

# Northern CVP Water Temperature Report

## April - 2024

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— BUREAU OF —  
RECLAMATION

All Data in this Report is Preliminary and Subject to Change

| DATE  | Mean Daily Water Temperatures (°F) |      |                  |      |        |                  |      |        |      |        |      |        |      | Mean Daily Release (CFS) |                   |               | Mean Daily Air Temperatures (°F) |      |      |
|-------|------------------------------------|------|------------------|------|--------|------------------|------|--------|------|--------|------|--------|------|--------------------------|-------------------|---------------|----------------------------------|------|------|
|       | TCD <sup>1</sup>                   | SHD  | SPP <sup>1</sup> | KWK  | SAC    | CCR <sup>2</sup> | BSF  | BND    | RDB  | IGO    | LWS  | DGC    | NFH  | Shasta Generation        | Spring Creek P.P. | Keswick Total | RDD                              | BSF  | RDB  |
| Mar   | 50.6                               | 48.8 | 48.6             | 49.4 | 49.8   | 50.0             | 50.7 | 51.1   | 51.5 | 49.3   | 48.5 | 46.5   | 47.0 | 9436                     | 1066              | 10134         | 55.1                             | 51.8 | 53.3 |
| 04/01 | 51.1                               | 49.6 | 47.0             | 50.4 | 51.1   | 51.7 #           |      | 54.1 ? | 54.6 | 51.0   | 50.2 | 49.4   | 49.8 | 3771                     | 44                | 4183          | 65.5                             | 61.4 | 61.6 |
| 04/02 | 51.1                               | 49.3 | 47.1             | 50.7 | 51.7   | 52.5 #           |      | 55.5   | 56.1 | 52.1   | 50.3 | 51.2   | 51.5 | 4109                     | 44                | 4183          | 62.0                             | 58.6 | 60.5 |
| 04/03 | 50.4                               | 49.3 | 47.6             | 51.0 | 51.4   | 52.0 #           |      | 56.5   | 57.3 | 51.3   | 50.3 | 50.8   | 50.9 | 4110                     | 61                | 4181          | 60.5                             | 56.3 | 58.5 |
| 04/04 | 51.4                               | 49.3 | 46.9             | 50.8 | 50.9   | 51.0 #           |      | 53.6   | 54.5 | 49.5   | 50.2 | 46.5   | 47.0 | 4155                     | 44                | 4182          | 46.5                             | 46.6 | 46.2 |
| 04/05 | 50.8                               | 49.3 | 47.2             | 50.2 | 50.8   | 51.2             | 51.4 | 51.2   | 52.0 | 49.5   | 50.6 | 47.6   | 47.0 | 4063                     | 44                | 4183          | 50.0                             | 47.0 | 47.6 |
| 04/06 | 50.6                               | 49.0 | 49.4             | 50.1 | 50.3   | 50.8             | 51.7 | 52.2   | 52.7 | 49.3   | 50.8 | 47.4   | 47.5 | 4094                     | 185               | 4149          | 52.0                             | 47.3 | 47.9 |
| 04/07 | 50.7                               | 49.6 | 47.9             | 50.3 | 50.9   | 51.6             | 52.7 | 53.1   | 53.7 | 50.8   | 51.1 | 49.6   | 49.4 | 4129                     | 44                | 4113          | 55.5                             | 53.7 | 55.3 |
| 04/08 | 51.6                               | 50.3 | 47.4             | 50.3 | 50.8   | 51.4             | 53.1 | 54.0   | 54.9 | 51.0   | 51.2 | 49.6   | 50.1 | 6251                     | 44                | 6084          | 60.0                             | 56.9 | 58.5 |
| 04/09 | 51.3                               | 49.8 | 47.5             | 50.8 | 51.3   | 51.9             | 53.5 | 54.4   | 55.4 | 52.2   | 51.5 | 51.5   | 51.6 | 6089                     | 44                | 6128          | 63.5                             | 59.3 | 61.0 |
| 04/10 | 51.7 ?                             | 50.1 | 47.5             | 51.4 | 51.9   | 52.6             | 54.5 | 55.7 ? | 56.8 | 52.6   | 51.7 | 52.5   | 52.6 | 5820                     | 44                | 6190          | 67.5                             | 62.7 | 64.2 |
| 04/11 | 51.8 ?                             | 50.4 | 48.4             | 51.4 | 52.2   | 53.0             | 55.2 | 56.6   | 57.8 | 53.3   | 52.0 | 53.1   | 53.0 | 6088                     | 72                | 6110          | 66.0                             | 63.2 | 65.7 |
| 04/12 | 52.2                               | 50.2 | 47.5             | 51.4 | 51.6   | 52.0             | 54.0 | 56.2   | 57.8 | 51.8   | 52.0 | 51.3   | 51.2 | 8591                     | 44                | 8017          | 63.0                             | 61.4 | 61.8 |
| 04/13 | 51.6                               | 50.0 | 47.5             | 50.7 | 50.8   | 51.2             | 52.3 | 53.2   | 54.3 | 50.7   | 52.1 | 49.5   | 49.1 | 8415                     | 44                | 8086          | 53.0                             | 51.4 | 50.9 |
| 04/14 | 51.2                               | 49.8 | 47.4             | 50.6 | 50.7   | 50.8             | 51.1 | 51.3   | 52.1 | 49.6   | 52.0 | 48.5   | 48.2 | 8332                     | 44                | 8049          | ↑ 47.5                           | 45.8 | 47.5 |
| 04/15 | 51.5 ?                             | 50.4 | 47.6             | 50.3 | 50.9   | 51.4             | 52.2 | 52.1   | 52.5 | 51.7   | 52.3 | 51.0   | 50.3 | 7784                     | 44                | 8040          | 61.5                             | 56.4 | 57.3 |
| 04/16 | 51.6 ?                             | 50.8 | 47.7             | 51.3 | 51.7   | 52.2             | 53.5 | 54.4   | 55.1 | 52.3   | 51.9 | 52.5   | 52.2 | 8219                     | 44                | 8046          | 64.5                             | 60.9 | 61.5 |
| 04/17 | 51.9                               | 50.9 | 47.6             | 51.8 | 52.2   | 52.7             | 54.4 | 55.6   | 56.6 | 52.6   | 52.2 | 52.3   | 52.5 | 8512                     | 43                | 8017          | 68.5                             | 62.5 | 63.3 |
| 04/18 | 52.0 ?                             | 51.1 | 47.7             | 52.0 | 52.4   | 53.0             | 54.7 | 55.9   | 57.0 | 52.6   | 52.2 | 52.6   | 52.8 | 8337                     | 44                | 7948          | 70.0                             | 62.1 | 64.2 |
| 04/19 | 51.7                               | 50.5 | 48.4             | 52.2 | 52.7   | 53.4             | 55.2 | 56.5   | 57.7 | 53.2   | 51.3 | 52.3   | 53.4 | 8610                     | 61                | 8056          | 67.0                             | 63.8 | 66.1 |
| 04/20 | 51.5 #                             |      | 49.5             | 52.1 | 52.7   | 53.4             | 55.5 | 57.2   | 58.5 | 53.3   | 50.9 | 51.9   | 52.7 | 7611                     | 166               | 8076          | 68.0                             | 65.6 | 67.4 |
| 04/21 | 52.1                               | 50.9 | 49.8             | 51.8 | 52.5   | 53.2             | 55.5 | 57.3   | 58.7 | 53.5   | 50.3 | 51.6   | 52.0 | 7612                     | 270               | 8052          | 72.0                             | 65.8 | 68.6 |
| 04/22 | 52.3 ?                             | 51.1 | 50.0             | 51.9 | 52.4   | 53.0             | 55.1 | 56.9   | 58.4 | 53.4   | 49.1 | 50.8   | 51.3 | 8082                     | 432               | 8047          | 75.5                             | 65.8 | 68.4 |
| 04/23 | 51.4                               | 51.0 | 48.1             | 52.3 | 52.5 ? | 52.9             | 54.6 | 56.3   | 57.6 | 53.0 ! |      | 49.0   | 50.1 | 11598                    | 47                | 10910         | 64.0                             | 60.8 | 62.0 |
| 04/24 | 52.0 ?                             | 50.9 | 48.0             | 51.8 | 52.2   | 52.7             | 54.5 | 55.8   | 56.9 | 53.4 # |      | 48.1 # |      | 10842                    | 45                | 10909         | 67.0                             | 63.2 | 63.4 |
| 04/25 | 52.1                               | 51.1 | 48.0             | 51.8 | 51.9   | 52.2             | 53.5 | 55.1   | 56.5 | 52.2 # |      | 47.2 # |      | 12053                    | 44                | 10903         | 62.0                             | 59.6 | 59.8 |
| 04/26 | 52.8                               | 51.7 | 47.9             | 51.7 | 52.0   | 52.4             | 53.6 | 54.4   | 55.4 | 52.5 # |      | 47.0 # |      | 11348                    | 44                | 10935         | 63.0                             | 58.5 | 60.4 |
| 04/27 | 53.0                               | 51.5 | 48.2             | 52.6 | 52.8   | 53.2             | 54.2 | 54.7   | 55.7 | 52.4 # |      | 47.1 # |      | 8212                     | 48                | 9315          | 62.5                             | 57.9 | 60.8 |
| 04/28 | 52.9 ?                             | 51.7 | 48.0             | 52.5 | 53.0   | 53.6             | 55.1 | 56.1   | 57.1 | 52.9 # |      | 47.6 # |      | 8383                     | 44                | 8012          | 65.0                             | 61.5 | 63.7 |
| 04/29 | 52.6 ?                             | 51.9 | 48.1             | 52.9 | 53.3   | 53.9             | 55.2 | 56.3   | 57.6 | 52.4 # |      | 47.9 # |      | 7398                     | 44                | 7069          | 61.0                             | 57.2 | 61.3 |
| 04/30 | 53.2 ?                             | 52.2 | 48.1             | 52.9 | 53.4   | 54.0             | 55.6 | 56.7   | 57.9 | 52.3 # |      | 47.9 # |      | 6966                     | 44                | 6149          | 61.5                             | 58.6 | 60.9 |
| -     |                                    |      |                  |      |        |                  |      |        |      |        |      |        |      |                          |                   |               |                                  |      |      |
| Apr   | 51.7                               | 50.5 | 48.0             | 51.4 | 51.8   | 52.4             | 53.9 | 55.0   | 56.0 | 52.0   | 51.2 | 49.9   | 50.7 | 7319                     | 76                | 7211          | 62.2                             | 58.4 | 59.9 |
|       |                                    |      |                  |      |        |                  |      |        |      |        |      |        |      | Total CFS                | 219584            | 2266          | 216322                           |      |      |
|       |                                    |      |                  |      |        |                  |      |        |      |        |      |        |      | Total AF                 | 435536            | 4495          | 429066                           |      |      |

**Legend**

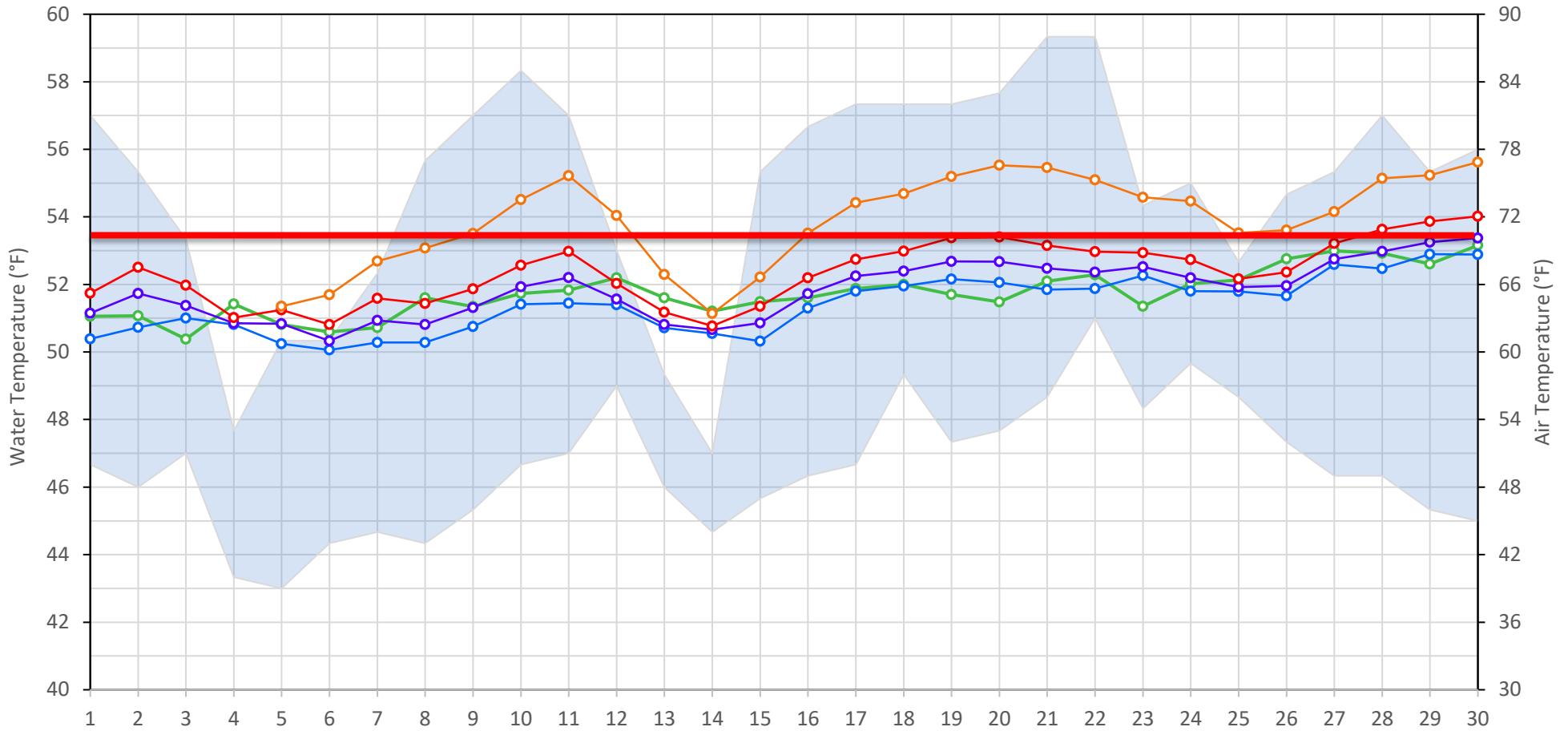
**Notes**

- ? = 1-9 hours of data missing (Average includes estimations)
- ! = 10 or more hours of data missing (Average not calculated)
- # = Station out of service
- ↑ = Record high air temperature
- ↓ = Record low air temperature
- = Monthly Averages

