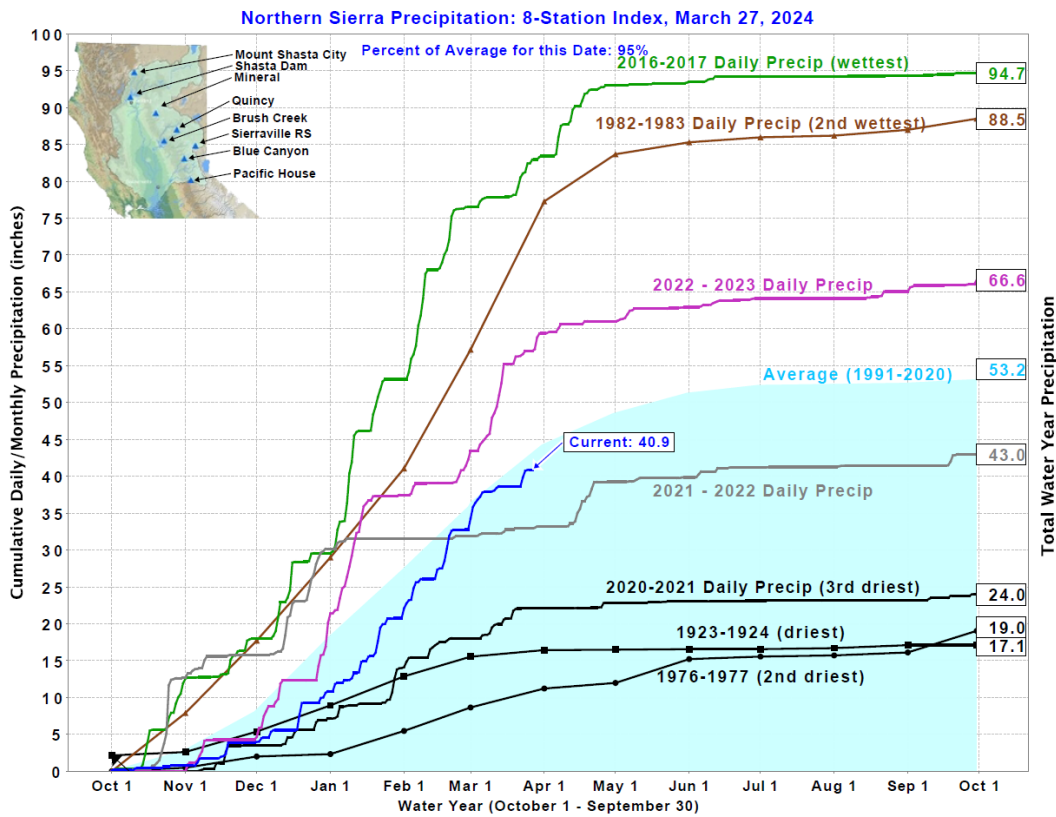




Sacramento River Temperature Task Group Meeting Packet

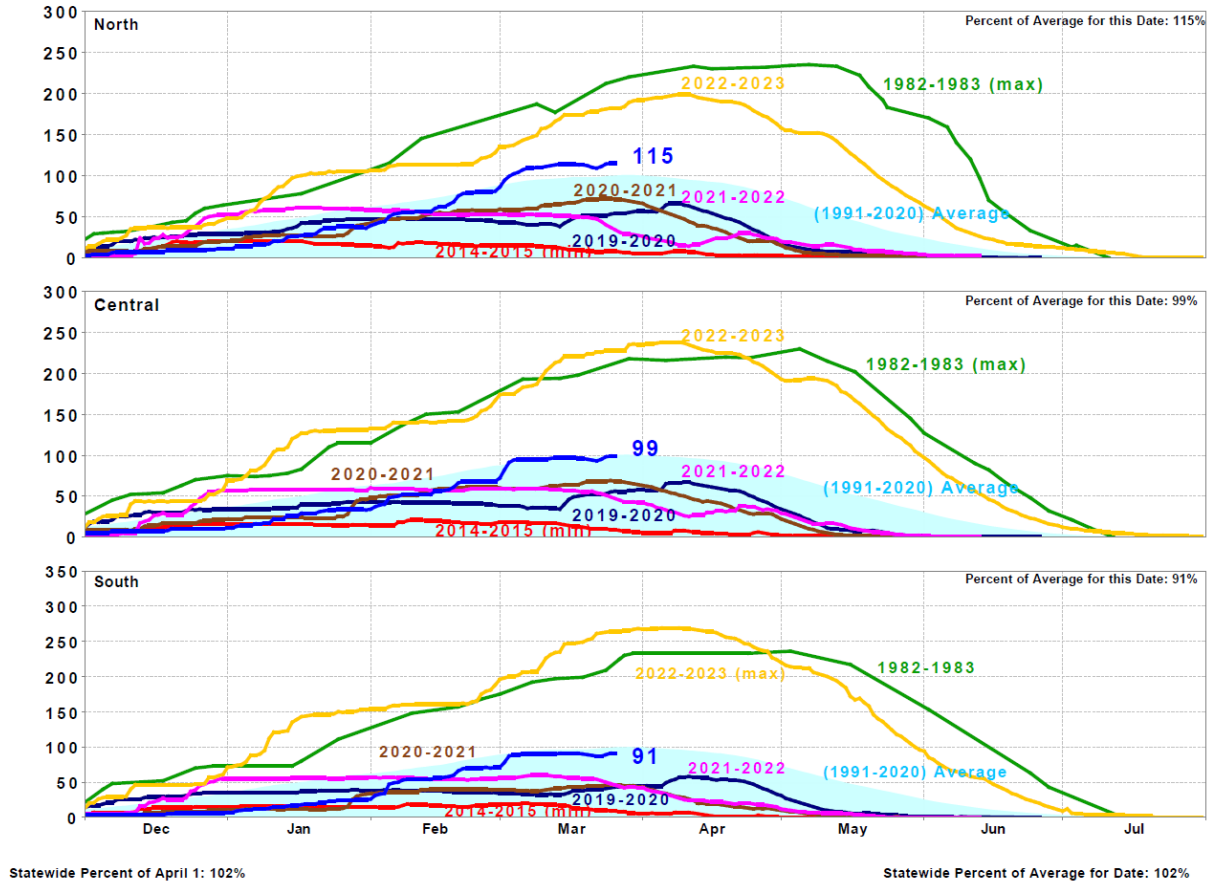
March, 28 2024



Northern Sierra Precipitation: 8-Station Index, March 27, 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, 40.9 (95% 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).

California Snow Water Content, March 26, 2024, Percent of April 1 Average



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

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

March 26, 2024

Run Date: March 27, 2024

Reservoir Releases in Cubic Feet Per Second

| Reservoir | Dam | WY 2023 | WY 2024 | 15-Year Median |
|-------------|----------------|---------|---------|----------------|
| Trinity | Lewiston | 1,020 | 305 | 308 |
| Sacramento | Keswick | 3,322 | 4,622 | 3,534 |
| Feather | Oroville (SWP) | 15,000 | 10,000 | 2,100 |
| American | Nimbus | 8,177 | 4,509 | 1,510 |
| Stanislaus | Goodwin | 1,503 | 1,501 | 402 |
| San Joaquin | Friant | 8,928 | 547 | 547 |

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 | 1,595 | 899 | 1,929 | 121 |
| Shasta | 4,552 | 3,403 | 3,644 | 4,079 | 120 |
| Folsom | 977 | 593 | 647 | 678 | 114 |
| New Melones | 2,420 | 1,498 | 1,359 | 2,002 | 134 |
| Fed. San Luis | 966 | 705 | 892 | 964 | 137 |
| Total North CVP | 11,363 | 7,794 | 7,441 | 9,652 | 124 |
| Millerton | 521 | 315 | 375 | 394 | 125 |
| Oroville (SWP) | 3,538 | 2,362 | 2,901 | 3,072 | 130 |

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 | 817 | 279 | 1,174 | 527 | 155 |
| Shasta | 3,580 | 1,951 | 5,445 | 2,848 | 126 |
| Folsom | 1,087 | 705 | 3,191 | 1,351 | 80 |
| New Melones | 417 | --- | 870 | 460 | 91 |
| Millerton | 623 | 407 | 793 | 505 | 123 |

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 | 31.70 | 18.45 | 34.14 | 25.40 | (64) | 125 |
| Sacramento at Shasta Dam | 58.81 | 27.19 | 67.41 | 49.58 | (69) | 119 |
| American at Blue Canyon | 52.81 | | 91.26 | 53.80 | (50) | 98 |
| Stanislaus at New Melones | 23.31 | --- | 29.74 | 22.72 | (47) | 103 |
| San Joaquin at Huntington LK | 24.72 | 11.50 | 51.60 | 32.92 | (51) | 75 |

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 |
|-------|--------------------------|-------------|--------------------------|-------------|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------------|-------------|----------------------------------|------------------------------|-------------------------|-------------|-------------|-------------|
| Feb | 50.4 | 49.0 | 48.8 | 49.3 | 49.3 | 49.4 | 49.8 | 49.8 | 50.0 | 49.3 | 46.5 | 45.4 | 46.2 | 14954 | 1679 | 19871 | 51.8 | 48.8 | 50.2 |
| 03/01 | 50.6 | 48.4 | 49.2 | 48.8 | 48.8 | 49.0 | 49.3 | 49.5 | 49.7 | 48.5 | 47.1 | 44.8 | 45.6 | 18599 | 1764 | 19383 | 49.5 | 49.5 | 49.9 |
| 03/02 | 50.7 | 48.3 | 49.2 | 48.6 | 48.5 | 48.6 | 48.4 | 48.5 | 48.6 | 47.1 | 46.8 | 42.7 | 43.2 | 15904 | 1721 | 8449 | 42.5 | 43.4 | 43.7 |
| 03/03 | 50.7 | 48.4 | 49.0 | 48.5 | 48.4 | 48.6 | 48.1 | 47.7 | 47.6 | 46.8 | 46.8 | 42.6 | 42.8 | 14828 | 1745 | 15339 | 44.0 | 41.6 | 43.5 |
| 03/04 | 50.7 | 48.4 | 48.8 | 48.5 | 48.4 | 48.5 | 48.1 | 47.8 | 47.8 | 46.9 | 46.8 | 43.2 | 43.5 | 14611 | 1739 | 15260 | 42.5 | 42.2 | 43.0 |
| 03/05 | 50.6 | 48.5 | 48.8 | 48.6 | 48.6 | 48.8 | 48.4 | 48.4 | 48.4 | 48.4 | 46.7 | 43.6 | 44.2 | 12895 | 1747 | 15103 | 50.0 | 50.8 | 51.7 |
| 03/06 | 50.1 ¹ | 48.6 | 48.8 | 48.8 | 49.0 | 49.1 | 49.4 | 49.2 | 49.4 | 49.9 | 46.8 | 44.7 | 45.5 | 13941 | 1723 | 15176 | 54.5 | 51.5 | 53.1 |
| 03/07 | 51.1 | 48.9 | 48.7 | 48.9 | 49.1 | 49.3 | 49.7 | 50.0 | 50.2 | 49.2 | 46.8 | 45.3 | 46.2 | 10589 | 1365 | 15151 | 55.5 | 50.6 | 52.7 |
| 03/08 | 51.1 | 48.8 | 48.7 | 49.2 | 49.4 | 49.6 | 49.9 | 50.1 | 50.4 | 48.9 | 46.6 | 45.2 | 46.2 | 13604 | 1754 | 15252 | 57.5 | 50.4 | 53.1 |
| 03/09 | 51.3 | 48.7 | 48.7 | 49.1 | 49.3 | 49.5 | 49.9 | 50.1 | 50.4 | 48.8 | 46.6 | 45.4 | 46.3 | 13793 | 1754 | 15199 | 52.0 | 48.8 | 51.1 |
| 03/10 | 50.2 | 48.6 | 48.6 | 48.9 | 49.0 | 49.2 | 49.7 | 50.0 | 50.3 | 48.7 | 46.7 | 45.1 | 46.1 | 13360 | 1615 | 14940 | 53.5 | 50.4 | 50.9 |
| 03/11 | 51.2 | 48.6 | 48.5 | 48.9 | 49.0 | 49.1 | 49.5 | 49.7 | 49.9 | 48.7 | 46.7 | 44.8 | 45.5 | 14270 | 1731 | 15224 | 51.5 | 48.5 | 50.0 |
| 03/12 | 50.4 | 48.5 | 48.6 | 48.9 | 49.2 | 49.3 | 49.9 | 50.1 | 50.3 | 49.5 | 47.0 | 45.7 | 46.4 | 13669 | 1659 | 15100 | 52.5 | 51.0 | 51.8 |
| 03/13 | 50.4 | 48.6 | 48.7 | 48.8 | 49.1 | 49.3 | 50.0 | 50.4 | 50.8 | 49.3 | 47.3 | 45.7 | 46.7 | 14265 | 1747 | 15177 | 55.0 | 50.8 | 52.8 |
| 03/14 | 50.5 | 49.0 | 48.7 | 49.1 | 49.4 | 49.6 | 50.2 | 50.5 | 50.8 | 49.3 | 47.7 | 46.2 | 47.1 | 12012 | 1734 | 13079 | 62.0 | 57.7 | 58.7 |
| 03/15 | 50.5 | 48.7 | 48.9 | 49.3 | 49.6 | 49.9 | 50.6 | 50.9 | 51.2 | 49.8 | 48.0 | 46.2 | 47.1 | 10668 | 1721 | 11353 | 66.5 | 62.0 | 60.3 |
| 03/16 | 50.9 | 49.2 | 49.0 | 49.6 | 49.9 | 50.3 | 51.1 | 51.5 | 52.0 | 50.1 | 48.4 | 46.8 | 47.5 | 9453 | 976 | 9711 | 61.0 | 55.8 | 58.3 |
| 03/17 | 51.0 | 49.2 | 49.0 | 49.9 | 50.3 | 50.8 | 51.7 | 52.4 | 52.9 | 50.5 | 48.8 | 47.6 | 48.3 | 7432 | 471 | 8205 | 63.5 | 58.1 | 59.8 |
| 03/18 | 50.9 ^A | 49.3 | 48.8 | 49.9 | 50.4 | 50.9 | 52.3 | 53.2 | 53.9 | 50.7 | 49.2 | 48.5 | 49.0 | 6525 | 461 | 7090 | 63.0 | 58.2 | 59.8 |
| 03/19 | 51.0 | 49.5 | 48.7 | 50.1 | 50.7 ^A | 51.3 | 52.9 | 53.9 | 54.6 | 51.1 | 49.8 | 49.4 | 49.7 | 5555 | 1095 | 6132 | 62.0 | 58.3 | 61.1 |
| 03/20 | 51.0 | 49.1 | 48.8 | 50.2 | 50.7 | 51.3 | 53.5 | 54.8 | 55.5 | 51.1 | 50.1 | 49.9 | 50.0 | 5068 | 986 | 5848 | 62.0 | 59.0 | 59.8 |
| 03/21 | 51.6 | 49.2 | 48.1 | 50.3 | 50.9 | 51.5 | 53.3 | 54.4 | 55.3 | 49.6 | 50.5 | 49.9 | 50.2 | 4518 | 113 | 5679 | 59.0 | 57.6 | 57.9 |
| 03/22 | 50.6 | 49.0 | 48.6 | 50.2 | 50.5 | 50.9 | 52.7 | 54.2 | 54.9 | 49.3 | 50.5 | 48.9 | 49.3 | 5297 | 327 | 5403 | 60.0 | 54.2 | 55.1 |

