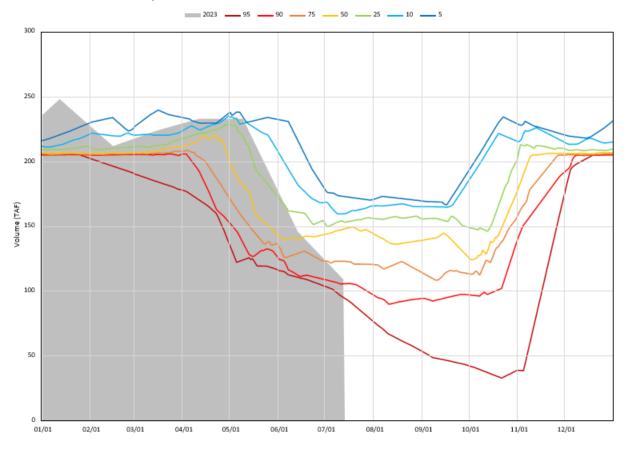
This figure is a line graph showing Whiskeytown Lake Cold Water Pool Volume equal to or less than 58 degrees Fahrenheit from 01/01 to 12/01.

Whiskeytown Lake Cold Water Pool Volume ≤56°F



Whiskeytown Lake Cold Water Pool Volume ≤56°F

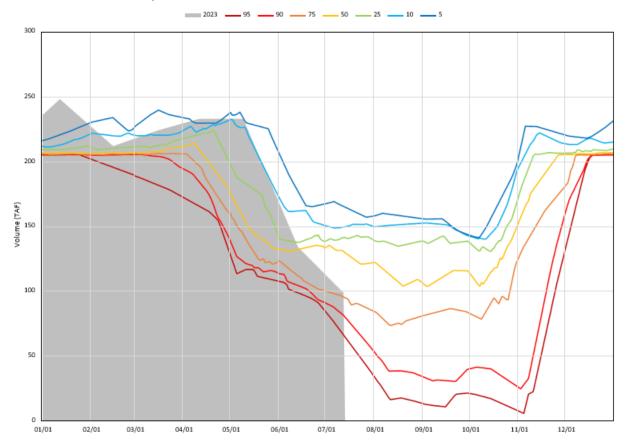
This figure is a line graph showing Whiskeytown Lake Cold Water Pool Volume equal to or less than 56 degrees Fahrenheit from 01/01 to 12/01.



Whiskeytown Lake Cold Water Pool Volume ≤60°F - Percent Exceedances (2000-2022)

Whiskeytown Lake Cold Water Pool Volume ≤60°F - Percent Exceedances (1998-2022)

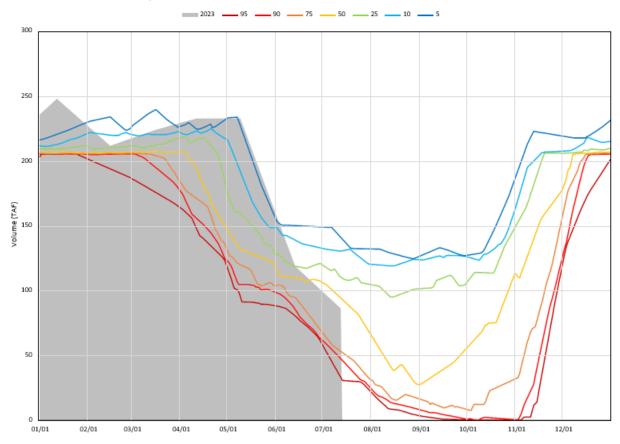
This figure is a line graph showing Whiskeytown Lake Cold Water Pool Volume less than or equal to 60 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.