- <sup>1</sup> Temperatures are weighted averages based on individual penstock flow and temperature
- Highlighted cells in the TCD column indicate a TCD change was made on that day
- <sup>2</sup> Current Clear Creek River control point (see page 3 for more details)

### Sacramento River Mean Daily Temperatures

Redding Air (Observed and Forecasted) TCD KWK SAC CCR BSF



| Station Details |                  |  |                            |
|-----------------|------------------|--|----------------------------|
| Code            | Body of Water    | Location <sup>1</sup>                      | CDEC Link                  |
| TCD             | N/A              | Shasta Power Plant                         | N/A                        |
| SHD             | Sacramento River | 0.3 miles downstream of Shasta Power Plant | <a href="#">Click Here</a> |
| SPP             | N/A              | Spring Creek Power Plant                   | N/A                        |
| KWK             | Sacramento River | 0.8 miles downstream of Keswick Dam        | <a href="#">Click Here</a> |
| SAC             | Sacramento River | 4.8 miles downstream of Keswick Dam        | <a href="#">Click Here</a> |
| CCR             | Sacramento River | 9.7 miles downstream of Keswick Dam        | <a href="#">Click Here</a> |
| BSF             | Sacramento River | 25 miles downstream of Keswick Dam         | <a href="#">Click Here</a> |
| JLF             | Sacramento River | 34 miles downstream of Keswick Dam         | <a href="#">Click Here</a> |
| BND             | Sacramento River | 41 miles downstream of Keswick Dam         | <a href="#">Click Here</a> |
| RDB             | Sacramento River | 58 miles downstream of Keswick Dam         | <a href="#">Click Here</a> |
| IGO             | Clear Creek      | 7.3 miles downstream of Whiskeytown Dam    | <a href="#">Click Here</a> |

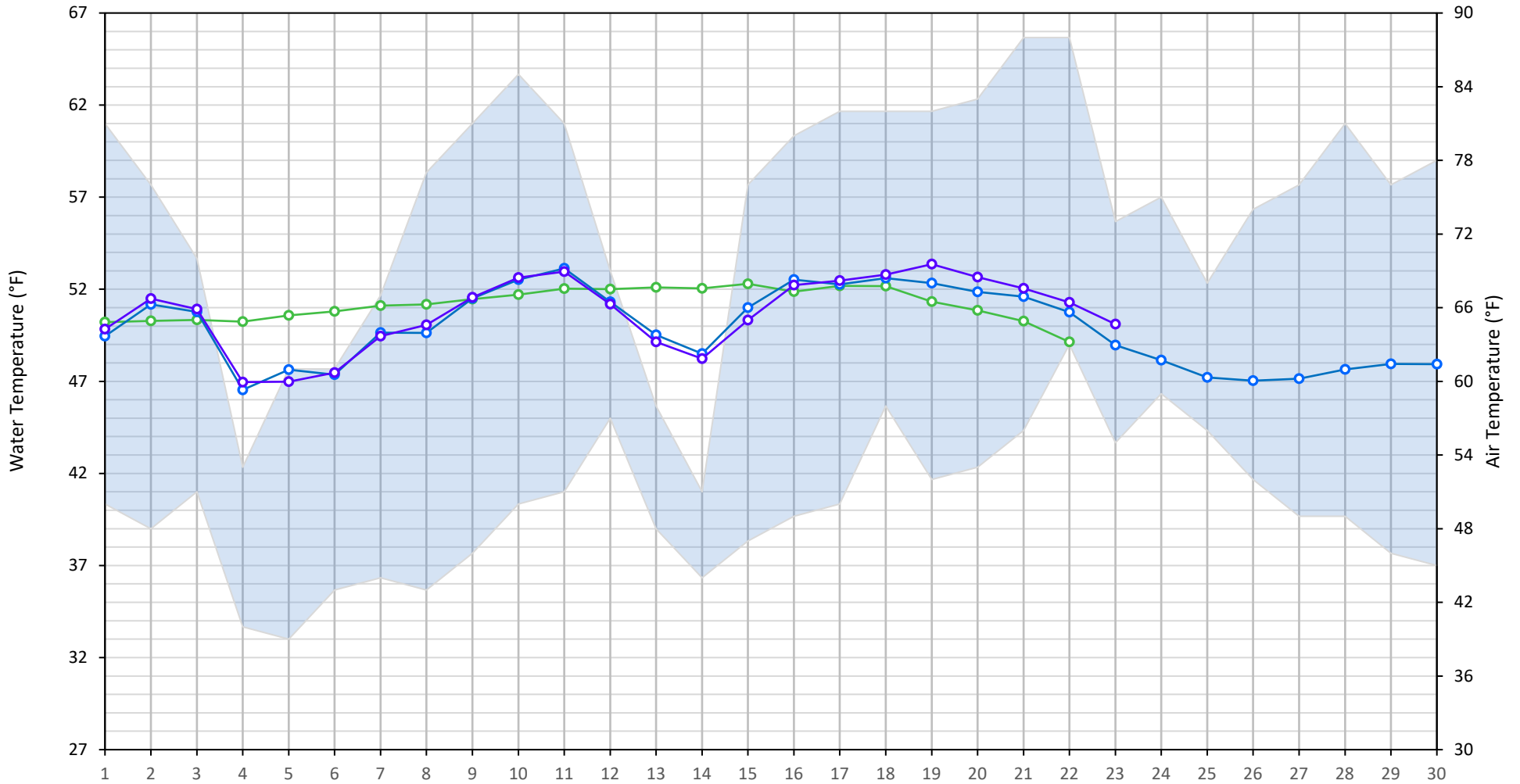
| Water Right Temperature Control Points |       |            |            |          |
|--|-------|------------|------------|----------|
| River                                  | Point | Temp. (°F) | Begin Date | End Date |
| Sacramento                             | CCR   | 53.5       | 05/14/2023 | TBD      |
|  |       |            |            |          |
|  |       |            |            |          |
|  |       |            |            |          |
|  |       |            |            |          |
|  |       |            |            |          |

**Notes**

<sup>1</sup> Distances are approximate

### Trinity River Mean Daily Temperatures

Redding Air (Observed and Forecasted) LWS DGC NFH



#### Station Details

| Code | Body of Water | Location <sup>1</sup>                | CDEC Link                  |
|------|---------------|--------------------------------------|----------------------------|
| LWS  | Trinity River | 1.1 miles downstream of Lewiston Dam | <a href="#">Click Here</a> |
| DGC  | Trinity River | 19 miles downstream of Lewiston Dam  | <a href="#">Click Here</a> |
| NFH  | Trinity River | 38 miles downstream of Lewiston Dam  | <a href="#">Click Here</a> |

#### Water Right Temperature Control Points

| River | Point | Temp. (°F) | Begin Date | End Date |
|-------|-------|------------|------------|----------|
|       |       |            |            |          |
|       |       |            |            |          |

#### Notes

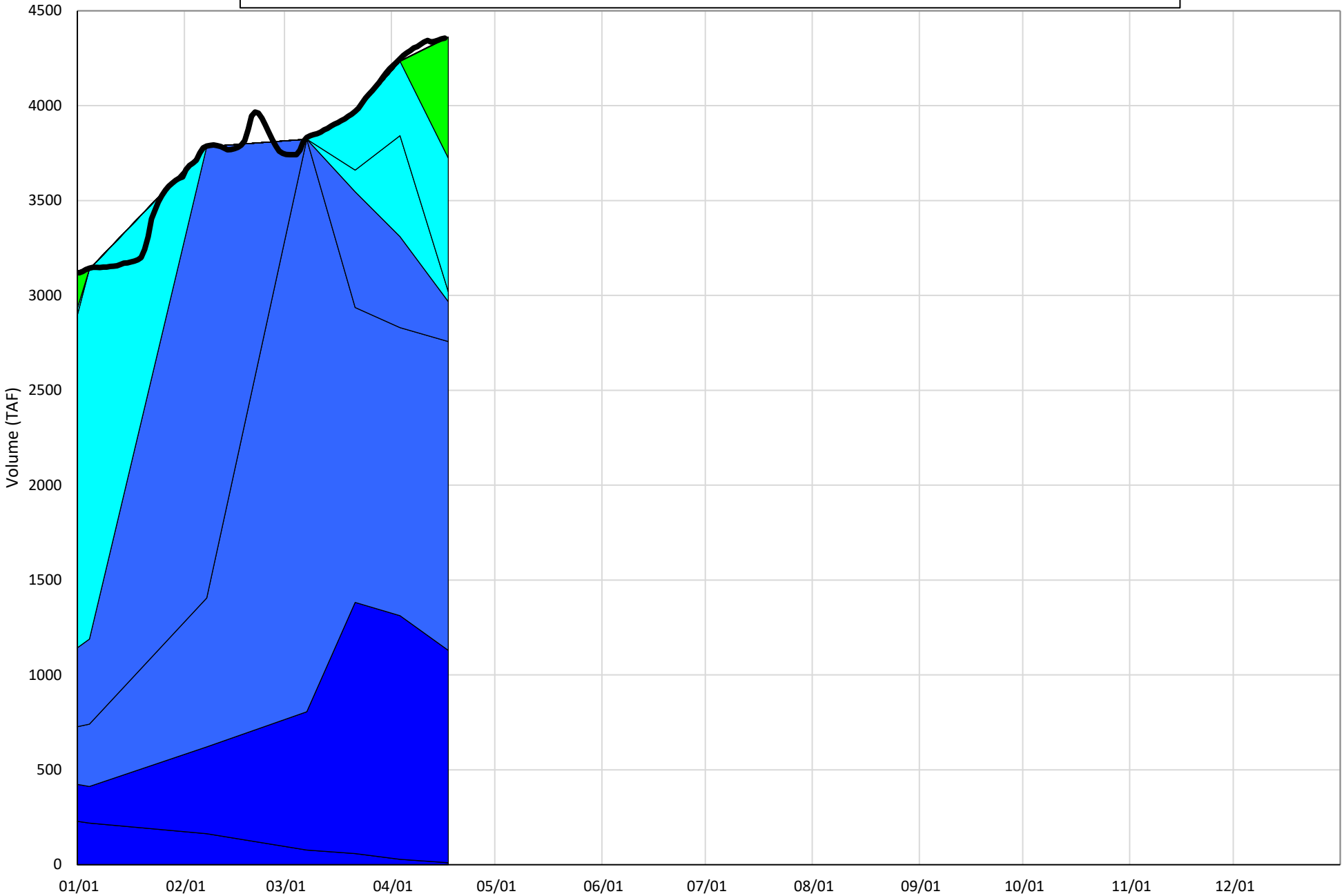
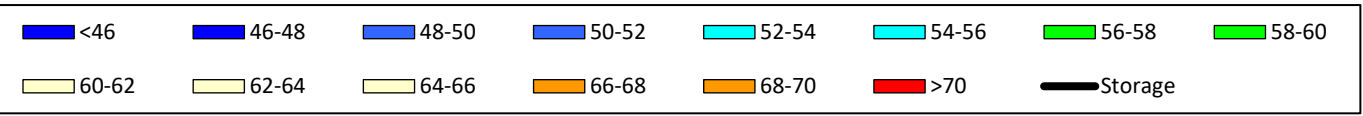
<sup>1</sup> Distances are approximate

