BUREAU OF RECLAMATION

Sacramento River Temperature Task Group Meeting Packet

July 25, 2024

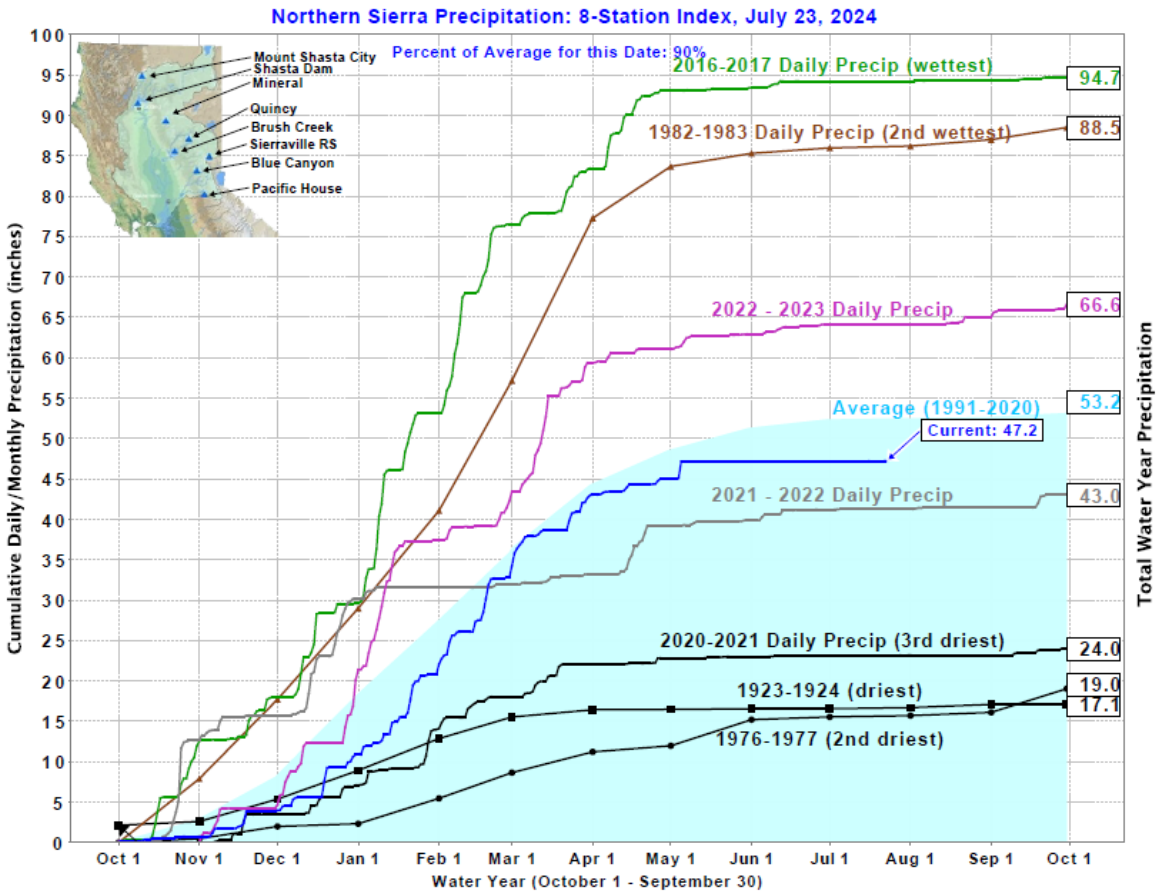

Figure 1: Northern Sierra Precipitation: 8-Station Index, July 23, 2024

This figure shows a line graph precipitation at the Northern Sierra 8-station Index. The graph includes the current cumulative daily and monthly precipitation, 47.2 (90% 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).

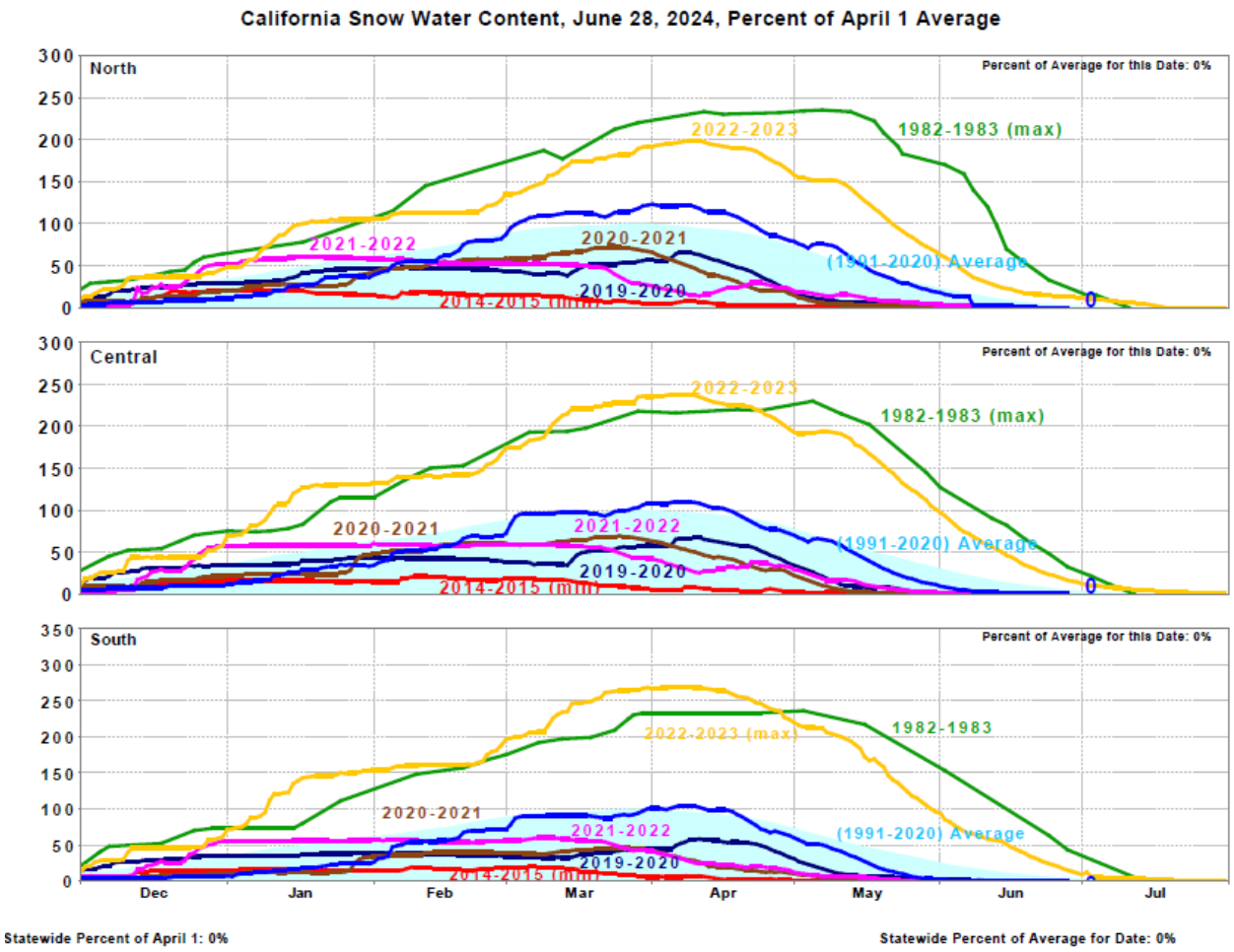

Figure 2: California Snow Water Content, June 28, 2024, Percent of April 1 Average

This figure is three line graphs showing the percent snow water content for North, Central, and Southern California December – July. The graph shows 12%, 8%, and 0% 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.

Daily Central Valley Project Water Supply Report

United States Department of the Interior

U.S. Bureau of Reclamation, Central Valley Project

California Daily CVP Water Supply Report

July 22, 2024
Run Date: July 23, 2024

Table 1: Reservoir Releases in Cubic Feet Per Second

Reservoir	Dam	WY 2023	WY 2024	15-Year Median
Trinity	Lewiston	451	842	472
Sacramento	Keswick	10,718	12,910	10,876
Feather	Oroville (SWP)	5,500	8,000	5,500
American	Nimbus	4,001	4,976	4,001
Stanislaus	Goodwin	752	351	303
San Joaquin	Friant	2,686	0	401

Table 2: Storage in Major Reservoirs in Thousands of Acre-Feet

Reservoir	Capacity	15-Yr Avg	WY 2023	WY 2024	% O 15 Yr Avg
Trinity	2,448	1,575	1,417	1,972	125
Shasta	4,552	3,109	4,011	3,613	116
Folsom	977	656	884	693	106
New Melones	2,420	1,459	2,056	1,954	134
Fed. San Luis	966	389	926	547	141
Total North CVP	11,363	7,188	9,294	8,779	122
Millerton	521	378	525	0	0
Oroville (SWP)	3,538	2,293	3,350	2,913	127

Table 3: Accumulated Inflow for water Year to Date in Thousands of Acre-Feet

Reservoir	Current WY 2024	WY 1977	WY 1983	15-Yr Avg	% O 15 Yr Avg
Trinity	1,514	661	1,962	1,082	140
Shasta	5,222	3,079	8,460	4,428	118
Folsom	2,118	981	5,762	2,464	86
New Melones	872	N/A	2,054	984	89
Millerton	1,643	635	2,652	1,495	110

Table 4: Accumulated Precipitation for Water Year to Date in Inches

Reservoir	Current WY 2024	WY 1977	WY 1983	Avg (N Yrs)	% of Avg	Last 24 Hours
Trinity at Fish Hatchery	35.27	22.32	40.07	30.02 (64)	117	0.00
Sacramento at Shasta Dam	63.62	32.94	86.50	58.63 (69)	109	0.00
American at Blue Canyon	-10.51	N/A	113.32	62.47 (50)	-17	0.00
Stanislaus at New Melones	28.92	N/A	36.75	26.72 (47)	108	0.00
San Joaquin at Huntington LK	32.28	11.50	67.00	39.78 (51)	81	0.00

Table 5: Sacramento River Station Temperature Summary Report

Date	MDWT TCD[1]	MDWT SHD	MDWT SPP[1]	MDWT KWK	MDWT SAC[2]	MDWT CCR	MDWT BSF	MDWT BND	MDWT RBD	MDWT IGO	MDWT LWS	MDWT DGC[3]	MDWT NFH	MDR Shasta Genera-tion	MDR Spring Creek PP	MDR Keswick Total	MDAT RDD	MDAT BSF	MDAT RDB
Jun	50.2	49.3	54.0	51.2	51.9	52.7	55.0	57.1	59.3	56.6	48.9	52.8	55.6	8699	1126	9486	82.5	77.6	78.4
07/01	50.5	49.9	55.1	51.2	51.7	52.6	54.4	56.5	58.4	58.6	50.3	55.8	59.8	12222	967	13032	90.5	83.4	87.8
07/02	50.4	49.9	55.2	51.3	51.8	52.6	54.4	56.2	58.2	58.4	50.1	55.9	60.3	12521	1032	13533	95.5 E	89.0	92.3
07/03	50.1 X	49.6	55.2	51.3	51.8	52.6	54.4	56.3	58.2	57.8	49.9	55.7	60.1	12031	993	13503	96.5	90.7	91.6
07/04	50.1	49.5	55.3	50.9	51.4	52.2	53.9	55.8	57.7	57.6	49.9	55.8	60.4	12011	1076	13529	91.0	85.4	85.3
07/05	50.2	49.6	55.3	51.0	51.5	52.2	53.9	55.7	57.5	57.7	50.1	56.3	61.2	11962	1187	13519	94.0 D	87.7	89.9
07/06	50.2	49.6	55.4	51.0	51.5	52.2	53.9	55.8	57.7	57.8	50.2	56.8	61.9	12345	1113	13564	95.0 D	89.5	90.5
07/07	50.2	49.6	55.4	51.1	51.5	52.3	53.9	55.9	57.8	57.7	50.2	57.1	62.4	12095	1163	13567	96.5 D	88.2	89.4
07/08	50.3	49.6	55.4	51.1	51.6	52.4	54.0	56.0	57.9	57.8	50.2	57.8	63.0	11803	1147	13440	96.0 D	87.6	87.3
07/09	50.4	49.7	55.5	51.1	51.6	52.4	54.1	56.1	58.0	57.9	50.6	60.1	65.0	12277	952	13432	91.5	84.8	83.3
07/10	50.4	49.7	55.6	51.1	51.6	52.3	54.0	55.9	57.9	58.0	50.8	60.7	66.3	12506	1025	13447	95.0	87.2	87.1
07/11	50.5	49.8	55.6	51.2	51.6	52.4	54.1	55.9	57.8	57.9	51.1	61.0	66.9	12539	1046	13507	94.0	86.5	88.5
07/12	50.5	49.8	55.7	51.3	51.8	52.5	54.1	55.9	57.7	57.9	51.0	61.0	67.0	12065	1242	13606	96.0	87.6	88.9
07/13	50.6	49.8	55.7	51.4	51.8	52.5	53.9	55.6	57.4	57.8	51.0	60.7	66.3	11672	1243	13565	91.5	84.0	85.3
07/14	50.7	49.9	55.9	51.4	51.7	52.4	53.8	55.4	57.0	57.4	50.5	59.9	65.7	11788	1265	13481	91.0	83.4	81.8
07/15	50.7	50.0	55.9	51.4	51.8	52.5	54.0	55.7	57.1	57.8	50.5	59.4	64.7	12193	1259	13496	87.5	79.7	79.2
07/16	50.7	50.0	56.0	51.5	51.9	52.7	54.3	56.0	57.8	57.9	50.6	59.3	65.3	11859	1259	13508	88.0	79.6	78.6
07/17	50.8	50.1	56.0	51.5	51.9	52.5	54.1	55.8	57.5	57.4	50.5	57.6	63.3	11411	1230	12915	81.5	76.1	76.0
07/18	50.8	50.1	56.1	51.7	52.0	52.6	54.2	55.8	57.4	57.9	50.3	57.0	62.3	11672	1225	12918	86.5	81.9	82.1
07/19	50.9	50.2	56.2	51.7	52.1	52.8	54.5	56.1	57.8	58.3	50.3	56.5	61.7	11681	1245	12964	90.0	84.0	85.9
07/20	50.9	50.3	56.2	51.8	52.2	52.9	54.5	56.2	58.0	58.7	50.6	56.5	61.8	11123	1237	13104	91.0	82.6	84.3
07/21	51.2	50.4	56.3	51.9	52.3	53.0	54.7	56.5	58.3	58.7	50.4	56.8	62.3	11239	1246	12967	91.0	84.5	82.4
07/22	51.2	50.5	56.3	52.0	52.4	53.1	54.8	56.6	58.4	58.7	50.5	57.0	62.6	11464	1266	12910	92.0	85.3	86.0
Jul	50.6	49.9	55.7	51.4	51.8	52.5	54.2	56.0	57.8	58.0	50.4	57.9	63.2	11931	1155	13341	91.9	84.9	85.6

Date	MDWT TCD[1]	MDWT SHD	MDWT SPP[1]	MDWT KWK	MDWT SAC[2]	MDWT CCR	MDWT BSF	MDWT BND	MDWT RBD	MDWT IGO	MDWT LWS	MDWT DGC[3]	MDWT NFH	MDR Shasta Genera-tion	MDR Spring Creek PP	MDR Keswick Total	MDAT RDD	MDAT BSF	MDAT RDB
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Total CFS	262479	25418	293507	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Total AF	520616	50416	582159	N/A	N/A	N/A

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
= 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.