Whiskeytown Lake Cold Water Pool Volume ≤58°F - Percent Exceedances (2000-2022)

Whiskeytown Lake Cold Water Pool Volume ≤58°F - Percent Exceedances (1998-2022)

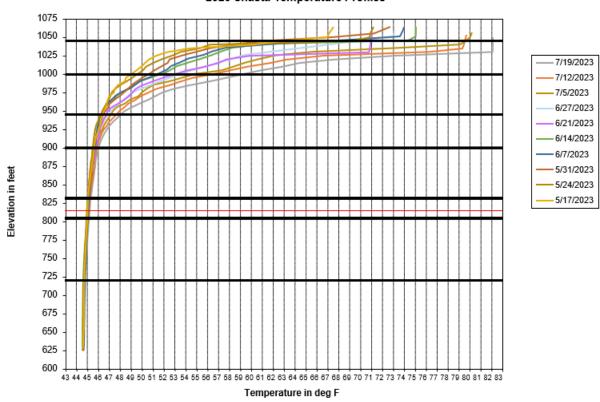
This figure is a line graph showing Whiskeytown Lake Cold Water Pool Volume less than or equal to 58 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.



Whiskeytown Lake Cold Water Pool Volume ≤56°F - Percent Exceedances (2000-2022)

Whiskeytown Lake Cold Water Pool Volume ≤56°F - Percent Exceedances (1998-2022)

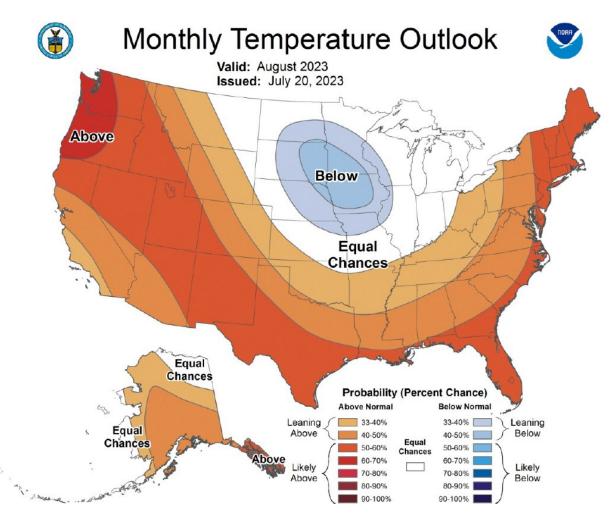
This figure is a line graph showing Whiskeytown Lake Cold Water Pool Volume less than or equal to 56 degrees Fahrenheit as percent exceedances from 01/01 to 12/01.



2023 Shasta Temperature Profiles

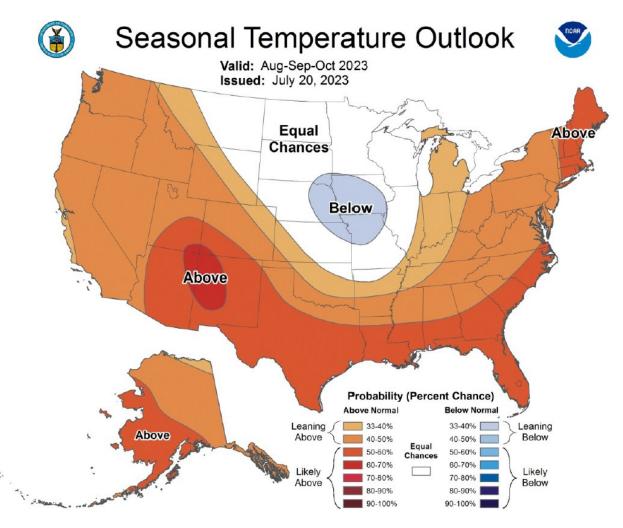
2023 Shasta Temperature Profiles

This figure is a multiple line graph showing Shasta Lake temperature profiles from 05/23-07/23 with lake elevation 600-1075'.



Official Monthly Temperature Outlook

This figure shows a monthly temperature outlook with the percent probability of near normal, below, or above normal temperatures for all of the United States. The figure is valid for August 2023 and was issued on July 20, 2023.



Seasonal Temperature Outlook

This figure shows a seasonal temperature outlook with the percent probability of near normal, below, or above normal temperatures for all of the United States. The figure is valid for August-October 2023 and was issued on July 20, 2023.