# Shasta Lake Isothermobaths & Cold Water Pool Statistics

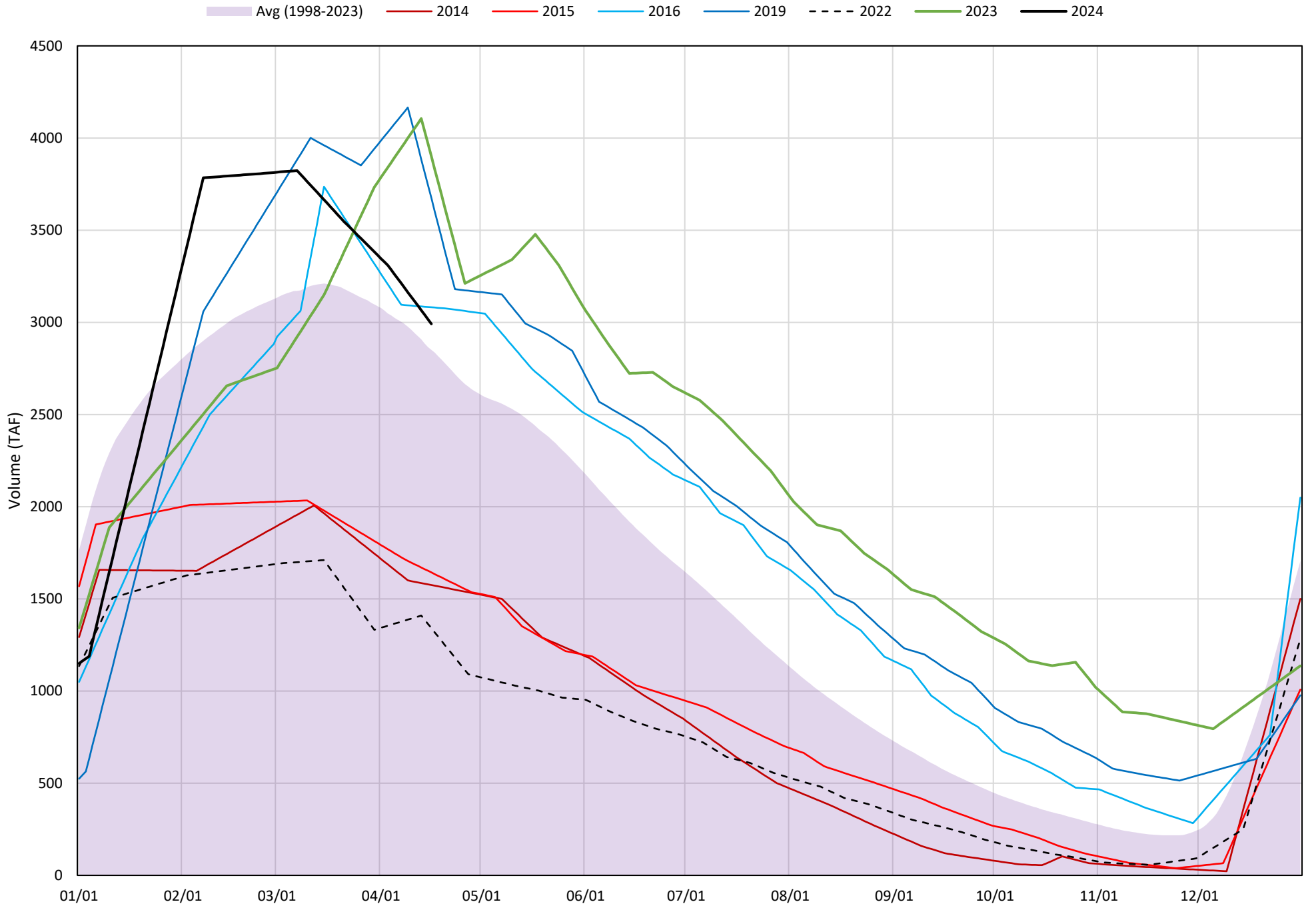
## 2024

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| 13   | - Shasta Lake Cold Water Pool Comparison by Year                                     |

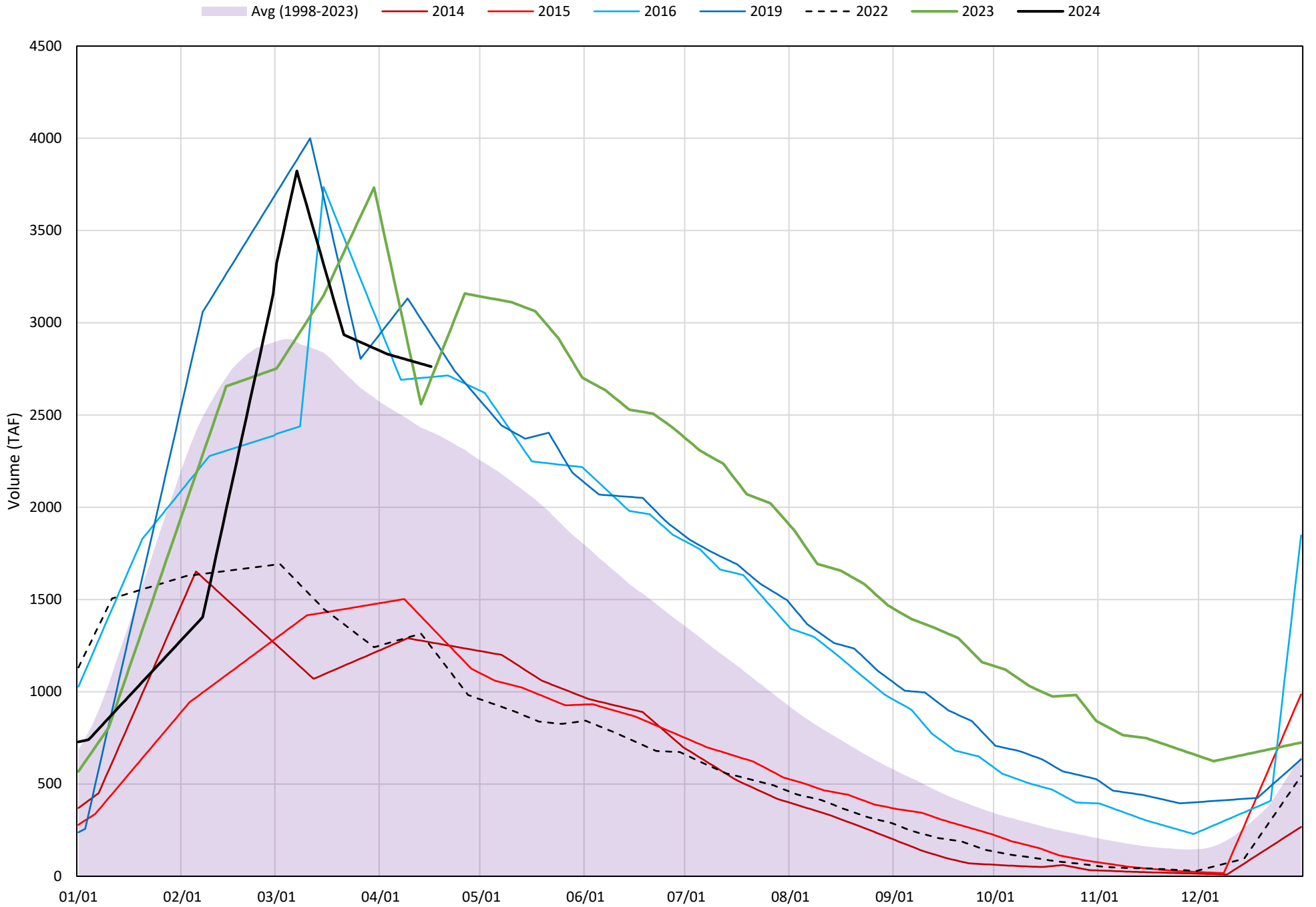
Shasta Lake Isothermobaths Plot - 2024



# Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$



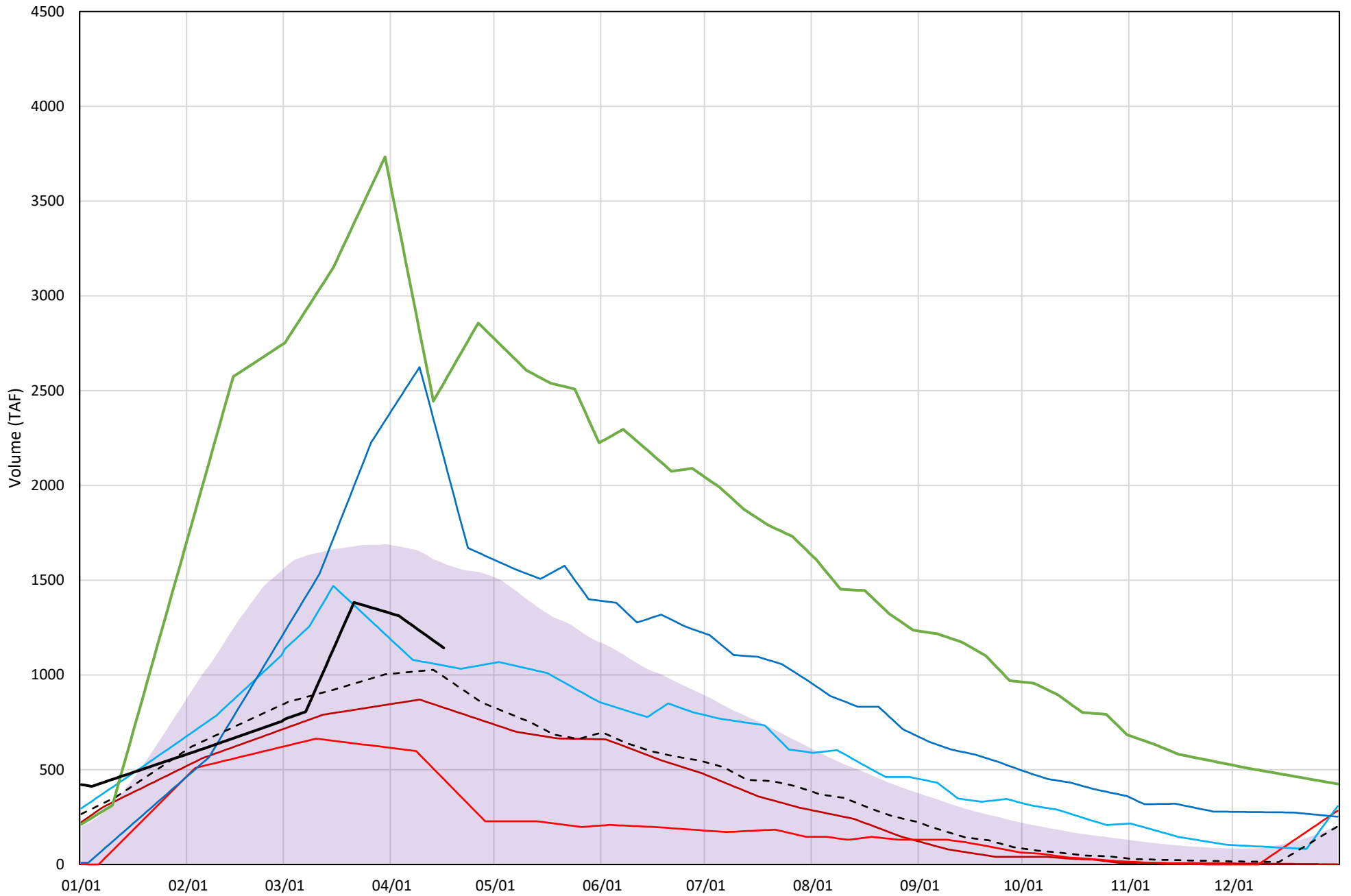
# Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$





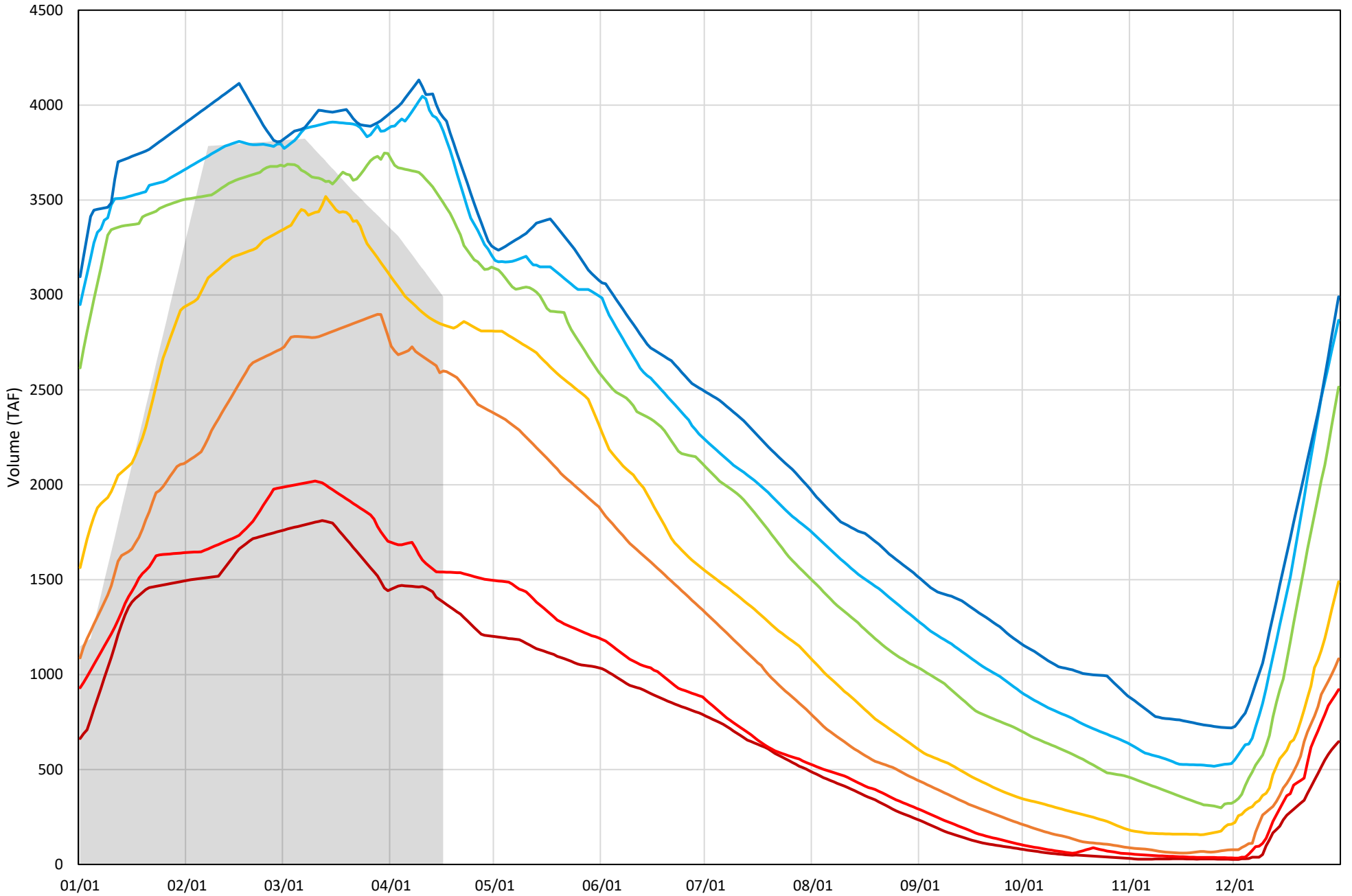
# Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