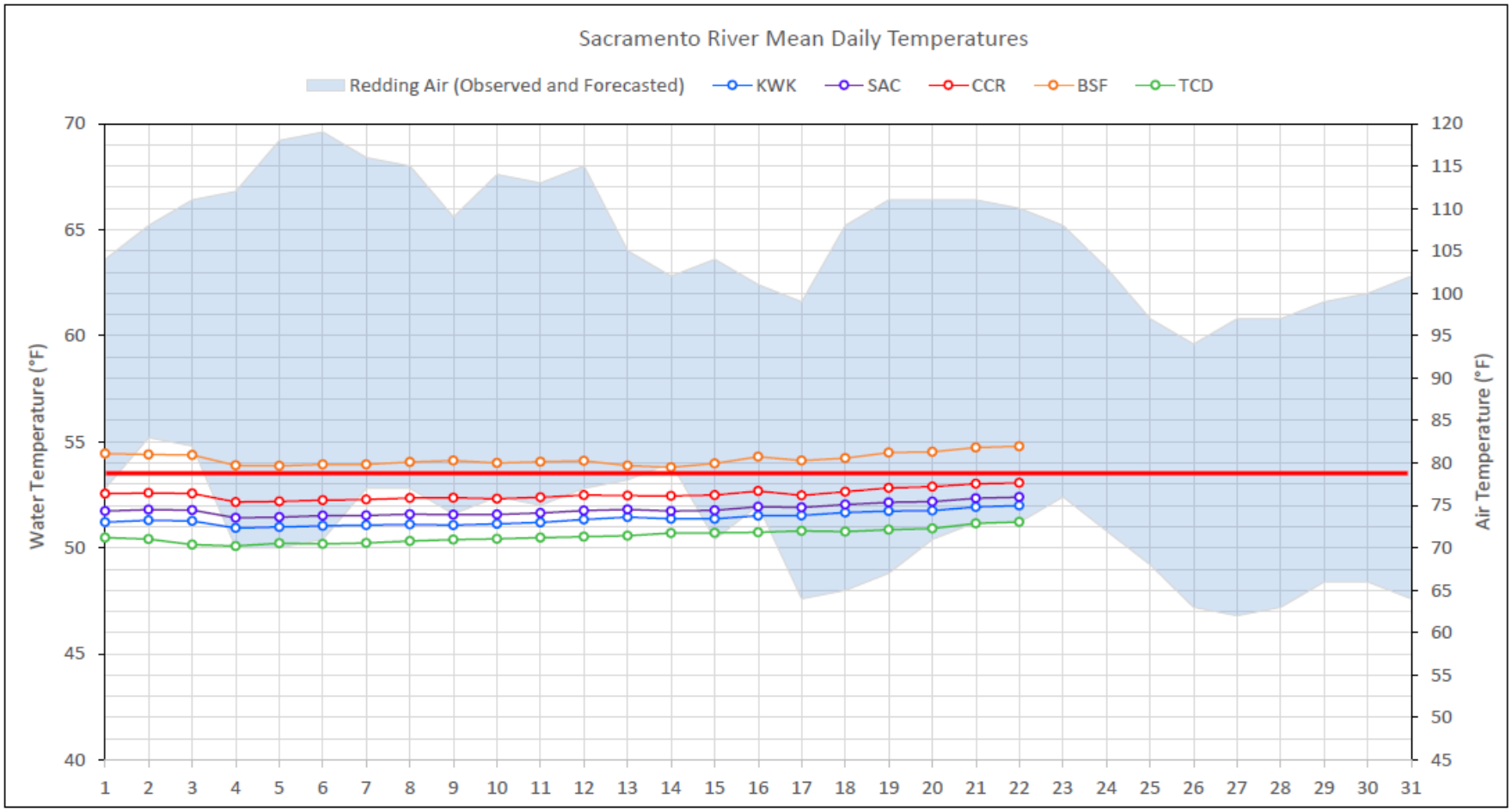

Figure 3: Sacramento River Mean Daily Temperatures

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 22 days. It also includes a shaded area depicting observed and forecasted air temperatures in degrees Fahrenheit in Redding California.

Table 6: Station Details

Code	Body of Water	Location[1]
TCD	N/A	Shasta Power Plant
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant
SPP	N/A	Spring Creek Power Plant
KWK	Sacramento River	0.8 miles downstream of Keswick Dam
SAC	Sacramento River	4.8 miles downstream of Keswick Dam
CCR	Sacramento River	9.7 miles downstream of Keswick Dam
BSF	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
RDB	Sacramento River	58 miles downstream of Keswick Dam
IGO	Clear Creek	7.3 miles downstream of Whiskeytown Dam

Table 7: Water Right Temperature Control Points

River	Point	Temp (˚F)	Begin Date	End Date
Sacramento	CCR	53.5	05/24/2024	TBD

Notes: [1] Distances are approximate

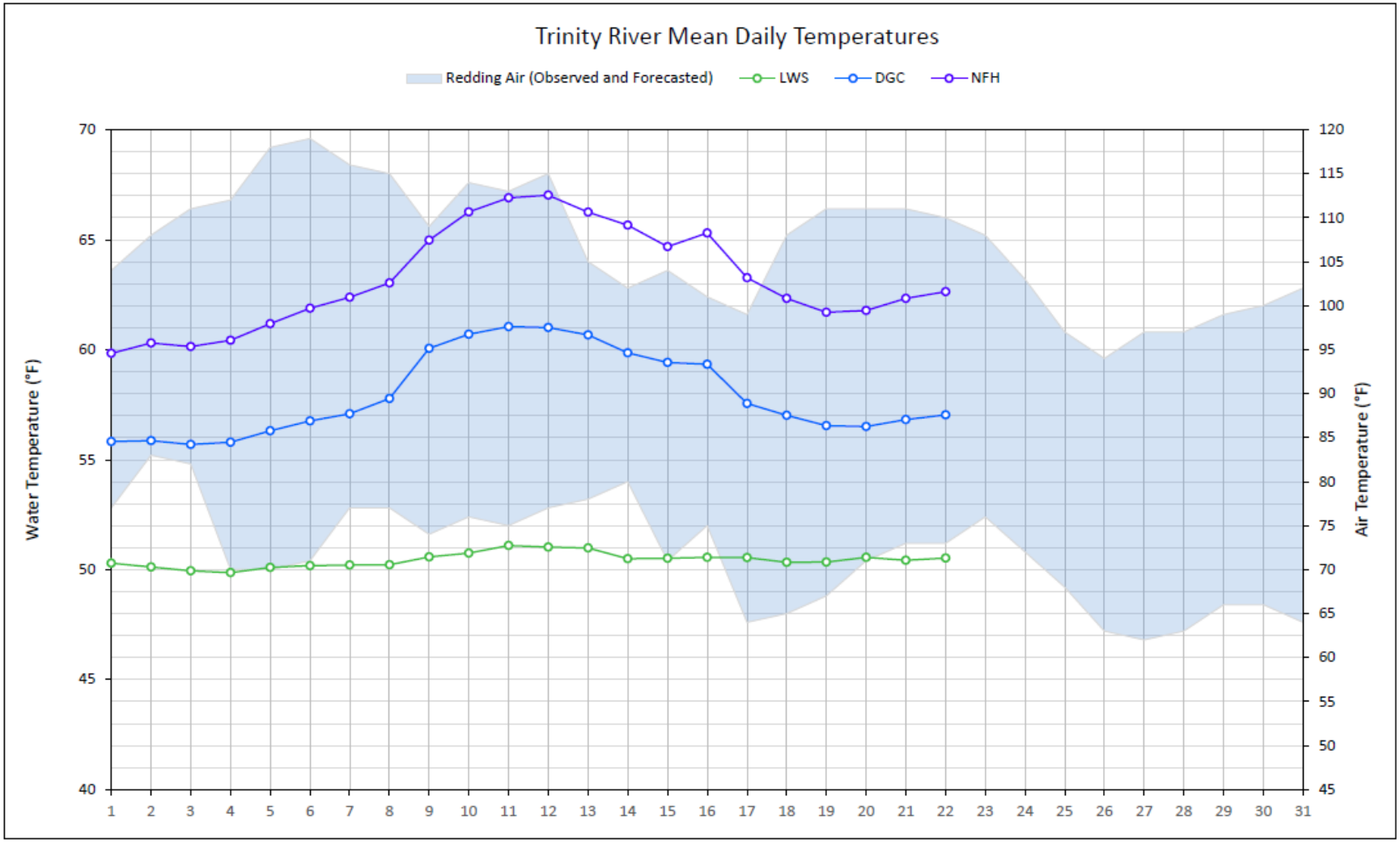

Figure 4: Trinity River Mean Daily Temperatures

This figure shows the mean Trinity River daily temperatures in degrees Fahrenheit at stations 1.1, 19, and 38 miles downstream of Lewiston Dam for the past 22 days. It also includes a shaded area depicting observed and forecasted air temperatures in degrees Fahrenheit in Redding California.

Table 8: Station Details

Code	Body of Water	Location[1]
LWS	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

Table 9: Water Right Temperature Control Points

River	Point	Temp (˚F)	Begin Date	End Date
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

Notes: [1] Distances are approximate

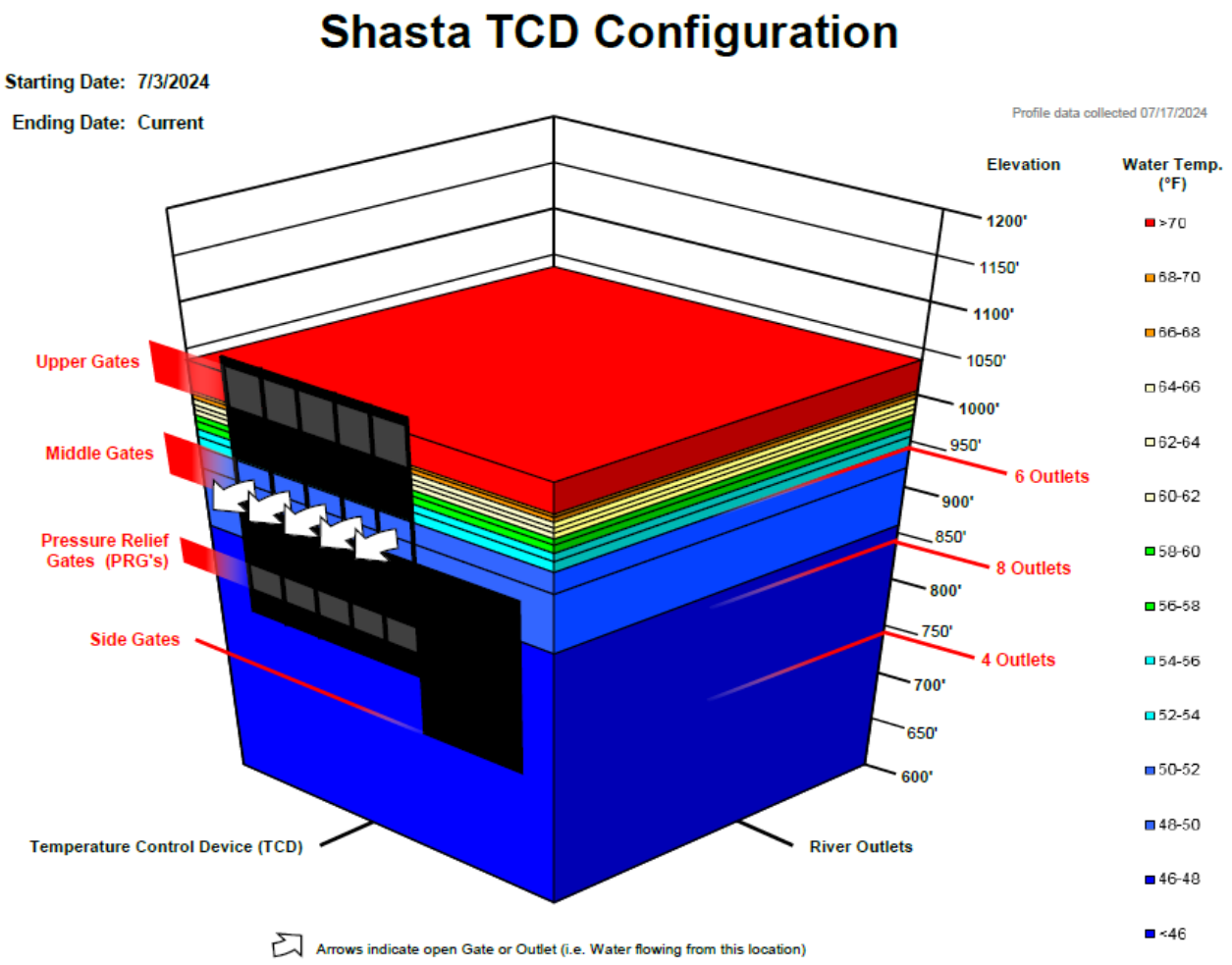

Figure 5: Shasta Temperature Control Device Configuration, July 3, 2024

This figure represents the Shasta Reservoir Temperature Control Device (TCD) configuration. It shows lake elevation between 600 and 1200 feet and volume of water temperature between 46 and 70 degrees Fahrenheit. The figure also show which Upper, Middle, Pressure Relief, and Side gates are open.

