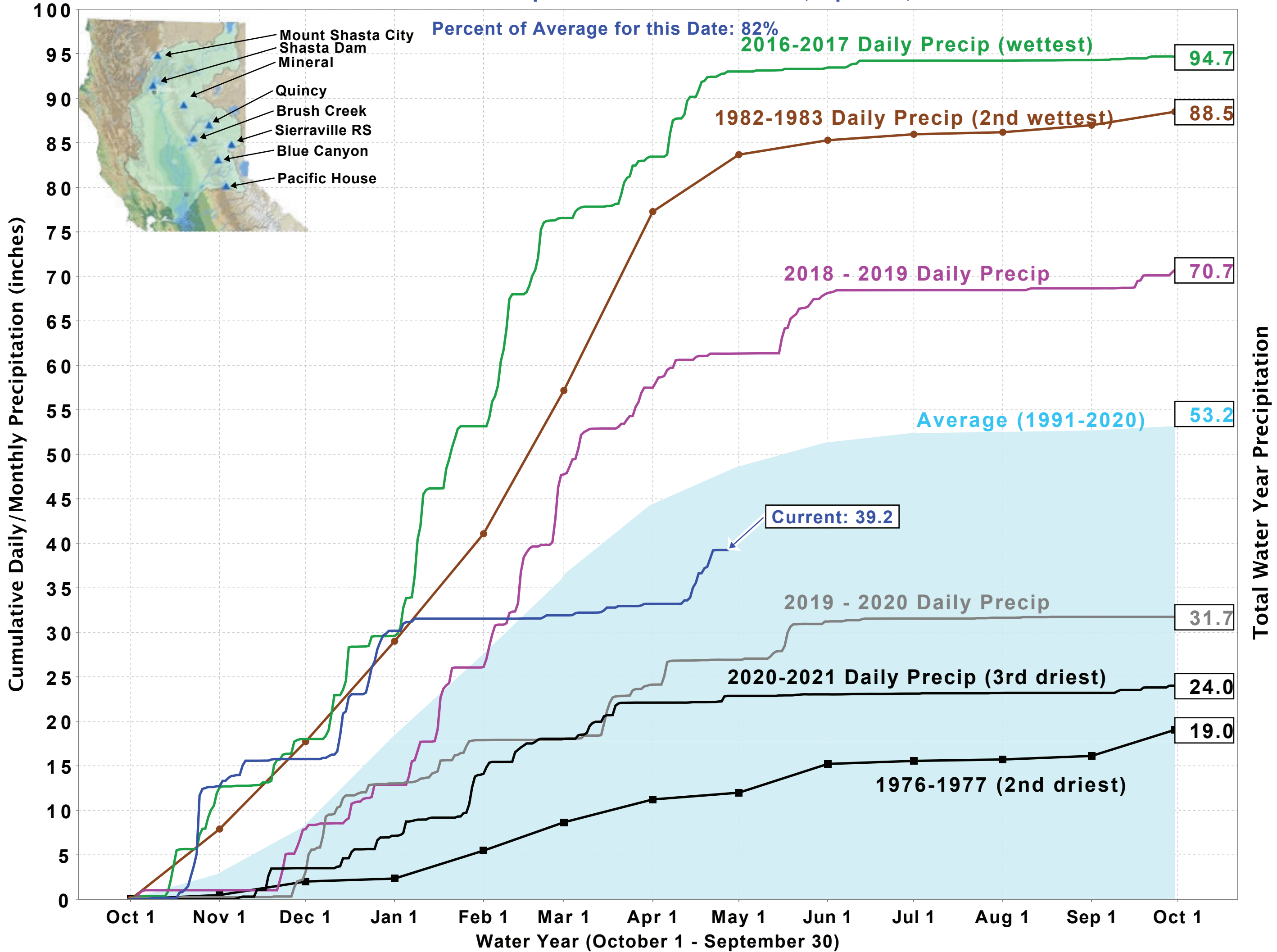
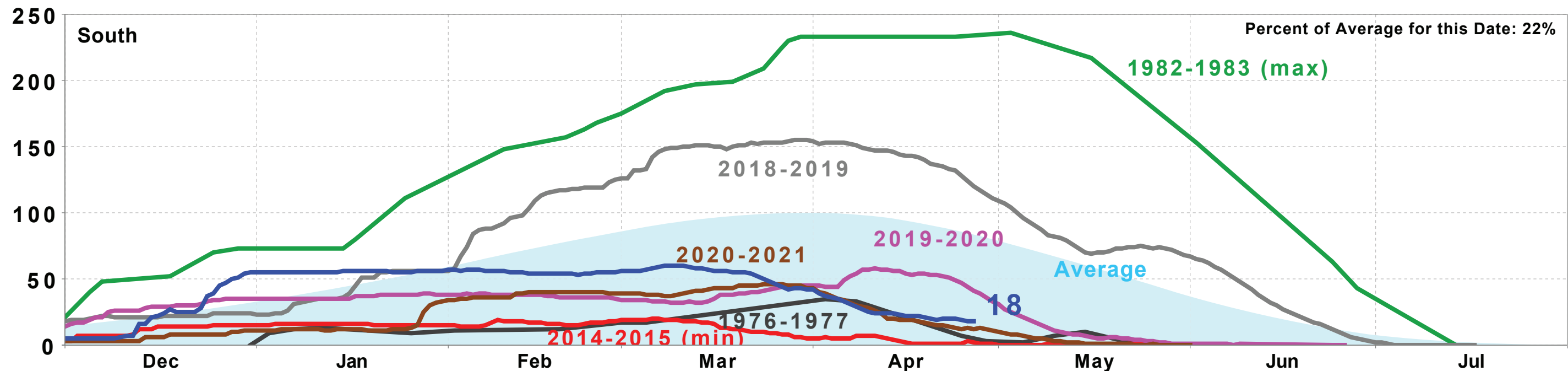
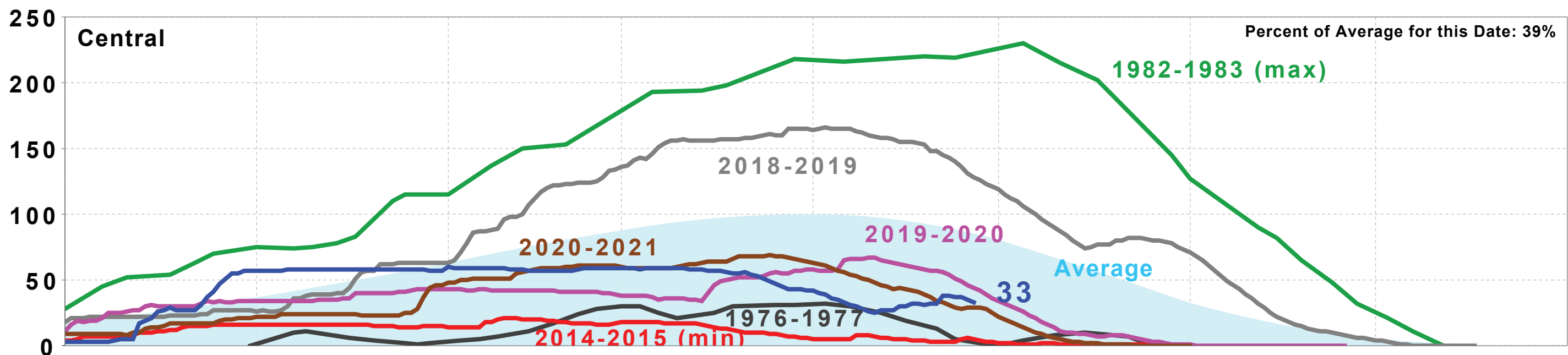
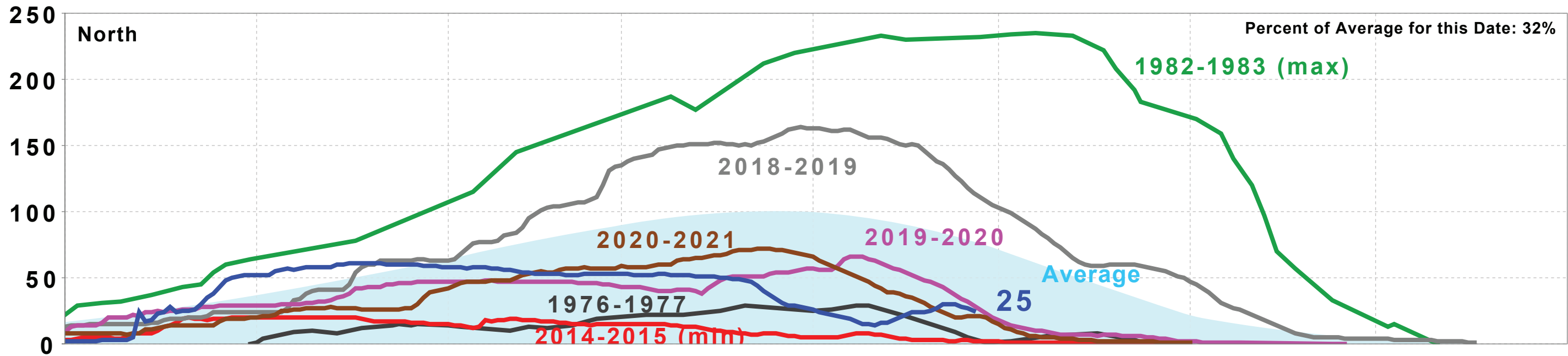