Avg (1998-2023) 2014 2015 2016 2019 2022 2023 2024



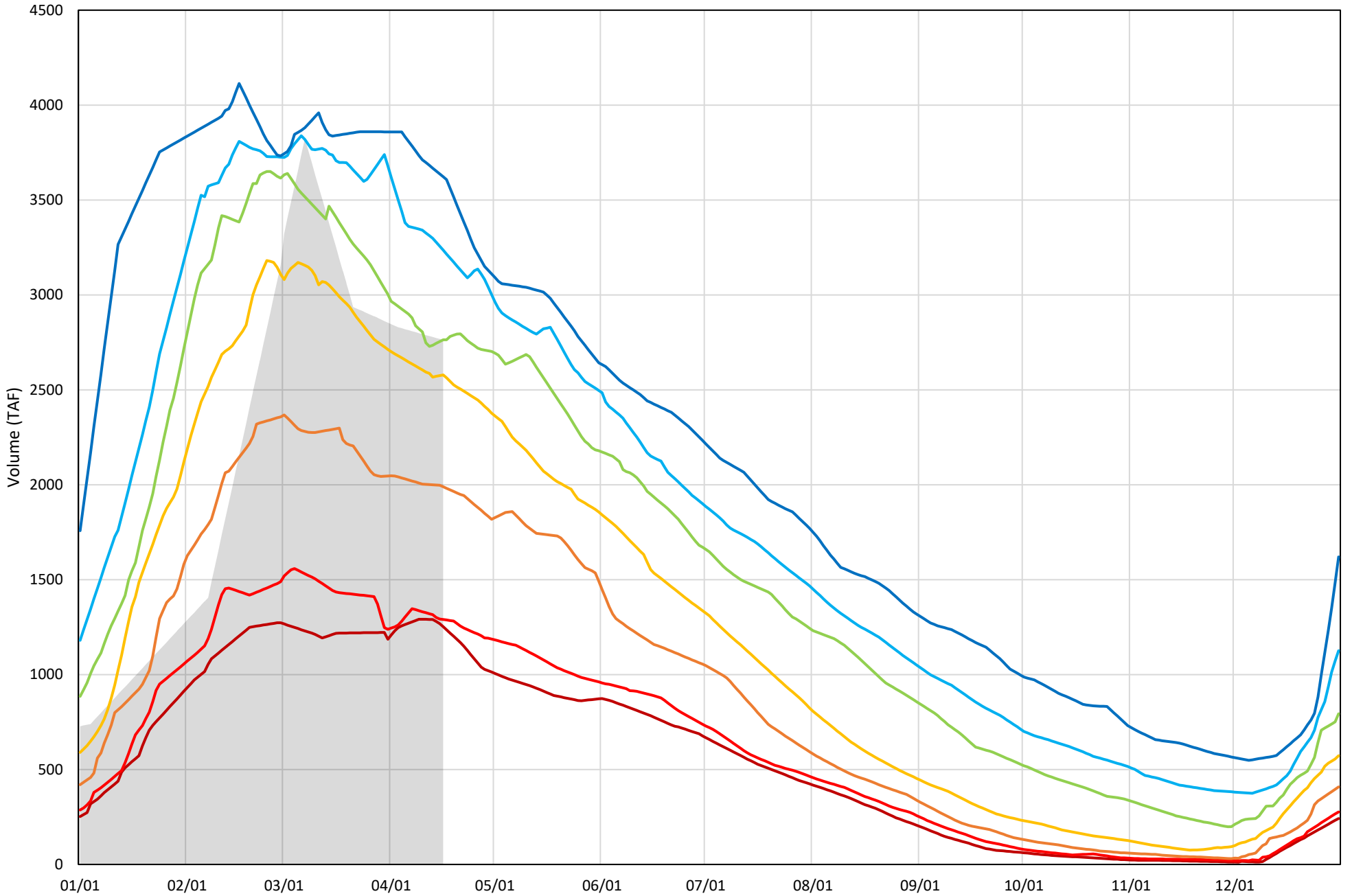
Shasta Lake Cold Water Pool Volume  $\leq 52^{\circ}\text{F}$  - Percent Exceedances (1998-2023)

2024 95 90 75 50 25 10 5



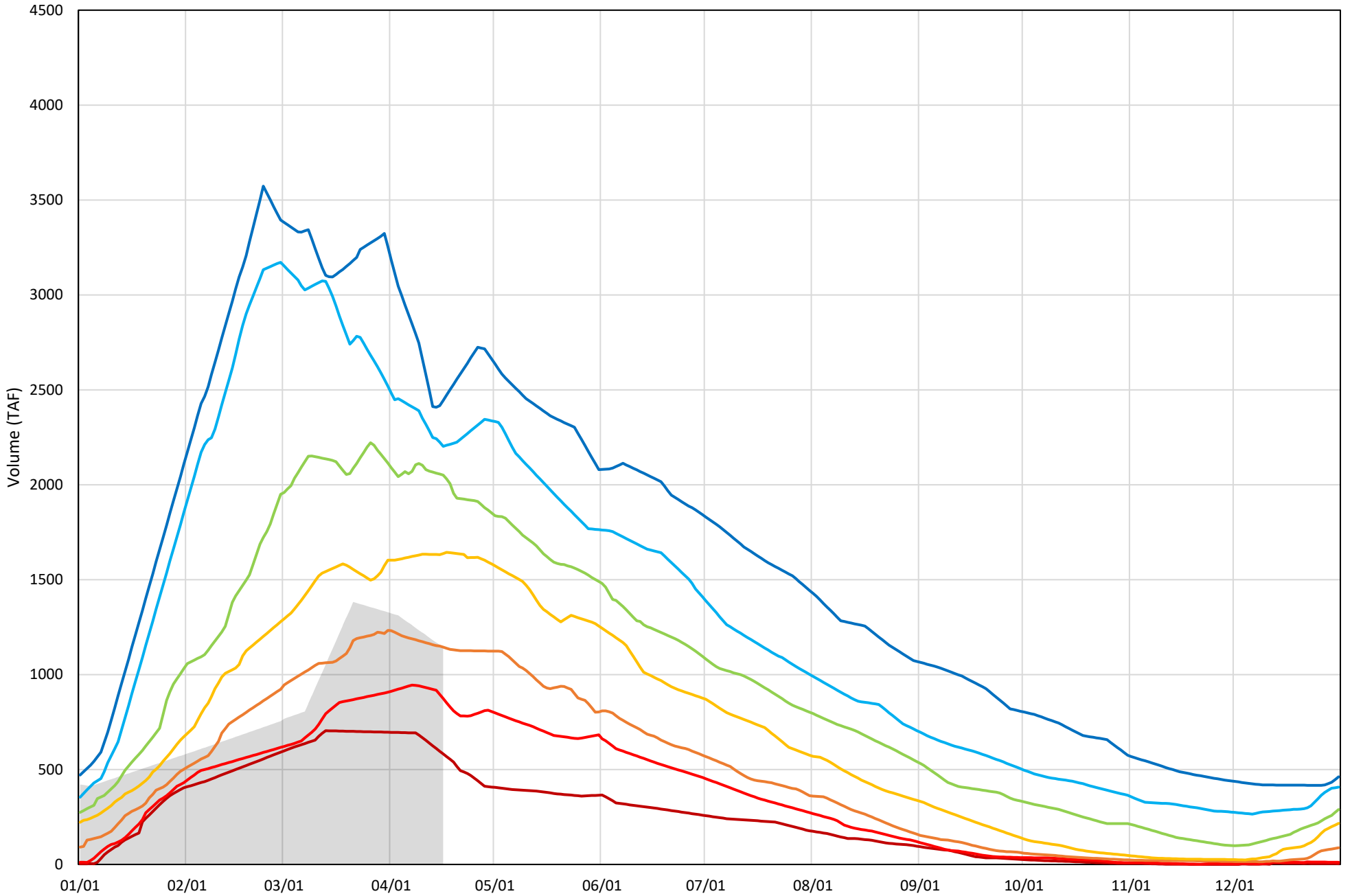
Shasta Lake Cold Water Pool Volume  $\leq 50^{\circ}\text{F}$  - Percent Exceedances (1998-2023)

2024 95 90 75 50 25 10 5



Shasta Lake Cold Water Pool Volume  $\leq 48^{\circ}\text{F}$  - Percent Exceedances (1998-2023)

2024 95 90 75 50 25 10 5



## Shasta Lake Cold Water Pool Comparison by Year (for Specified Date)

| Apr-17<br>2024 | Δ TAF |       |      |           | % Δ  |      |      |           |
|----------------|-------|-------|------|-----------|------|------|------|-----------|
|                | ≤52°  | ≤50°  | ≤48° | Abs. Avg. | ≤52° | ≤50° | ≤48° | Abs. Avg. |
| 1998           | 396   | 83    | 1125 | 535       | 13   | 3    | 98   | 38        |
| 1999           | 586   | 365   | 1032 | 661       | 20   | 13   | 90   | 41        |
| 2000           | -294  | -546  | 175  | 338       | -10  | -20  | 15   | 15        |
| 2001           | -199  | -223  | 885  | 435       | -7   | -8   | 77   | 31        |
| 2002           | 146   | 75    | 734  | 319       | 5    | 3    | 64   | 24        |
| 2003           | -117  | -394  | 191  | 234       | -4   | -14  | 17   | 12        |
| 2004           | -190  | -181  | 357  | 242       | -6   | -7   | 31   | 15        |
| 2005           | -301  | -407  | 22   | 243       | -10  | -15  | 2    | 9         |
| 2006           | 962   | 931   | 737  | 877       | 32   | 34   | 64   | 43        |
| 2007           | -182  | -181  | 775  | 379       | -6   | -7   | 68   | 27        |
| 2008           | -640  | -1029 | 277  | 649       | -21  | -37  | 24   | 28        |
| 2009           | -1173 | -1099 | 353  | 875       | -39  | -40  | 31   | 37        |
| 2010           | 463   | -116  | 767  | 449       | 15   | -4   | 67   | 29        |
| 2011           | 592   | 727   | 977  | 765       | 20   | 26   | 86   | 44        |
| 2012           | 856   | -24   | 633  | 504       | 29   | -1   | 55   | 28        |
| 2013           | -234  | -298  | 651  | 394       | -8   | -11  | 57   | 25        |
| 2014           | -1417 | -1495 | -315 | 1076      | -47  | -54  | -28  | 43        |
| 2015           | -1349 | -1411 | -692 | 1151      | -45  | -51  | -61  | 52        |
| 2016           | 90    | -57   | -93  | 80        | 3    | -2   | -8   | 4         |
| 2017           | 170   | -188  | 1003 | 454       | 6    | -7   | 88   | 33        |
| 2018           | 69    | -170  | 70   | 103       | 2    | -6   | 6    | 5         |
| 2019           | 681   | 173   | 1004 | 620       | 23   | 6    | 88   | 39        |
| 2020           | -310  | -688  | -58  | 352       | -10  | -25  | -5   | 13        |
| 2021           | -1533 | -1462 | -249 | 1082      | -51  | -53  | -22  | 42        |
| 2022           | -1651 | -1519 | -153 | 1107      | -55  | -55  | -13  | 41        |
| 2023           | 907   | -66   | 1397 | 790       | 30   | -2   | 122  | 52        |
| 2024           | 0     | 0     | 0    | 0         | 0    | 0    | 0    | 0         |