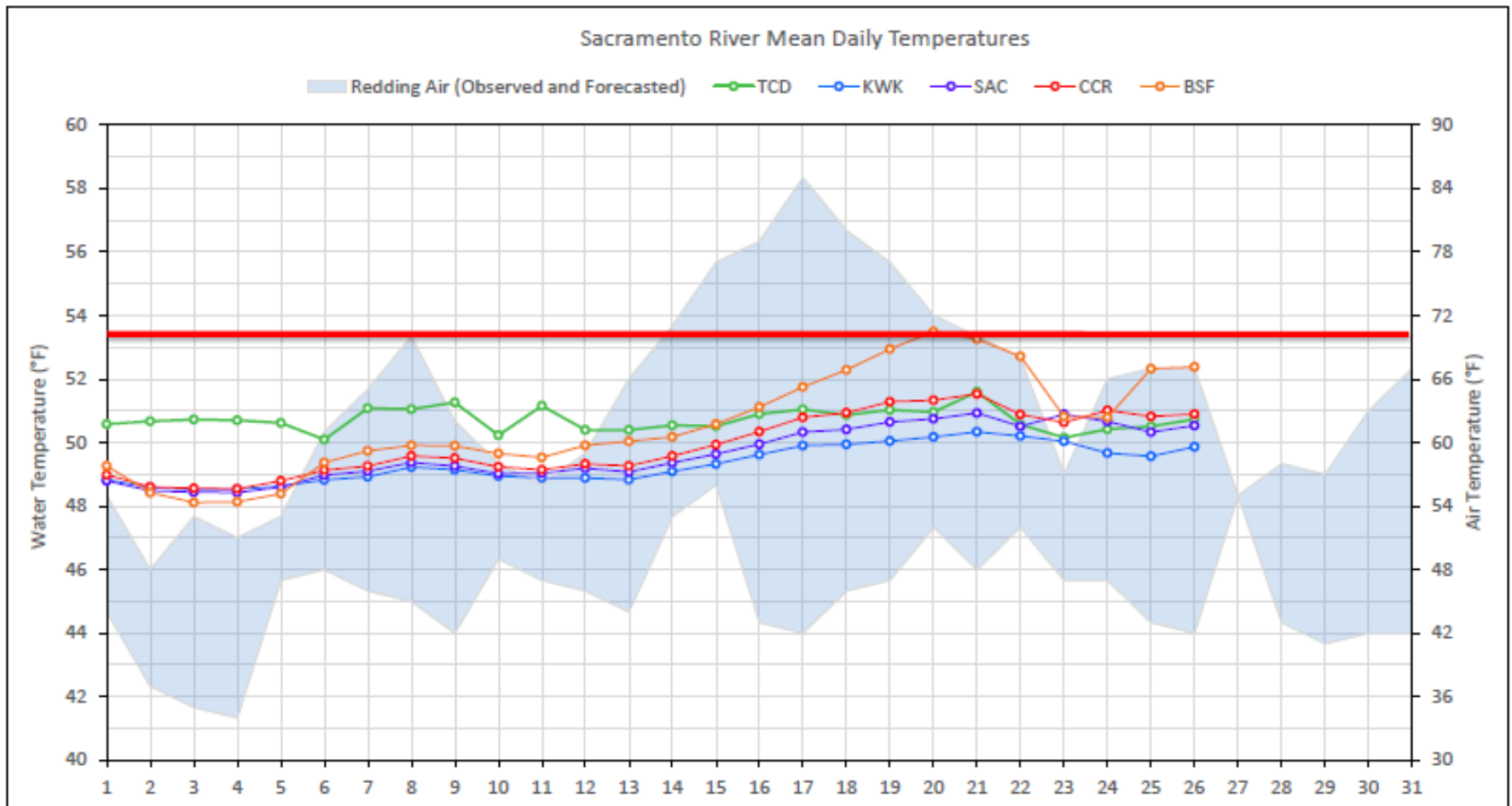
| Date | MDWT TCD ¹ | MDWT SHD | MDWT SPP ¹ | MDWT KWK | MDWT SAC ² | MDWT CCR | MDWT BSF | MDWT BND | MDWT RBD | MDWT IGO | MDWT LWS | MDWT DGC ³ | MDWT NFH | MDR Shasta Generation | MDR Spring Creek PP | MDR Keswick Total | MDAT RDD | MDAT BSF | MDAT RDB | |
|-------|-----------------------|----------|-----------------------|----------|-----------------------|----------|----------|----------|----------|----------|----------|-----------------------|----------|-----------------------|---------------------|-------------------|----------|----------|----------|-----|
| 03/23 | 50.1 | 48.7 | 48.6 | 50.0 | 50.9 | 50.6 | 50.8 | 52.2 | 52.9 | 49.2 | 50.3 | 47.3 | 47.2 | 4864 | 399 | 5339 | 53.0 | 49.8 | 51.7 | |
| 03/24 | 50.4 | 48.8 | 48.9 | 49.7 | 50.7 | 51.0 | 50.8 | 50.7 | 51.2 | 49.5 | 50.3 | 47.6 | 47.6 | 4271 | 287 | 5091 | 56.5 | 50.6 | 54.3 | |
| 03/25 | 50.5 | 49.0 | 48.4 | 49.6 | 50.3 | 50.8 | 52.3 | 52.9 | 53.5 | 49.6 | 50.4 | 48.8 | 48.8 | 4368 | 125 | 4879 | 55.0 | 52.0 | 53.8 | |
| 03/26 | 50.7 | 49.1 | 48.6 | 49.9 | 50.5 | 50.9 | 52.4 | 53.2 | 54.0 | 49.6 | 50.4 | 48.8 | 49.2 | 3569 | 199 | 4622 | 54.5 | 52.5 | 55.9 | |
| Mar | 50.7 | 48.8 | 48.7 | 49.3 | 49.6 | 49.9 | 50.6 | 51.0 | 51.4 | 49.2 | 48.2 | 46.3 | 46.9 | 10305 | 1191 | 11046 | 55.3 | 52.1 | 53.6 | |
| 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 | 267928 | 30958 | 287184 | 267928 | 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 | N/A | 531424 | 61404 | 569618 | 531424 | 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
- 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

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.

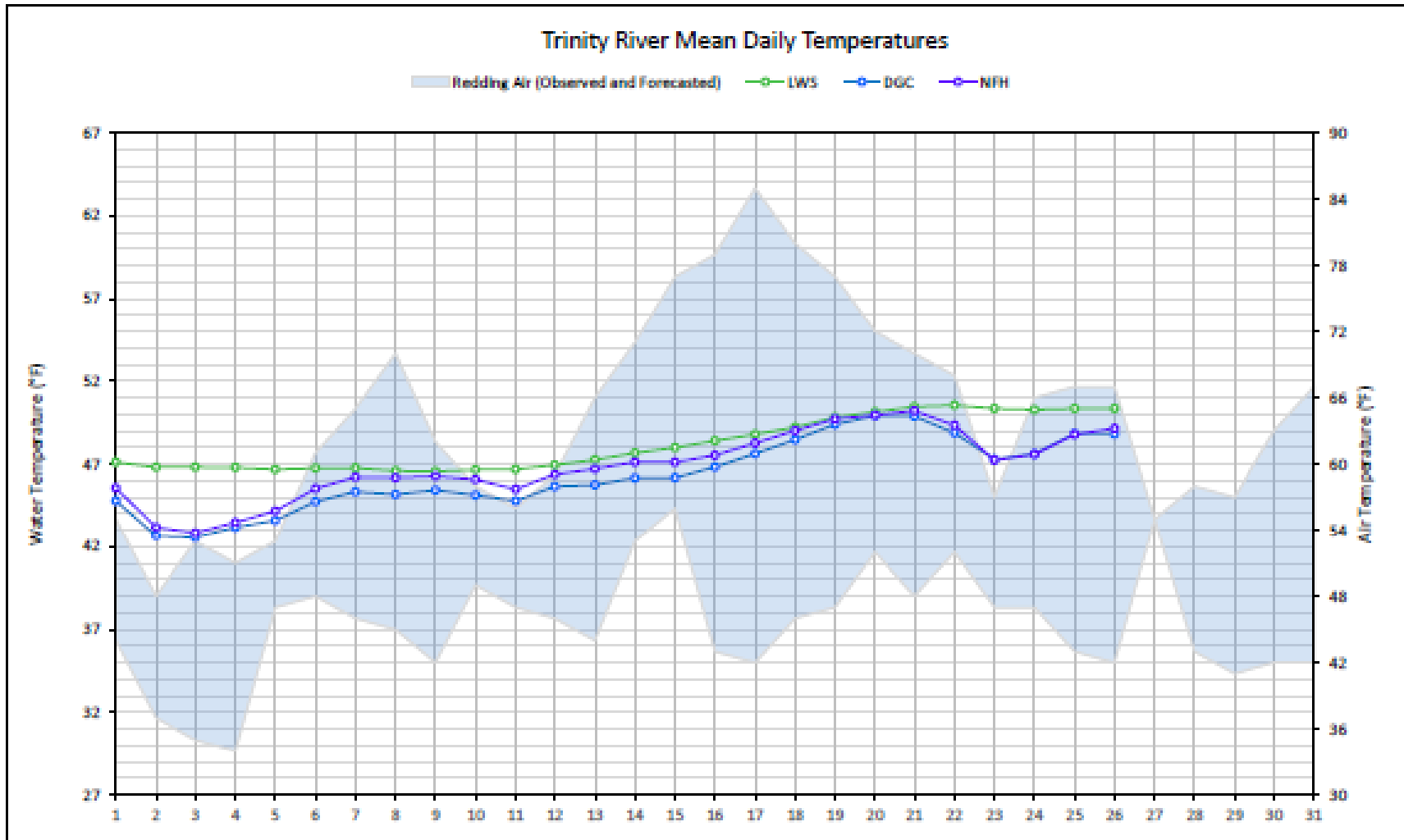
Station Details

| Code | Body of Water | Location ¹ |
|---------------------|------------------|--|
| TCD | N/A | Shasta Power Plant |
| 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 |

Water Right Temperature Control Points

| River | Point | Temp (°F) | Begin Date | End Date |
|------------|-------|-----------|------------|------------|
| Sacramento | SAC | 55 | 06/15/2021 | 05/02/2022 |
| Sacramento | SAC | 58 | 05/02/2022 | 06/07/2022 |
| Sacramento | SAC | 54.5 | 06/07/2022 | TBD |

Notes: ¹ Distances are approximate



Trinity River Mean Daily Temperatures

This figure shows mean Trinity River daily temperatures in degrees Fahrenheit at stations 1.1, 19, and 38 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.

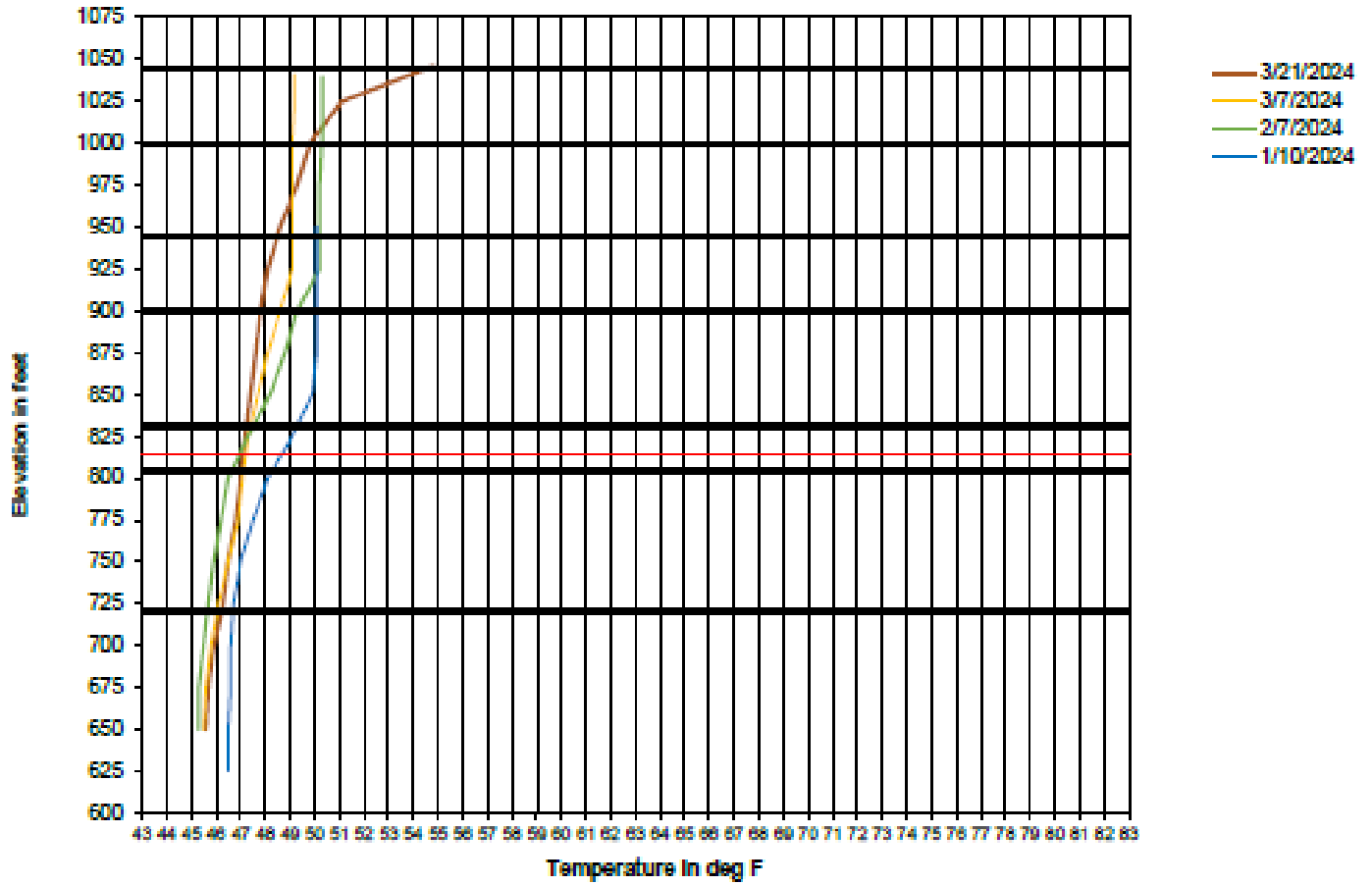
Station Details

| Code | Body of Water | Location ¹ |
|---------------------|---------------|--------------------------------------|
| LWS | Trinity River | 1.1 miles downstream of Lewiston Dam |
| DGC | Trinity River | 19 miles downstream of Lewiston Dam |
| NEH | Trinity River | 38 miles downstream of Lewiston Dam |

Water Right Temperature Control Points

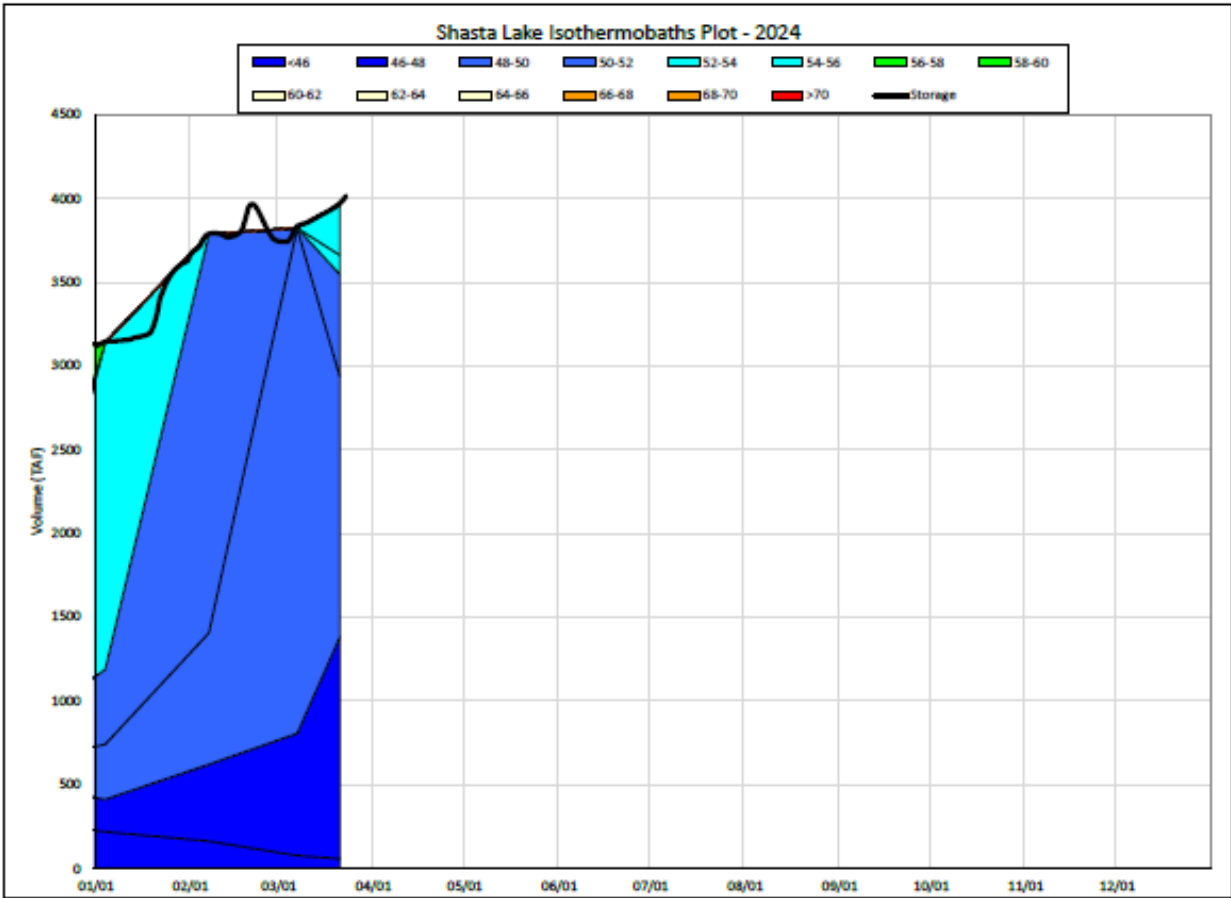
| River | Point | Temp (°F) | Begin Date | End Date |
|-------|-------|-----------|------------|----------|
| N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A |