Northern Sierra Precipitation: 8-Station Index, April 27, 2022



California Snow Water Content, April 27, 2022, Percent of April 1 Average



Statewide Percent of April 1: 27%

Statewide Percent of Average for Date: 33%

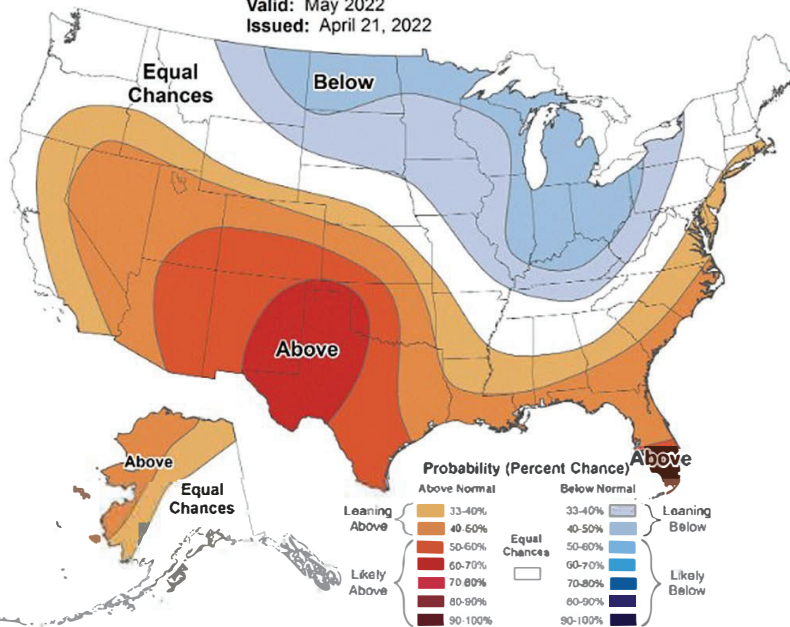
OFFICIAL 30-Day Forecasts

Issued: April 21, 2022



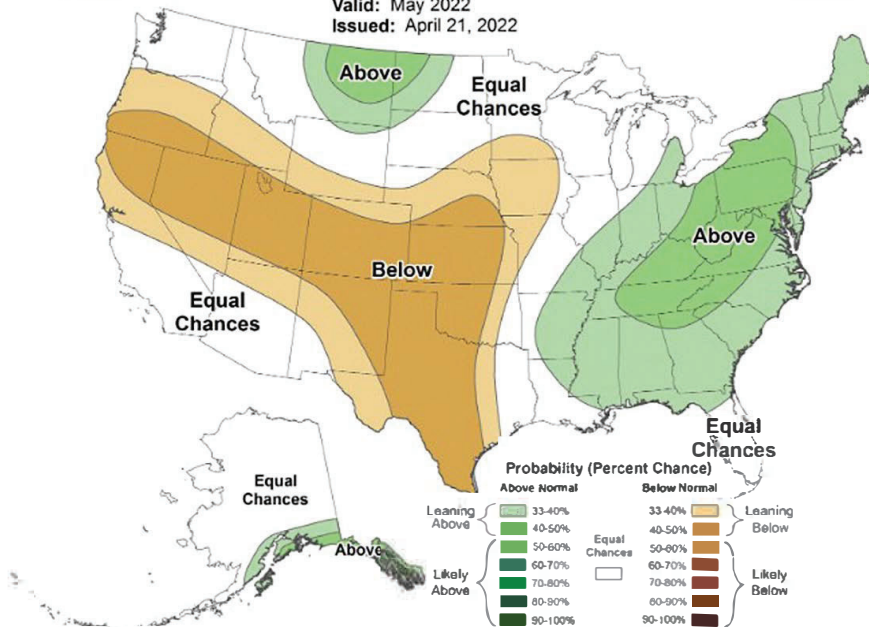
Monthly Temperature Outlook

Valid: May 2022
Issued: April 21, 2022



Monthly Precipitation Outlook

Valid: May 2022
Issued: April 21, 2022



**UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA
DAILY CVP WATER SUPPLY REPORT**

April 26, 2022
RUN DATE: April 27, 2022

Table 4. Reservoir Releases in Cubic Feet/Second

RESERVOIR	DAM	WY 2020	WY 2021	15 YR MEDIAN
TRINITY	LEWISTON	799	1,841	799
SACRAMENTO	KESWICK	7,472	3,258	6,591
FEATHER	OROVILLE (SWP)	1,100	800	1,550
AMERICAN	NIMBUS	1,011	1,000	1,516
STANISLAUS	GOODWIN	1,071	500	1,500
SAN JOAQUIN	FRIANT	346	1,199	380

Table 5. Storage in Major Reservoirs in Thousands of Acre-Feet

RESERVOIR	CAPACITY	15 YR AVG	WY 2021	WY 2022	% O 15 YR AVG
TRINITY	2,448	1,708	1,313	771	45
SHASTA	4,552	3,498	2,317	1,794	51
FOLSOM	977	704	356	738	105
NEW MELONES	2,420	1,448	1,473	926	64
FED. SAN LUIS	966	649	397	354	55
TOTAL NORTH CVP	11,363	8,008	5,856	4,583	57
MILLERTON	520	309	216	361	117
OROVILLE (SWP)	3,538	2,451	1,497	1,885	77

Table 5. Accumulated Inflow for Water Year to Date in Thousands of Acre-Feet

RESERVOIR	CURRENT WY 2021	WY 1977	WY 1983	15 YRAVG	% O 15 YR AVG
TRINITY	359	109	1,455	672	53
SHASTA	2,054	1,570	7,984	3,381	61
FOLSOM	1,159	223	4,061	1,582	73
NEW MELONES	394	----	1,282	530	74
MILLERTON	508	118	1,892	586	87

Table 6. Accumulated Precipitation for Water Year to Date in Inches

RESERVOIR	CURRENT WY 2021	WY 1977	WY1983	AVG (N YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	17.38	9.42	52.79	28.54 (60)	61	0.00
SACRAMENTO AT SHASTA DAM	39.54	11.92	107.39	56.12 (65)	70	0.0
AMERICAN AT BLUE CANYON	60.59	15.64	99.18	60.48 (47)	100	0.00
STANISLAUS AT NEW MELONES	19.30	----	43.14	25.27 (44)	76	0.0
SAN JOAQUIN AT HUNTINGTON LK	23.94	11.50	77.00	37.39 (47)	64	0.0

DATE	MDWT TCD ¹	MDWT SHD	MDWT SPP ¹	MDWT KWK	MDWT SAC ²	MDWT CCR	MDWT BSF	MDWT BND	MDWT RDB	MDWT IGO	MDWT LWS	MDWT DGC	MDWT NFH	MDR Shasta Generation	MDR Spring Creek P.P.	MDR Keswick Total	MDAT RDD	MDAT BSF	MDAT RDB
March	50.0	49.2	49.3	50.2	50.6	51.2	52.6	53.8	54.5	49.2	48.7	49.2	50.2	2961	74	3246	58.7	56.2	57.8
04/01	51.9	50.5	49.7	51.6	52.2	53.1	54.9	56.2	57.1	50.6	49.6	52.3	53.6	3124	75	3259	68.0	61.5	63.5
04/02	52.2	50.2	49.7	52.1	52.5	53.4	55.3	56.9	57.6	50.7	49.5	52.5 ^A	53.9	3124	75	3263	63.5	61.2	63.3
04/03	51.1	49.9	49.2	52.3	52.3	53.0	54.5	55.9	56.9	49.9	49.6	51.5	53.0	2609	202	3256	59.0	56.7	62.0
04/04	50.1	49.3	49.3	51.8	52.1	52.8	54.1	54.9	55.8	50.1	50.1	51.0	52.8	2620	331	3267	62.5	59.6	61.7
04/05	51.3	49.7	49.4	51.9	52.2	52.8	53.9	54.9	55.5	50.3	50.4	51.2	52.1	2774	270	3253	56.5	56.1	60.0
04/06	52.9	51.8	49.9	51.8	52.5	53.5	55.0	56.2	56.5	50.8	50.5	52.2	53.4	2875	76	3255	72.5	65.5	68.1
04/07	52.7	50.9	50.0	51.6	52.4	53.6	55.9	57.7	58.4	51.4	50.0	54.0 ^A	55.3	3068	75	3255	68.0	64.9	68.9
04/08	51.7	51.0	50.0	52.6	53.0	54.1	56.3	58.5	59.4	51.6	50.0	54.8	56.3	3222	182	3255	69.0	66.4	69.4
04/09	53.1	50.1	50.2	53.3	53.5	54.1	55.6	57.0	58.0	50.9	49.8	53.2	54.5	2493	277	3255	64.0	61.8	62.8
04/10	53.0	51.1	50.1	52.9	53.4	54.1	55.1	55.7	56.3	50.5	50.1	51.3	52.7	2704	188	3258	61.0	57.0	60.0
04/11	52.2	50.6	50.7	52.8	53.0	53.7	55.5	56.3	56.6	50.4	49.7	50.9	51.2	2975	154	3267	52.0	52.1	53.3
04/12	51.5	50.4	51.1	52.8	52.9	53.1	53.7	54.6	55.6	49.6	49.8	48.7	49.7	2491	477	3264 ^E	46.0	45.5	48.3
04/13	50.6	49.9	50.8	52.2	52.2	52.3	52.8	53.7	54.1	49.5	49.6	48.7	49.3	2502	74	3254	49.5	50.3	50.1
04/14	51.0	50.1	50.4	51.7	51.8	51.9	52.2	52.6	52.7	49.7	49.2	48.7	49.3	2779	77	3249	52.0	52.0	52.1
04/15	51.4	50.9	50.4	51.4	51.7	52.3	52.3	53.0	53.4	50.4	48.5	48.6	48.8	2536	77	3238	53.0	51.6	53.3
04/16	51.8 ^A	51.7	50.7	51.5	51.9	52.9	53.7	54.4	54.4	51.6	48.5	49.6	50.3	3191	77	3235	57.5	53.5	54.8
04/17	51.7 ^B	-	50.9	51.7	52.4	53.4	54.7	55.6	56.0	51.6	48.7	50.3	51.7	3476	77	3238	58.0	54.6	56.2
04/18	51.9	51.1	50.8	52.3	52.2	52.6	54.0	55.6	56.2	50.2	48.5	48.9	50.2	3031	77	3233	53.0	52.3	53.8
04/19	51.8	50.9	50.9	51.1	52.2	52.8	53.7	54.9	55.6	50.7	48.8	48.3	48.7	3312	77	3274	56.5	55.5	57.1
04/20	52.0	51.2	51.1	52.0	51.9	52.1	52.6	53.5	54.4	49.9	48.3	48.1	48.8	3042	77	3278	53.0	52.7	53.1
04/21	52.1	50.7	39.9	51.7	52.1	52.8	53.2	54.0	54.3	51.2	46.6	47.2	48.4	3000	77	3271	55.5	53.8	54.6
04/22	52.4	51.6	51.2	51.8	52.7	53.6	54.5	55.3	55.8	51.8	46.9	47.2	48.5	2780	77	3289	57.5	55.0	54.8
04/23	52.9	52	51.4	52.2	53.0	54.1	55.8	57.0	57.4	52.0	47.5	47.9	49.3	3532	77	3263	58.5	57.6	58.8
04/24	53.3	50.8	51.3	52.6	53.5	54.6	56.6	58.1	58.8	52.4	48.2	49.2 ^A	50.5	2296	77	3261	63.5	60.5	62.7
04/25	52.8	51.7	51.2	53.0	53.7	54.7	57.2	59.1	59.9	52.6	48.4	49.7	51.4	3336	77	3265	65.0	62.1	63.9
04/26	52.7	52.0	51.2	53.2	54.1	55.4	58.0	60.0	60.9	53.1	48.9	50.0	51.5	3389	77	3258	65.5	63.9	65.9
04/27																			
04/28																			
04/29																			
04/30																			
-																			
April	52.0	50.8	50.1	52.2	52.6	53.3	54.7	55.8	56.4	50.9	49.1	50.2	52.4	2934	133	3258	59.2	57.1	58.9