Historical - Current

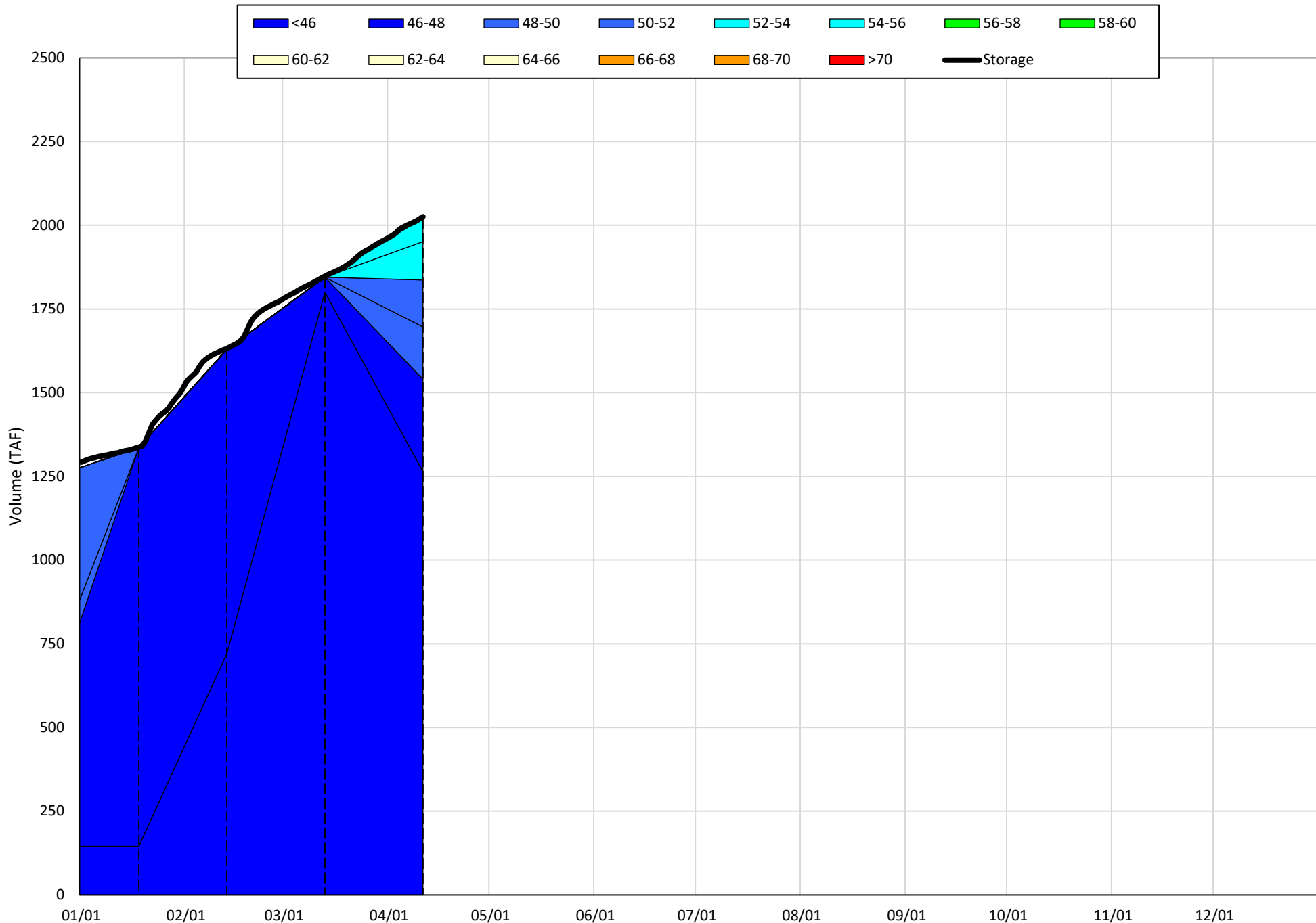
(Historical - Current) / Current

# Trinity Lake Isothermobaths & Cold Water Pool Statistics

## 2024

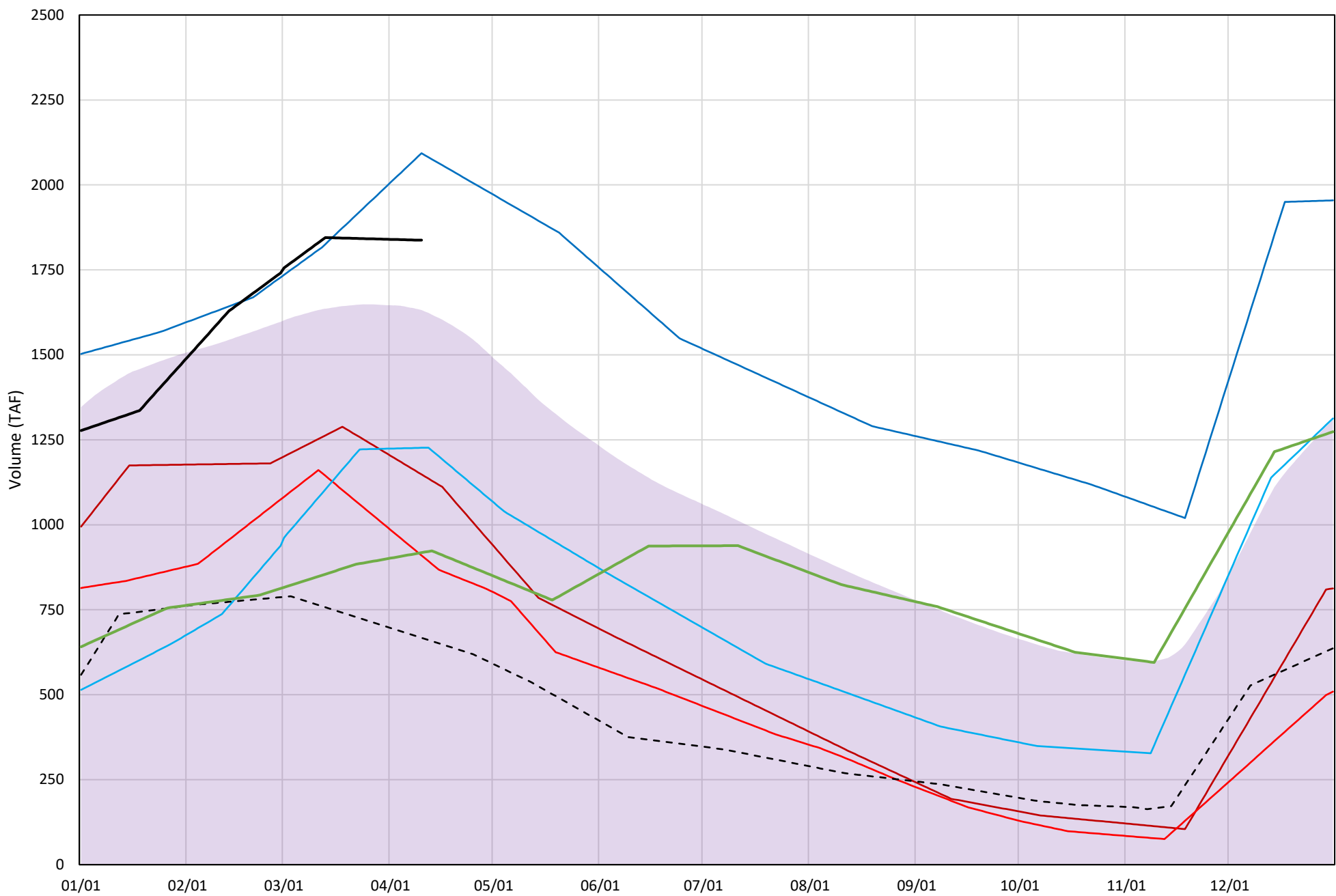
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| 20   | - Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances |
| 21   | - Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances |
| 22   | - Trinity Lake Cold Water Pool Comparison by Year                                     |

Trinity Lake Isothermobaths Plot - 2024



# Trinity Lake Cold Water Pool Volume ≤52°F

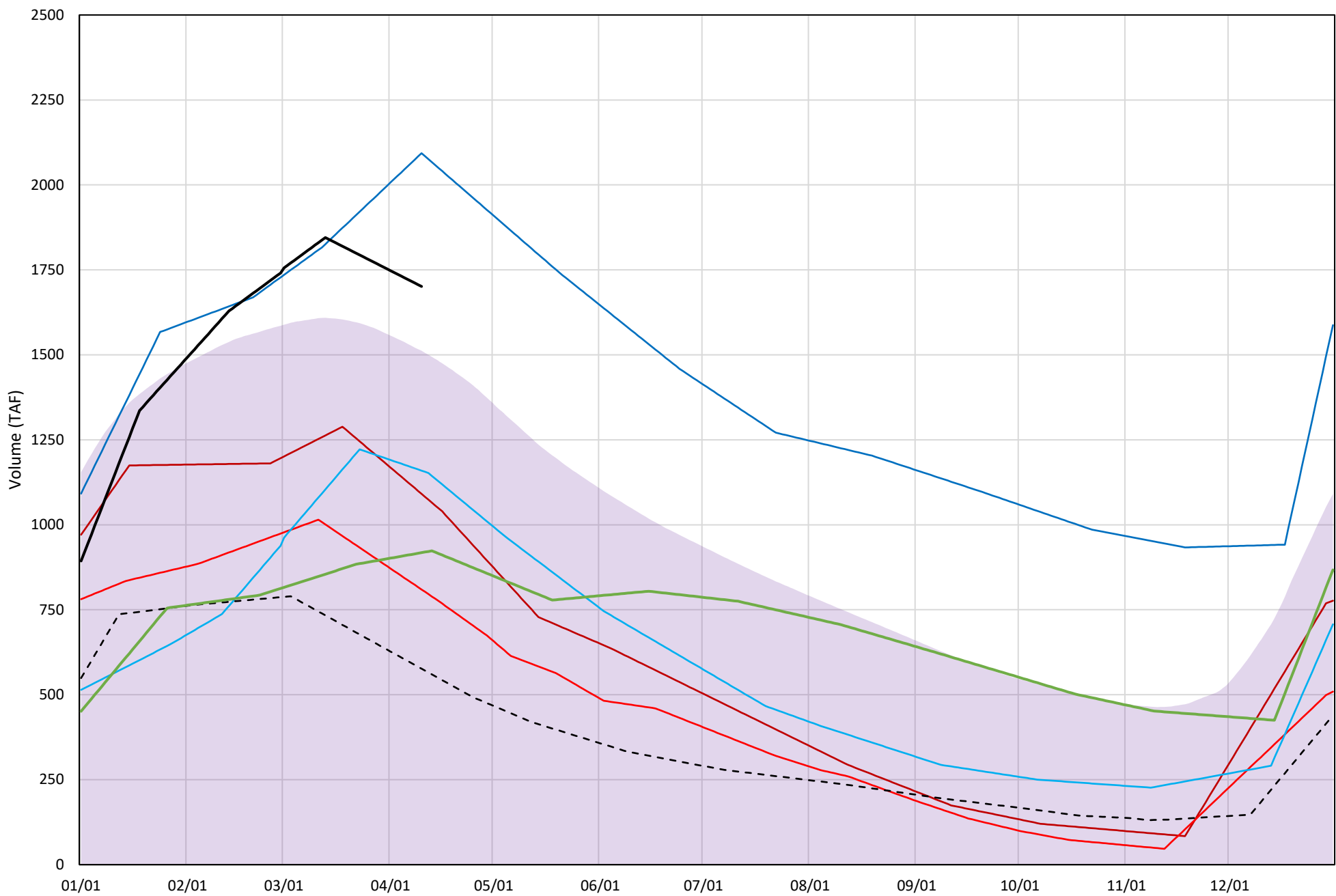
Avg (2000-2023) 2014 2015 2016 2019 2022 2023 2024





# Trinity Lake Cold Water Pool Volume ≤50°F

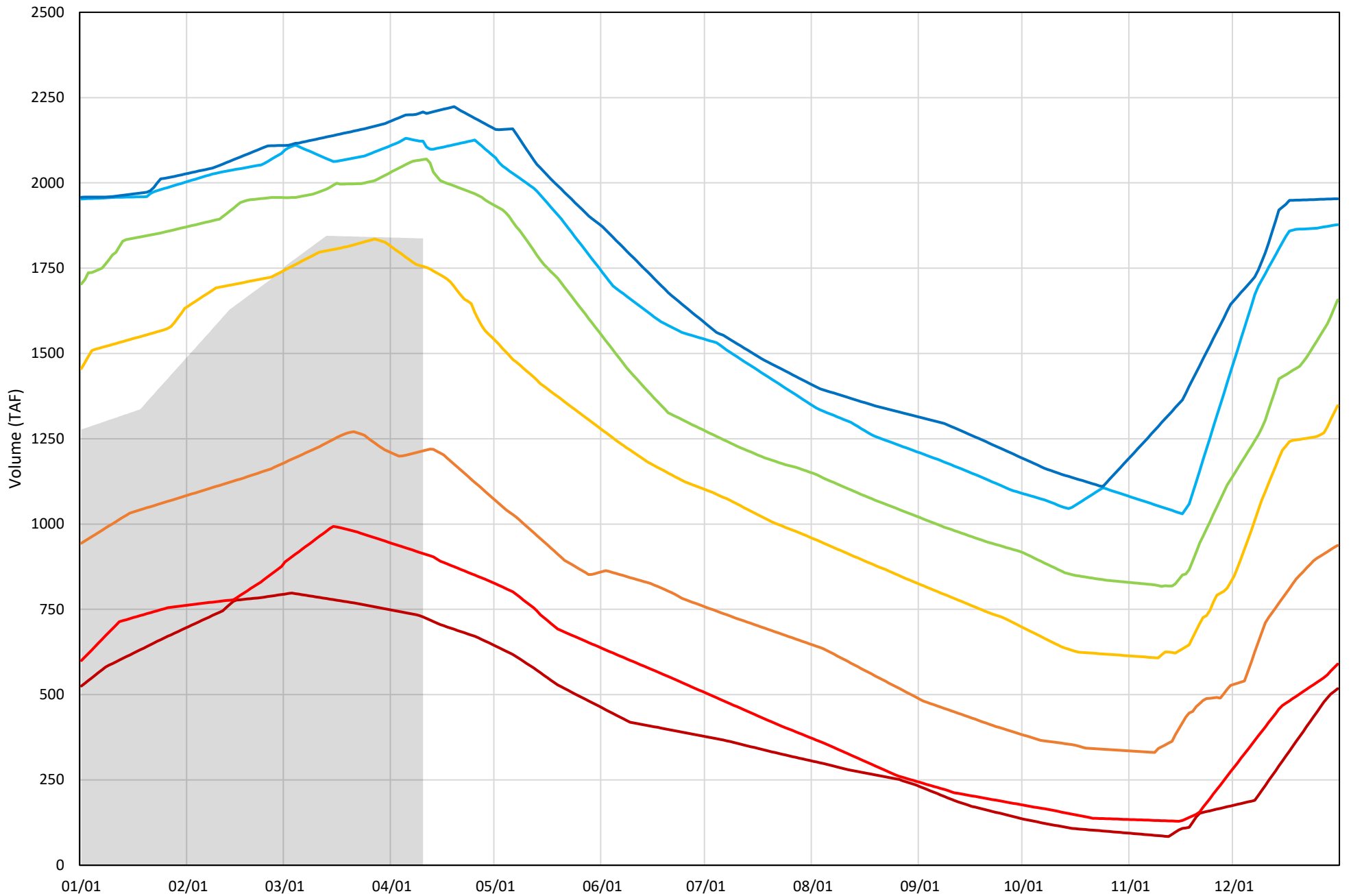
Avg (2000-2023) 2014 2015 2016 2019 2022 2023 2024