Notes: ¹ Distances are approximate



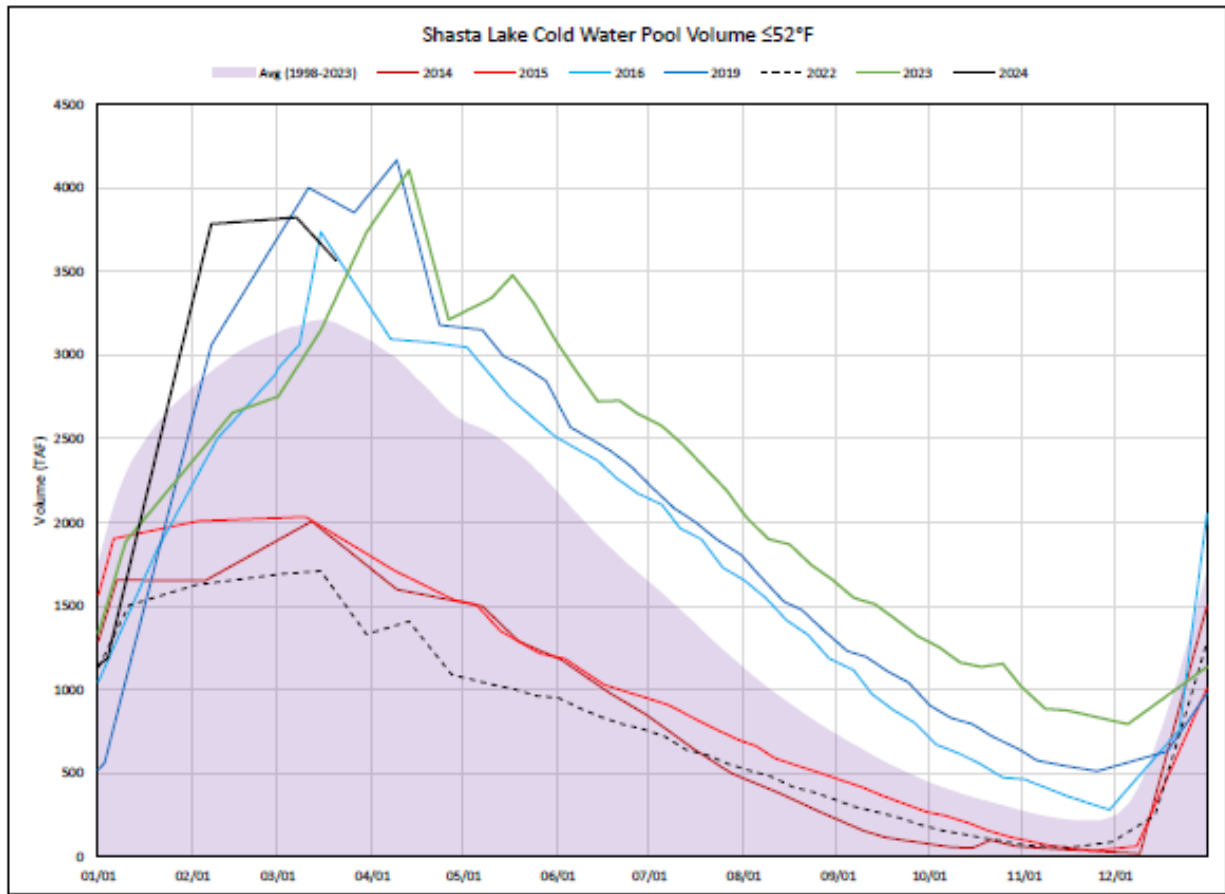
2023 Shasta Temperature Profiles

This figure is a multiple line graph showing Shasta Lake temperature profiles from 05/17-11/15 with lake elevation 600-1075' and lake temperatures from 43-83 degrees fahrenheit.



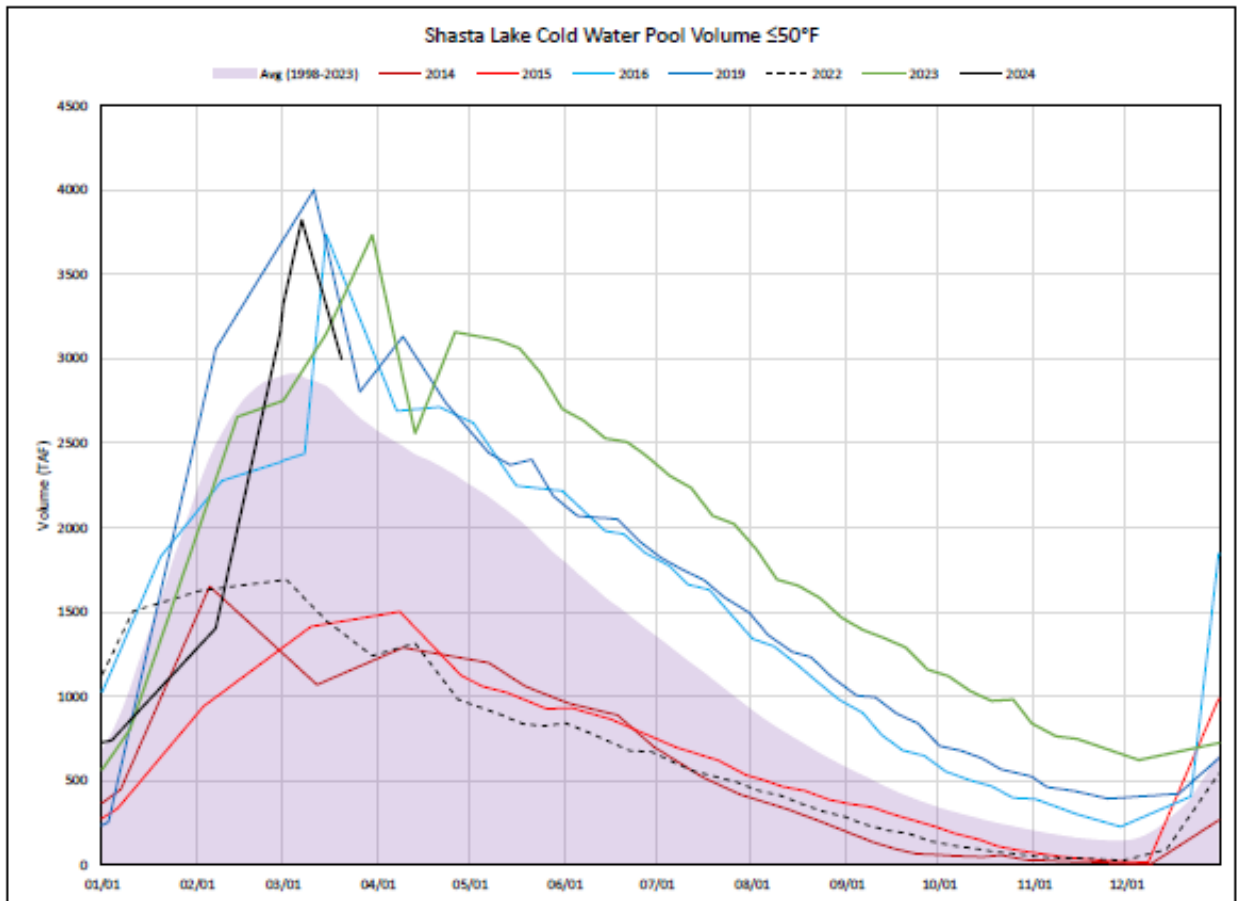
Shasta Lake Isothermobaths Plot - 2024

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



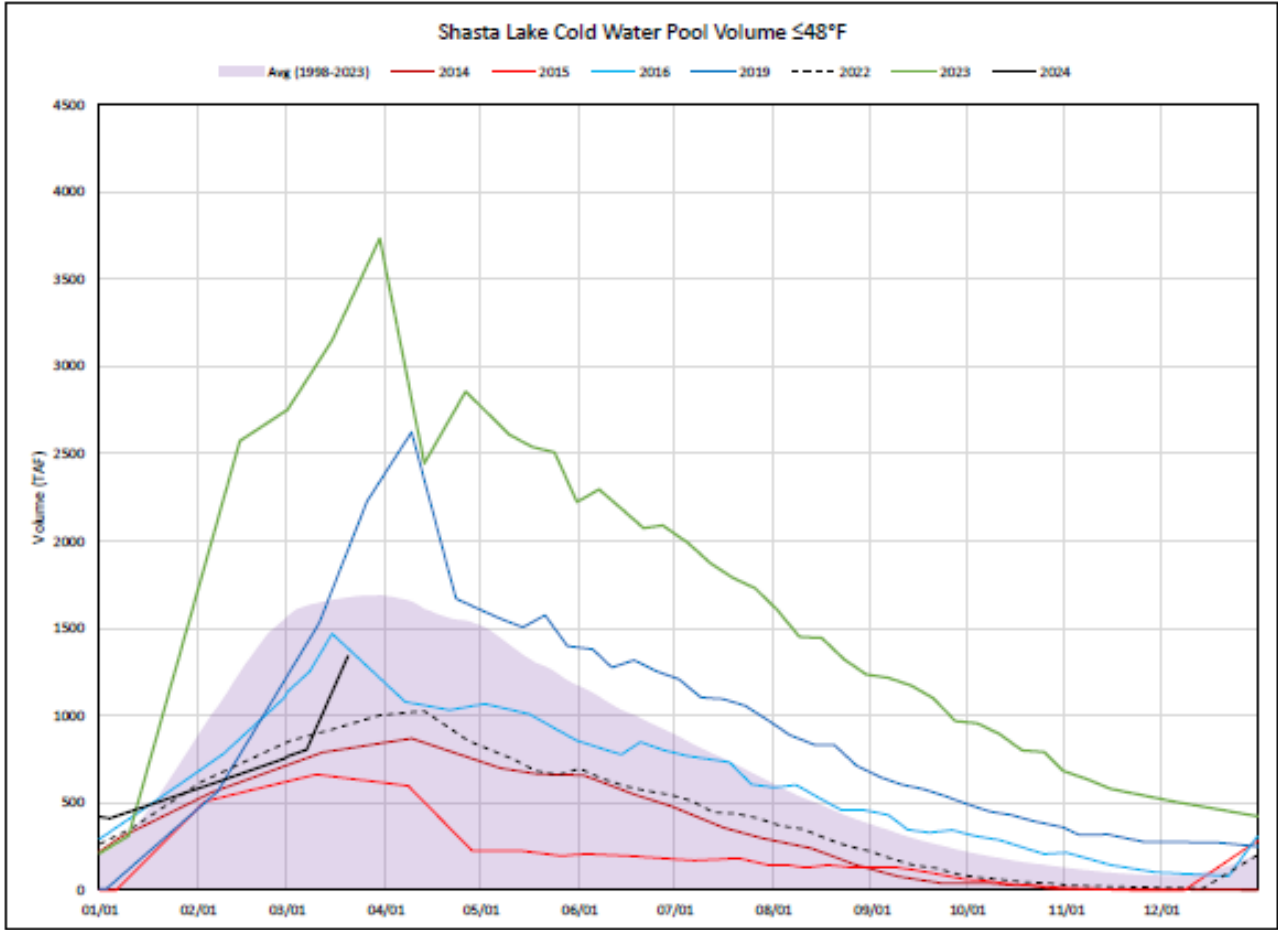
Shasta Lake Cold Water Pool Volume ≤52°F

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.



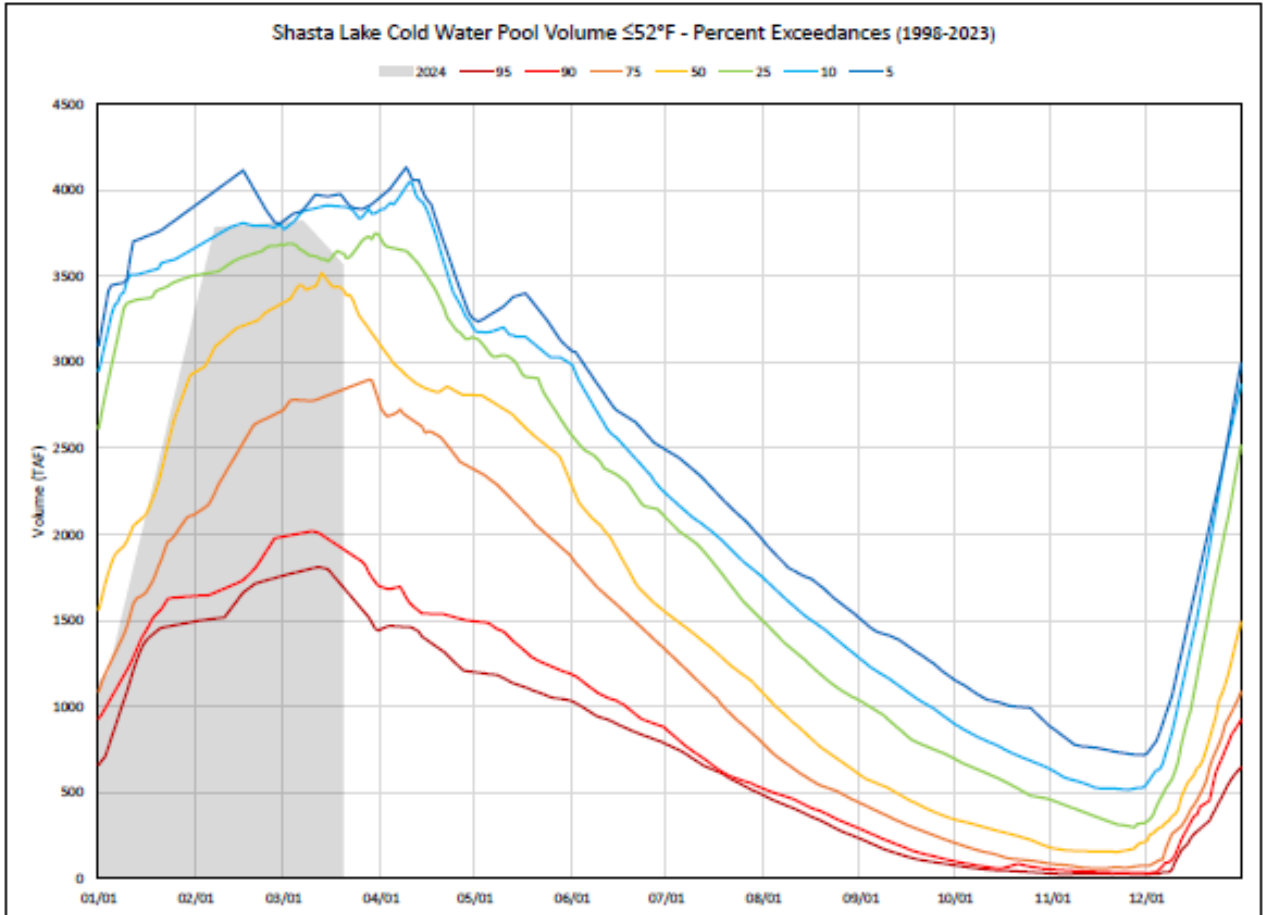
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

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.