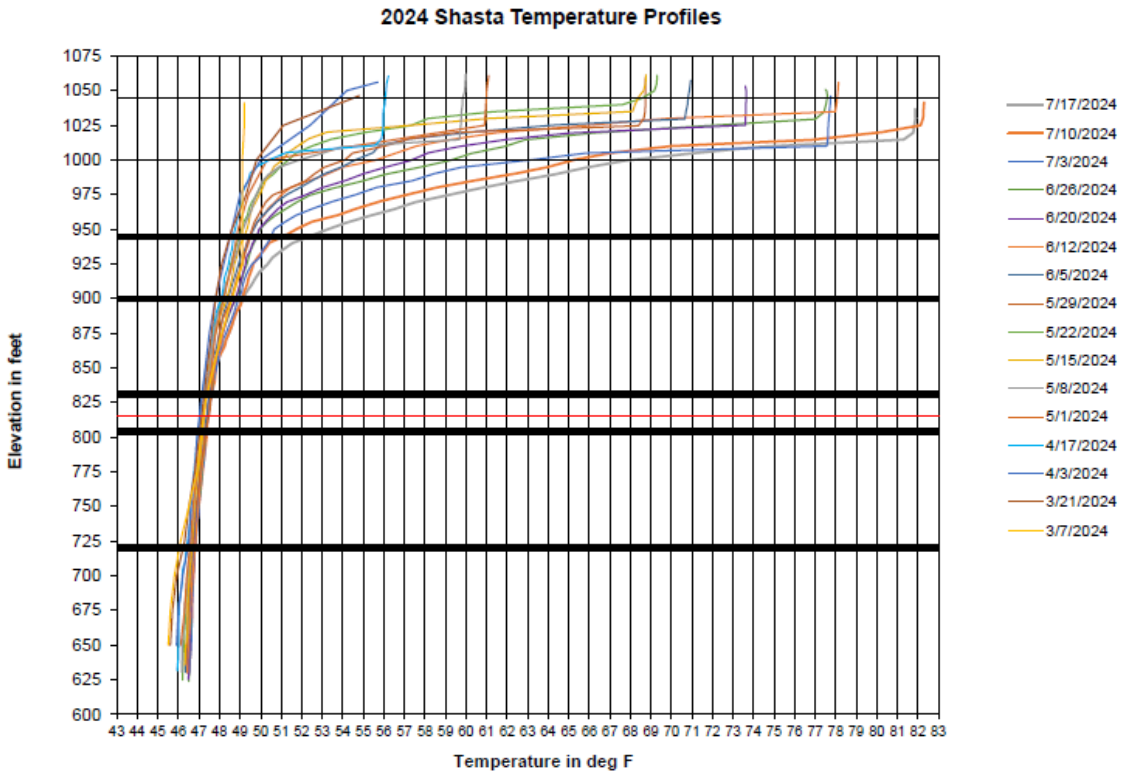

Figure 6: 2024 Shasta Temperature Profiles

This figure is a multiple line graph showing Shasta Lake temperature profiles from 03/07-07/17 with lake elevation 625-1075' and lake temperatures from 46-78 degrees Fahrenheit.

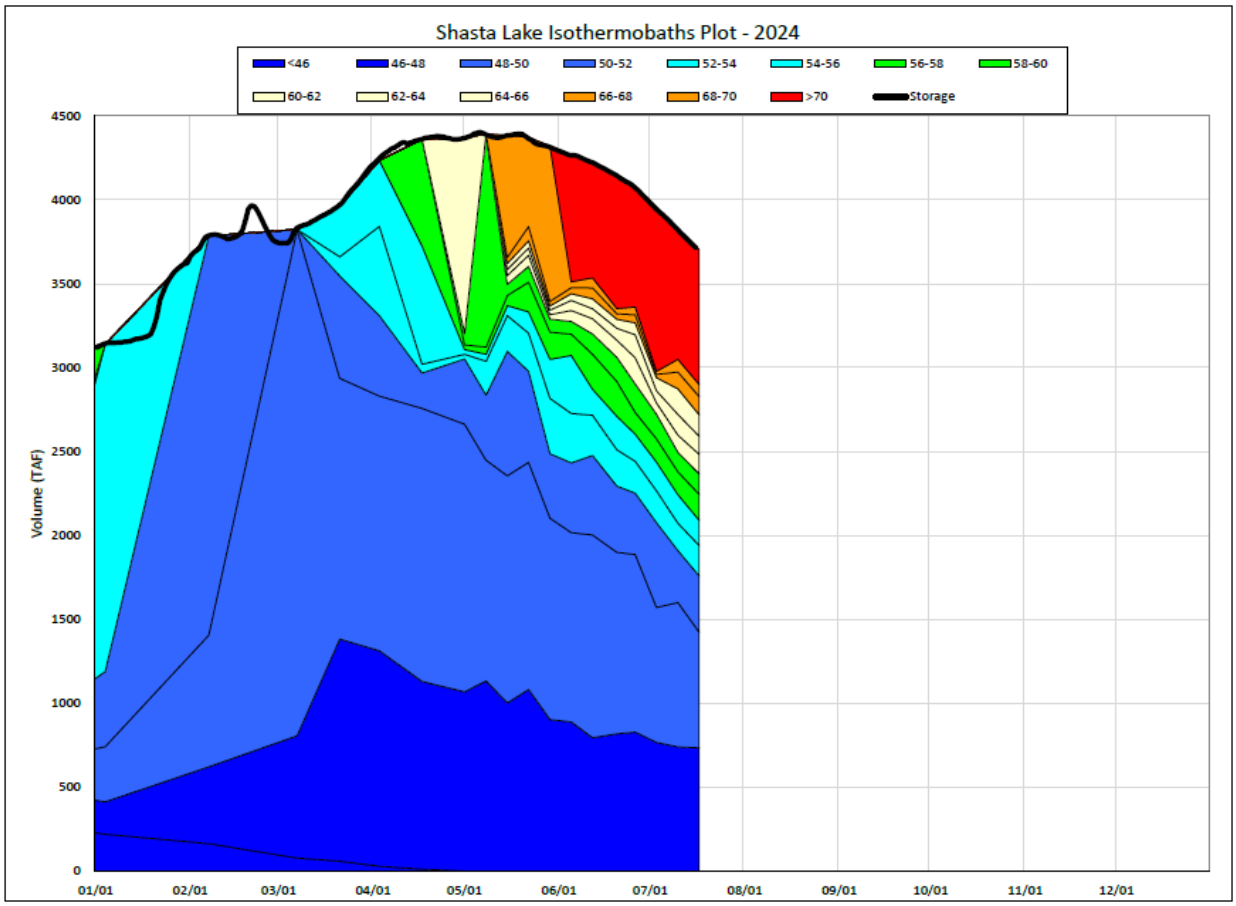

Figure 7: Shasta Lake Isothermobaths Plot - 2024

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

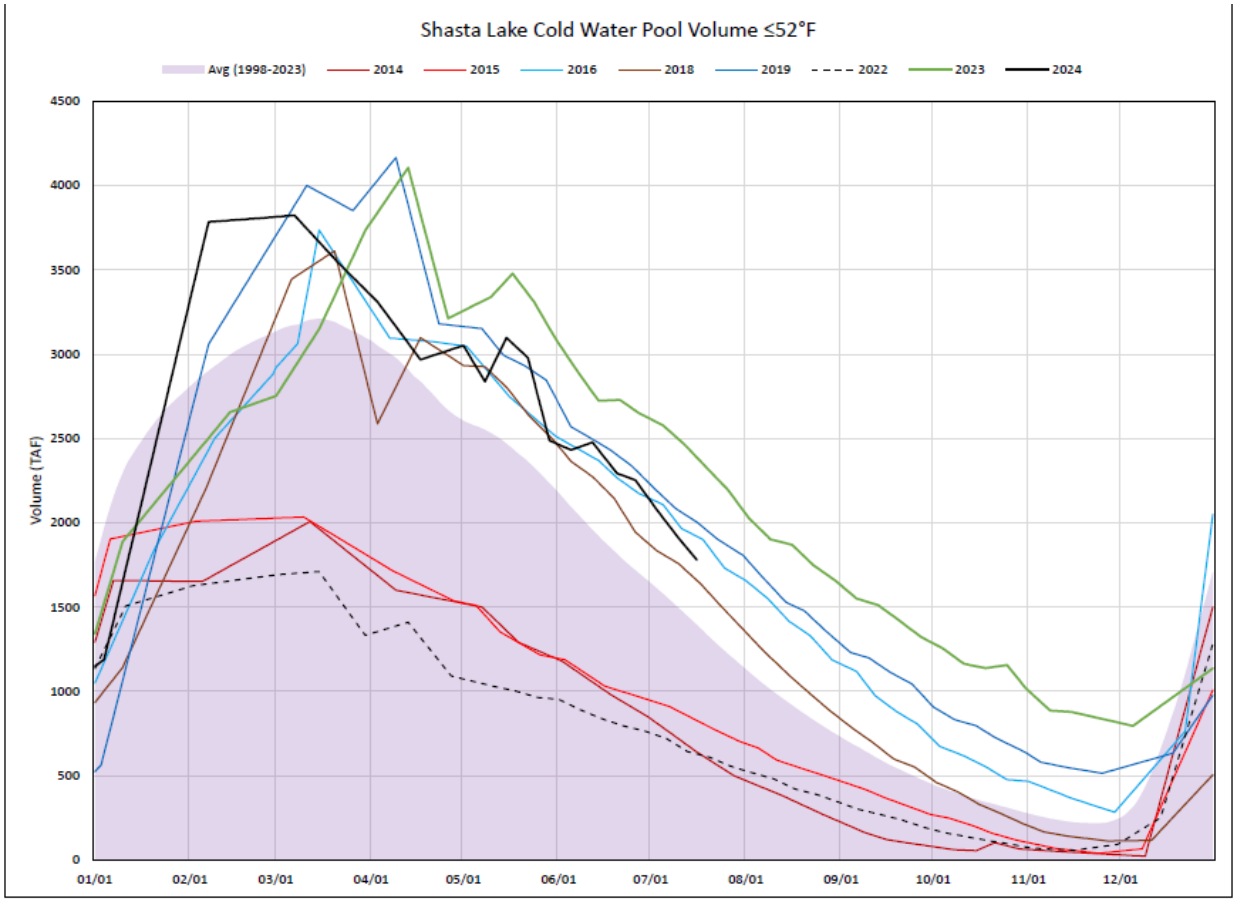

Figure 8: Shasta Lake Cold Water Pool Volume ≤52°F

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.

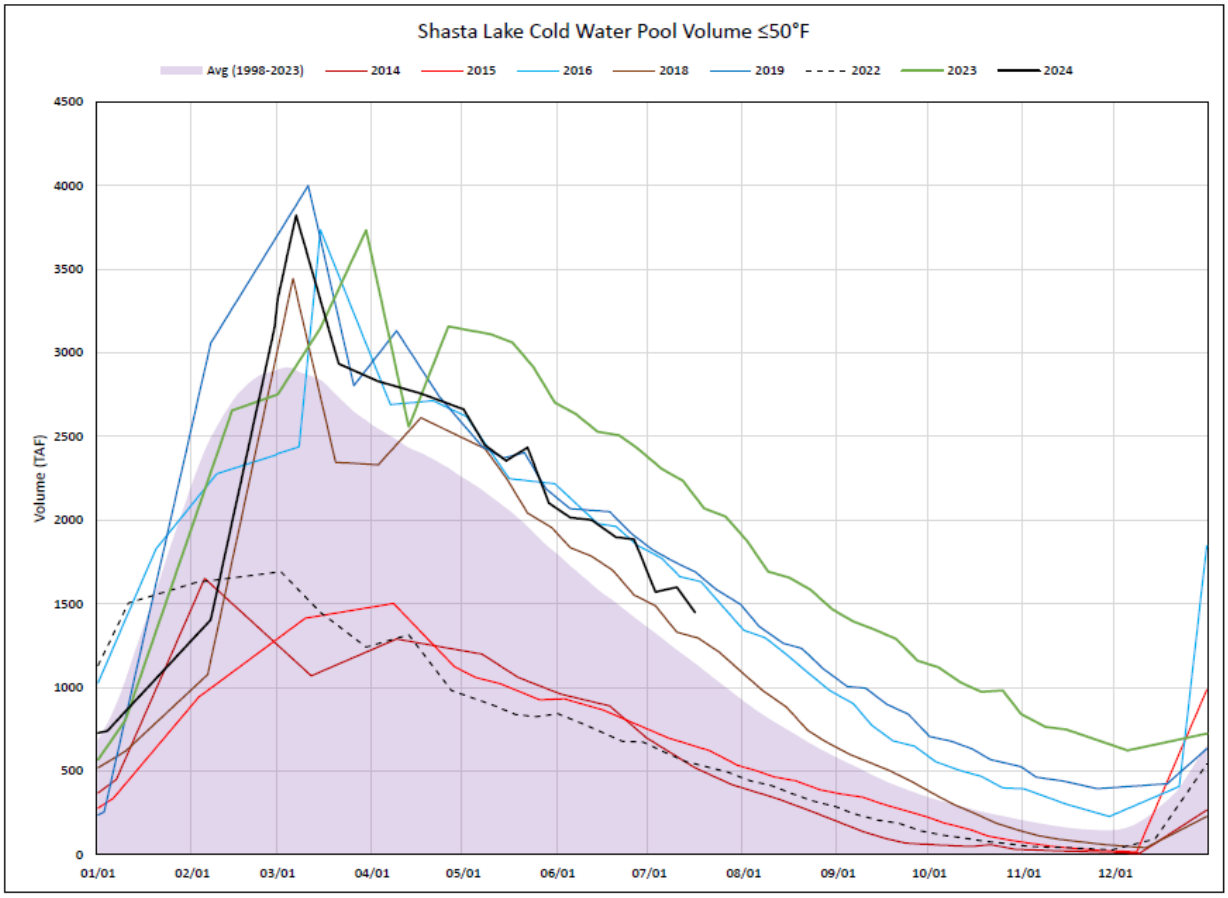

Figure 9: Shasta Lake Cold Water Pool Volume ≤50°F

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.