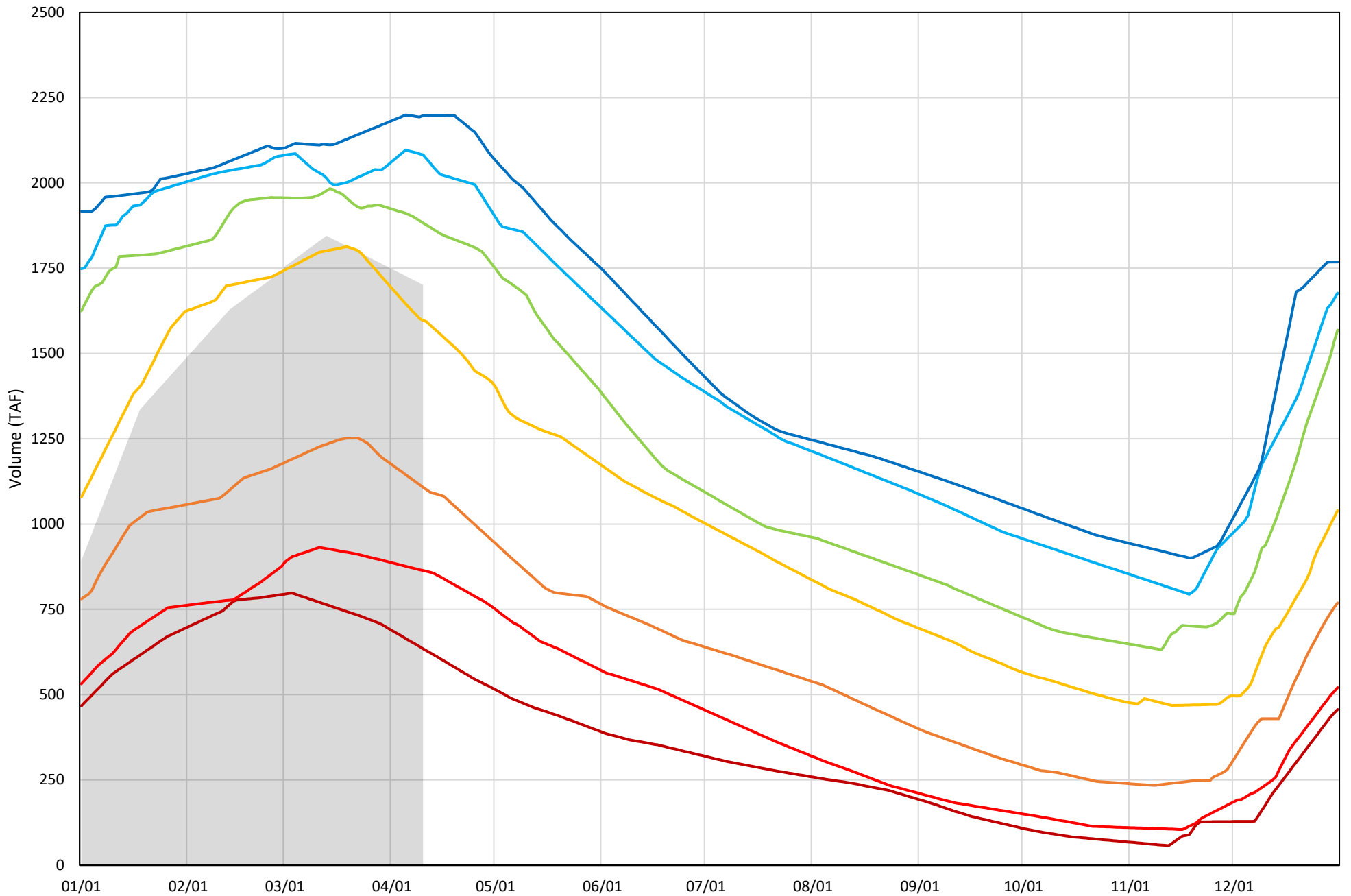
Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (2000-2023)

2024 95 90 75 50 25 10 5



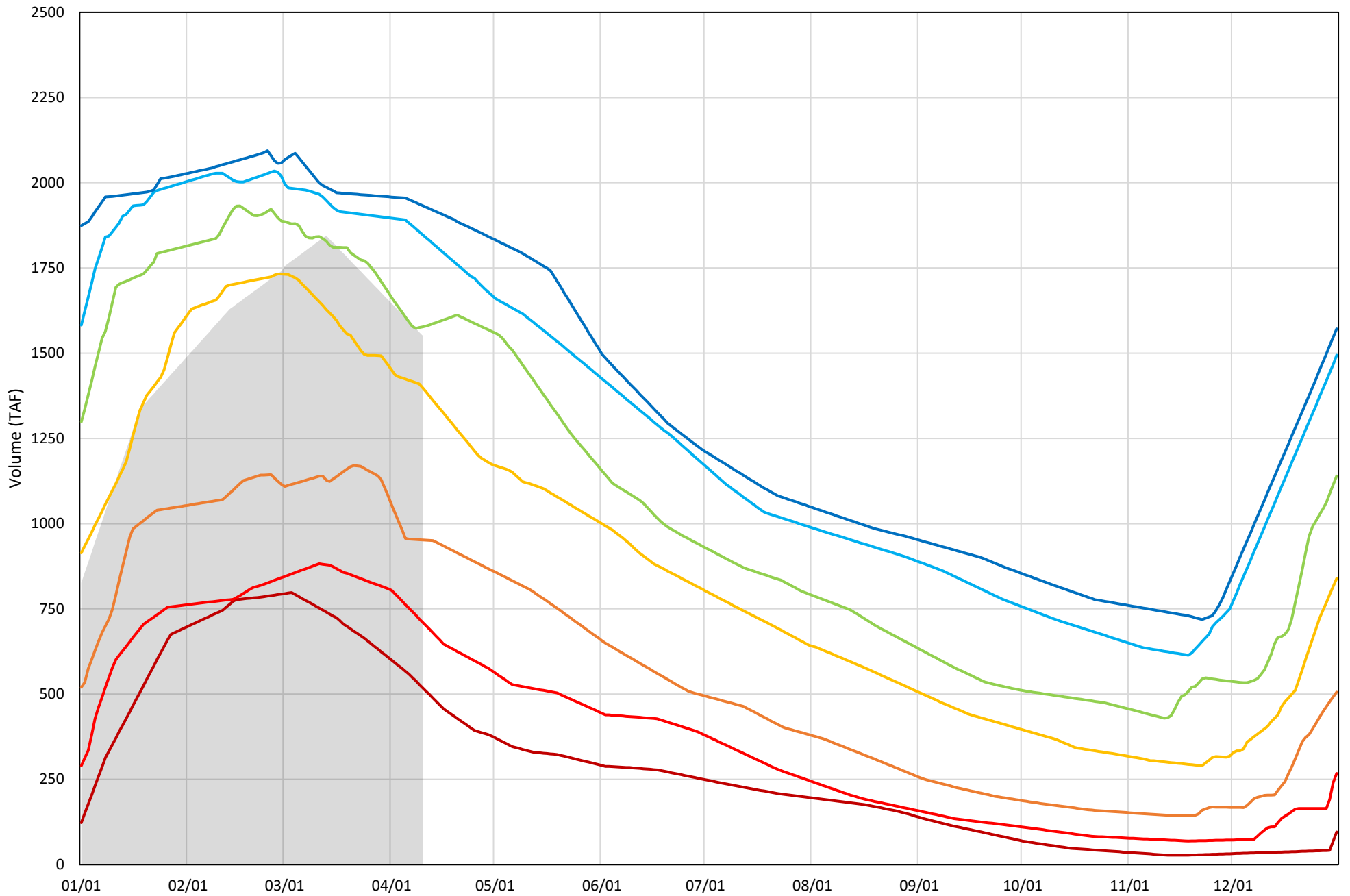
Trinity Lake Cold Water Pool Volume ≤50°F - Percent Exceedances (2000-2023)

2024 95 90 75 50 25 10 5



Trinity Lake Cold Water Pool Volume  $\leq 48^{\circ}\text{F}$  - Percent Exceedances (2000-2023)

2024 95 90 75 50 25 10 5



### Trinity Cold Water Pool Comparison by Year (for Specified Date)

|               | $\Delta$ TAF    |                 |                 |           | % $\Delta$      |                 |                 |           |
|---------------|-----------------|-----------------|-----------------|-----------|-----------------|-----------------|-----------------|-----------|
|               | $\leq 52^\circ$ | $\leq 50^\circ$ | $\leq 48^\circ$ | Abs. Avg. | $\leq 52^\circ$ | $\leq 50^\circ$ | $\leq 48^\circ$ | Abs. Avg. |
| <b>Apr-11</b> |                 |                 |                 |           |                 |                 |                 |           |
| <b>2024</b>   |                 |                 |                 |           |                 |                 |                 |           |
| 2000          | 271             | 284             | 38              | 198       | 15              | 17              | 2               | 11        |
| 2001          | -251            | -181            | -181            | 204       | -14             | -11             | -12             | 12        |
| 2002          | -122            | -53             | -10             | 62        | -7              | -3              | -1              | 3         |
| 2003          | 238             | 188             | -109            | 178       | 13              | 11              | -7              | 10        |
| 2004          | -19             | -19             | -16             | 18        | -1              | -1              | -1              | 1         |
| 2005          | -103            | -373            | -427            | 301       | -6              | -22             | -28             | 18        |
| 2006          | 394             | 531             | 395             | 440       | 21              | 31              | 25              | 26        |
| 2007          | -61             | -117            | -77             | 85        | -3              | -7              | -5              | 5         |
| 2008          | -223            | -106            | -271            | 200       | -12             | -6              | -17             | 12        |
| 2009          | -627            | -624            | -858            | 703       | -34             | -37             | -55             | 42        |
| 2010          | -458            | -393            | -483            | 445       | -25             | -23             | -31             | 26        |
| 2011          | 268             | 371             | 338             | 325       | 15              | 22              | 22              | 19        |
| 2012          | 122             | 162             | 254             | 179       | 7               | 10              | 16              | 11        |
| 2013          | 299             | 74              | -126            | 166       | 16              | 4               | -8              | 10        |
| 2014          | -689            | -610            | -738            | 679       | -38             | -36             | -48             | 40        |
| 2015          | -928            | -892            | -824            | 881       | -50             | -52             | -53             | 52        |
| 2016          | -611            | -542            | -496            | 550       | -33             | -32             | -32             | 32        |
| 2017          | 210             | 196             | 181             | 195       | 11              | 12              | 12              | 12        |
| 2018          | -54             | -102            | -113            | 90        | -3              | -6              | -7              | 5         |
| 2019          | 256             | 392             | 189             | 279       | 14              | 23              | 12              | 16        |
| 2020          | -2              | -96             | -329            | 142       | 0               | -6              | -21             | 9         |
| 2021          | -749            | -721            | -744            | 738       | -41             | -42             | -48             | 44        |
| 2022          | -1170           | -1125           | -1092           | 1129      | -64             | -66             | -70             | 67        |
| 2023          | -919            | -783            | -633            | 779       | -50             | -46             | -41             | 46        |
| 2024          | 0               | 0               | 0               | 0         | 0               | 0               | 0               | 0         |