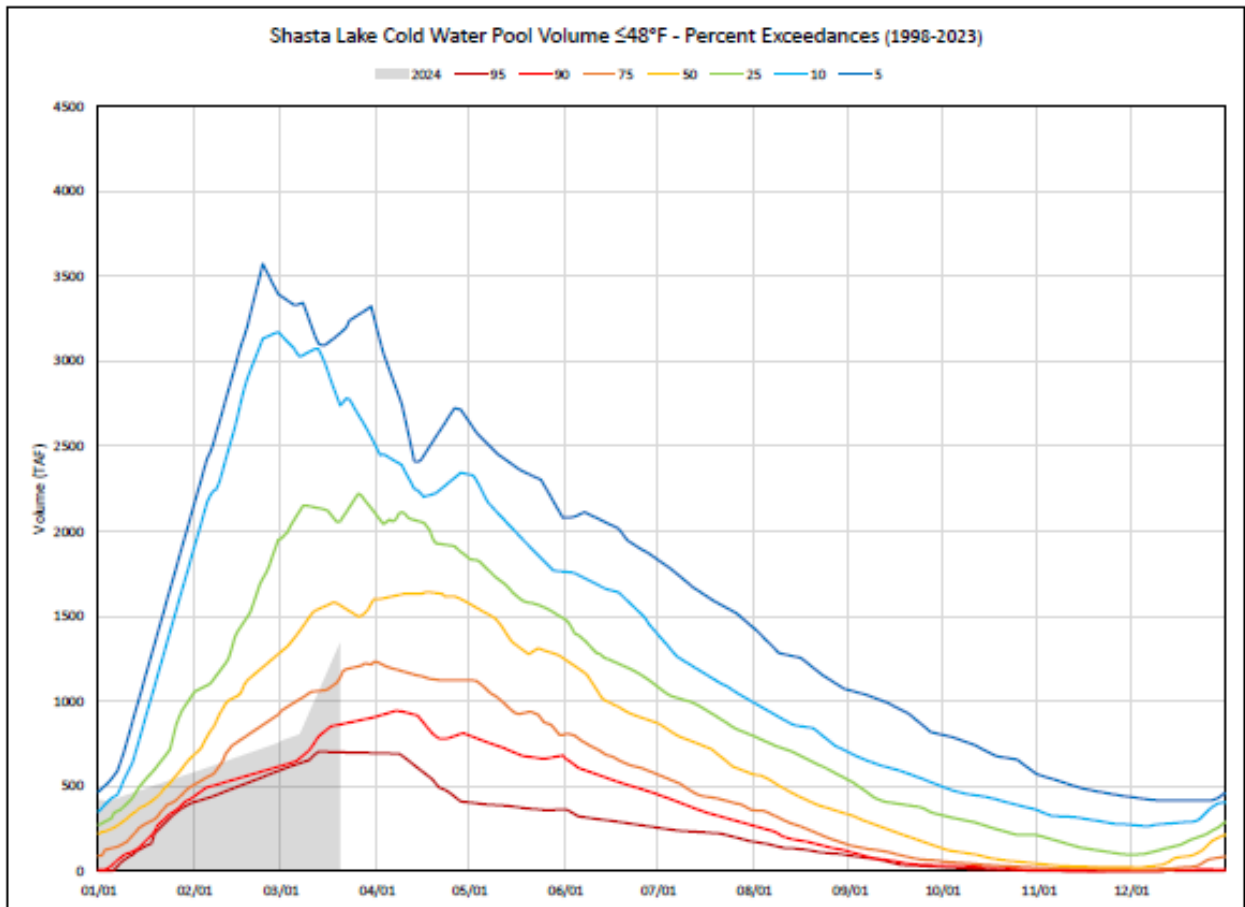
Shasta Lake Cold Water Pool Volume ≤48°F

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.



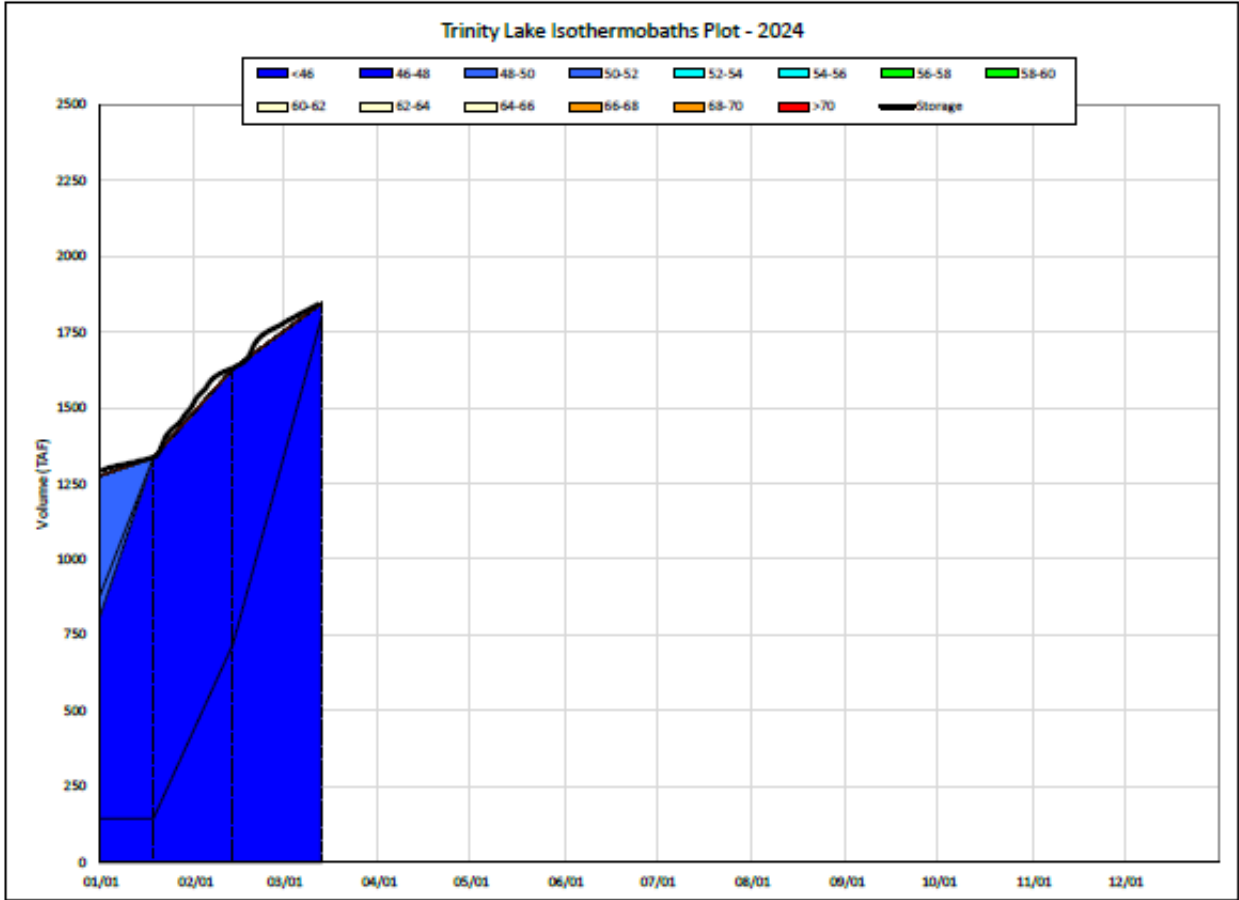
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

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.



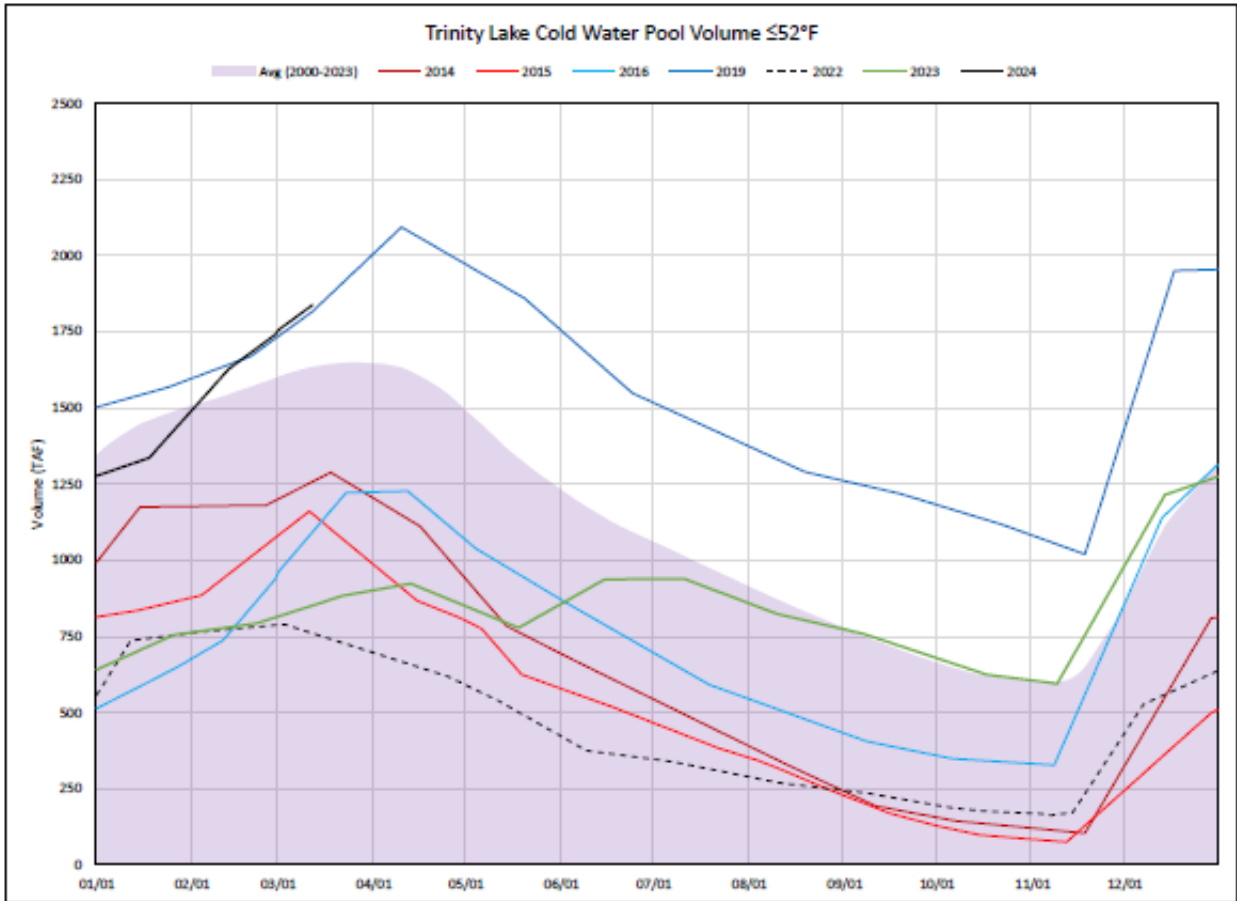
Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

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.



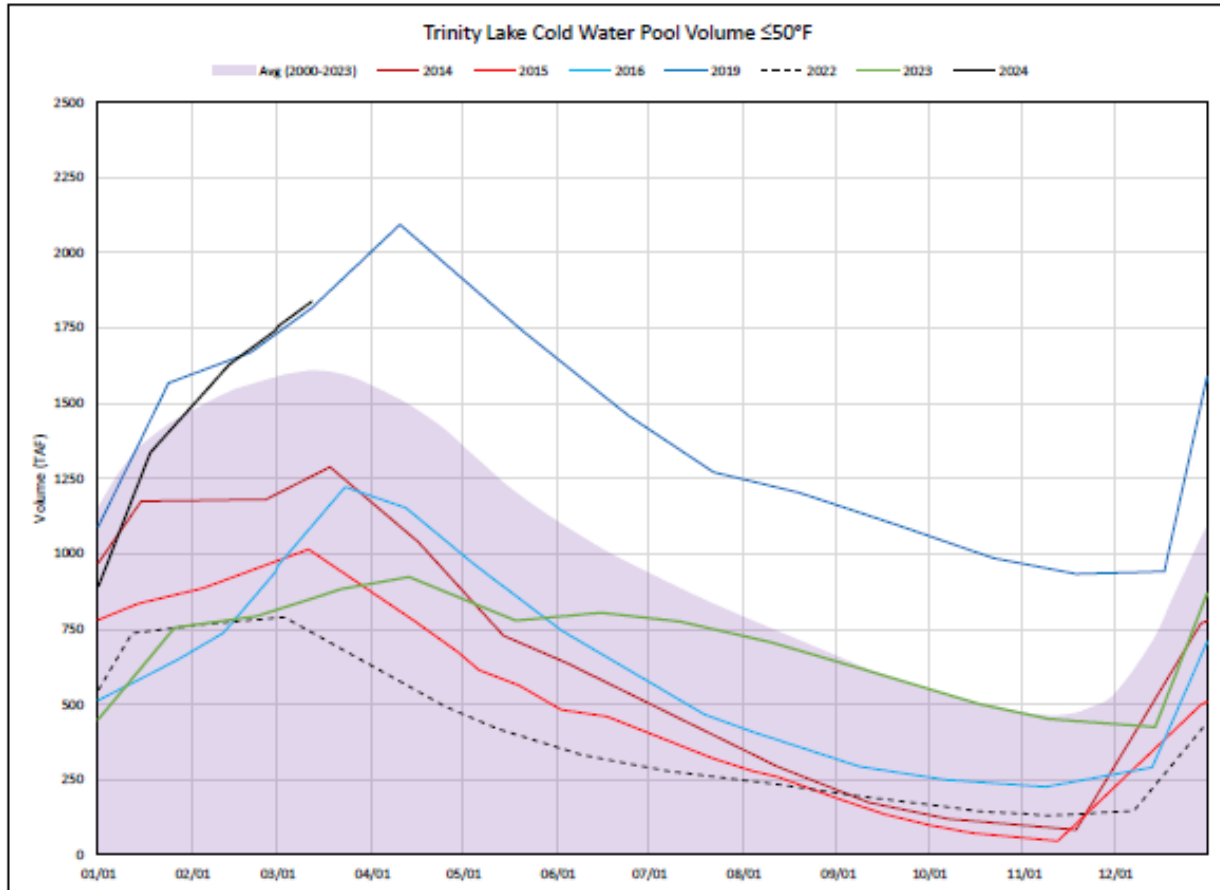
Trinity Lake Isothermobaths Plot – 2024

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



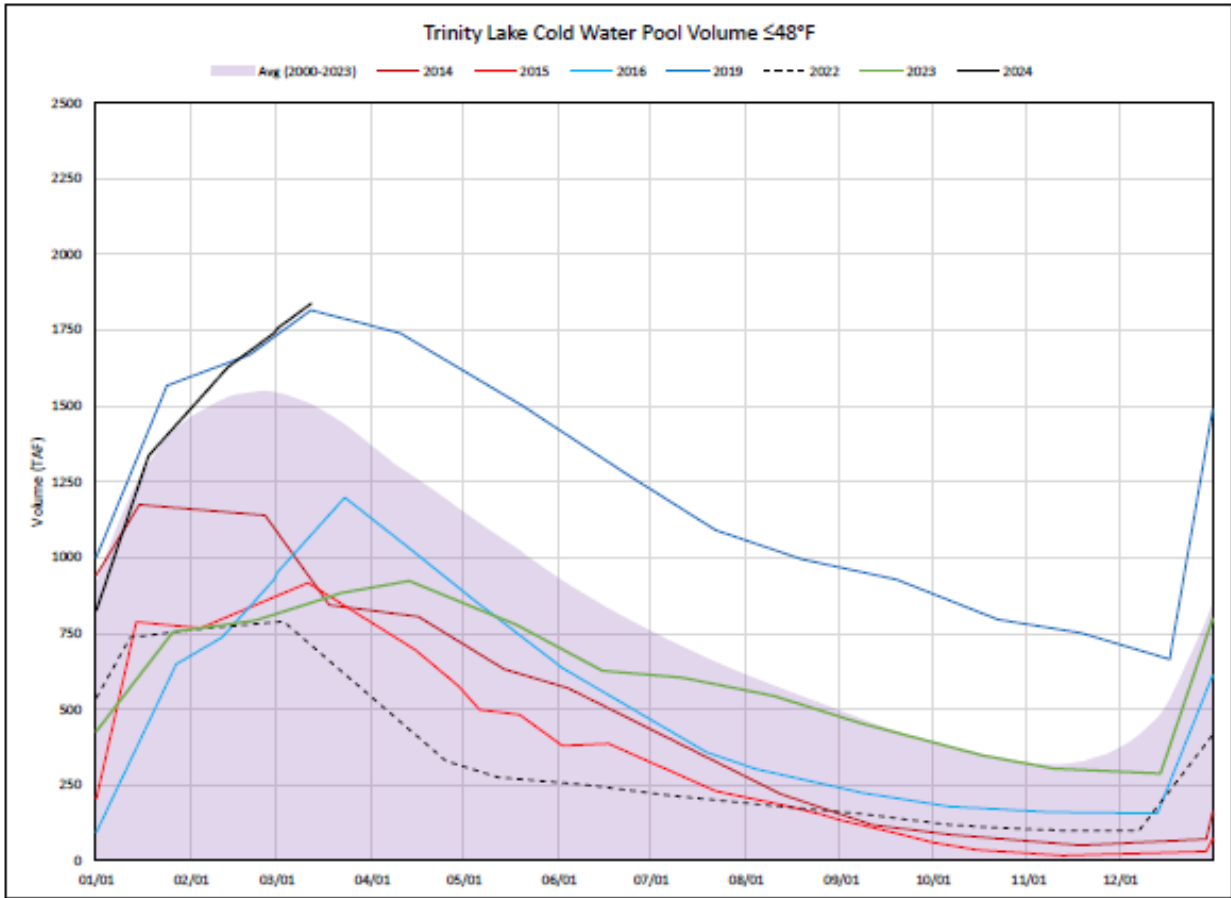
Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

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.