Estimated CVP Operations 90% Exceedance

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Trinity	1427	1444	1364	1277	1263	1260	1281	1289	1325	1390	1464	1418	1506
Trinity Elev.	N/A	2298	2292	2284	2282	2282	2284	2285	2288	2294	2300	2296	2304
Whiskeytown	237	238	238	238	206	206	206	206	206	206	238	238	238
Whiskeytown Elev.	N/A	1209	1209	1209	1199	1199	1199	1199	1199	1199	1209	1209	1209
Shasta	4275	3870	3528	3352	3217	3167	3178	3218	3373	3630	3701	3512	3242
Shasta Elev.	N/A	1043	1030	1023	1017	1015	1015	1017	1024	1034	1037	1029	1018
Folsom	928	862	734	673	590	514	454	409	429	509	617	715	680
Folsom Elev.	N/A	455	443	436	427	418	411	404	407	418	430	441	437
New Melones	2038	2039	2012	2007	1970	1983	1997	1999	1998	2025	1928	1833	1783
New Melones Elev.	N/A	1056	1053	1053	1050	1051	1052	1052	1052	1055	1046	1037	1032
San Luis	961	792	588	552	533	597	733	874	809	795	683	455	100
San Luis Elev.	N/A												
Total	9866	9245	8464	8100	7780	7726	7848	7994	8140	8555	8632	8170	7549

Storages – Federal End of the Month Storage/Elevation (TAF/Feet)

State End of the Month Reservoir Storage (TAF)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Oroville	3511	3200	2672	2237	1951	1753	1659	1769	1915	2134	2291	2207	2019
Oroville Elev.	N/A	878	840	804	778	758	748	760	775	795	809	802	784
State San Luis	1000	1009	1063	1150	1117	1118	1083	1116	1062	973	713	459	155
Total San Luis (TAF)	N/A												
Total San Luis Elev.	1961	1801	1651	1702	1650	1714	1815	1990	1871	1768	1396	914	255

Monthly River Releases (TAF/cfs)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Trinity (TAF)	N/A	28	53	52	23	18	18	18	17	18	32	180
Trinity (cfs)	N/A	450	857	870	373	300	300	300	300	300	540	2,924
Clear Creek (TAF)	N/A	9	9	9	12	12	12	12	11	22	12	18
Clear Creek (cfs)	N/A	150	150	150	200	200	200	200	200	363	200	291
Sacramento (TAF)	N/A	658	553	387	369	297	307	277	222	258	369	516
Sacramento (cfs)	N/A	10700	9000	6500	6000	5000	5000	4500	4000	4200	6200	8400
American (TAF)	N/A	247	245	169	123	119	123	108	83	92	97	77

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
American (cfs)	N/A	4017	3982	2844	2000	2001	2000	1750	1500	1503	1638	1250
Stanislaus (TAF)	N/A	74	31	30	48	12	12	14	22	12	91	76
Stanislaus (cfs)	N/A	1200	500	500	774	200	200	226	400	200	1537	1242
Feather (TAF)	N/A	346	470	480	270	149	108	58	53	58	57	108
Feather (cfs)	N/A	5630	7650	8070	4400	2500	1750	950	950	950	950	1750

Trinity Diversions (TAF)

Diversion Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Carr PP	N/A	-1	40	39	0	6	1	5	1	3	29	12	8
Spring Creek PP	N/A	30	30	30	22	0	1	0	1	0	0	0	0