Legend

- A = 1-9 hours of data missing (Average includes estimations) **Notes**
- 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)

- 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.

Redding (RDD) Air Temperatures (°F)

DATE	Previous Low	Previous High	Previous Avg	Current Low	Current High	Current Avg	1 Day Low ^X	1 Day High ^X	1 Day Avg ^X	2 Day Low ^X	2 Day High ^X	2 Day Avg ^X	3 Day Low ^X	3 Day High ^X	3 Day Avg ^X	4 Day Low ^X	4 Day High ^X	4 Day Avg ^X
04/01	51	76	63.5	57	81	69.0	45	80	62.5	44	78	61.0	46	70	58.0	43	76	59.5
04/02	55	81	68.0	49	80	64.5	43	77	60.0	46	69	57.5	42	74	58.0	46	87	66.5
04/03	47	80	63.5	41	79	60.0	47	69	58.0	42	77	59.5	46	90	68.0	51	93	72.0
04/04	40	78	59.0	55	68	61.5	40	74	57.0	46	89	67.5	51	93	72.0	54	90	72.0
04/05	52	73	62.5	42	73	57.5	47	89	68.0	51	94	72.5	54	90	72.0	50	78	64.0
04/06	40	73	56.5	58	91	74.5	54	92	73.0	56	87	71.5	48	75	61.5	41	70	55.5
04/07	56	89	72.5	48	91	69.5	53	87	70.0	47	73	60.0	44	69	56.5	42	62	52.0
04/08	45	91	68.0	52	86	69.0	48	73	60.5	42	69	55.5	40	59	49.5	36	66	51.0
04/09	50	88	69.0	54	72	63.0	43	71	57.0	41	58	49.5	33	62	47.5	34	63	48.5
04/10	54	74	64.0	50	71	60.5	44	58	51.0	32	60	46.0	35	59	47.0	42	58	50.0
04/11	50	72	61.0	52	57	54.5	30	59	44.5	35	57	46.0	41	58	49.5	38	62	50.0
04/12	46	58	52.0	32	60	46.0	33	58	45.5	41	57	49.0	42	64	53.0	45	62	53.5
04/13	31 ^A	61	46.0	43	58	50.5	41	58	49.5	42	63	52.5	45	64	54.5	40	70	55.0
04/14	40	59	49.5	47	54	50.5	35	60	47.5	43	65	54.0	39	71	55.0	40	65	52.5
04/15	46	58	52.0	43	62	52.5	42	63	52.5	42	69	55.5	40	67	53.5	44	65	54.5
04/16	43	63	53.0	47	64	55.5	41	68	54.5	40	66	53.0	44	64	54.0	42	62	52.0
04/17	47	68	57.5	45	68	56.5	38	66	52.0	44	64	54.0	41	60	50.5	44	58	51.0
04/18	44	72	58.0	40	66	53.0	44	64	54.0	42	59	50.5	44	59	51.5	41	65	53.0
04/19	40	66	53.0	48	64	56.0	39	58	48.5	43	59	51.0	41	64	52.5	40	73	56.5
04/20	48	65	56.5	47	57	52.0	43	60	51.5	42	66	54.0	40	74	57.0	44	78	61.0
04/21	46	60	53.0	47	61	54.0	40	65	52.5	40	74	57.0	43	80	61.5	48	79	63.5
04/22	46	65	55.5	48	66	57.0	40	75	57.5	43	81	62.0	48	80	64.0	49	72	60.5
04/23	48	67	57.5	42	75	58.5	43	81	62.0	47	79	63.0	50	76	63.0	44	75	59.5
04/24	42	75	58.5	47	81	64.0	48	79	63.5	50	73	61.5	44	75	59.5	46	72	59.0
04/25	47	80	63.5	51	79	65.0	51	75	63.0	44	75	59.5	46	71	58.5	43	75	59.0
04/26	50	80	65.0	57	75	66.0	43	76	59.5	45	70	57.5	42	76	59.0	49	81	65.0
04/27	53	78	65.5	54	75	64.5	46	69	57.5	40	76	58.0	49	78	63.5	47	79	59.0
04/28																		
04/29																		
04/30																		

Web Links

[10-Day Min/Max Forecast](#)
[Previous Days Min/Max Actuals](#)

Legend

NR = Forecasted temperatures not recorded
A = Record temperature for that date
X = Forecasted

Redding (RDD) Air Temperatures (°F)

DATE	5 Day Low ^x	5 Day High ^x	5 Day Avg ^x	6 Day Low ^x	6 Day High ^x	6 Day Avg ^x	7 Day Low ^x	7 Day High ^x	7 Day Avg ^x	8 Day Low ^x	8 Day High ^x	8 Day Avg ^x	9 Day Low ^x	9 Day High ^x	9 Day Avg ^x	10 Day Low ^x	10 Day High ^x	10 Day Avg ^x
04/01	47	86	66.5	49	92	70.5	53	86	69.5	53	86	69.5	52	75	63.5	43	67	55.0
04/02	49	91	70.0	52	91	71.5	54	80	67.0	44	68	56.0	46	71	58.5	44	73	58.5
04/03	54	89	71.5	50	79	64.5	56	82	69.0	49	70	59.5	49	71	60.0	46	73	59.5
04/04	52	83	67.5	44	70	57.0	46	66	56.0	43	72	57.5	45	75	60.0	49	76	62.5
04/05	42	71	56.5	39	65	52.0	40	66	53.0	42	65	53.5	43	72	57.5	51	77	64.0
04/06	38	68	53.0	37	70	53.5	50	71	60.5	48	78	63.0	48	80	64.0	53	79	66.0
04/07	37	66	51.5	36	68	52.0	43	69	56.0	46	69	57.5	46	71	58.5	50	74	62.0
04/08	37	65	51.0	43	64	53.5	45	68	56.5	45	75	60.0	46	78	62.0	51	77	64.0
04/09	42	65	53.5	41	70	55.5	47	77	62.0	48	82	65.0	50	80	65.0	51	75	63.0
04/10	37	62	49.5	37	65	51.0	45	71	58.0	46	79	62.5	48	76	62.0	51	78	64.0
04/11	39	63	51.0	39	71	55.5	45	65	55.0	46	65	55.5	46	74	60.0	51	75	63.0
04/12	37	70	53.5	41	70	55.5	43	71	57.0	44	72	58.0	46	75	60.5	50	74	62.0
04/13	41	67	54.0	42	67	54.5	48	72	60.0	51	72	61.5	49	74	61.5	50	73	61.5
04/14	44	65	54.5	44	66	55.0	49	69	59.0	46	72	59.0	48	77	62.5	53	80	66.5
04/15	40	68	54.0	46	63	54.5	47	69	58.0	48	77	62.5	51	80	65.5	53	81	67.0
04/16	44	59	51.5	42	65	53.5	46	72	59.0	49	80	64.5	51	81	66.0	53	80	66.5
04/17	42	65	54.5	42	73	57.5	50	77	63.5	52	80	66.0	51	82	66.5	50	74	62.0
04/18	41	71	56.0	44	76	60.0	51	81	66.0	51	81	66.0	52	81	66.5	52	81	66.5
04/19	43	78	60.5	47	78	62.5	54	82	68.0	52	83	67.5	51	83	67.0	54	82	68.0
04/20	47	78	62.5	48	73	60.5	48	76	62.0	46	81	63.5	49	81	65.0	52	81	66.5
04/21	49	74	61.5	43	73	58.0	50	78	64.0	48	81	64.5	51	84	67.5	53	79	66.0
04/22	43	72	57.5	43	69	56.0	45	73	59.0	48	81	64.5	51	82	66.5	54	80	67.0
04/23	44	73	58.5	43	75	59.0	53	84	68.5	55	85	70.0	55	84	69.5	53	77	65.0
04/24	43	75	59.0	46	79	62.5	53	84	68.5	55	87	71.0	55	85	70.0	52	75	63.5
04/25	47	81	64.0	48	78	63.0	56	85	70.5	55	88	71.5	55	83	69.0	54	79	66.5
04/26	50	82	66.0	50	77	63.5	52	82	67.0	53	89	71.0	54	85	69.5	53	78	65.5
04/27	48	75	61.5	46	82	64.0	56	88	72.0	55	84	69.5	56	81	68.5	56	82	69.0
04/28																		
04/29																		
04/30																		