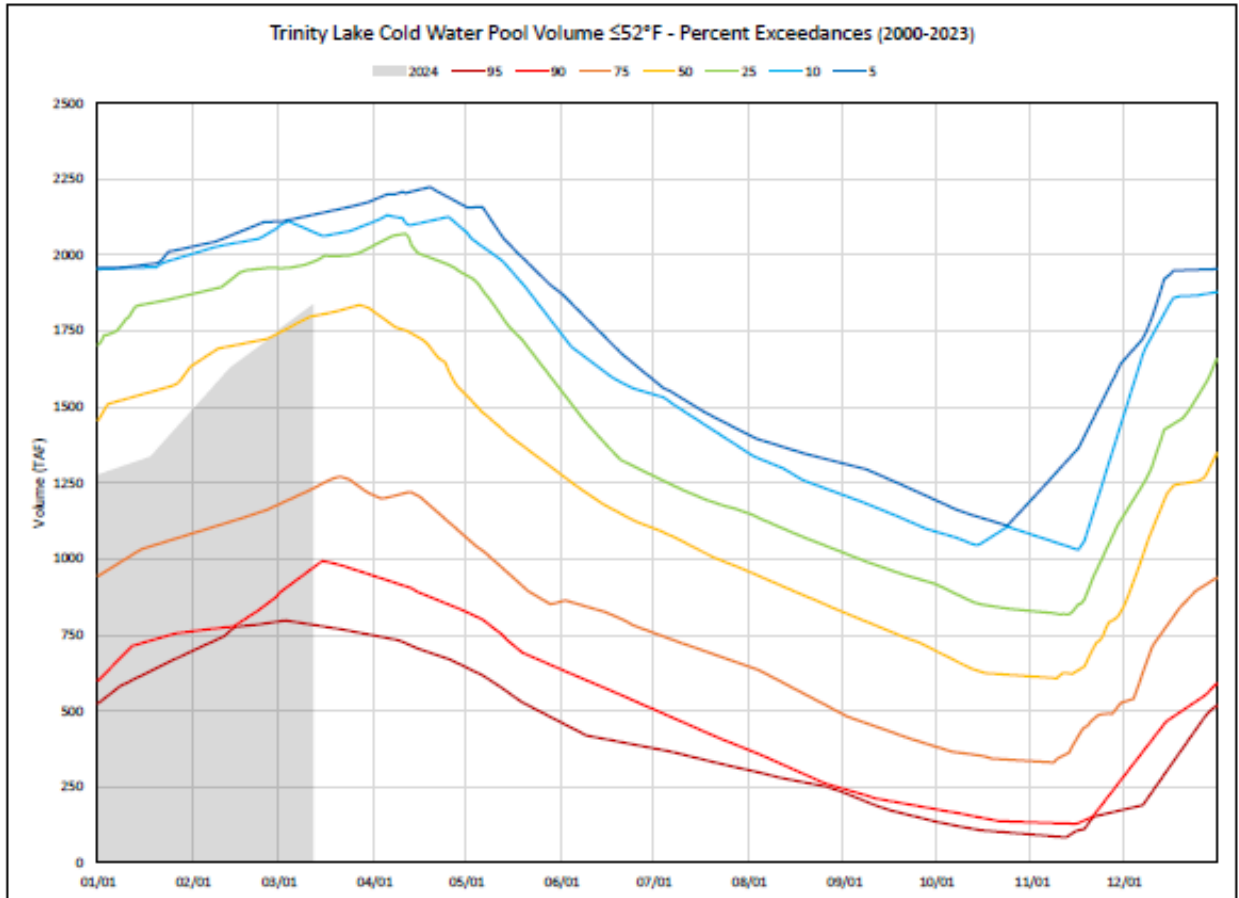
Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

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.



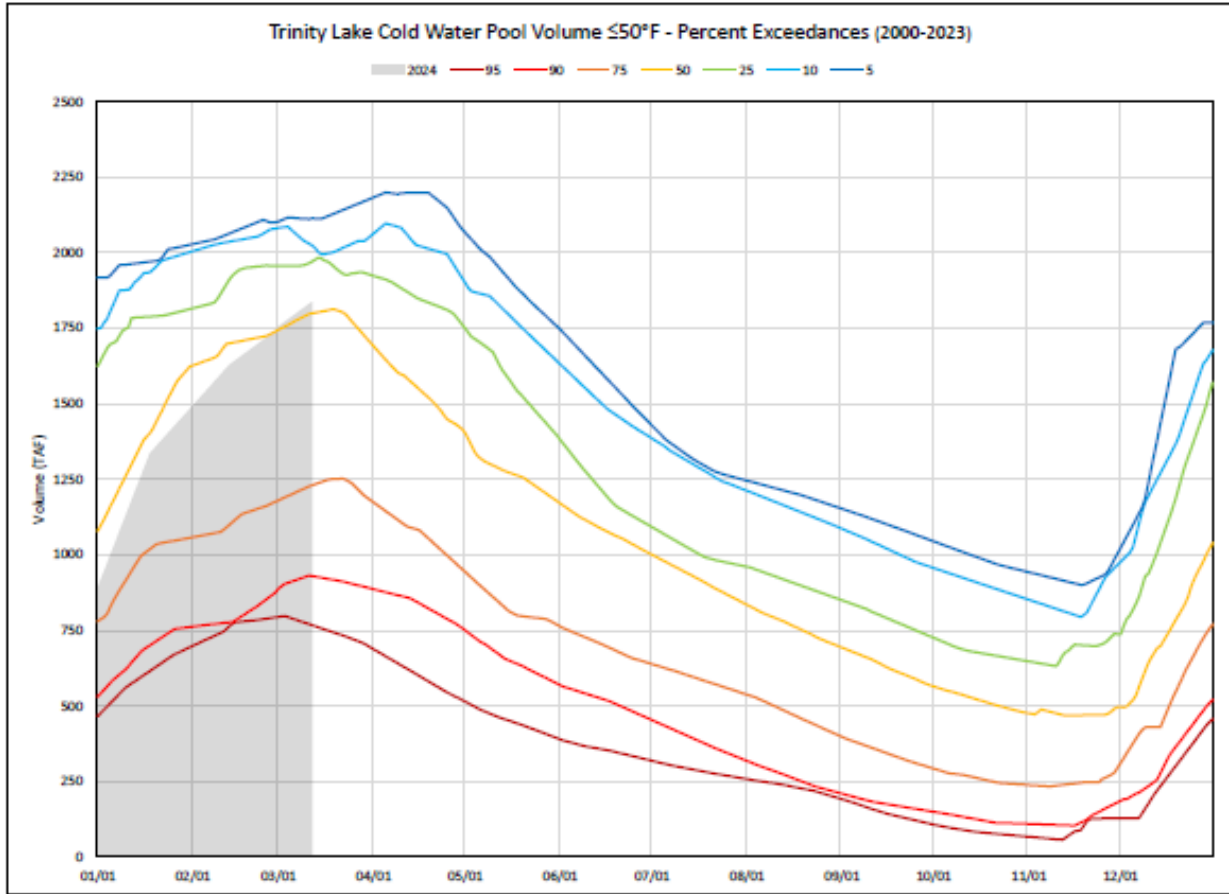
Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

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.



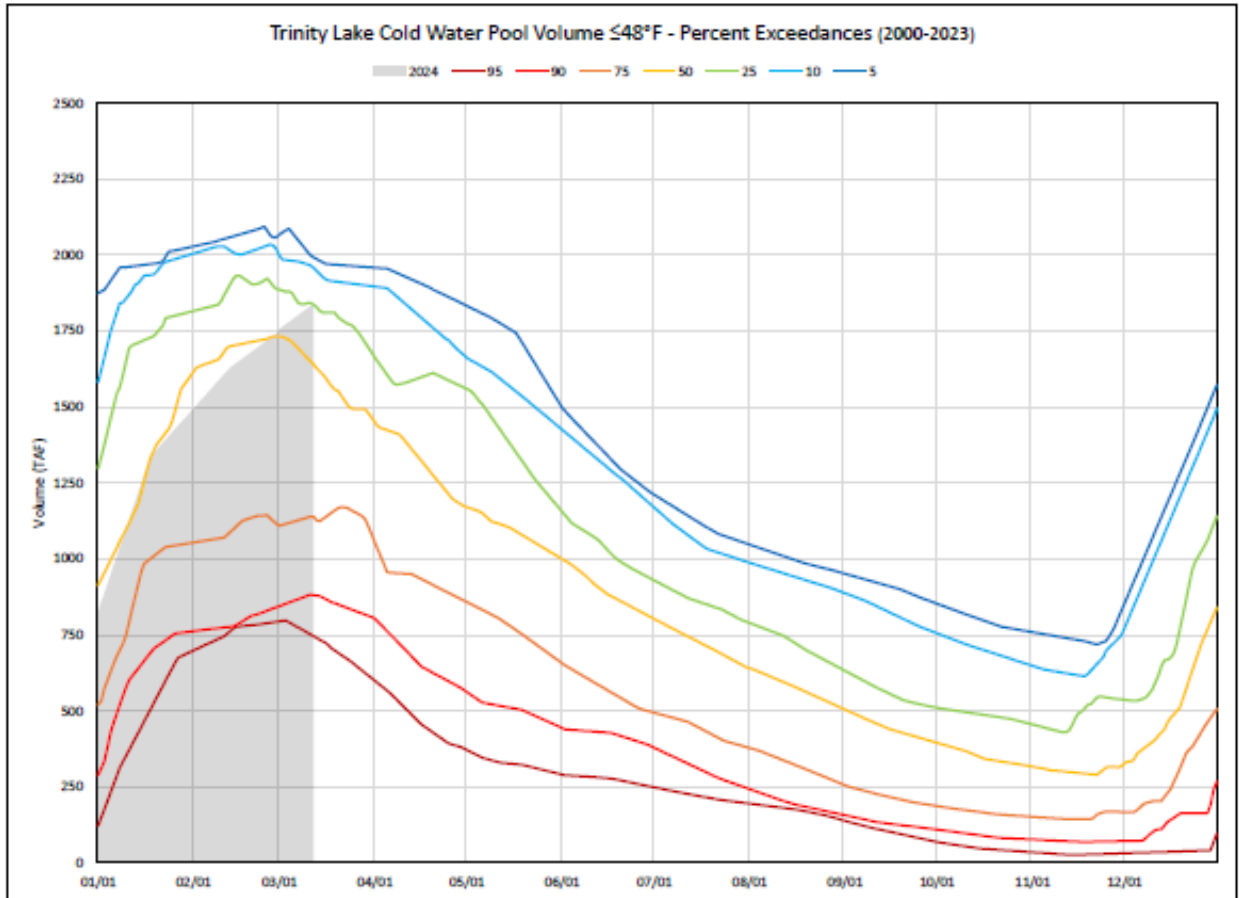
Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

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.



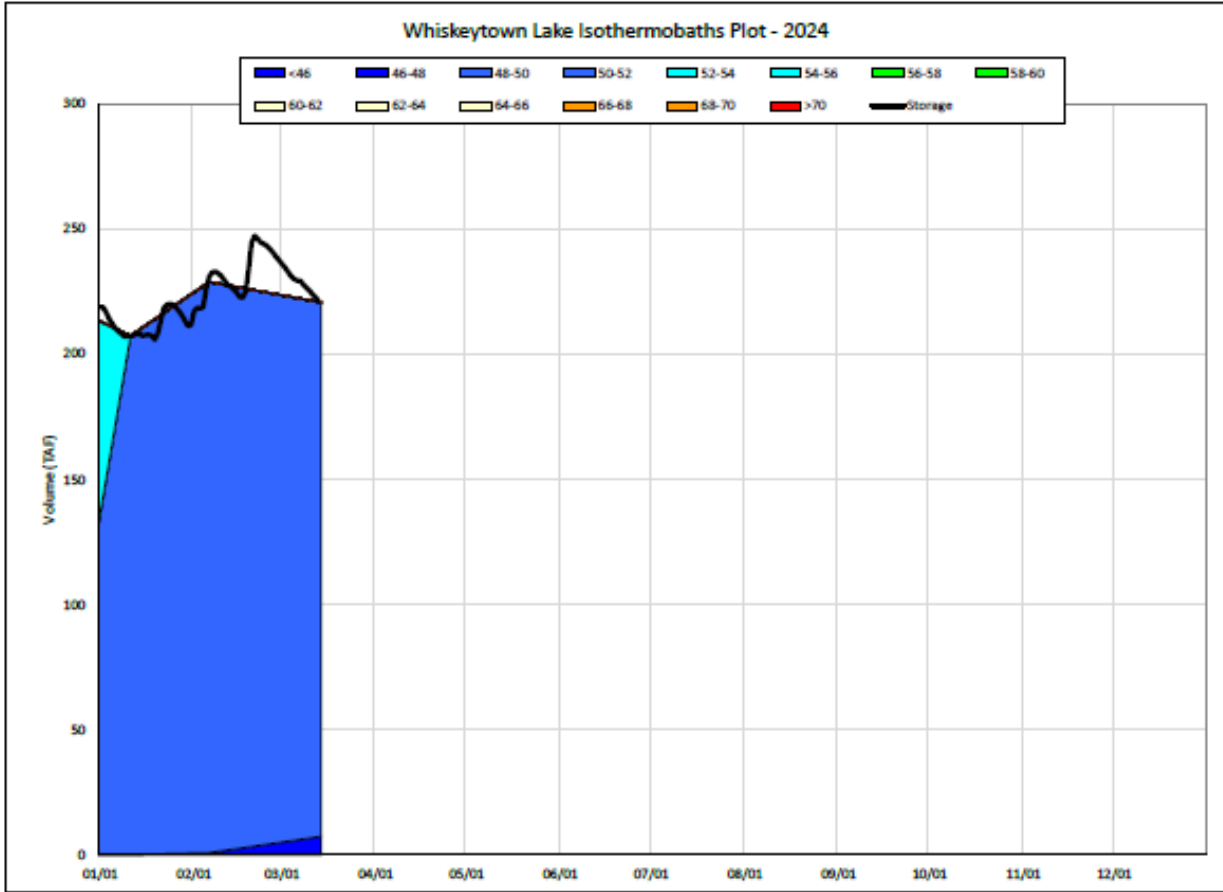
Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

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 $\leq 48^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

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.