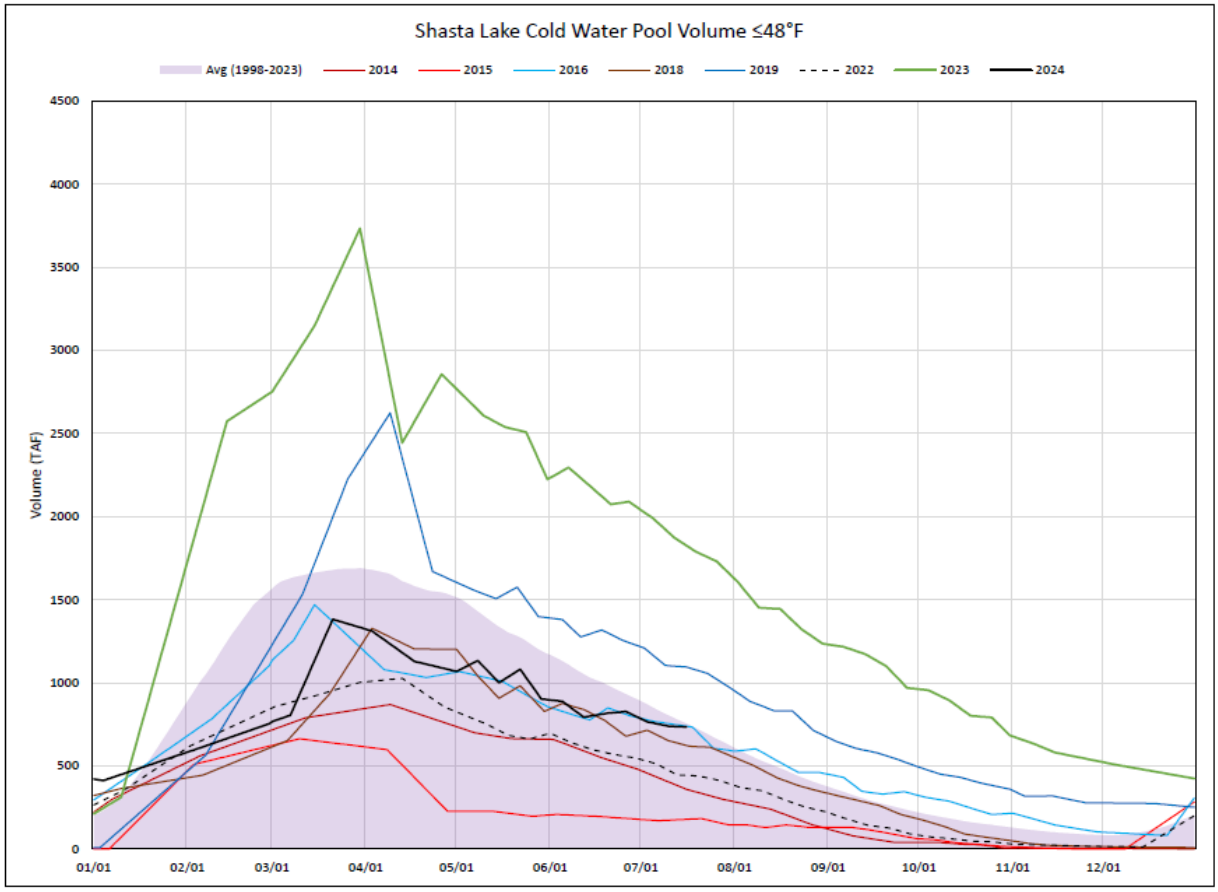

Figure 10: Shasta Lake Cold Water Pool Volume ≤48°F

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.

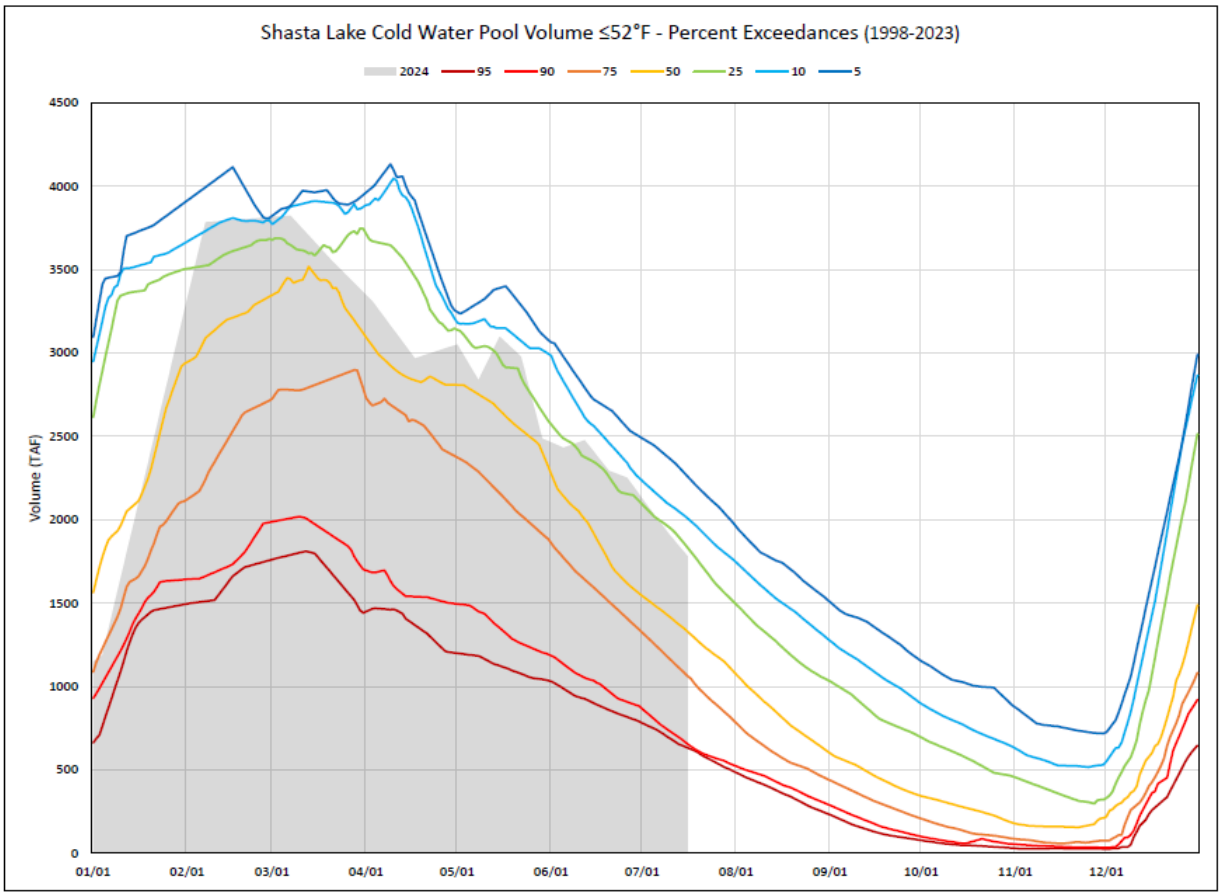

Figure 11: Shasta Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (1998-2023)

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.

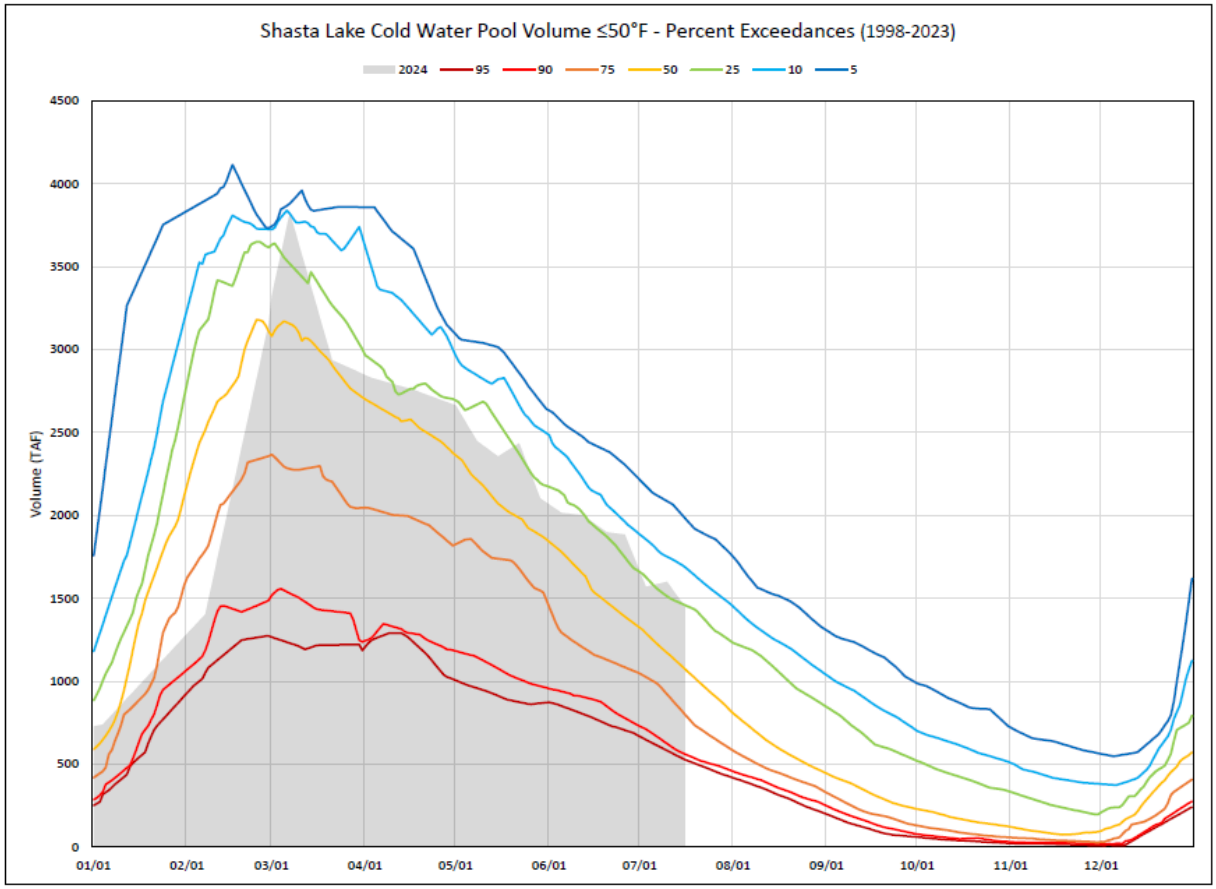

Figure 12: Shasta Lake Cold Water Pool Volume ≤50°F - Percent Exceedances (1998-2023)

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.

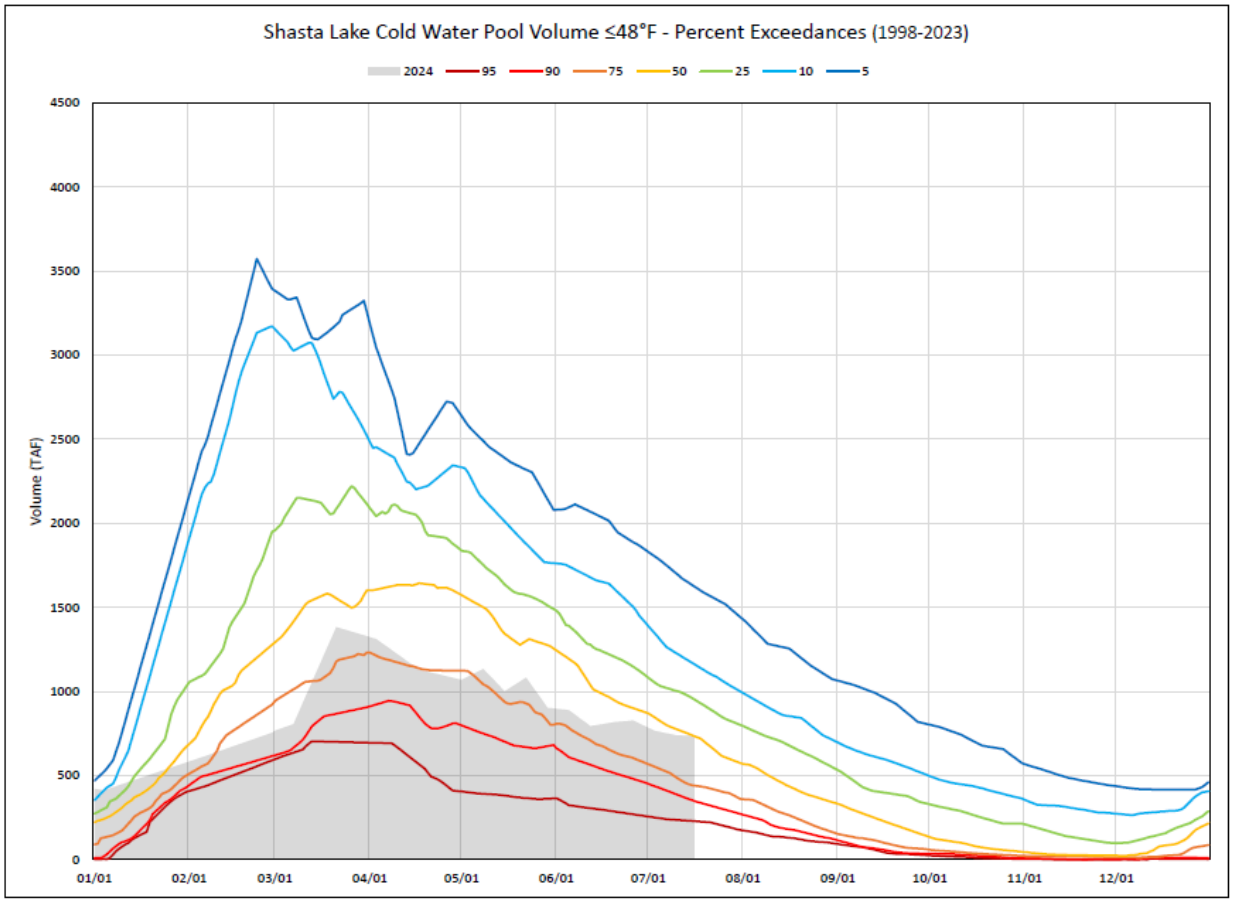

Figure 13: Shasta Lake Cold Water Pool Volume ≤48°F - Percent Exceedances (1998-2023)

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.