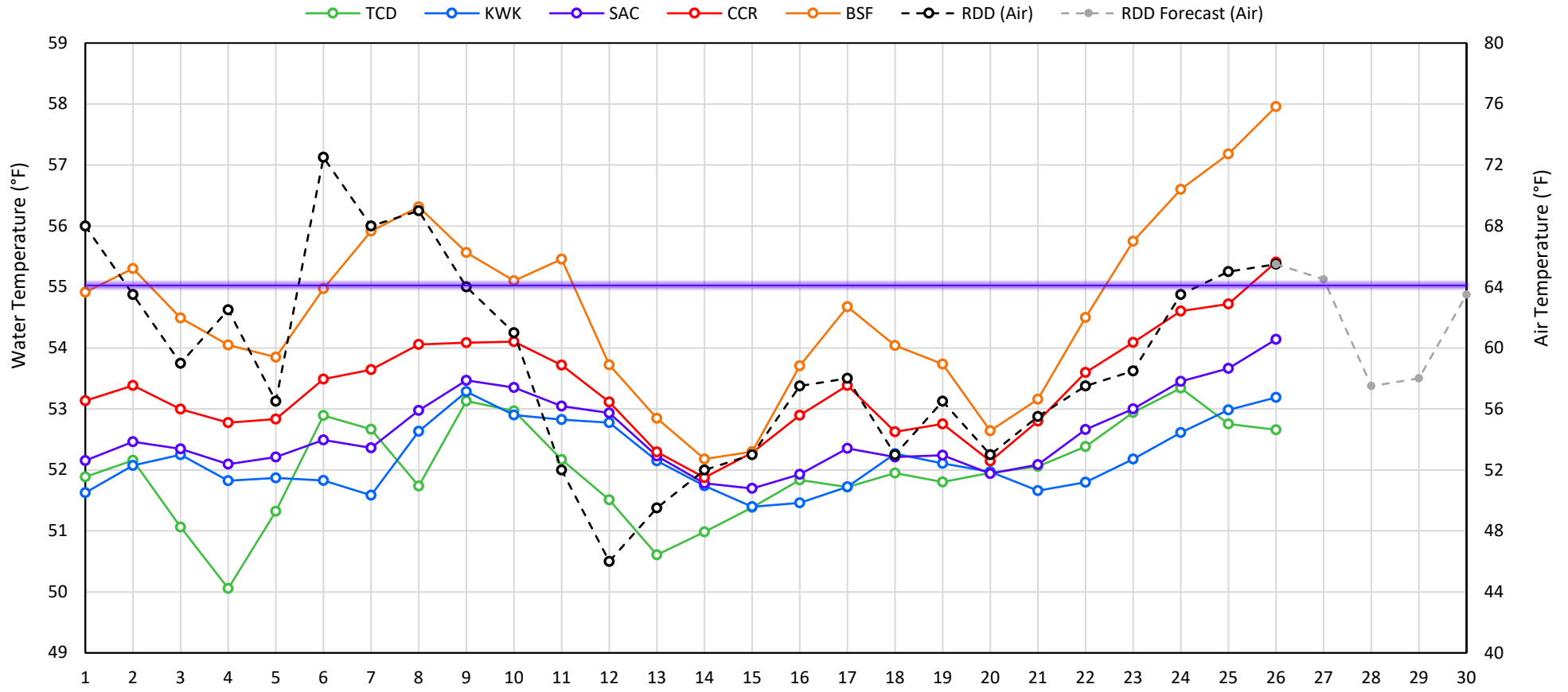
Web Links

[10-Day Min/Max Forecast](#)
[Previous Days Min/Max Actuals](#)

Legend

NR = Forecasted temperatures not recorded
A = Record temperature for that date
X = Forecasted

Mean Daily Temperatures



Station Details

Code	Body of Water	Location ¹	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles downstream of Keswick Dam	Click Here
CCR	Sacramento River	9.7 miles downstream of Keswick Dam	Click Here
BSF	Sacramento River	25 miles downstream of Keswick Dam	Click Here
JLF	Sacramento River	34 miles downstream of Keswick Dam	Click Here
BND	Sacramento River	41 miles downstream of Keswick Dam	Click Here
RDB	Sacramento River	58 miles downstream of Keswick Dam	Click Here
IGO	Clear Creek	7.3 miles downstream of Whiskeytown Dam	Click Here
LWS	Trinity River	1.1 miles downstream of Lewiston Dam	Click Here
DGC	Trinity River	19 miles downstream of Lewiston Dam	Click Here
NFH	Trinity River	38 miles downstream of Lewiston Dam	Click Here

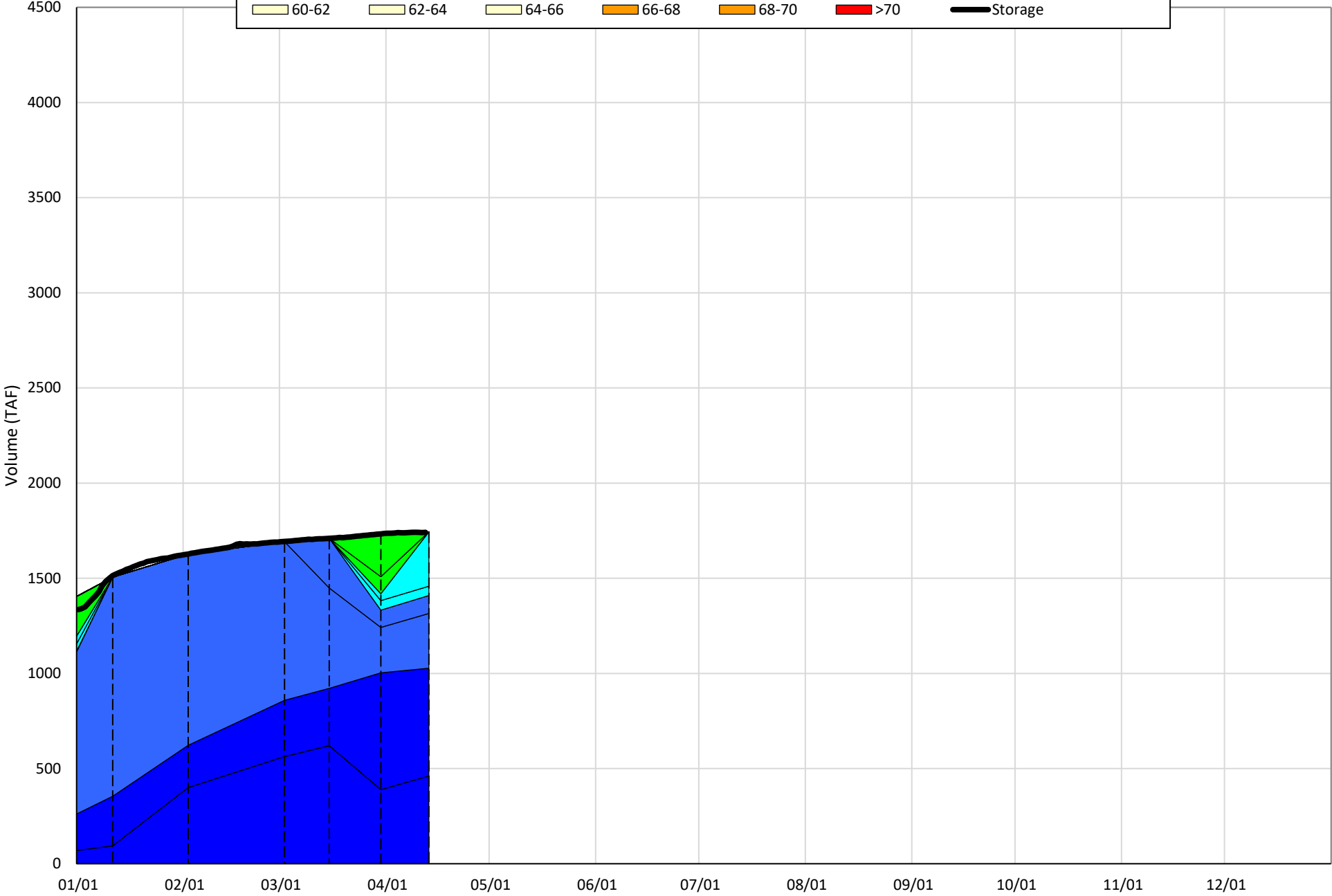
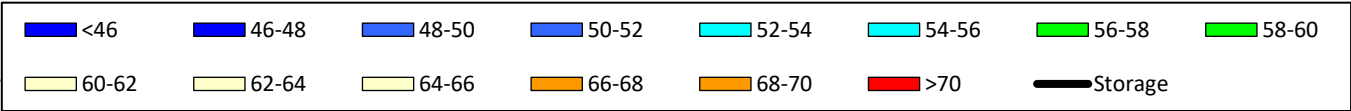
Water Right Temperature Control Points

River	Point	Temp. (°F)	Begin Date	End Date
Sacramento	CCR	56	09/21/2020	04/18/2021
Sacramento	CCR	60	04/18/2021	05/17/2021
Sacramento	SAC	57	05/17/2021	06/15/2021
Sacramento	SAC	55	06/15/2021	TBD
Trinity	DGC	56	09/15/2021	10/01/2021
Trinity	NFH	56	10/01/2021	12/31/2021