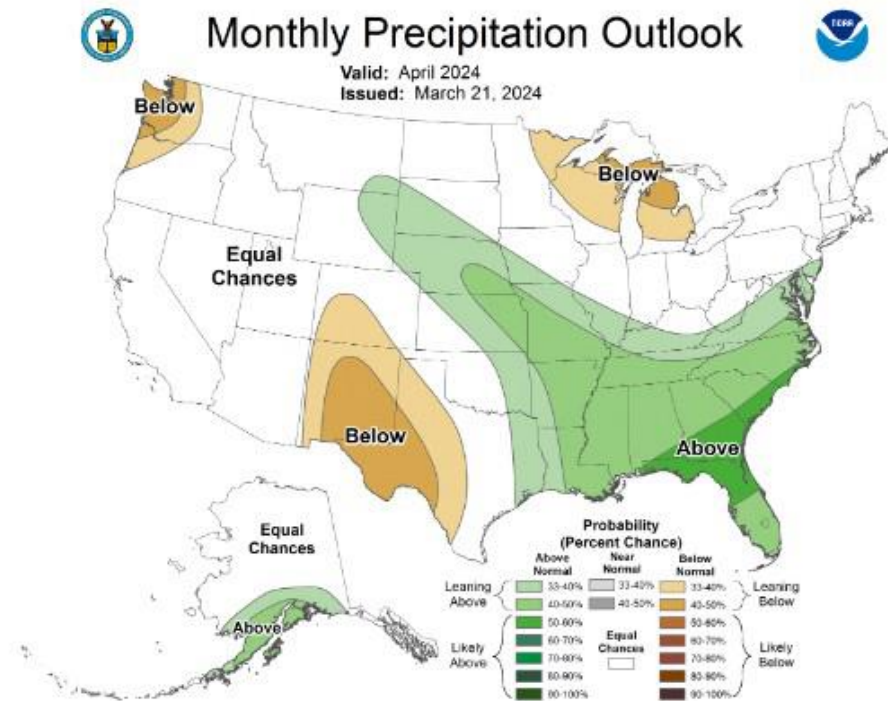
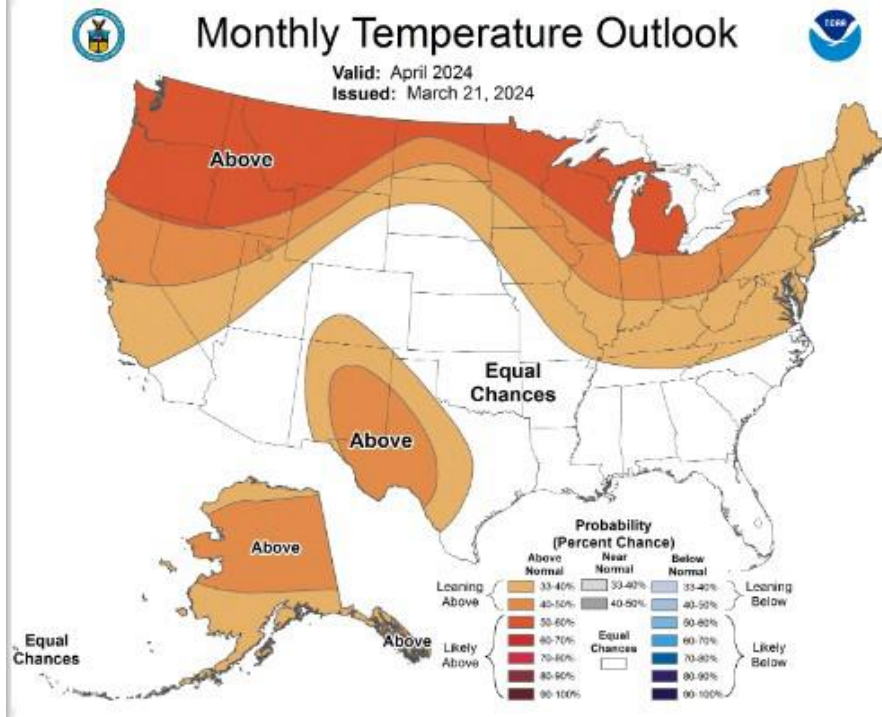


Whiskeytown Lake Isothermobaths Plot – 2024

This figure is a chart showing Whiskeytown Lake Isothermobaths with volume in Thousand Acre-Feet from 0-4500; with dates 01/01-1

OFFICIAL 30-Day Forecasts

Issued: March 21, 2024



Official Monthly Temperature and Precipitation Outlook

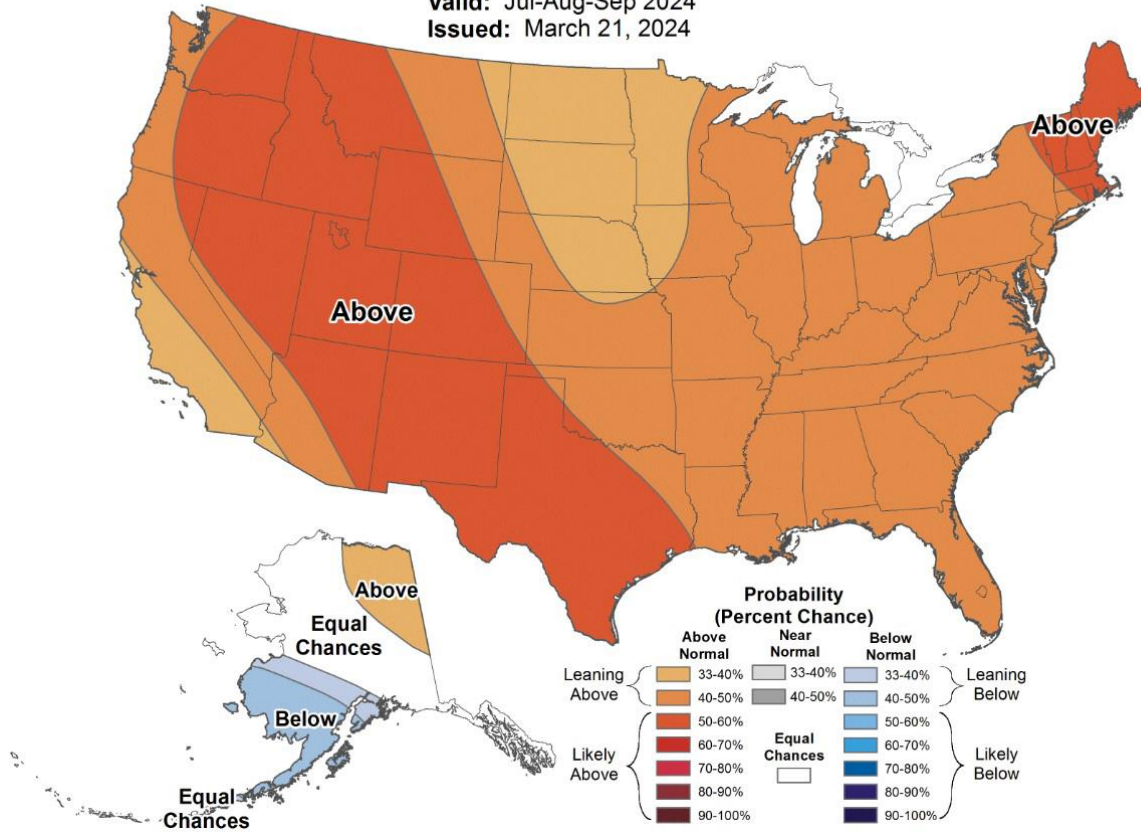
The first figure shows a monthly temperature outlook with the percent probability of near normal, below, or above normal temperatures for all of the United States. The figure is valid for April 2024 and was issued on March 21, 2024. The second figure shows a seasonal precipitation outlook with the percent probability of near normal, below, or above normal temperatures for all of the United States. The figure is valid for April 2024 and was issued on March 21, 2024.



Seasonal Temperature Outlook



Valid: Jul-Aug-Sep 2024
Issued: March 21, 2024



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 December 2023 to February 2024 and was issued on October 19, 2023.

Estimated CVP Operations 90% Exceedance

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

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Trinity | 1776 | 1944 | 2138 | 2103 | 2062 | 1934 | 1801 | 1672 | 1649 | 1645 | 1667 | 1701 | 1786 |
| Trinity Elev. | N/A | 2337 | 2350 | 2348 | 2345 | 2336 | 2327 | 2317 | 2315 | 2315 | 2317 | 2319 | 2326 |
| Whiskeytown | 238 | 206 | 206 | 238 | 238 | 238 | 238 | 238 | 206 | 206 | 206 | 206 | 206 |
| Whiskeytown Elev. | N/A | 1199 | 1199 | 1209 | 1209 | 1209 | 1209 | 1209 | 1199 | 1199 | 1199 | 1199 | 1199 |
| Shasta | 3749 | 4038 | 4143 | 4048 | 3583 | 3042 | 2676 | 2549 | 2512 | 2521 | 2593 | 2672 | 2977 |
| Shasta Elev. | N/A | 1049 | 1053 | 1049 | 1032 | 1010 | 993 | 987 | 985 | 985 | 989 | 993 | 1007 |
| Folsom | 602 | 640 | 804 | 944 | 880 | 660 | 469 | 441 | 390 | 344 | 315 | 301 | 378 |
| Folsom Elev. | N/A | 433 | 450 | 463 | 457 | 435 | 413 | 409 | 402 | 394 | 390 | 387 | 400 |
| New Melones | 1977 | 1985 | 1914 | 1885 | 1873 | 1803 | 1744 | 1697 | 1633 | 1639 | 1647 | 1652 | 1669 |
| New Melones Elev. | N/A | 1051 | 1044 | 1042 | 1041 | 1034 | 1028 | 1023 | 1017 | 1018 | 1019 | 1019 | 1021 |
| Fed. San Luis | 743 | 781 | 675 | 478 | 338 | 197 | 139 | 190 | 260 | 346 | 552 | 725 | 696 |
| 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 | 9085 | 9595 | 9879 | 9697 | 8974 | 7873 | 7068 | 6786 | 6650 | 6701 | 6980 | 7256 | 7711 |

State End of the Month Reservoir Storage (TAF)

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Oroville | 2948 | 3013 | 3031 | 3085 | 2931 | 2501 | 2078 | 1728 | 1490 | 1403 | 1375 | 1413 | 1501 |
| Oroville Elev. | N/A | 865 | 866 | 870 | 859 | 826 | 790 | 756 | 729 | 719 | 716 | 720 | 731 |
| State San Luis | 475 | 438 | 352 | 227 | 86 | 154 | 303 | 612 | 821 | 912 | 960 | 989 | 996 |
| 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) | 1218 | 1219 | 1027 | 705 | 424 | 351 | 443 | 801 | 1081 | 1258 | 1512 | 1713 | 1693 |
| Total San Luis Elev. | N/A | 473 | 455 | 422 | 387 | 377 | 390 | 432 | 461 | 478 | 500 | 518 | 516 |

Monthly River Releases (TAF/cfs)

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|-------------------|-----|-----|-----|-------|-------|-------|-----|-----|-----|-----|-----|-----|-----|
| Trinity (TAF) | N/A | 18 | 32 | 260 | 150 | 68 | 53 | 52 | 23 | 18 | 18 | 18 | 17 |
| Trinity (cfs) | N/A | 300 | 540 | 4,225 | 2,526 | 1,102 | 857 | 870 | 373 | 300 | 300 | 300 | 300 |
| Clear Creek (TAF) | N/A | 22 | 12 | 18 | 14 | 9 | 9 | 9 | 12 | 12 | 12 | 12 | 11 |
| Clear Creek (cfs) | N/A | 363 | 200 | 291 | 242 | 150 | 150 | 150 | 200 | 200 | 200 | 200 | 200 |
| Sacramento (TAF) | N/A | 676 | 327 | 430 | 684 | 787 | 596 | 363 | 281 | 238 | 246 | 246 | 222 |

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|------------------|-----|-------|------|------|-------|-------|------|------|------|------|------|------|------|
| Sacramento (cfs) | N/A | 11000 | 5500 | 7000 | 11500 | 12800 | 9700 | 6100 | 4571 | 4000 | 4000 | 4000 | 4000 |
| American (TAF) | N/A | 283 | 119 | 92 | 197 | 304 | 273 | 100 | 92 | 89 | 92 | 77 | 86 |
| American (cfs) | N/A | 4600 | 2000 | 1500 | 3307 | 4943 | 4437 | 1688 | 1500 | 1500 | 1500 | 1250 | 1550 |
| Stanislaus (TAF) | N/A | 77 | 91 | 76 | 22 | 15 | 15 | 15 | 48 | 12 | 12 | 14 | 13 |
| Stanislaus (cfs) | N/A | 1250 | 1537 | 1242 | 363 | 250 | 250 | 250 | 774 | 200 | 200 | 226 | 229 |
| Feather (TAF) | N/A | 510 | 321 | 111 | 161 | 350 | 375 | 408 | 252 | 104 | 108 | 77 | 111 |
| Feather (cfs) | N/A | 8300 | 5400 | 1800 | 2700 | 5700 | 6100 | 6850 | 4100 | 1750 | 1750 | 1250 | 2000 |

Trinity Diversions (TAF)

| Diversion Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Carr PP | N/A | 1 | 0 | 44 | 12 | 80 | 81 | 80 | 8 | 6 | 0 | 1 | 2 |
| Spring Creek PP | N/A | 70 | 3 | 0 | 0 | 70 | 70 | 70 | 30 | 0 | 0 | 8 | 20 |

Delta Summary (TAF)

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|------------------------|-----|--------|-------|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Tracy | N/A | 146 | 57 | 58 | 201 | 265 | 267 | 255 | 208 | 170 | 260 | 220 | 55 |
| USBR Banks | N/A | 0 | 0 | 0 | 0 | 15 | 15 | 15 | 0 | 0 | 0 | 0 | 0 |
| Contra Costa | N/A | 12.0 | 12.0 | 12.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 14.0 | 14.0 | 13.0 | 14.0 |
| Total USBR | N/A | 158 | 69 | 70 | 211 | 291 | 294 | 283 | 222 | 184 | 274 | 233 | 69 |
| State Export | N/A | 81 | 33 | 34 | 43 | 247 | 308 | 397 | 320 | 205 | 124 | 160 | 110 |
| Total Export | N/A | 239 | 101 | 104 | 254 | 538 | 602 | 680 | 542 | 389 | 398 | 393 | 179 |
| COA Balance | N/A | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | -94 |
| Vernalis (TAF) | N/A | 277 | 181 | 175 | 69 | 54 | 52 | 57 | 107 | 74 | 75 | 77 | 83 |
| Vernalis (cfs) | N/A | 4503 | 3038 | 2843 | 1153 | 884 | 852 | 956 | 1734 | 1242 | 1225 | 1251 | 1489 |
| Old/Middle River calc. | N/A | -1,557 | -534 | -616 | -3,359 | -6,931 | -7,747 | -8,961 | -6,599 | -5,066 | -5,024 | -4,950 | -2,402 |
| Computed DOI | N/A | 42441 | 16288 | 8947 | 7497 | 6507 | 5206 | 3009 | 4002 | 4505 | 7662 | 7890 | 11400 |
| Excess Outflow | N/A | 31038 | 3244 | 732 | 0 | 0 | 0 | 0 | 0 | 0 | 3156 | 3384 | 0 |

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| % Export/Inflow | N/A | 8% | 8% | 12% | 27% | 44% | 51% | 66% | 60% | 53% | 43% | 46% | 21% |
| % Export/inflow std. | N/A | 35% | 35% | 35% | 35% | 65% | 65% | 65% | 65% | 65% | 65% | 65% | 45% |

Hydrology

| Statistic | Trinity | Shasta | Folsom | New Melones |
|-------------------------------------|---------|--------|--------|-------------|
| Water Year Inflow (TAF) | 1526 | 5,176 | 2,046 | 934 |
| Year to Date + Forecasted % of mean | 126% | 93% | 75% | 88% |

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

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

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|---------------------|------|------|-------|-------|------|------|------|------|------|------|------|------|------|
| Trinity | 1776 | 1944 | 2105 | 2174 | 2167 | 2059 | 1947 | 1828 | 1777 | 1764 | 1779 | 1843 | 1948 |
| Trinity Elev. | 0 | 2337 | 2348 | 2353 | 2352 | 2345 | 2337 | 2329 | 2325 | 2324 | 2325 | 2330 | 2337 |
| Whiskeytown | 238 | 206 | 238 | 238 | 238 | 238 | 238 | 238 | 206 | 206 | 206 | 206 | 206 |
| Whiskeytown Elev. | N/A | 1199 | 1209 | 1209 | 1209 | 1209 | 1209 | 1209 | 1199 | 1199 | 1199 | 1199 | 1199 |
| Shasta | 3749 | 4088 | 4290 | 4377 | 4096 | 3627 | 3262 | 3035 | 2959 | 2978 | 3106 | 3439 | 3761 |
| Shasta Elev. | N/A | 1051 | 1058 | 1061 | 1051 | 1034 | 1019 | 1009 | 1006 | 1007 | 1012 | 1026 | 1039 |
| Folsom | 602 | 710 | 890 | 940 | 938 | 755 | 552 | 505 | 460 | 449 | 454 | 514 | 555 |
| Folsom Elev. | N/A | 440 | 458 | 463 | 463 | 445 | 423 | 417 | 411 | 410 | 411 | 418 | 423 |
| New Melones | 1977 | 2007 | 1957 | 2005 | 1991 | 1934 | 1879 | 1836 | 1786 | 1798 | 1815 | 1850 | 1907 |
| New Melones Elev. | N/A | 1053 | 1048 | 1053 | 1051 | 1046 | 1041 | 1037 | 1032 | 1033 | 1035 | 1038 | 1044 |
| Fed. San Luis | 743 | 786 | 674 | 458 | 348 | 198 | 127 | 171 | 247 | 415 | 620 | 829 | 966 |
| 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 | 9085 | 9741 | 10154 | 10192 | 9779 | 8811 | 8005 | 7613 | 7434 | 7610 | 7980 | 8681 | 9343 |