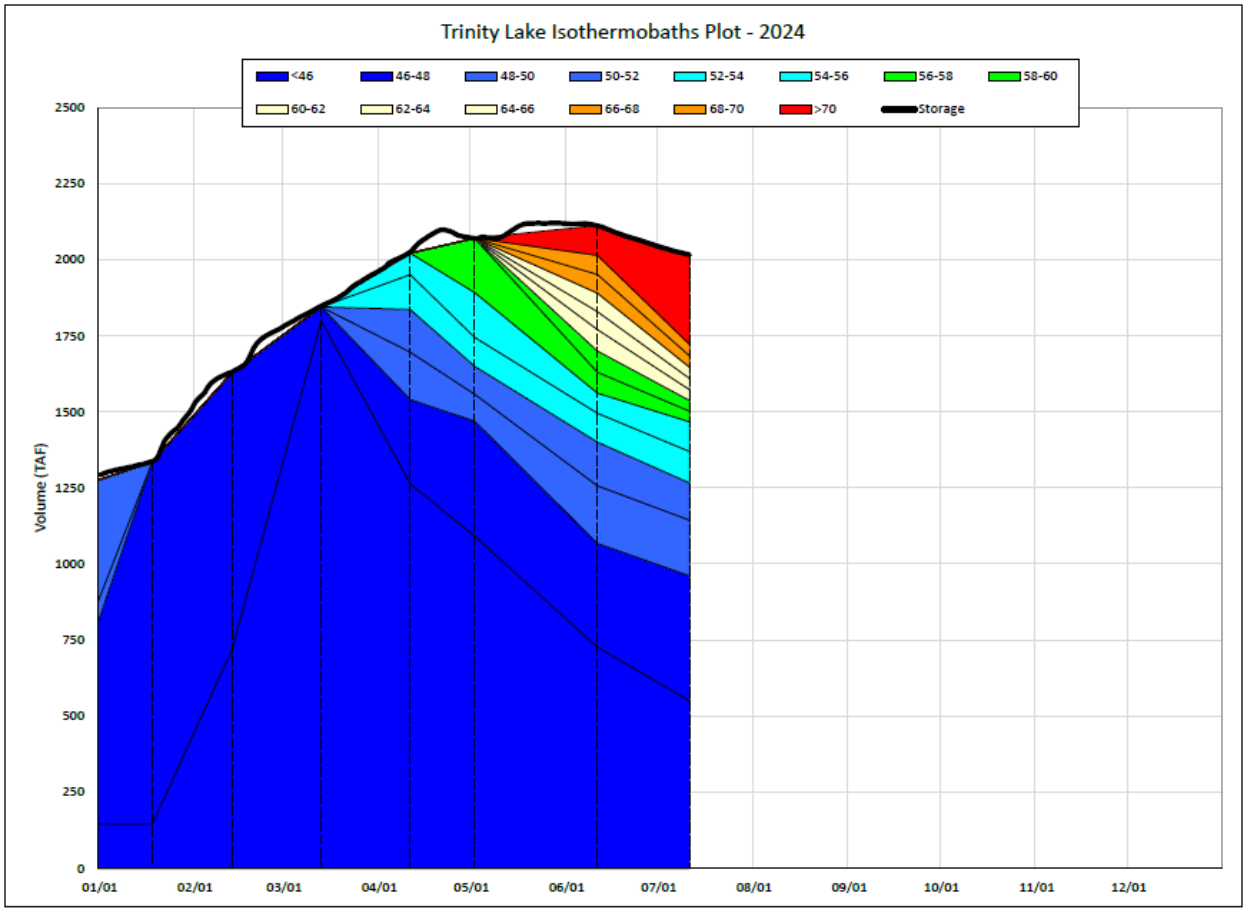

Figure 14: Trinity Lake Isothermobaths Plot – 2024

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

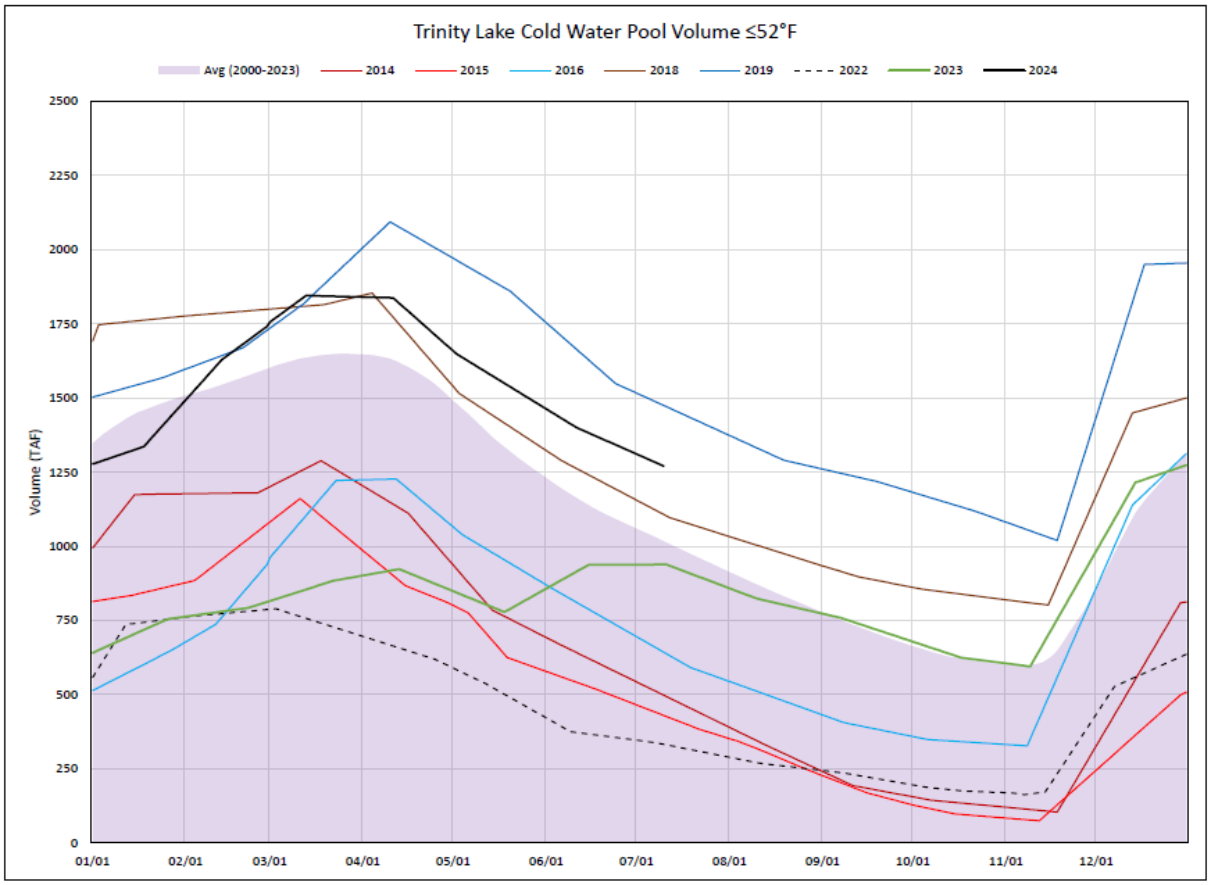

Figure 15: Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (1998-2023)

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.

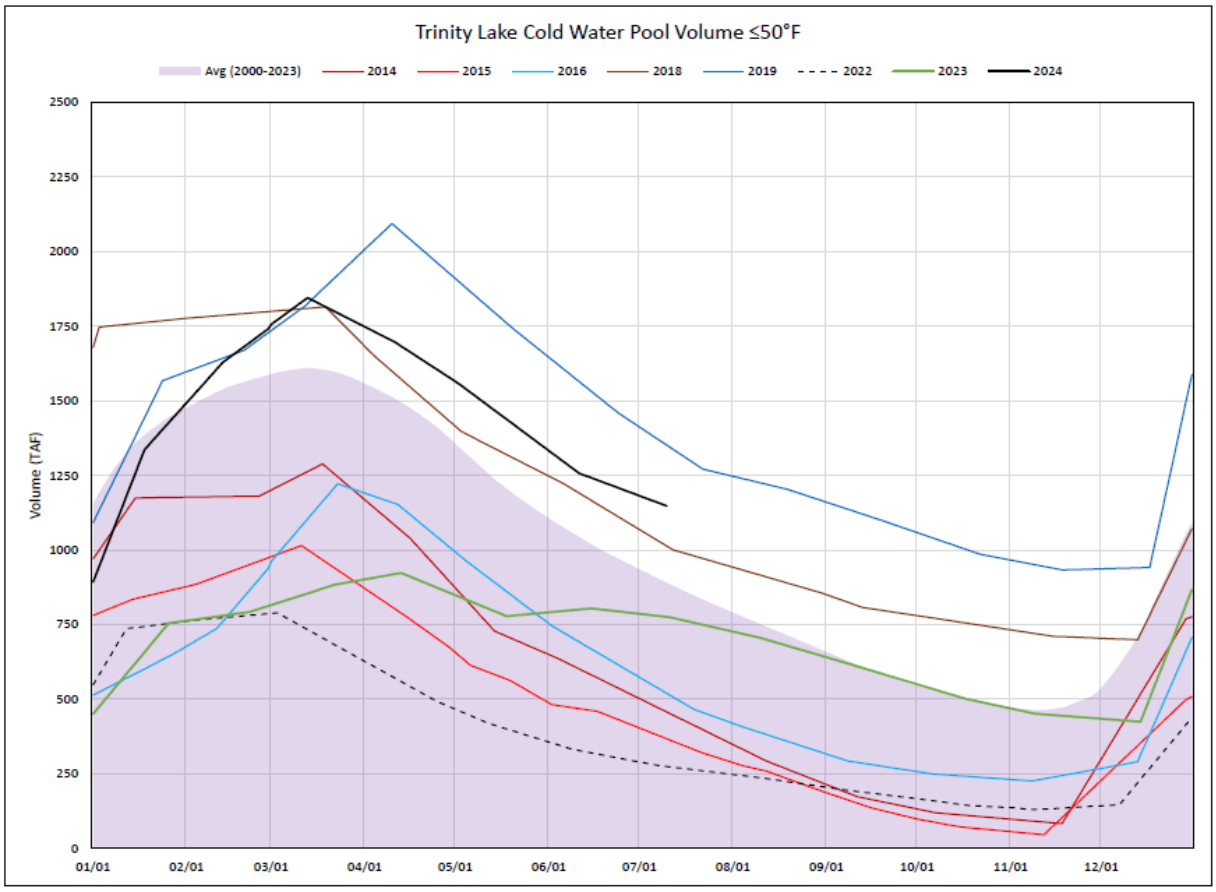

Figure 16: Trinity Lake Cold Water Pool Volume ≤50°F - Percent Exceedances (1998-2023)

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.

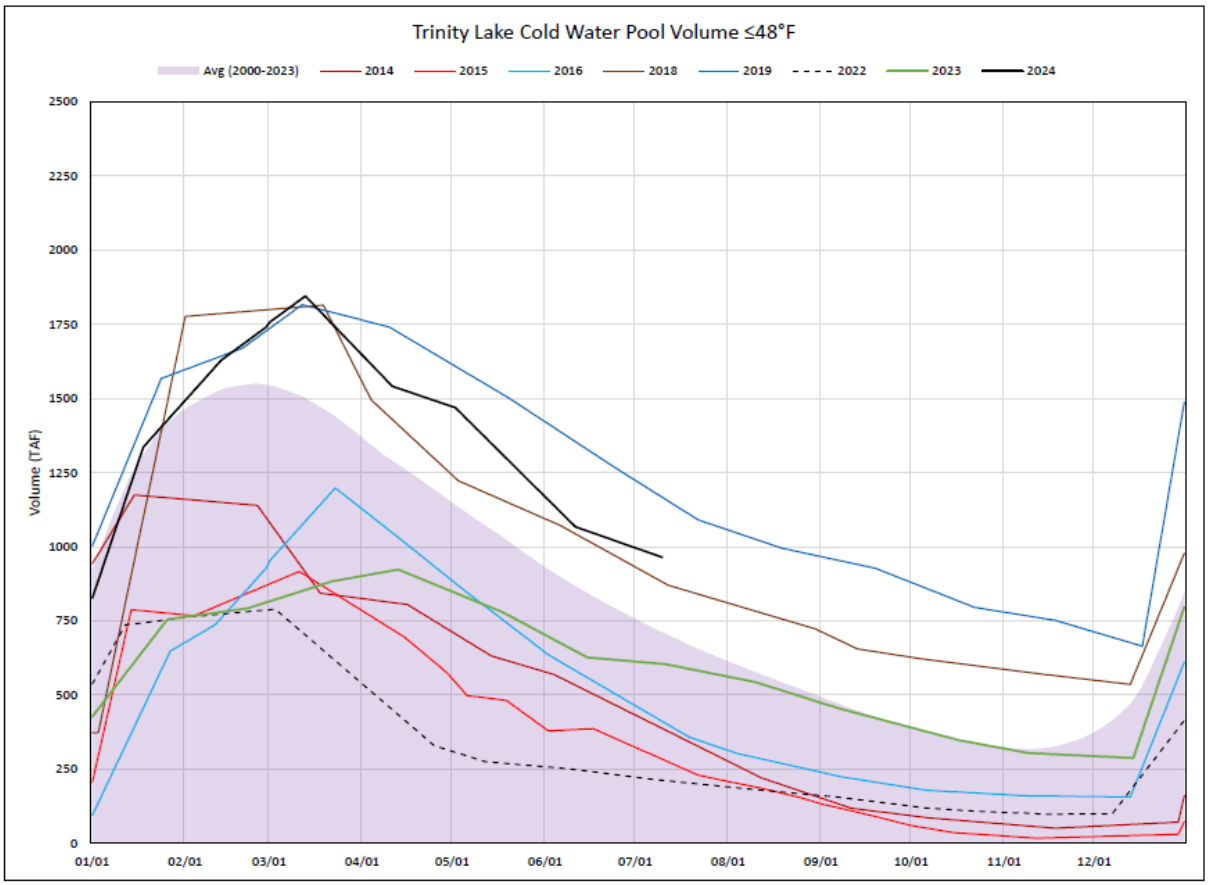

Figure 17: Trinity Lake Cold Water Pool Volume ≤48°F - Percent Exceedances (1998-2023)

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.