Historical - Current

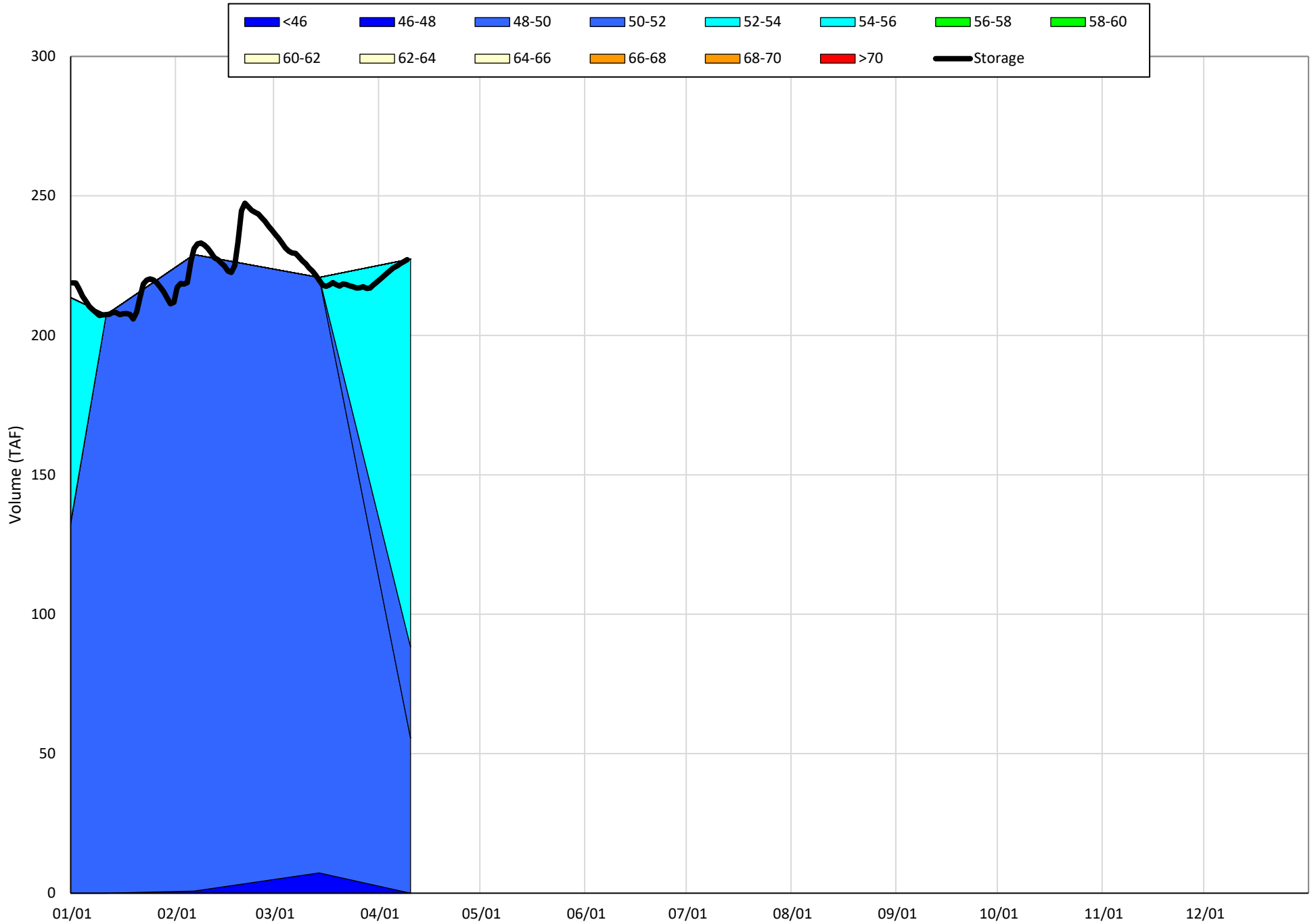
(Historical - Current) / Current

# Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

## 2024

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|------|---|
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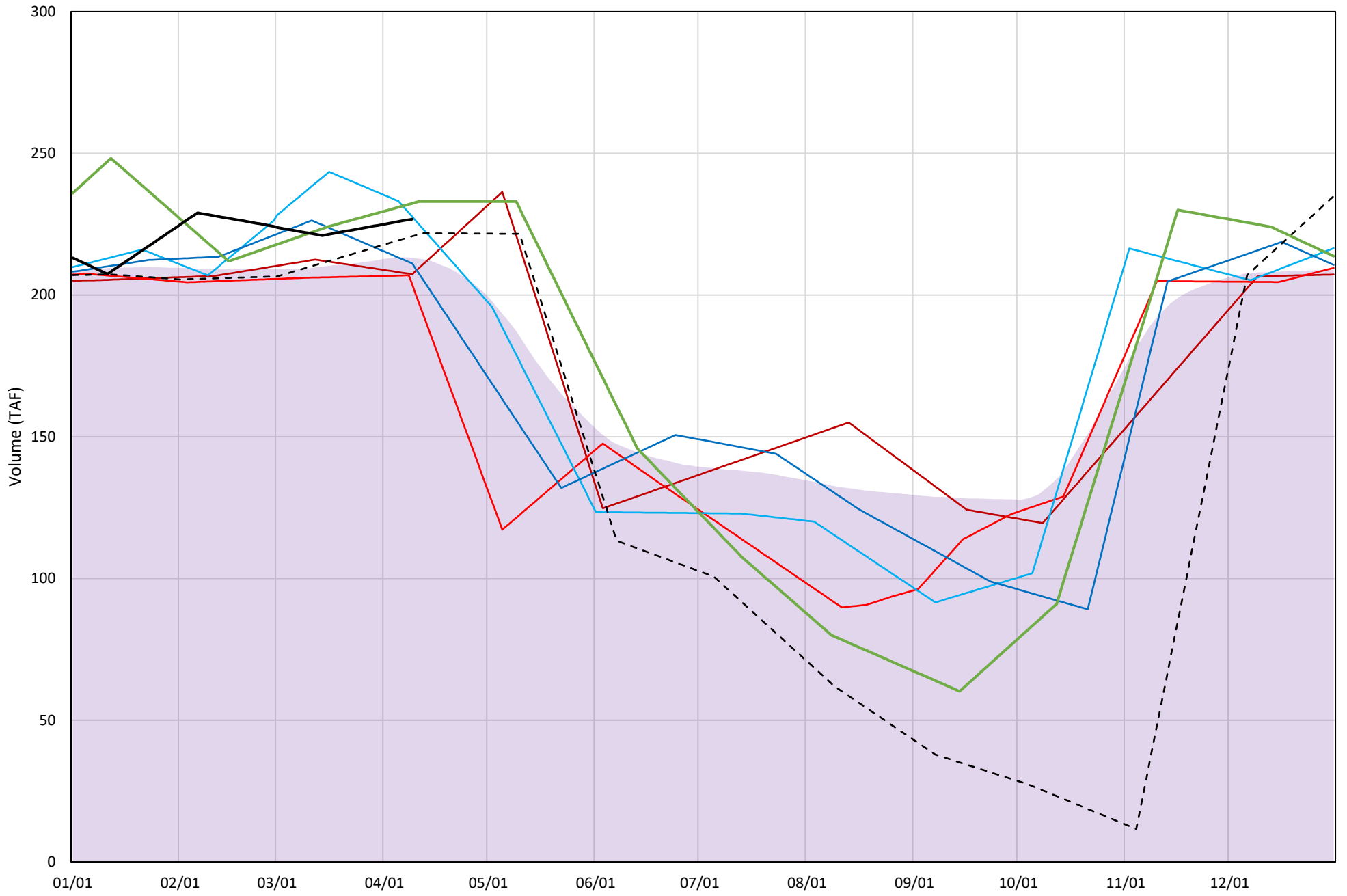
# Whiskeytown Lake Isothermobaths Plot - 2024





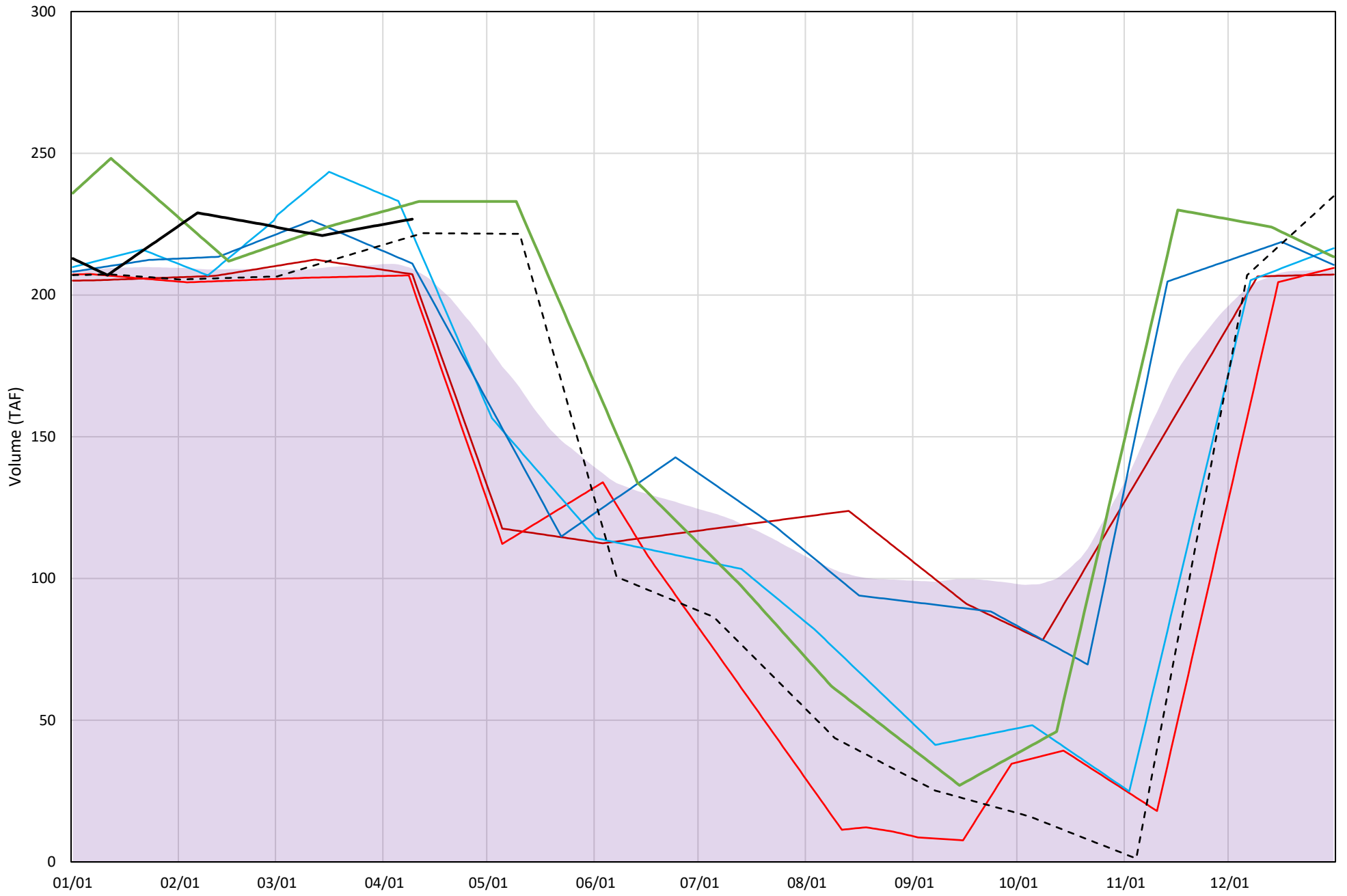
# Whiskeytown Lake Cold Water Pool Volume $\leq 60^\circ\text{F}$

Avg (2000-2023) 2014 2015 2016 2019 2022 2023 2024



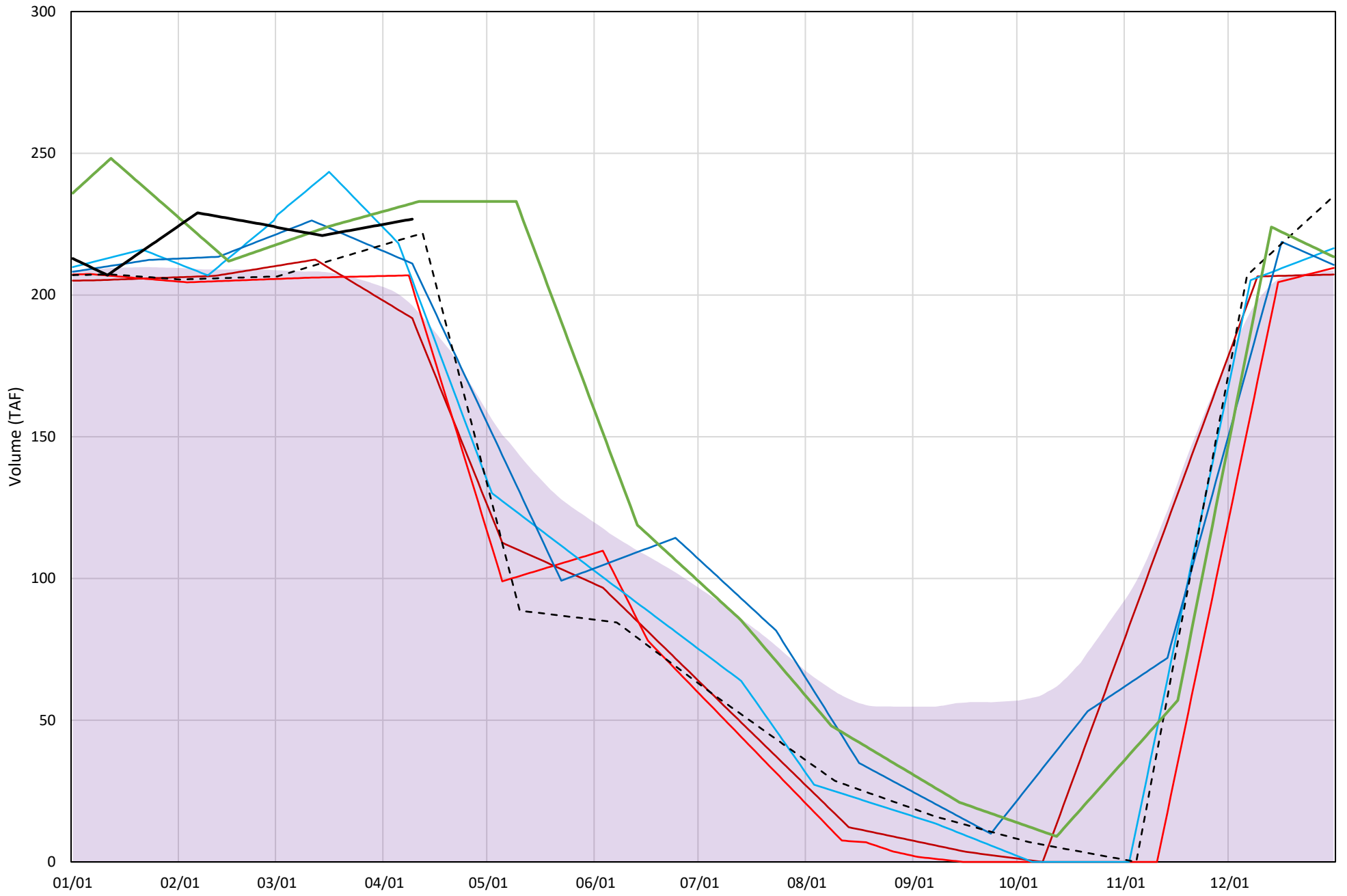
# Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

Avg (2000-2023) 2014 2015 2016 2019 2022 2023 2024



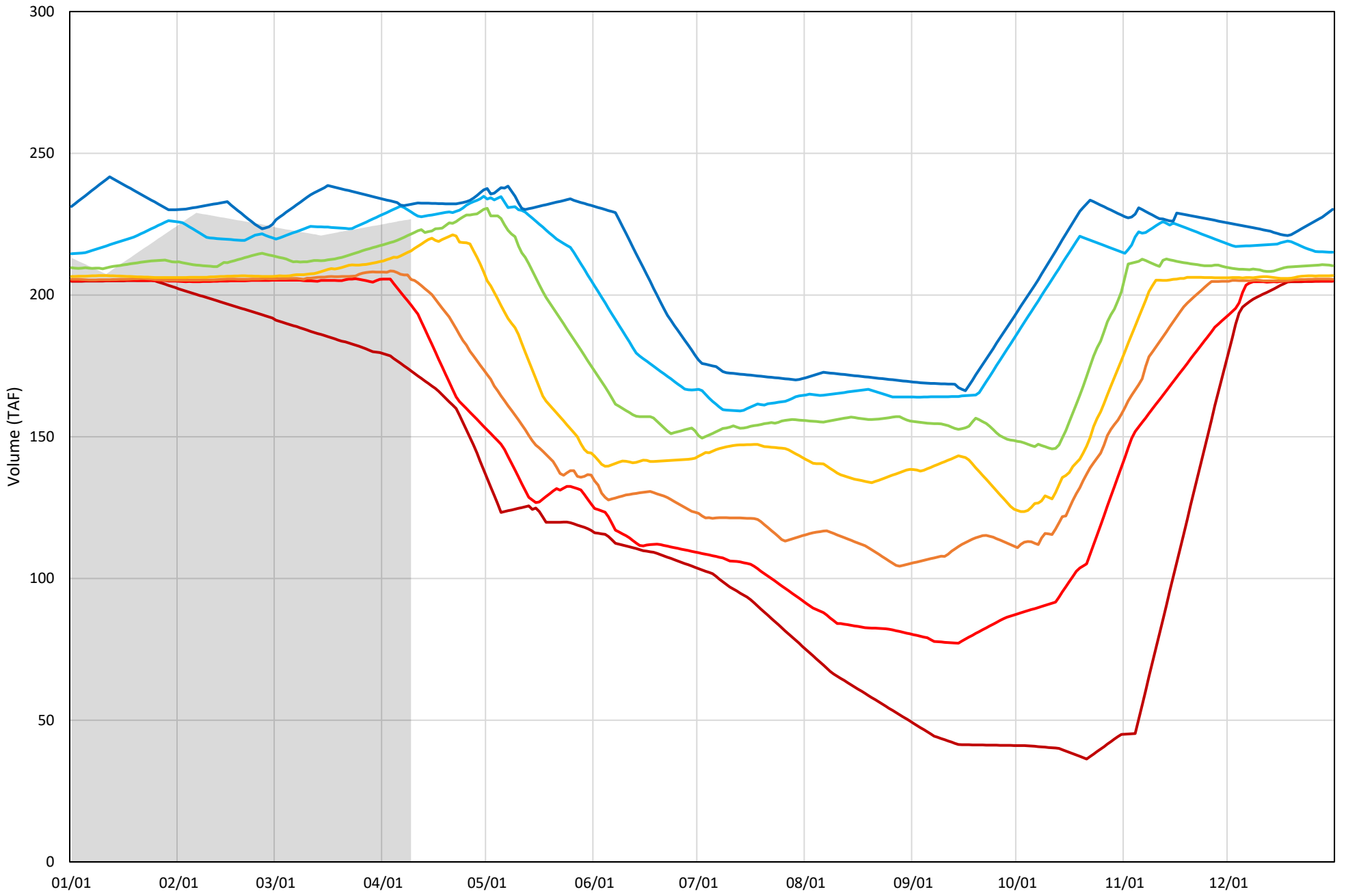
# Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