State End of the Month Reservoir Storage (TAF)

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Oroville | 2948 | 3003 | 3305 | 3517 | 3396 | 2874 | 2391 | 1965 | 1713 | 1647 | 1663 | 1850 | 2241 |
| Oroville Elev. | N/A | 864 | 885 | 899 | 891 | 855 | 817 | 779 | 754 | 747 | 749 | 768 | 805 |
| State San Luis | 475 | 475 | 384 | 219 | 118 | 302 | 497 | 738 | 905 | 1080 | 1141 | 1062 | 1062 |
| 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) | 1218 | 1261 | 1058 | 677 | 466 | 500 | 624 | 909 | 1151 | 1495 | 1761 | 1891 | 2028 |
| Total San Luis Elev. | N/A | 478 | 459 | 418 | 393 | 397 | 412 | 444 | 468 | 499 | 521 | 532 | 543 |

Monthly River Releases (TAF/cfs)

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|-------------------|-----|-----|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|-----|
| Trinity (TAF) | N/A | 18 | 80 | 260 | 150 | 68 | 53 | 52 | 23 | 18 | 18 | 18 | 17 |
| Trinity (cfs) | N/A | 300 | 1,347 | 4,225 | 2,526 | 1,102 | 857 | 870 | 373 | 300 | 300 | 300 | 300 |
| Clear Creek (TAF) | N/A | 22 | 12 | 18 | 14 | 9 | 9 | 9 | 12 | 12 | 12 | 12 | 11 |
| Clear Creek (cfs) | N/A | 363 | 200 | 291 | 242 | 150 | 150 | 150 | 200 | 200 | 200 | 200 | 200 |
| Sacramento (TAF) | N/A | 676 | 416 | 393 | 580 | 738 | 615 | 476 | 369 | 297 | 277 | 277 | 444 |

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|------------------|-----|-------|------|------|------|-------|-------|------|------|------|------|------|------|
| Sacramento (cfs) | N/A | 11000 | 7000 | 6400 | 9750 | 12000 | 10000 | 8000 | 6000 | 5000 | 4500 | 4500 | 8000 |
| American (TAF) | N/A | 307 | 178 | 338 | 226 | 282 | 300 | 134 | 126 | 104 | 108 | 92 | 222 |
| American (cfs) | N/A | 5000 | 3000 | 5500 | 3800 | 4585 | 4880 | 2249 | 2043 | 1750 | 1750 | 1500 | 4000 |
| Stanislaus (TAF) | N/A | 92 | 91 | 76 | 89 | 15 | 15 | 15 | 39 | 12 | 12 | 13 | 13 |
| Stanislaus (cfs) | N/A | 1500 | 1537 | 1242 | 1500 | 250 | 250 | 250 | 635 | 200 | 200 | 219 | 229 |
| Feather (TAF) | N/A | 508 | 173 | 65 | 155 | 481 | 475 | 502 | 279 | 104 | 108 | 77 | 58 |
| Feather (cfs) | N/A | 8263 | 2900 | 1057 | 2600 | 7820 | 7727 | 8440 | 4538 | 1750 | 1750 | 1250 | 1050 |

Trinity Diversions (TAF)

| Diversion Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Carr PP | N/A | 1 | 20 | 14 | 28 | 69 | 70 | 69 | 38 | 25 | 24 | 1 | 7 |
| Spring Creek PP | N/A | 70 | 0 | 10 | 20 | 60 | 60 | 60 | 60 | 20 | 27 | 23 | 40 |

Delta Summary (TAF)

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|------------------------|-----|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Tracy | N/A | 155 | 57 | 58 | 256 | 265 | 267 | 255 | 215 | 255 | 260 | 260 | 223 |
| USBR Banks | N/A | 0 | 0 | 0 | 0 | 15 | 15 | 15 | 0 | 0 | 0 | 0 | 0 |
| Contra Costa | N/A | 12.7 | 12.7 | 12.7 | 9.8 | 11.1 | 12.7 | 14.0 | 14.0 | 16.0 | 18.0 | 14.0 | 14.0 |
| Total USBR | N/A | 168 | 69 | 71 | 266 | 291 | 295 | 284 | 229 | 271 | 278 | 274 | 237 |
| State Export | N/A | 105 | 33 | 35 | 111 | 410 | 410 | 395 | 288 | 287 | 140 | 52 | 104 |
| Total Export | N/A | 273 | 102 | 106 | 377 | 701 | 705 | 679 | 517 | 558 | 418 | 326 | 341 |
| COA Balance | N/A | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 6 | 6 | 6 | 6 |
| Vernalis (TAF) | N/A | 329 | 255 | 279 | 239 | 80 | 71 | 74 | 117 | 99 | 103 | 118 | 237 |
| Vernalis (cfs) | N/A | 5355 | 4278 | 4543 | 4021 | 1307 | 1161 | 1242 | 1904 | 1662 | 1680 | 1927 | 4263 |
| Old/Middle River calc. | N/A | -1,596 | 15 | 128 | -3,657 | -8,784 | -8,895 | -8,820 | -6,209 | -7,064 | -5,070 | -3,806 | -3,400 |
| Computed DOI | N/A | 53845 | 23533 | 18057 | 11094 | 8004 | 7011 | 7497 | 7499 | 4505 | 11290 | 17227 | 29051 |
| Excess Outflow | N/A | 42441 | 3227 | 7076 | 1849 | 0 | 0 | 0 | 0 | 0 | 6783 | 11224 | 17650 |
| % Export/Inflow | N/A | 7% | 6% | 7% | 30% | 47% | 50% | 51% | 46% | 61% | 36% | 23% | 17% |

| Facility | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| % Export/inflow std. | N/A | 35% | 35% | 35% | 35% | 65% | 65% | 65% | 65% | 65% | 65% | 65% | 45% |

Hydrology

| Statistic | Trinity | Shasta | Folsom | New Melones |
|-------------------------------------|---------|--------|--------|-------------|
| Water Year Inflow (TAF) | 1705 | 5,702 | 2,509 | 1158 |
| Year to Date + Forecasted % of mean | 141% | 103% | 92% | 110% |

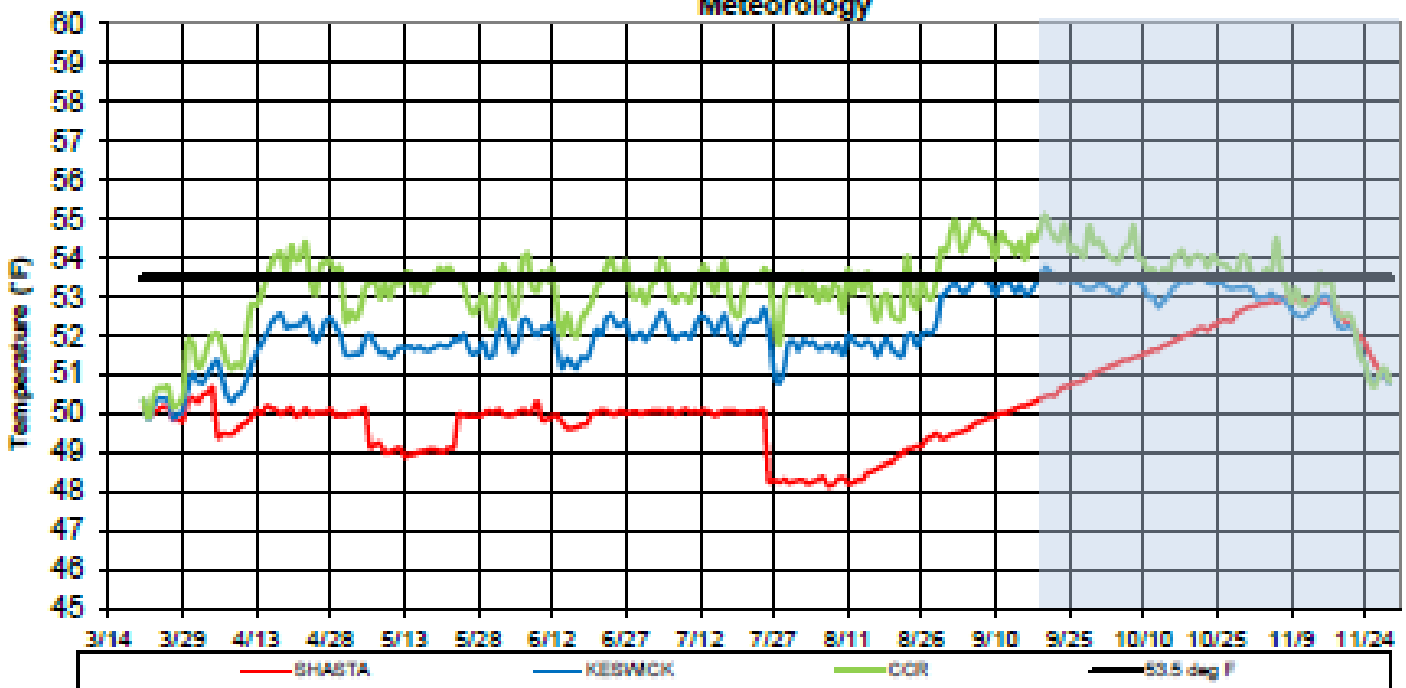
CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions.

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.

**Sacramento River Modeled Temperature
2023 March 90%-Exceedance Water Outlook - Historical 25%
Meteorology**



Sacramento River Modeled Temperature – March 2023 90%-Exceedance Water Outlook

Historical 25% Meteorology.

Facility Temperature Outlook in Degrees Fahrenheit

| Month | Shasta | Keswick | CCR | Igo | Trinity | Lewiston |
|-----------|--------|---------|------|------|---------|----------|
| April | 50.0 | 51.7 | 52.9 | 48.6 | 45.0 | 51.2 |
| May | 49.5 | 51.7 | 53.1 | 49.7 | 45.0 | 46.5 |
| June | 50.0 | 52.0 | 53.2 | 51.7 | 45.6 | 49.3 |
| July | 49.7 | 52.1 | 53.2 | 54.0 | 45.8 | 49.9 |
| August | 48.7 | 51.9 | 53.2 | 55.4 | 45.9 | 49.7 |
| September | 50.2 | 53.3 | 54.5 | 56.5 | 46.0 | 48.6 |
| October | 51.9 | 53.3 | 54.0 | 54.8 | 46.1 | 49.6 |
| November | 52.4 | 52.3 | 52.7 | 51.0 | 46.1 | 47.8 |

Run date: 3/22/23

EOM September Storage: 2.62 MAF

Trinity profile date: 2/22/23

Whiskeytown profile date: 3/16/22

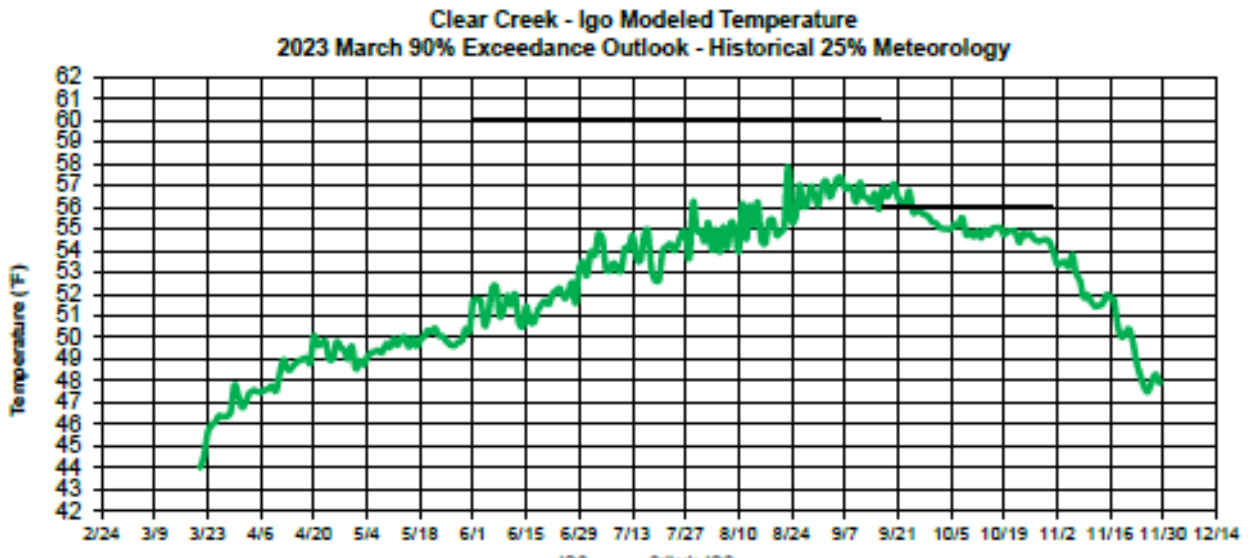
Shasta profile date: 3/15/23

Projected side gates: First August 21 Full September 30

September – November for Shasta Keswick and CCR output has limited model capabilities – see Fall Temperature Index

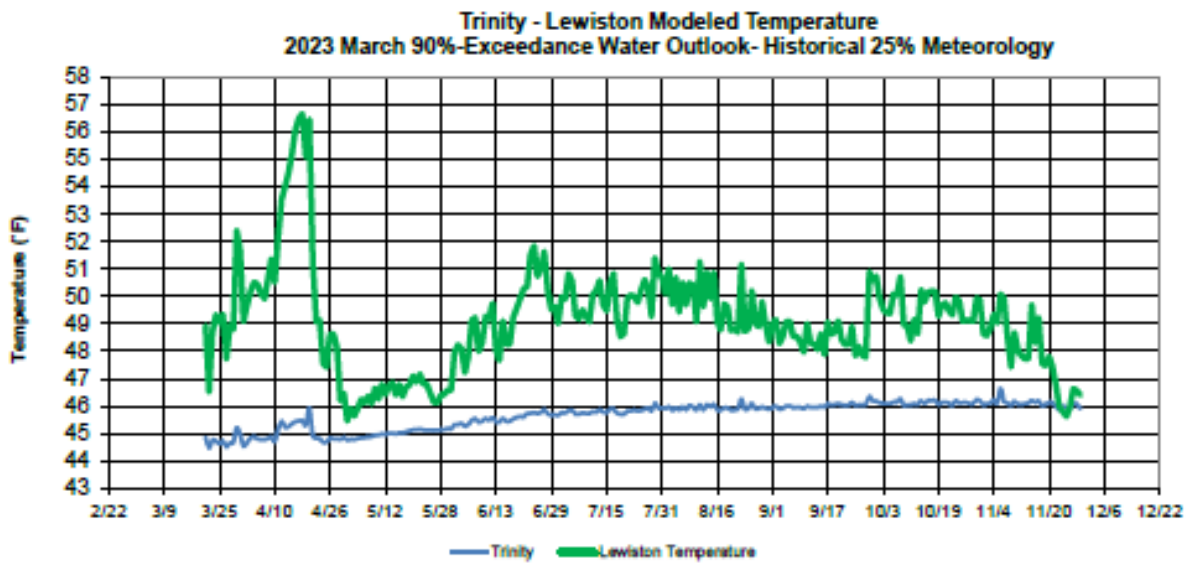
End of September Cold-Water-Pool less than 56 degrees Fahrenheit: 800 TAF

This figure shows Sacramento River modeled temperature in degrees Fahrenheit at Shasta and Keswick Dams, and above Clear Creek from 3/14 to 11/24 in percent exceedances. It also shows the desired degree range between 53.5 and 56 degrees Fahrenheit.



Clear Creek Igo Modeled Temperature – March 2023 90%-Exceedance Water Outlook Historical 25% Meteorology.

This figure is a line graph showing Igo modeled temperature in degrees Fahrenheit at from 02/24 to 12/14.



Trinity – Lewiston Modeled Temperature – March 2023 90%-Exceedance Water Outlook Historical 25% Meteorology.