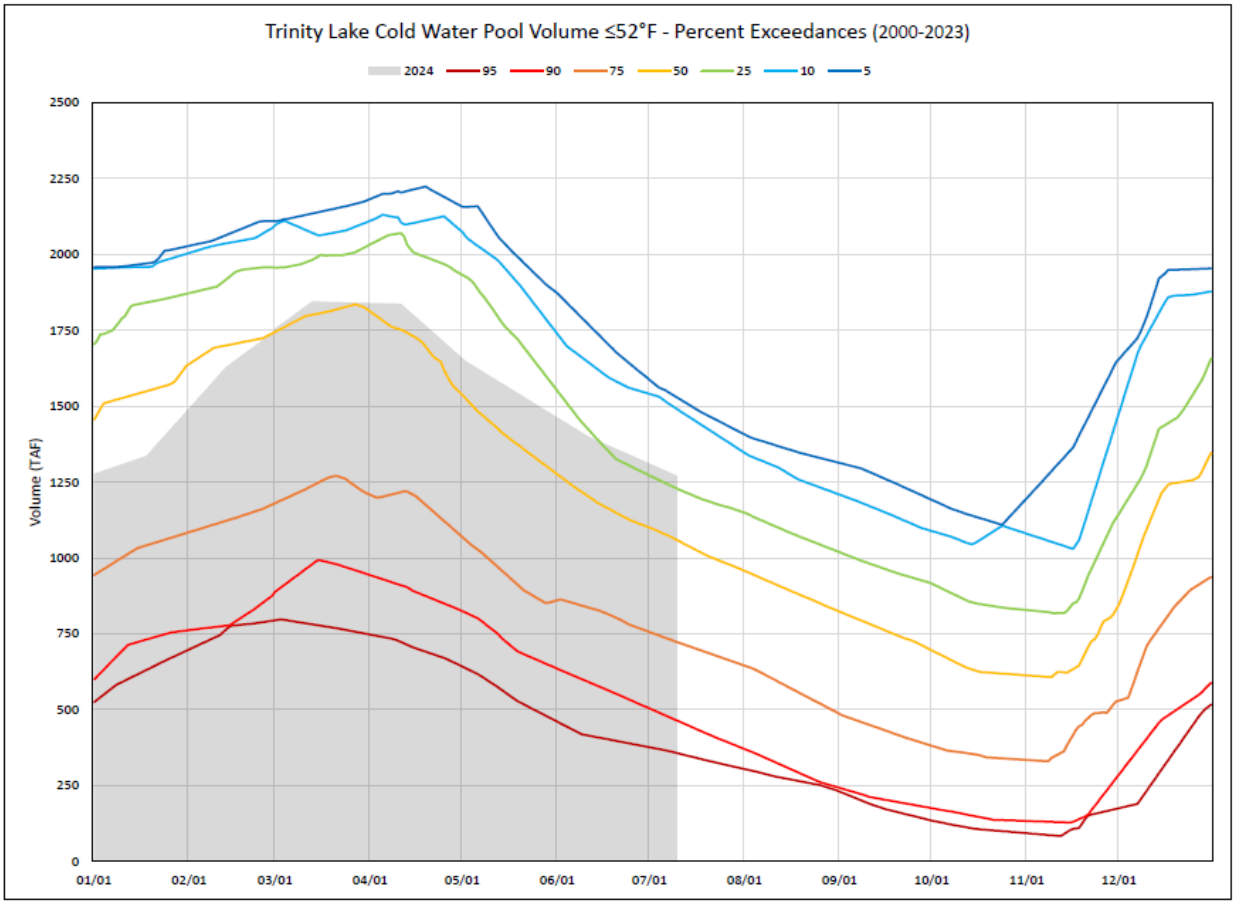

Figure 18: Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (1998-2023)

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.

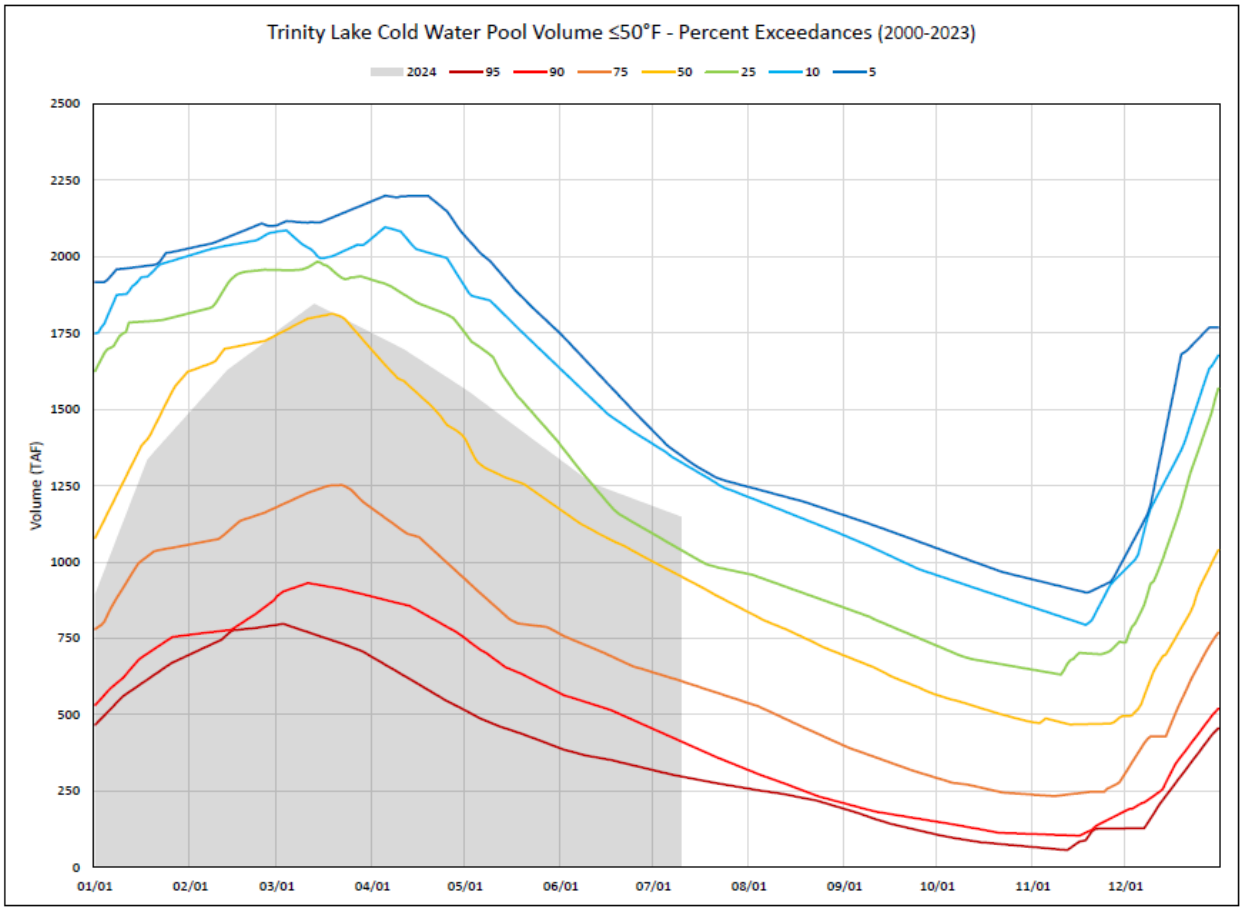

Figure 19: Trinity Lake Cold Water Pool Volume ≤50°F - Percent Exceedances (1998-2023)

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.

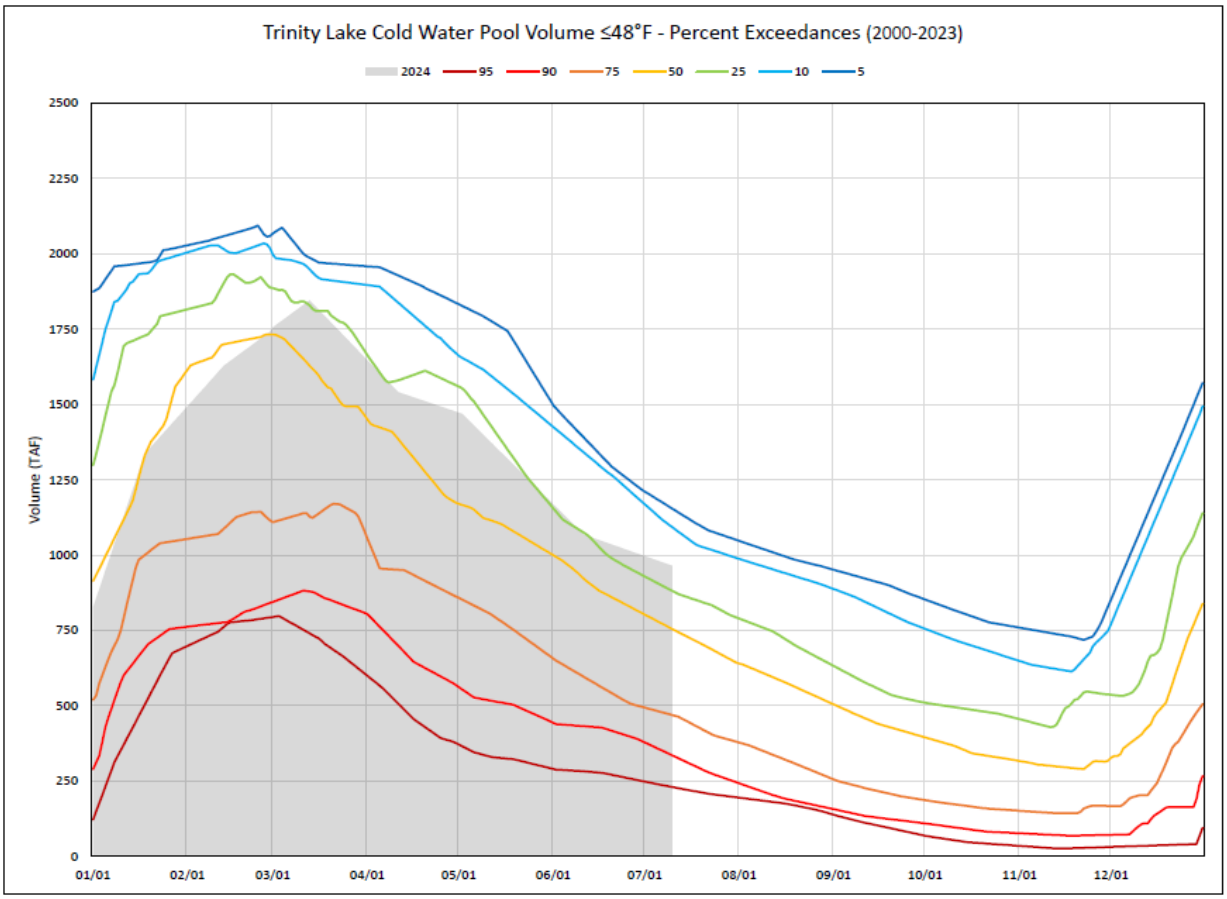

Figure 20: Trinity Lake Cold Water Pool Volume ≤48°F - Percent Exceedances (1998-2023)

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.