Notes

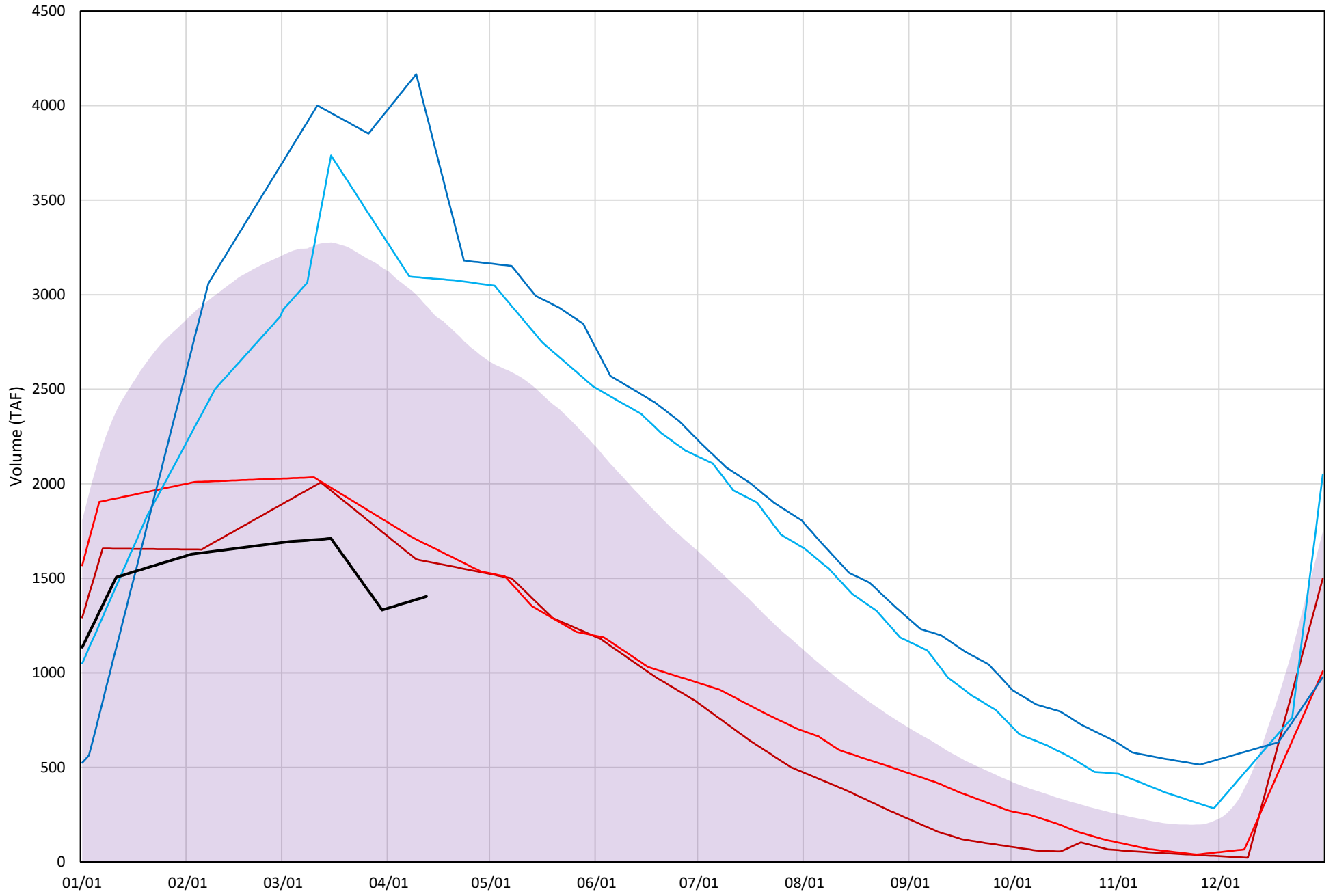
¹ Distances are approximate

Shasta Lake Isothermobaths Plot - 2022



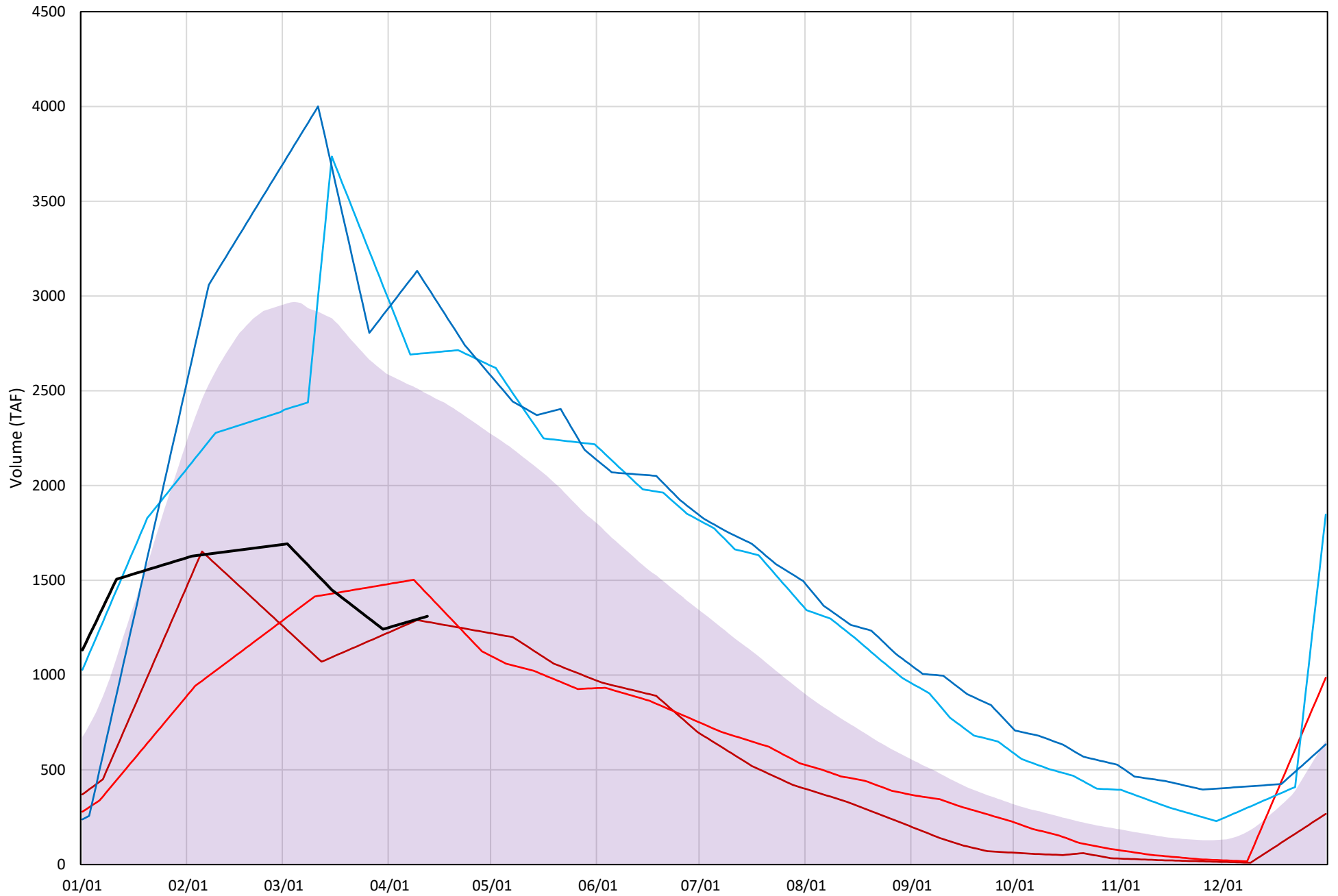
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