Delta Summary (TAF)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Tracy	N/A	260	260	255	163	178	220	230	69	100	54	61
USBR Banks	N/A	0	0	0	44	44	44	0	0	0	0	0
Contra Costa	N/A	11.1	12.7	14.0	14.0	16.0	18.0	14.0	14.0	12.7	12.7	12.7
Total USBR	N/A	271	273	269	221	238	282	244	83	113	66	74
State Export	N/A	408	390	372	262	288	231	160	68	149	36	31
Total Export	N/A	679	663	641	483	526	513	404	151	262	102	105
COA Balance	N/A	120	60	13	0	0	0	0	1	0	-10	-10
Vernalis (TAF)	N/A	434	223	194	201	83	83	93	121	120	181	175
Vernalis (cfs)	N/A	7056	3623	3257	3263	1393	1355	1511	2183	1957	3038	2843
Old/Middle River calc.	N/A	-5,921	-7,260	-7,421	-5,172	-6,771	-6,406	-4,971	-1,702	-2,987	-543	-625
Computed DOI	N/A	8004	6914	7094	7109	4505	7223	8443	11400	11403	9497	7564
Excess Outflow	N/A	0	0	0	0	0	2717	2440	0	0	0	455
% Export/Inflow	N/A	46%	49%	52%	46%	61%	50%	45%	18%	27%	12%	13%
% Export/inflow std.	N/A	65%	65%	65%	65%	65%	65%	65%	45%	35%	35%	35%

Hydrology

Statistic	Trinity	Shasta	Folsom	New Melones
Water Year Inflow (TAF)	1544	5,628	4,699	2,357
Year to Date + Forecasted % of mean	128%	102%	173%	223%

CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions.

CVP operational forecasts or outlooks represent general system-wide dynamics and do not necessarily address specific watershed/tributary details.

CVP releases or export values represent monthly averages.

CVP Operations are updated monthly as new hydrology information is made available December through May.

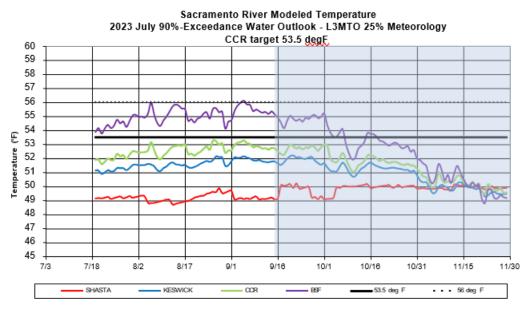


Figure 1: Sacramento River Modeled Temperature – July 2023 90%-Exceedance Water Outlook Historical 25% Meteorology.

This figure shows Sacramento River modeled temperature in degrees Fahrenheit at Shasta and Keswick Dams, and above Clear Creek from 7/3 to 11/30 in percent exceedances. It also shows the desired degree range between 53.5 and 56 degrees Fahrenheit.

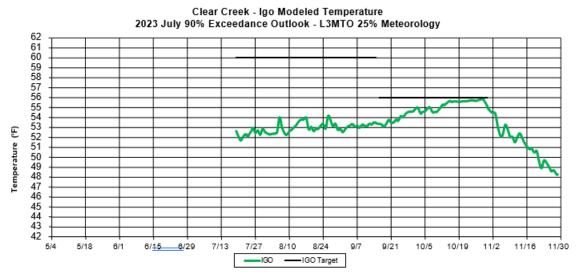


Figure 2: Clear Creek Igo Modeled Temperature – July 2023 90%-Exceedance Water Outlook Historical 25% Meteorology.

This figure is a line graph showing Igo modeled temperature in degrees Fahrenheit at from 05/4 to 11/30.

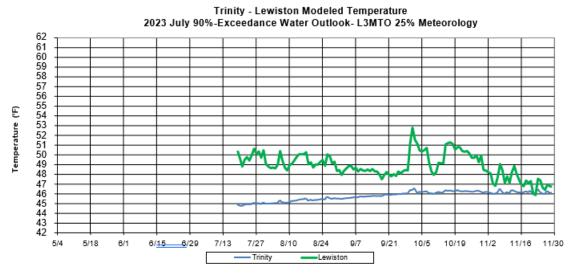


Figure 3: Trinity – Lewiston Modeled Temperature – July 2023 90%-Exceedance Water Outlook Historical 25% Meteorology.

This figure is a line graph showing Trinity-Lewiston modeled temperature in degrees Fahrenheit from 05/4 to 11/30.