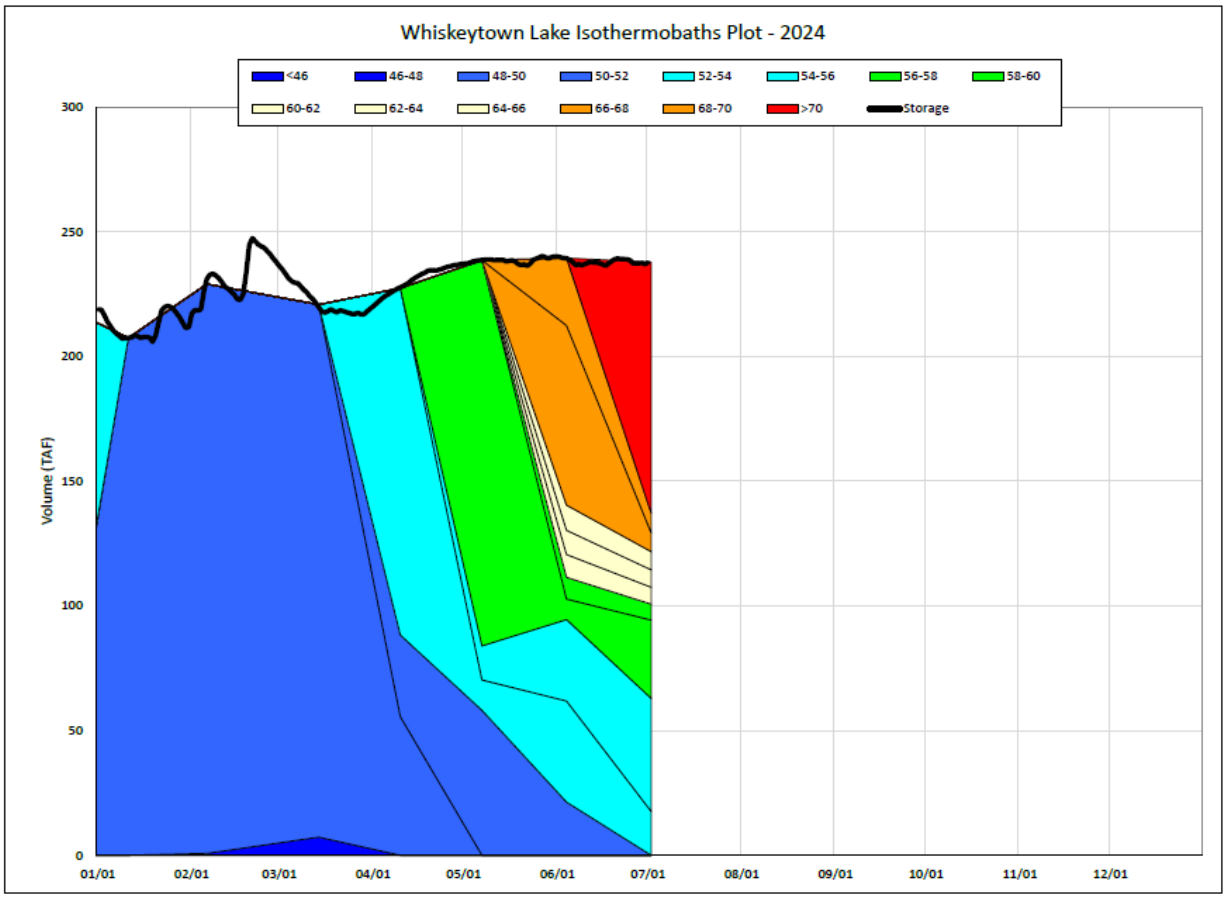

Figure 21: Whiskeytown Lake Isothermobaths Plot – 2024

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

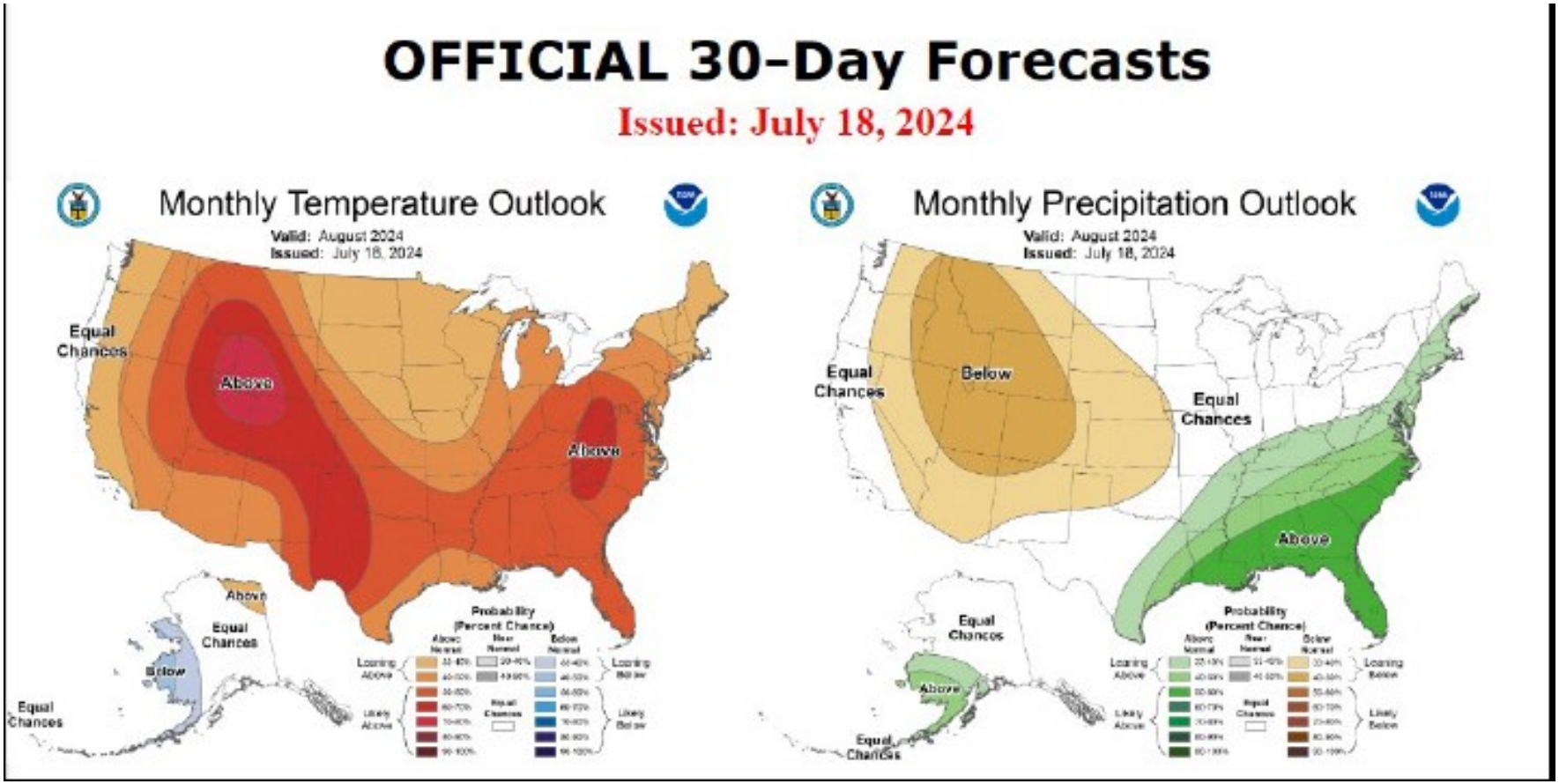

Figure 22: Official Monthly Temperature and Precipitation Outlook

The first 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 2024 and was issued on July 18, 2024. The second figure shows a seasonal precipitation 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 2024 and was issued on July 18, 2024.

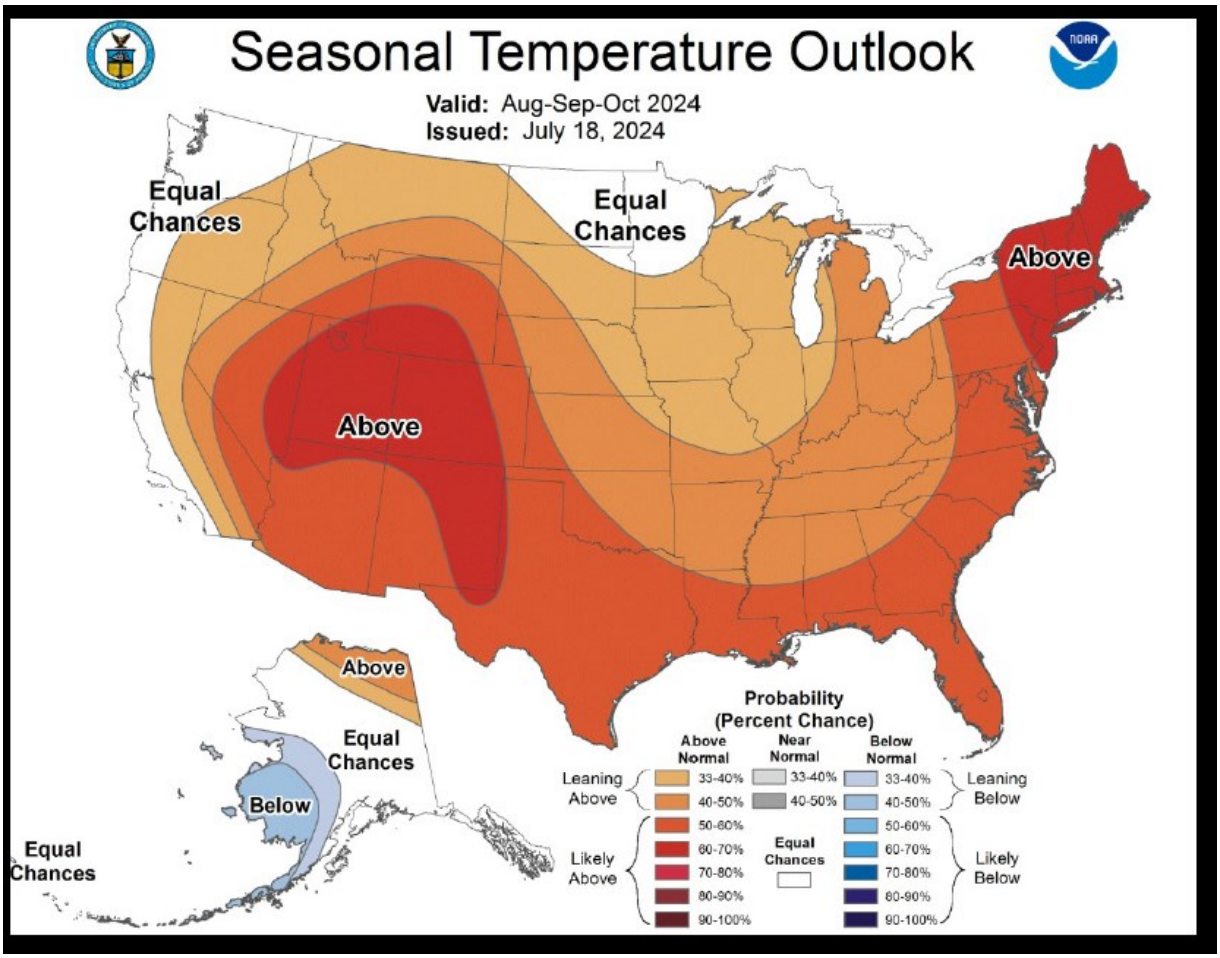

Figure 23: Seasonal Temperature Outlook

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 from August to October 2024 and was issued on July 18, 2024.

Estimated CVP Operations 90% Exceedance

Table 10: Storages – Federal End of the Month Storage/Elevation (TAF/Feet)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Trinity	2046	1924	1786	1657	1634	1630	1651	1663	1699	1763	1837	1788	1706
Trinity Elev.	N/A	2336	2326	2316	2314	2314	2315	2316	2319	2324	2329	2326	2320
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	4000	3468	2972	2672	2516	2525	2597	2668	2795	3034	3050	2789	2437
Shasta Elev.	N/A	1027	1006	993	985	985	989	992	998	1009	1010	998	981
Folsom	863	629	520	493	442	365	306	307	354	465	610	723	706
Folsom Elev.	N/A	432	419	416	409	398	388	388	396	412	430	442	440
New Melones	2004	1930	1874	1830	1766	1773	1780	1785	1787	1807	1740	1672	1592
New Melones Elev.	N/A	1046	1041	1036	1030	1031	1032	1032	1032	1034	1028	1021	1013
Fed. San Luis	655	381	247	282	270	325	457	625	582	566	507	356	205
Fed. San Luis Elev.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	9805	8570	7637	7171	6833	6823	6997	7253	7423	7842	7981	7567	6884

Table 11: State End of the Month Reservoir Storage (TAF)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Oroville	3361	2884	2361	1928	1770	1682	1655	1675	1776	1947	2126	2100	1860
Oroville Elev.	N/A	856	815	776	760	751	748	750	761	778	794	792	769
State San Luis	346	368	555	795	783	835	980	1028	1024	1120	1056	908	706
State San Luis Elev.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total San Luis (TAF)	1001	749	802	1077	1053	1160	1437	1653	1606	1686	1563	1264	912
Total San Luis Elev.	N/A	427	432	460	458	468	494	512	508	515	505	478	444

Table 12: Monthly River Releases (TAF/cfs)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Trinity (TAF)	N/A	45	53	52	23	18	18	18	17	18	32	180	47
Trinity (cfs)	N/A	735	857	870	373	300	300	300	300	300	540	2,924	783
Clear Creek (TAF)	N/A	9	9	9	12	12	12	12	11	22	12	18	13

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Clear Creek (cfs)	N/A	150	150	150	200	200	200	200	200	363	200	296	224
Sacramento (TAF)	N/A	811	738	535	400	238	246	246	250	277	425	590	654
Sacramento (cfs)	N/A	13200	12000	9000	6500	4000	4000	4000	4500	4500	7150	9590	11000
American (TAF)	N/A	307	195	105	92	119	123	61	56	61	62	61	89
American (cfs)	N/A	5000	3175	1758	1500	2003	2000	1000	1001	1000	1038	1000	1500
Stanislaus (TAF)	N/A	15	15	15	48	12	12	14	12	12	46	39	12
Stanislaus (cfs)	N/A	250	250	250	774	200	200	226	221	200	767	631	200
Feather (TAF)	N/A	483	467	488	172	104	108	108	97	108	104	108	226
Feather (cfs)	N/A	7850	7600	8200	2800	1750	1750	1750	1750	1750	1750	1750	3800

Table 13: Trinity Diversions (TAF)

Diversion Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Carr PP	N/A	97	91	80	8	6	1	1	1	3	29	12	86
Spring Creek PP	N/A	90	80	70	30	0	0	0	0	0	0	0	75

Table 14: Delta Summary (TAF)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Tracy	N/A	185	205	260	132	145	192	225	51	70	48	49	108
USBR Banks	N/A	0	0	0	22	22	22	0	0	0	0	0	0
Contra Costa	N/A	11.0	12.0	13.0	14.0	14.0	14.0	13.0	14.0	12.0	12.0	12.0	10.0
Total USBR	N/A	196	217	273	168	181	228	238	65	82	60	61	118
State Export	N/A	321	400	397	138	178	225	155	97	183	42	43	21
Total Export	N/A	517	617	670	306	359	453	393	162	265	101	104	139
COA Balance	N/A	0	0	0	0	0	0	0	0	0	17	63	63
Vernalis (TAF)	N/A	54	52	57	107	74	75	77	82	98	103	100	43
Vernalis (cfs)	N/A	884	852	956	1734	1242	1225	1251	1482	1599	1725	1631	721
Old/Middle River calc.	N/A	-6,668	-7,935	-8,832	-3,643	-4,678	-5,713	-4,950	-2,170	-3,190	-1,124	-1,161	-2,065
Computed DOI	N/A	9451	7499	7497	7499	4505	4506	8134	11400	11403	9497	7499	7110
Excess Outflow	N/A	1448	0	0	0	0	0	3628	0	0	0	0	0
% Export/Inflow	N/A	37%	46%	52%	34%	51%	58%	45%	19%	27%	12%	13%	17%
% Export/inflow std.	N/A	65%	65%	65%	65%	65%	65%	65%	45%	35%	35%	35%	35%

Table 15: Hydrology

Statistic	Trinity	Shasta	Folsom	New Melones
Water Year Inflow (TAF)	1,546	5,640	2,343	974
Year to Date + Forecasted % of mean	128%	102%	88%	92%

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.

Estimated CVP Operations 50% Exceedance

Table 16: Storages – Federal End of the Month Storage/Elevation (TAF/Feet)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Trinity	2046	1944	1812	1693	1643	1650	1688	1751	1863	1991	2095	2026	1943
Trinity Elev.	N/A	2337	2328	2319	2315	2315	2318	2323	2331	2340	2347	2343	2337
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	4000	3448	3090	2859	2783	2812	2918	3250	3539	3930	4111	4228	4016
Shasta Elev.	N/A	1027	1012	1001	998	999	1004	1018	1030	1045	1052	1056	1048
Folsom	863	629	479	427	416	390	380	441	537	726	872	954	952
Folsom Elev.	N/A	432	414	407	405	402	400	409	421	442	456	464	464
New Melones	2004	1924	1871	1828	1769	1781	1798	1833	1890	1970	1941	2006	2025
New Melones Elev.	N/A	1045	1040	1036	1031	1032	1033	1037	1042	1050	1047	1053	1054
Fed. San Luis	655	329	214	222	270	411	606	803	935	966	867	654	506
Fed. San Luis Elev.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	9805	8511	7703	7267	7086	7249	7595	8284	8969	9788	10123	10106	9680

Table 17: State End of the Month Reservoir Storage (TAF)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Oroville	3361	2933	2465	2049	1807	1720	1692	1862	2214	2554	2975	3157	3062
Oroville Elev.	N/A	859	823	787	764	755	752	769	802	831	862	875	869
State San Luis	346	370	536	764	860	973	1062	1062	1062	1062	980	804	663
State San Luis Elev.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total San Luis (TAF)	1001	699	750	986	1130	1383	1668	1865	1997	2028	1846	1457	1169
Total San Luis Elev.	N/A	421	427	451	466	489	514	530	541	543	528	496	469

Table 18: Monthly River Releases (TAF/cfs)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Trinity (TAF)	N/A	45	53	52	23	18	18	18	17	18	80	258	126
Trinity (cfs)	N/A	735	857	870	373	300	300	300	300	300	1,347	4,189	2,120
Clear Creek (TAF)	N/A	9	9	9	12	12	12	12	11	22	12	18	14

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Clear Creek (cfs)	N/A	150	150	150	200	200	200	200	200	363	200	291	242
Sacramento (TAF)	N/A	811	615	476	369	268	277	277	472	430	428	369	506
Sacramento (cfs)	N/A	13200	10000	8000	6000	4500	4500	4500	8500	7000	7200	6000	8500
American (TAF)	N/A	307	246	137	92	119	123	92	167	123	280	381	149
American (cfs)	N/A	5000	3998	2305	1500	2000	2000	1500	3000	2000	4700	6200	2500
Stanislaus (TAF)	N/A	22	15	15	48	12	12	14	13	12	91	76	22
Stanislaus (cfs)	N/A	350	250	250	774	200	200	226	229	200	1537	1242	363
Feather (TAF)	N/A	483	467	494	255	104	108	108	97	108	104	108	208
Feather (cfs)	N/A	7850	7600	8300	4150	1750	1750	1750	1750	1750	1750	1750	3500

Table 19: Trinity Diversions (TAF)

Diversion Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Carr PP	N/A	77	80	69	38	5	1	1	1	1	20	24	69
Spring Creek PP	N/A	70	70	60	60	0	4	23	34	16	0	20	60

Table 20: Delta Summary (TAF)

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Tracy	N/A	185	259	260	195	234	258	258	230	145	57	58	240
USBR Banks	N/A	0	0	0	0	0	0	0	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	9.8
Total USBR	N/A	196	272	274	209	250	276	272	244	158	69	71	250
State Export	N/A	355	400	400	259	250	176	118	111	96	33	35	137
Total Export	N/A	551	672	674	468	500	452	390	355	254	102	106	387
COA Balance	N/A	0	11	16	0	0	0	0	0	0	0	0	0
Vernalis (TAF)	N/A	87	71	74	126	99	103	119	237	249	255	352	172
Vernalis (cfs)	N/A	1407	1161	1242	2043	1662	1680	1934	4263	4055	4278	5718	2885
Old/Middle River calc.	N/A	-6,860	-8,481	-8,755	-5,533	-6,314	-5,496	-4,605	-3,595	-1,943	15	656	-4,298
Computed DOI	N/A	9744	6539	7497	7499	5245	10980	16690	29014	28452	22273	24287	8136

Facility	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Excess Outflow	N/A	1741	0	0	0	740	6474	10688	17614	17048	10876	16788	252
% Export/Inflow	N/A	38%	50%	51%	43%	56%	38%	28%	18%	12%	6%	5%	35%
% Export/inflow std.	N/A	65%	65%	65%	65%	65%	65%	65%	45%	35%	35%	35%	35%

Table 21: Hydrology

Statistic	Trinity	Shasta	Folsom	New Melones
Water Year Inflow (TAF)	1,541	5,685	2,360	978
Year to Date + Forecasted % of mean	128%	103%	87%	93%

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.