Avg (1998-2021) 2014 2015 2016 2019 2022



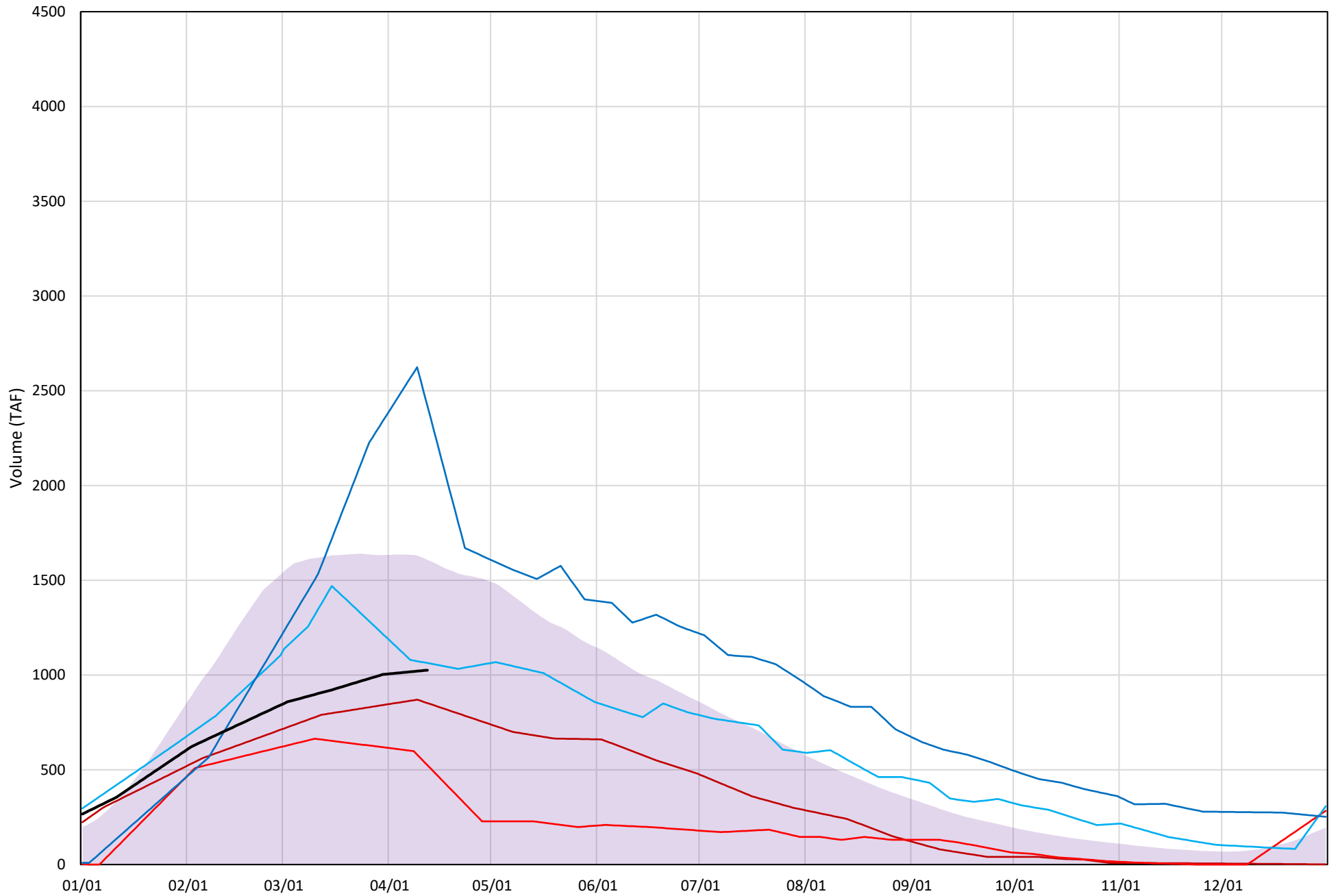
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

Avg (1998-2021) 2014 2015 2016 2019 2022



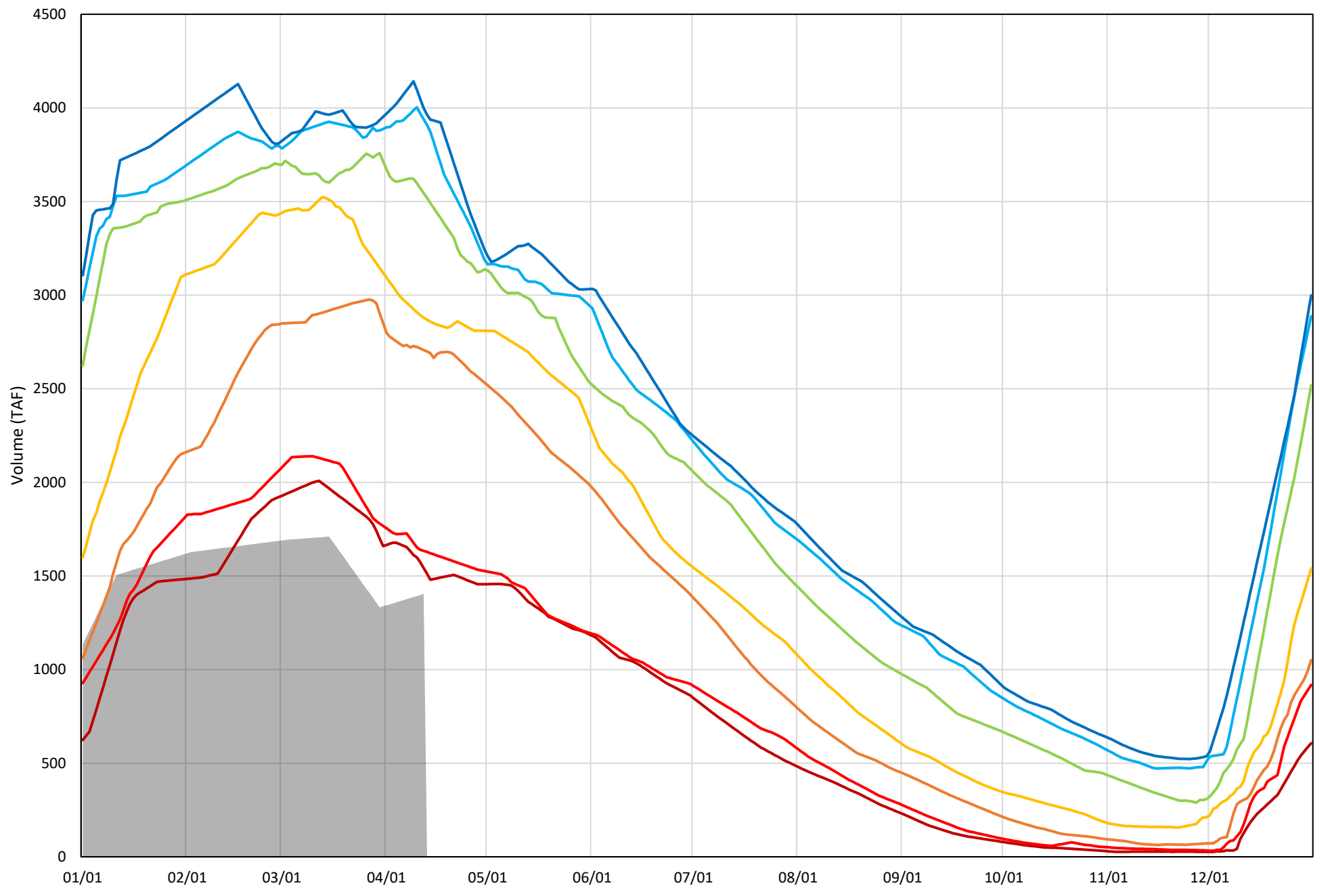
Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

Avg (1998-2021) 2014 2015 2016 2019 2022



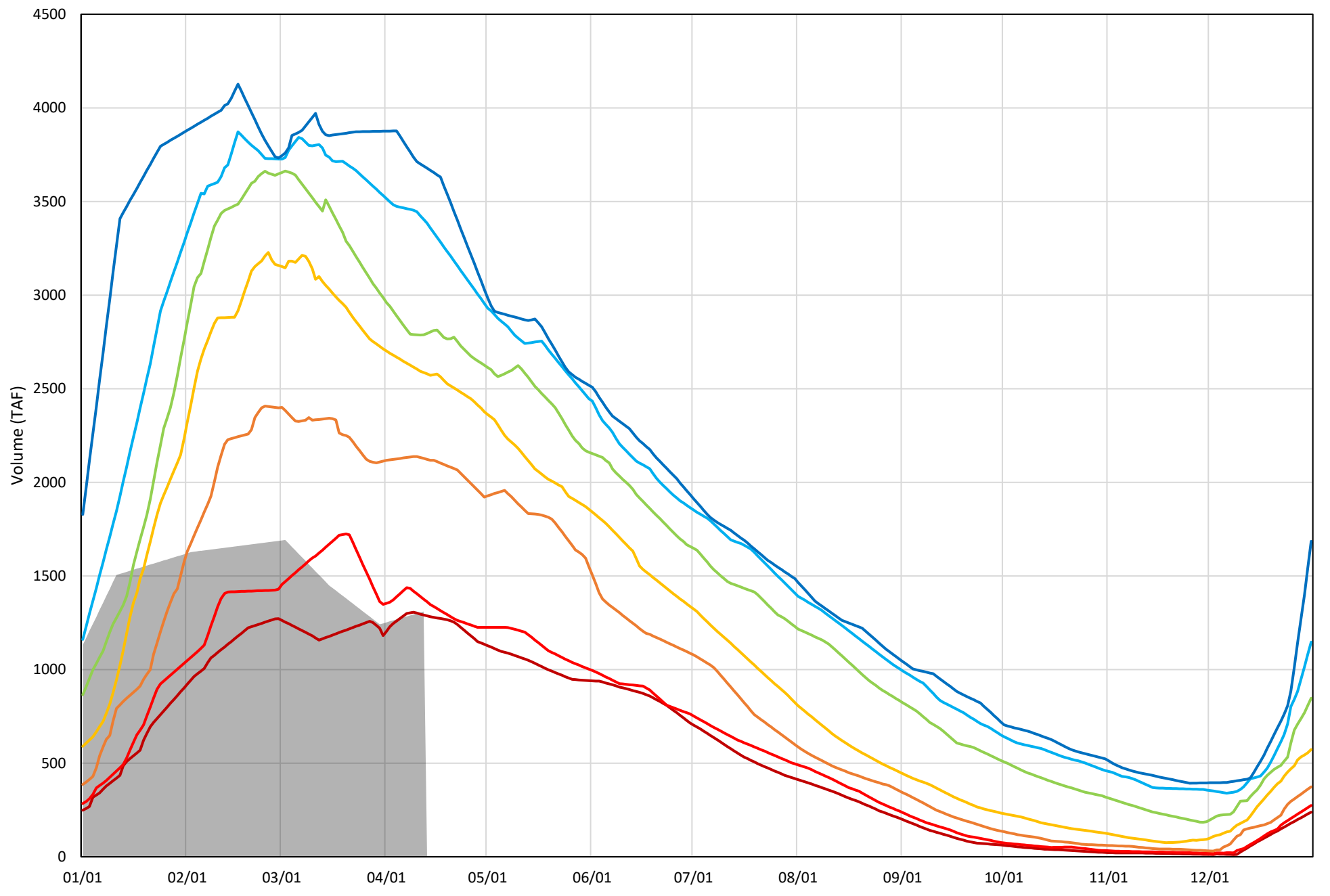
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