Avg (2000-2023) 2014 2015 2016 2019 2022 2023 2024



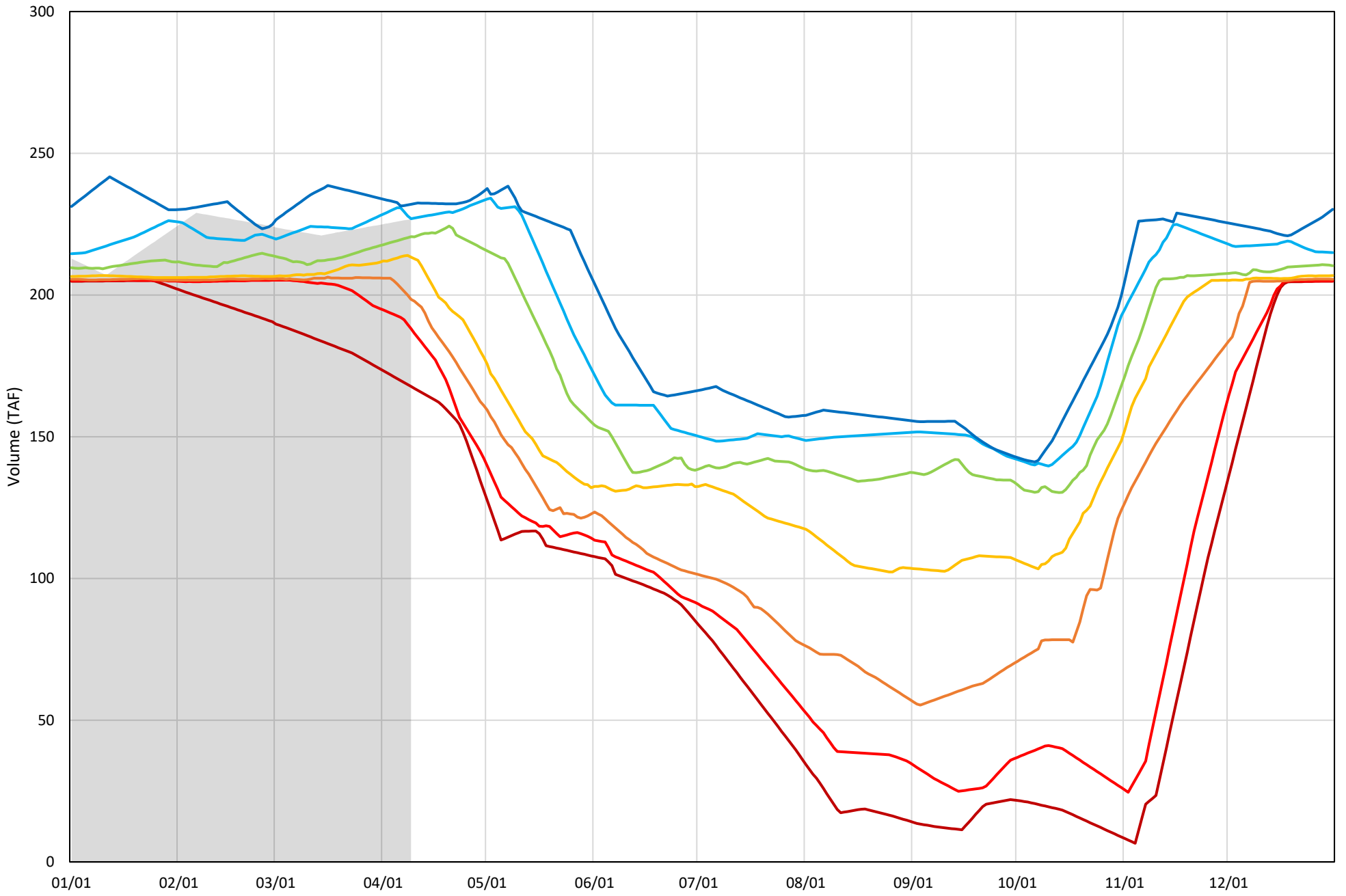
# Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2023)

2024 95 90 75 50 25 10 5



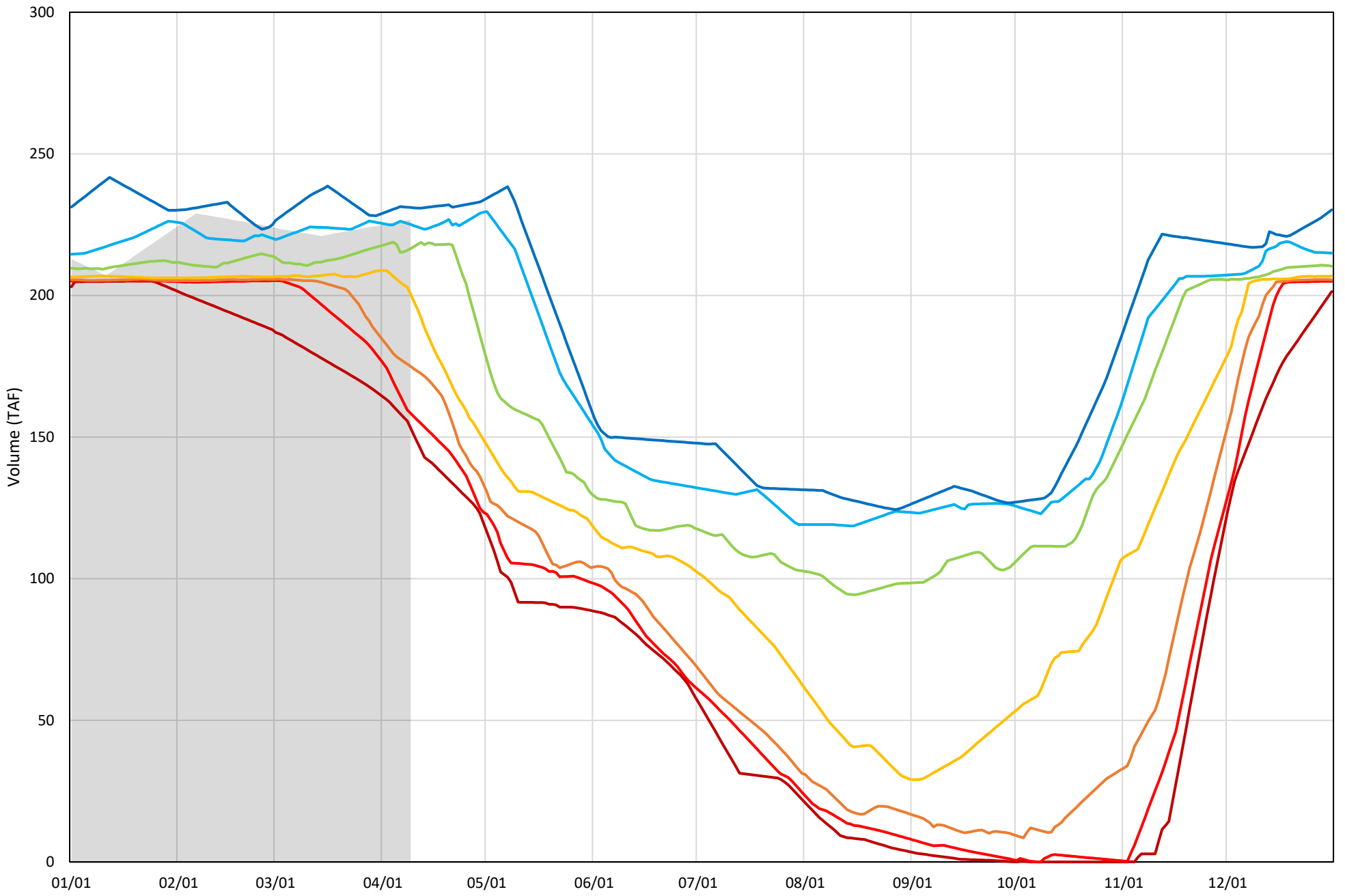
Whiskeytown Lake Cold Water Pool Volume  $\leq 58^{\circ}\text{F}$  - Percent Exceedances (2000-2023)

2024 95 90 75 50 25 10 5



Whiskeytown Lake Cold Water Pool Volume  $\leq 56^{\circ}\text{F}$  - Percent Exceedances (2000-2023)

2024 95 90 75 50 25 10 5



### Whiskeytown Cold Water Pool Comparison by Year (for Specified Date)

| Apr-10<br>2024 | Δ TAF |       |       |           | % Δ   |       |       |           |
|----------------|-------|-------|-------|-----------|-------|-------|-------|-----------|
|                | ≤60°  | ≤58°  | ≤56°  | Abs. Avg. | ≤60°  | ≤58°  | ≤56°  | Abs. Avg. |
| 2000           | -5.0  | -5.0  | -62.1 | 24.0      | -2.2  | -2.2  | -27.4 | 10.6      |
| 2001           | -12.1 | -28.6 | -65.1 | 35.2      | -5.3  | -12.6 | -28.7 | 15.5      |
| 2002           | -10.2 | -43.8 | -58.5 | 37.5      | -4.5  | -19.3 | -25.8 | 16.5      |
| 2003           | -12.2 | -12.2 | -12.2 | 12.2      | -5.4  | -5.4  | -5.4  | 5.4       |
| 2004           | -13.4 | -28.9 | -54.1 | 32.1      | -5.9  | -12.7 | -23.9 | 14.2      |
| 2005           | -3.9  | -3.9  | -3.9  | 3.9       | -1.7  | -1.7  | -1.7  | 1.7       |
| 2006           | -9.6  | -9.6  | -9.6  | 9.6       | -4.2  | -4.2  | -4.2  | 4.2       |
| 2007           | -22.0 | -24.2 | -36.2 | 27.5      | -9.7  | -10.7 | -16.0 | 12.1      |
| 2008           | -10.0 | -10.0 | -12.6 | 10.8      | -4.4  | -4.4  | -5.5  | 4.8       |
| 2009           | -25.6 | -28.4 | -31.0 | 28.3      | -11.3 | -12.5 | -13.7 | 12.5      |
| 2010           | -6.6  | -6.6  | -6.6  | 6.6       | -2.9  | -2.9  | -2.9  | 2.9       |
| 2011           | 4.3   | 4.3   | 0.4   | 3.0       | 1.9   | 1.9   | 0.2   | 1.3       |
| 2012           | -60.3 | -64.1 | -71.8 | 65.4      | -26.6 | -28.3 | -31.7 | 28.8      |
| 2013           | -33.2 | -33.6 | -40.8 | 35.8      | -14.6 | -14.8 | -18.0 | 15.8      |
| 2014           | -19.4 | -19.4 | -35.0 | 24.6      | -8.6  | -8.6  | -15.4 | 10.9      |
| 2015           | -23.2 | -23.4 | -23.9 | 23.5      | -10.2 | -10.3 | -10.5 | 10.3      |
| 2016           | 0.8   | -5.0  | -21.6 | 9.1       | 0.4   | -2.2  | -9.5  | 4.0       |
| 2017           | -4.3  | -14.6 | -23.5 | 14.1      | -1.9  | -6.4  | -10.3 | 6.2       |
| 2018           | -27.5 | -28.0 | -28.9 | 28.1      | -12.1 | -12.4 | -12.7 | 12.4      |
| 2019           | -15.7 | -15.7 | -15.7 | 15.7      | -6.9  | -6.9  | -6.9  | 6.9       |
| 2020           | -6.8  | -6.8  | -44.9 | 19.5      | -3.0  | -3.0  | -19.8 | 8.6       |
| 2021           | -12.2 | -12.2 | -74.3 | 32.9      | -5.4  | -5.4  | -32.8 | 14.5      |
| 2022           | -6.1  | -6.1  | -6.1  | 6.1       | -2.7  | -2.7  | -2.7  | 2.7       |
| 2023           | 5.5   | 5.5   | 5.5   | 5.5       | 2.4   | 2.4   | 2.4   | 2.4       |
| 2024           | 0.0   | 0.0   | 0.0   | 0.0       | 0.0   | 0.0   | 0.0   | 0.0       |

Historical - Current

(Historical - Current) / Current