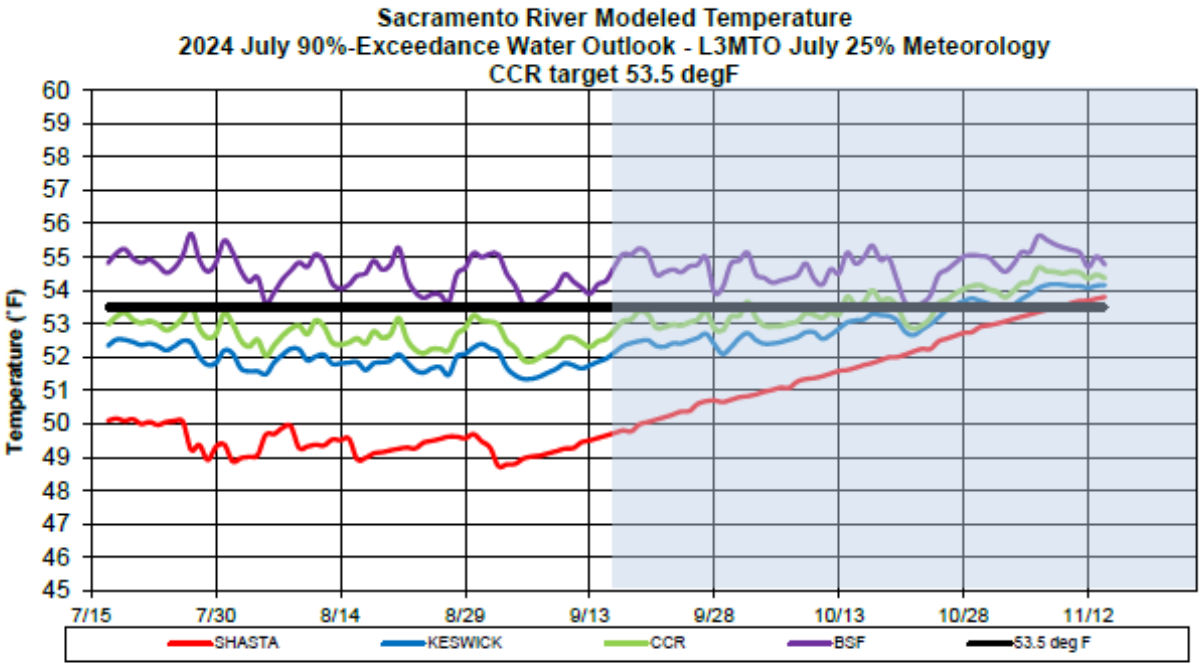

Figure 24: Sacramento River Modeled Temperature – July 2024 90%-Exceedance Water Outlook Historical 25% Meteorology, CCR target 53.5 degrees Fahrenheit.

This figure shows Sacramento River modeled temperature in degrees Fahrenheit at Shasta and Keswick Dams, above Clear Creek, and Balls Ferry from 7/15 to 11/12 in percent exceedances. It also shows the desired degree range between 45 and 60 degrees Fahrenheit.

Table 22: Facility Temperature Outlook in Degrees Fahrenheit

Month	Shasta	Keswick	CCR	BSF	Igo	Trinity	Lewiston
August	49.4	51.9	52.6	54.5	57.0	45.6	48.5
September	49.7	52.1	52.7	54.5	56.5	45.8	48.1
October	51.8	53.0	53.4	54.6	55.2	46.0	49.2
November	53.8	54.0	54.2	54.4	53.5	46.0	47.8

Legend

A = Denotes period of model limitations.

Run date: 7/23/24

EOM September Storage: 2.67 MAF

Trinity profile date: 7/11/24

Whiskeytown profile date: 7/2/24

Shasta profile date: 7/17/24

Projected side gates: First August 22 Full September 3

End of September Cold-Water-Pool less than 56 degrees Fahrenheit: 707 TAF

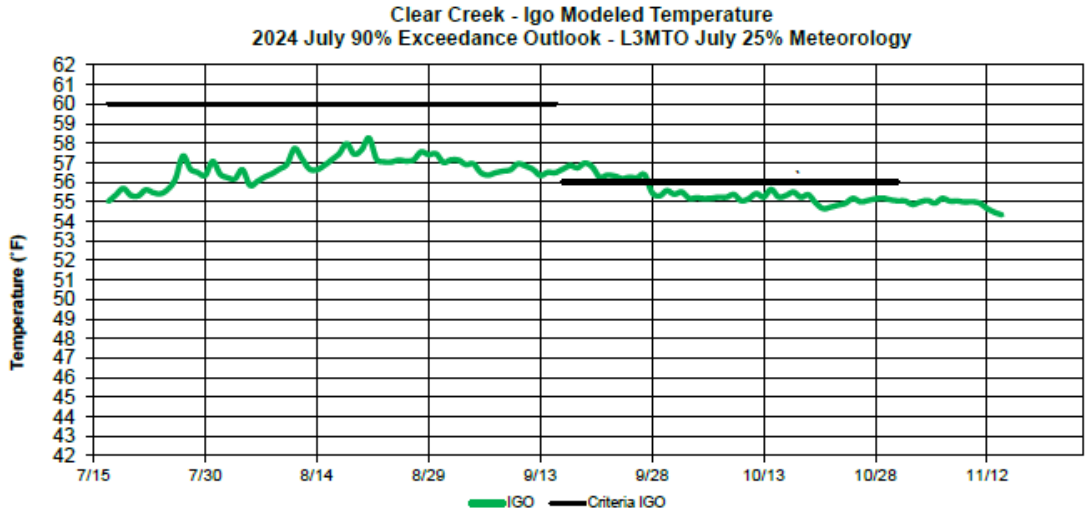

Figure 25: Clear Creek Igo Modeled Temperature – July 2024 90%-Exceedance Water Outlook Historical 25% Meteorology.

This figure is a line graph showing Igo modeled temperature in degrees Fahrenheit at from 07/15 to 11/12.

Table 23: Facility Temperature Outlook in Degrees Fahrenheit

Month	Igo
August	57.0
September	56.5
October	55.2
November	53.5

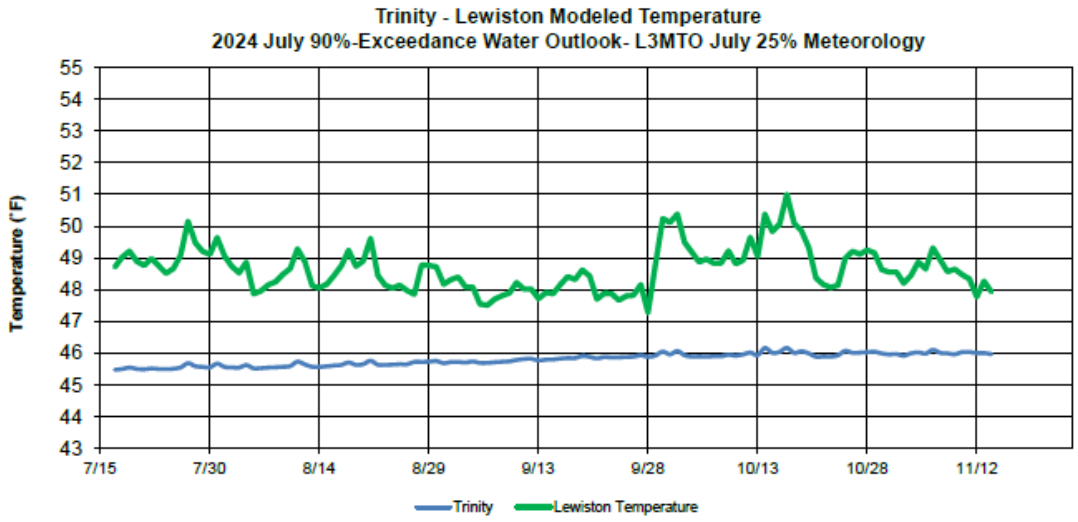

Figure 26: Trinity-Lewiston Modeled Temperature – June 2024 90%-Exceedance Water Outlook Historical 25% Meteorology.

This figure is a line graph showing Trinity - Lewiston modeled temperature in degrees Fahrenheit at from 07/15 to 11/12.

Table 24: Facility Temperature Outlook in Degrees Fahrenheit

Month	Trinity	Lewiston
August	45.6	48.5
September	45.8	48.1
October	46.0	49.2
November	46.0	47.8

Summary Document for Shasta/Keswick Operational Scenarios

Prepared by the Southwest Fisheries Science Center (SWFSC) on July 24th, 2024

Below are results for one USBR scenario ran May 24, 2024, and again on July 24, 2024. The scenario has hydrology (Input 90% exceedance) and air temperature (25% exceedance of L3MTO) as inputs. Outputs from the scenarios are used to generate daily average Sacramento River water temperatures using the RAFT model and associated temperature-dependent egg mortality and survival estimates using the NMFS stage independent temperature mortality model (Martin et al. 2017) for the 2024 temperature management season. Upstream temperature inputs into the RAFT model were from the USBR HEC-5Q model.

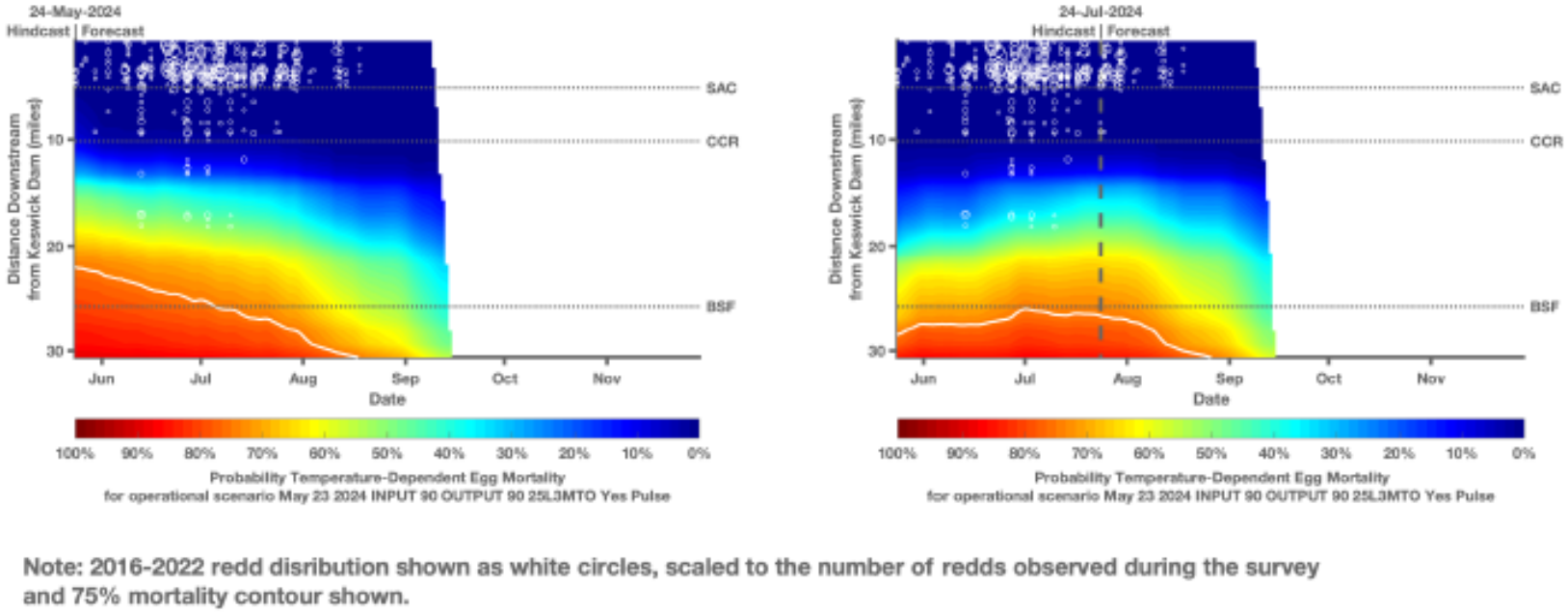

Figure 27: Estimated temperature-dependent egg mortality

The two figures show estimated temperature dependent egg mortality produced by the NMFS stage-independent temperature mortality model under the May 2024 scenarios. 2016-2022 redd distributions are used for all plots. Note: 2016-2022 redd distribution shown as white circles, scaled to the number of redds observed during the survey and 75% mortality contour shown.

Table 25: Estimated temperature-dependent egg mortality under different scenarios assuming a 2016-2022 spatial and temporal redd distribution using output from the RAFT water temperature model.

Scenario	Upstream input to RAFT Model	Mean (%)	Median (%)
Apr_24_2024_1090Prct_Scen_APR_22_2024_INPUT_90_OUTPUT_90_25L3MTO_No_Pulse	USBR HEC-5Q	8	5
Apr_24_2024_1090Prct_Scen_APR_22_2024_INPUT_90_OUTPUT_90_25L3MTO_Yes_Pulse USBR	USBR HEC-5Q	13	10

Reference: Martin, B. T., Pike, A., John, S. N., Hamda, N., Roberts, J., Lindley, S. T. and Danner, E. M. (2017), Phenomenological vs. biophysical models of thermal stress inaquatic eggs. Ecology Letters 20: 50–59. doi:10.1111/ele.12705