2022 95 90 75 50 25 10 5



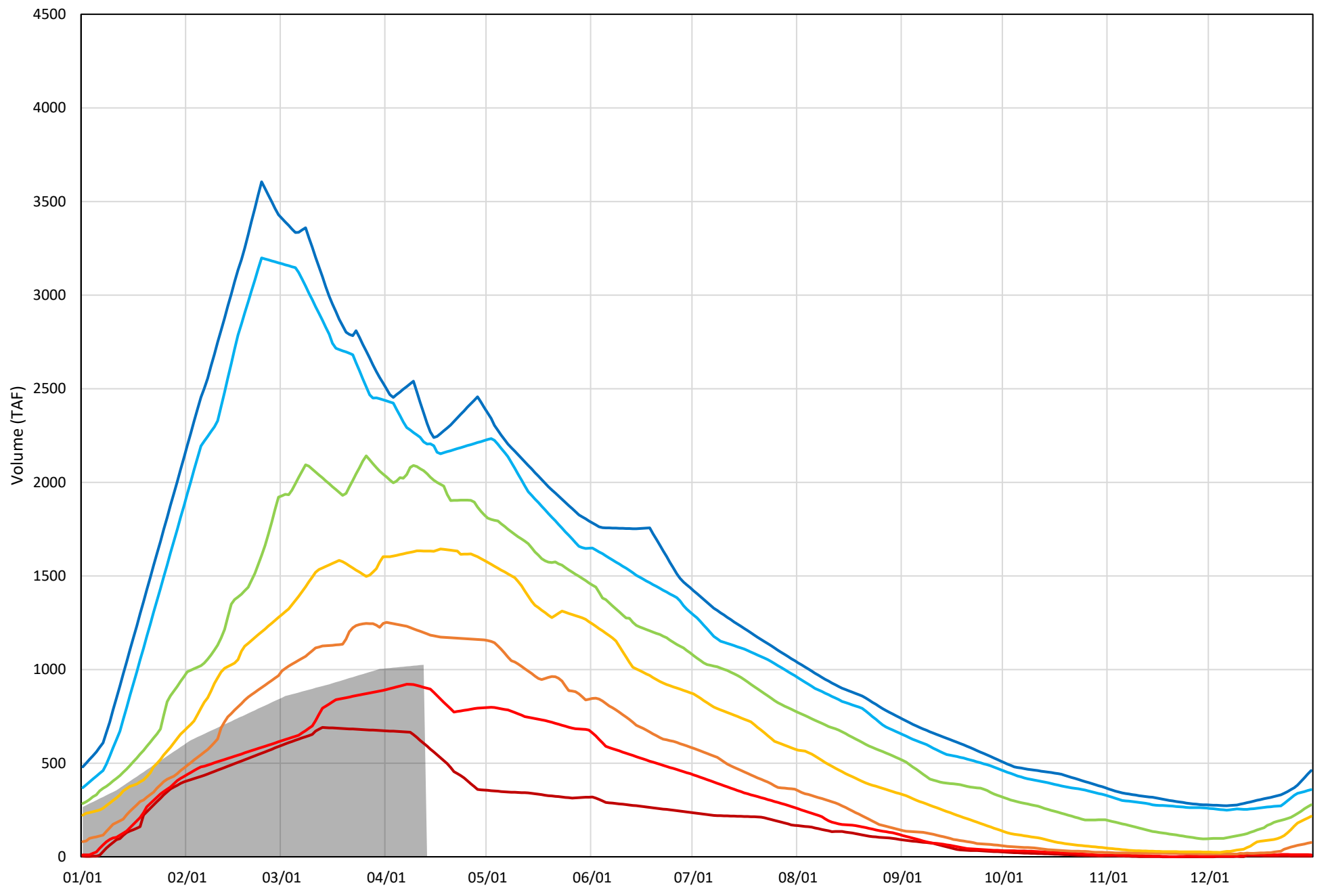
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