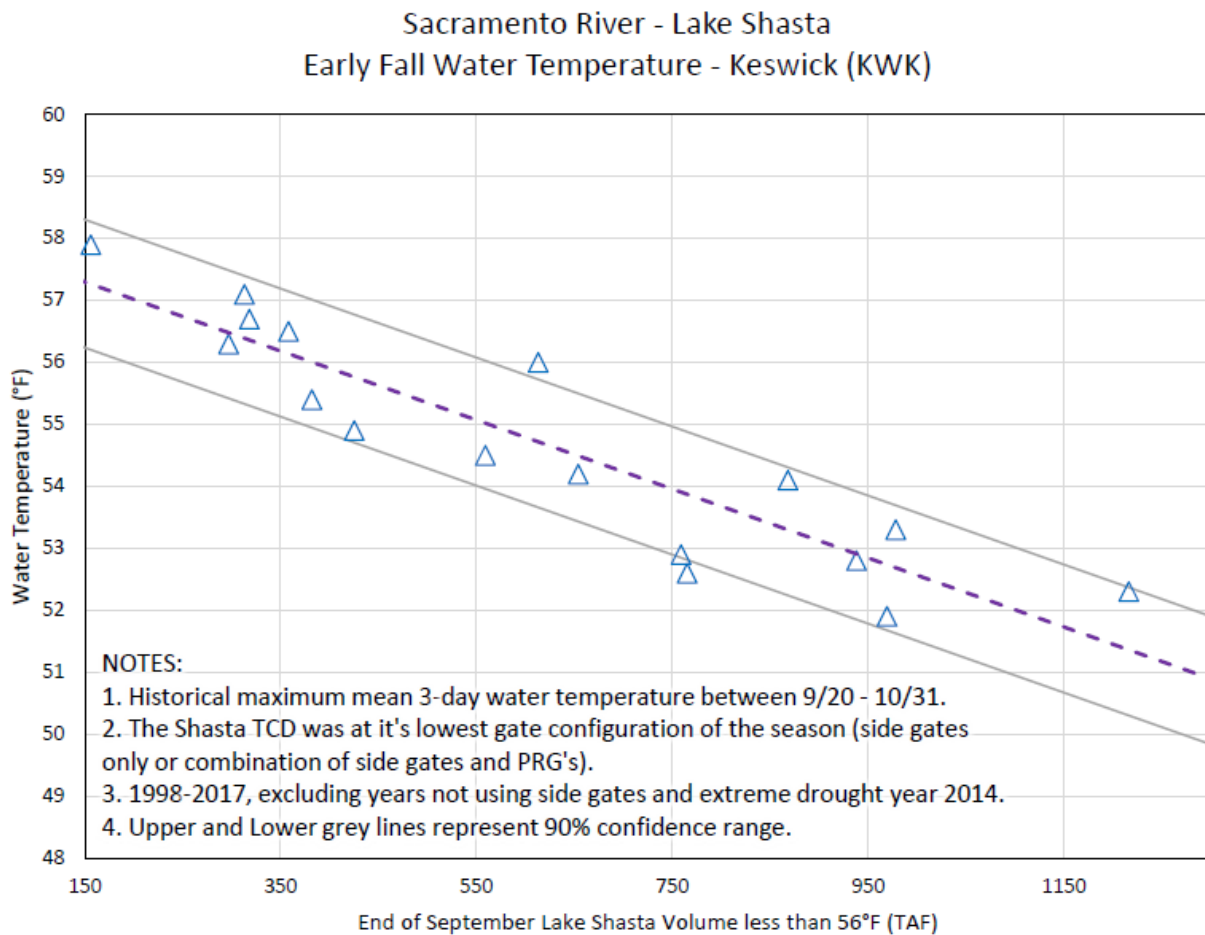
This figure is a line graph showing Trinity-Lewiston modeled temperature in degrees Fahrenheit from 2/22 to 12/22.

Model Performance and Fall Temperature Index:

Based on past analyses, the temperature model does not perform well in late September and October. One factor is that the modeled release temperatures are cooler than has historically been achieved when all release is through the side gates (lowest gates), especially when there's a large temperature gradient between the pressure relief gates (PRG) and the side gates.

Based on historical records, the end-of-September Lake Shasta volume below 56°F is a good indicator of fall water temperature in the river reaches.

Based on these records and estimates, the charts below illustrate a range of uncertainty in the expected river temperatures based on the end-of-September lake volume less than 56°F.



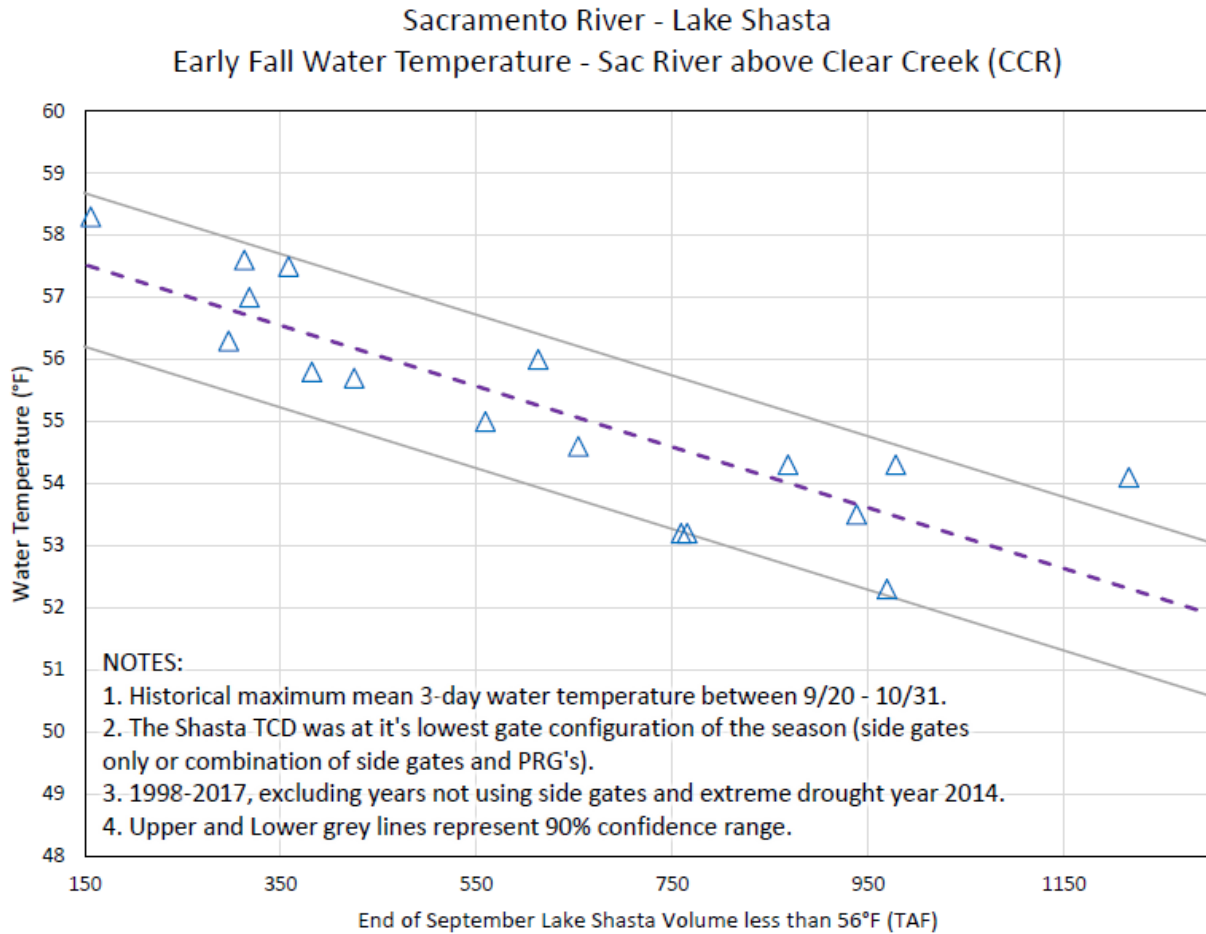
Sacramento River – Lake Shasta Early Fall Water Temperature – Keswick (KWK)

This figure is a line graph showing the historical relationship between Lake Shasta cold-water-pool characteristics and early fall Keswick water temperature.

Notes:

1. Historical maximum mean 3-day water temperature between 9/20 - 10/31.

2. The Shasta TCD was at it's lowest gate configuration of the season (side gates only or combination of side gates and PRG's).
3. 1998-2017, excluding years not using side gates and extreme drought year 2014.
4. Upper and Lower grey lines represent 90% confidence range.



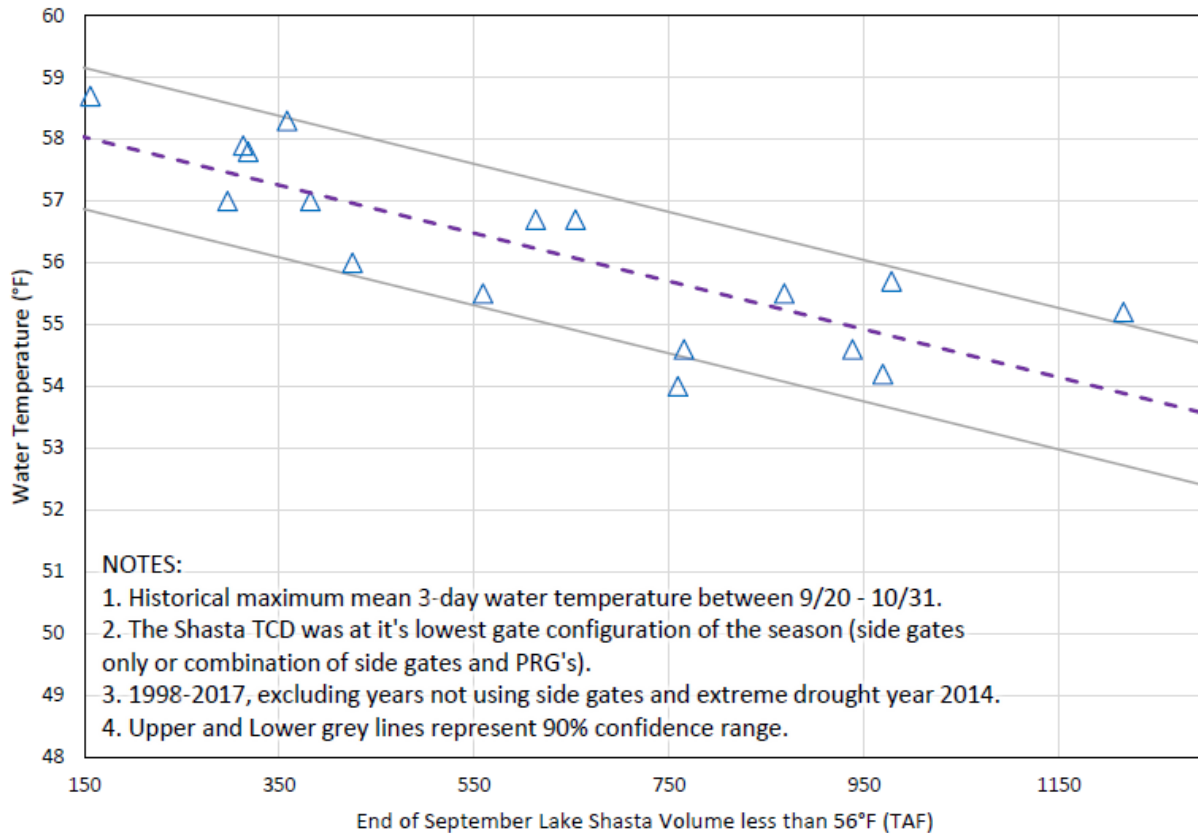
Sacramento River – Lake Shasta Early Fall Water Temperature – Sacramento River above Clear Creek (CCR)

This figure is a line graph showing the historical relationship between Shasta Lake cold-water-pool characteristics and early fall Sacramento River above Clear Creek confluence water temperature.

Notes:

1. Historical maximum mean 3-day water temperature between 9/20 - 10/31.
2. The Shasta TCD was at it's lowest gate configuration of the season (side gates only or combination of side gates and PRG's).
3. 1998-2017, excluding years not using side gates and extreme drought year 2014.
4. Upper and Lower grey lines represent 90% confidence range.

Sacramento River - Lake Shasta
Early Fall Water Temperature - Balls Ferry (BSF)



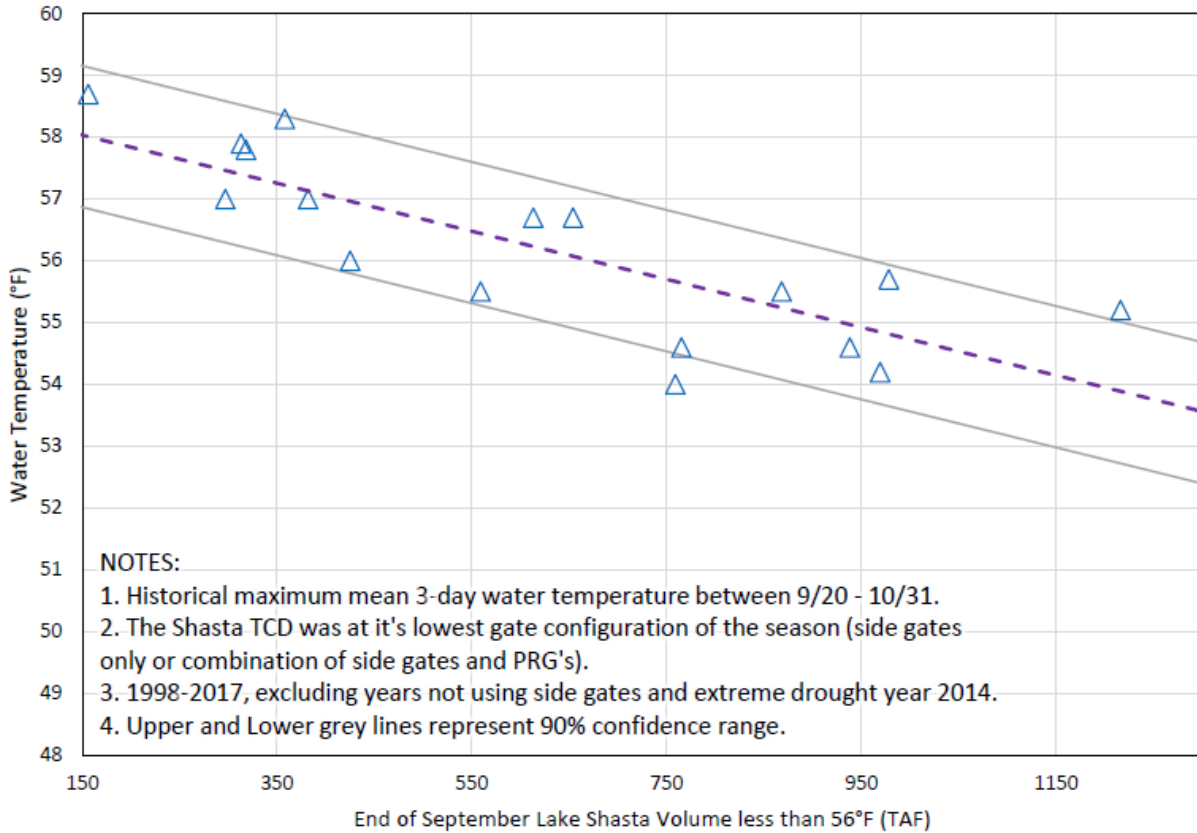
Sacramento River – Lake Shasta Early Fall Water Temperature – Bells Ferry (BSF)

This figure is a line graph showing the historical relationship between Lake Shasta cold-water-pool characteristics and early fall Bells Ferry water temperature.

Notes:

1. Historical maximum mean 3-day water temperature between 9/20 - 10/31.
2. The Shasta TCD was at it's lowest gate configuration of the season (side gates only or combination of side gates and PRG's).
3. 1998-2017, excluding years not using side gates and extreme drought year 2014.
4. Upper and Lower grey lines represent 90% confidence range.

Sacramento River - Lake Shasta
Early Fall Water Temperature - Balls Ferry (BSF)



Sacramento River – Lake Shasta Early Fall Water Temperature – Bells Ferry (BSF)

This figure is a line graph showing the historical relationship between Lake Shasta cold-water-pool characteristics and early fall Bells Ferry water temperature.

Notes:

1. Historical maximum mean 3-day water temperature between 9/20 - 10/31.
2. The Shasta TCD was at it's lowest gate configuration of the season (side gates only or combination of side gates and PRG's).
3. 1998-2017, excluding years not using side gates and extreme drought year 2014.
4. Upper and Lower grey lines represent 90% confidence range.