2022 95 90 75 50 25 10 5

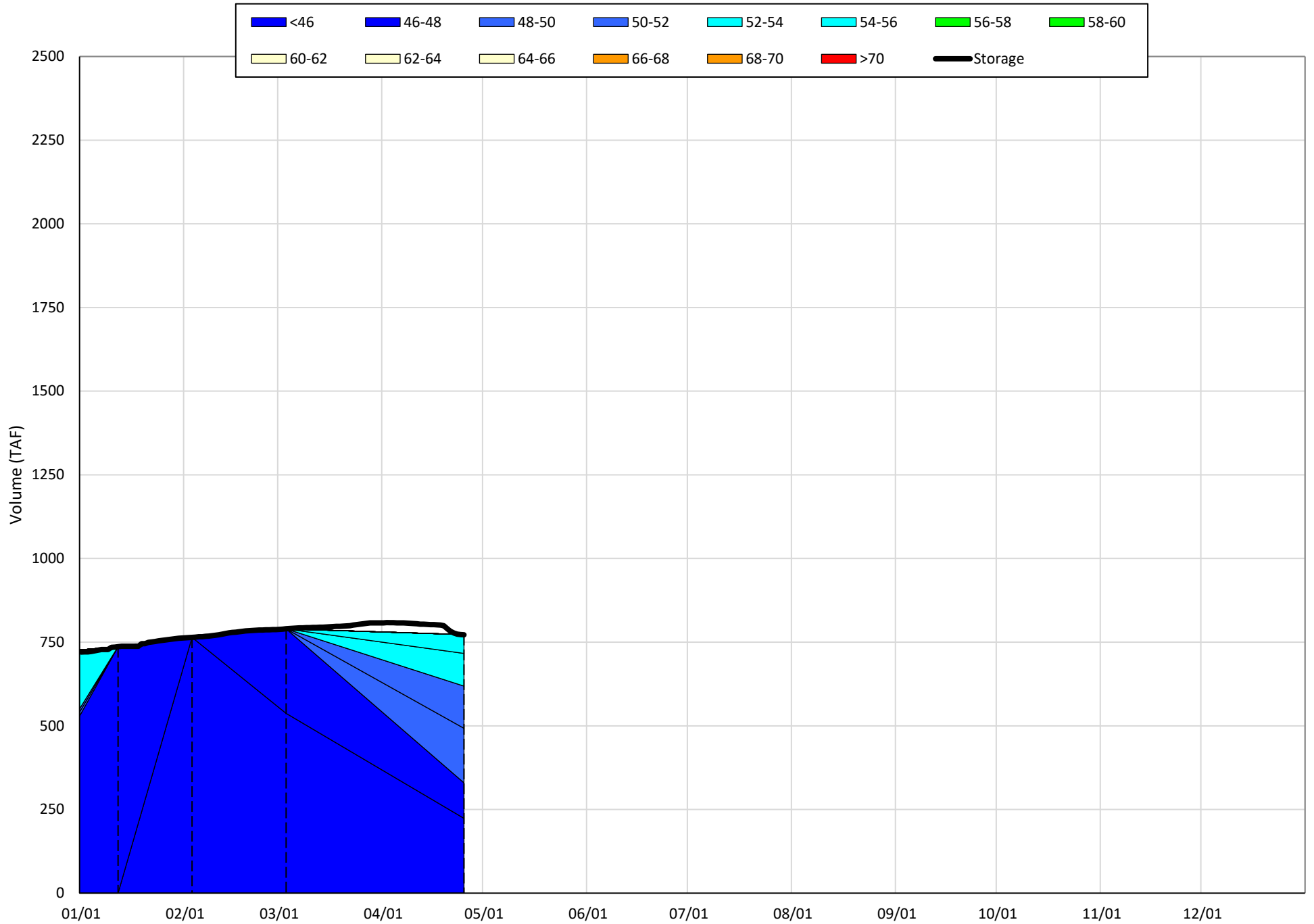


Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

2022 95 90 75 50 25 10 5

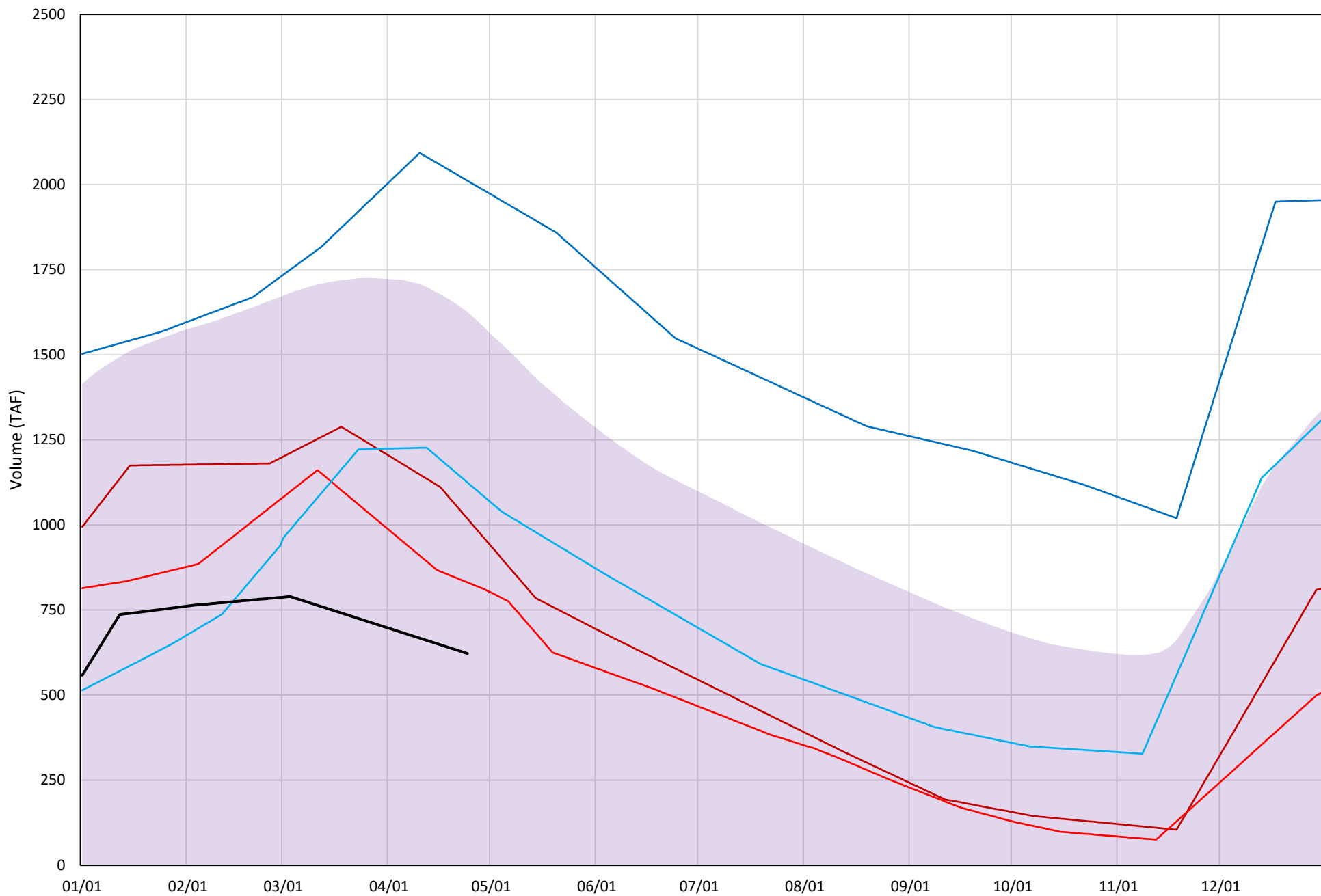


Trinity Lake Isothermobaths Plot - 2022



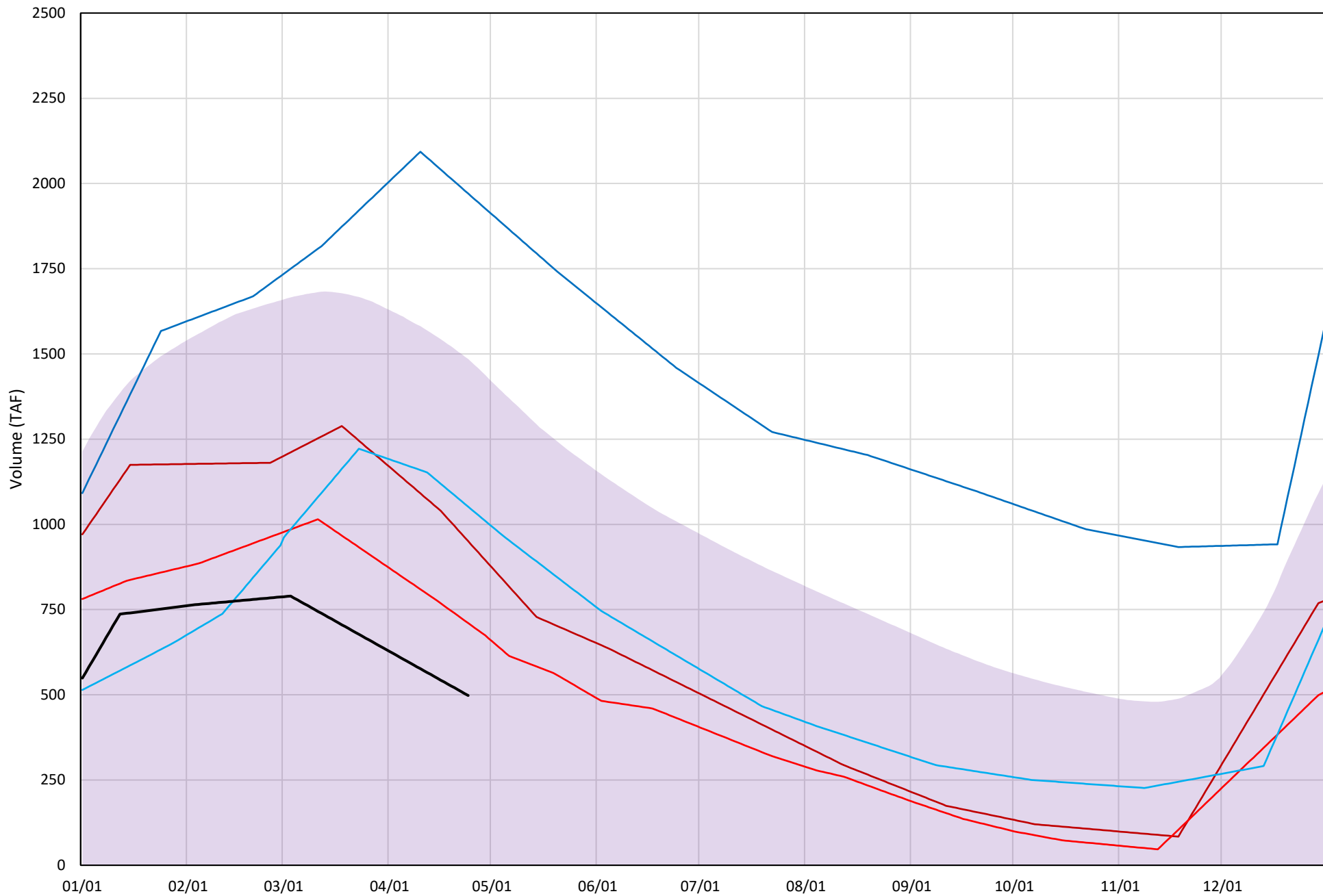
Trinity Lake Cold Water Pool Volume ≤52°F

Avg (2000-2021) 2014 2015 2016 2019 2022



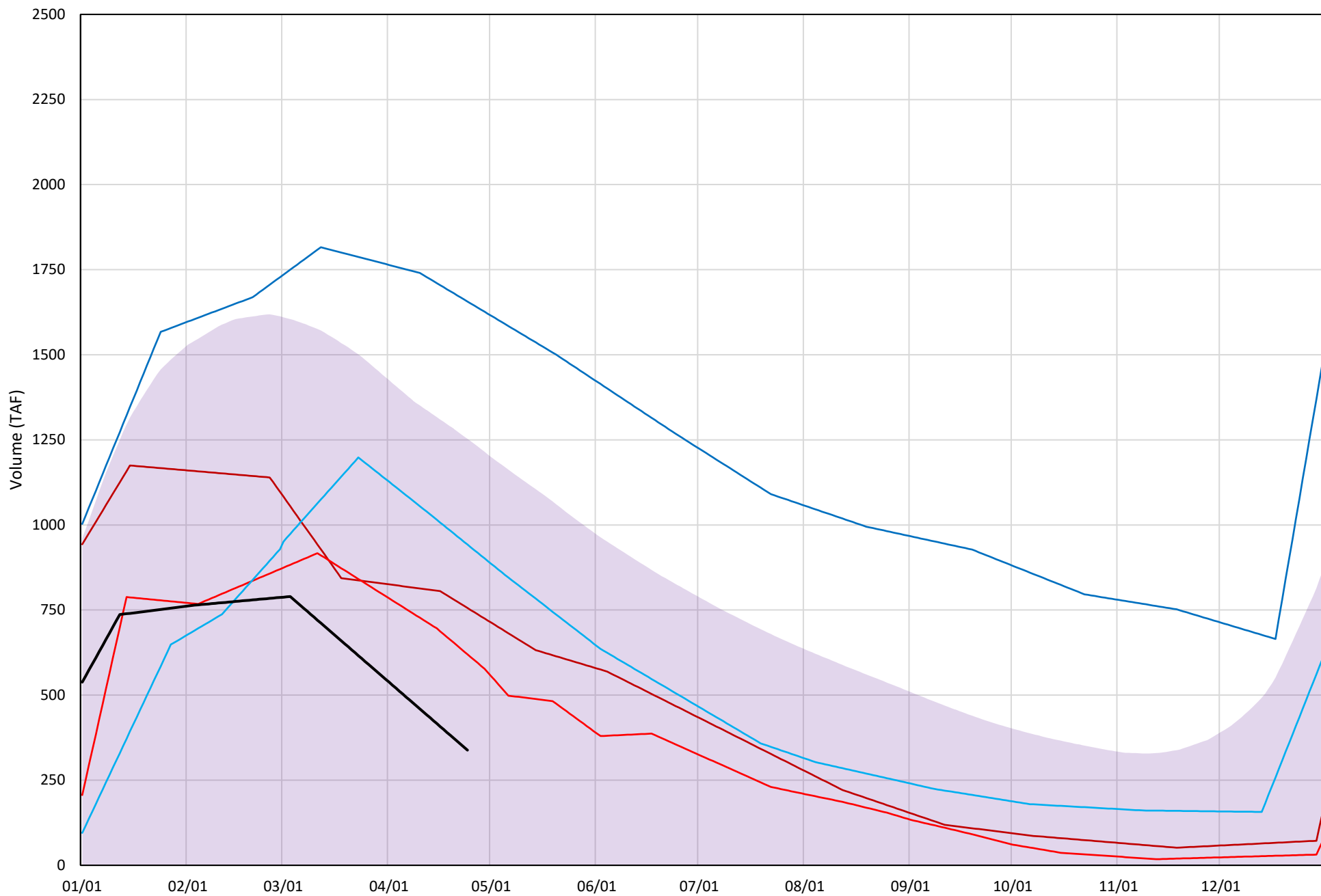
Trinity Lake Cold Water Pool Volume ≤50°F

Avg (2000-2021) 2014 2015 2016 2019 2022

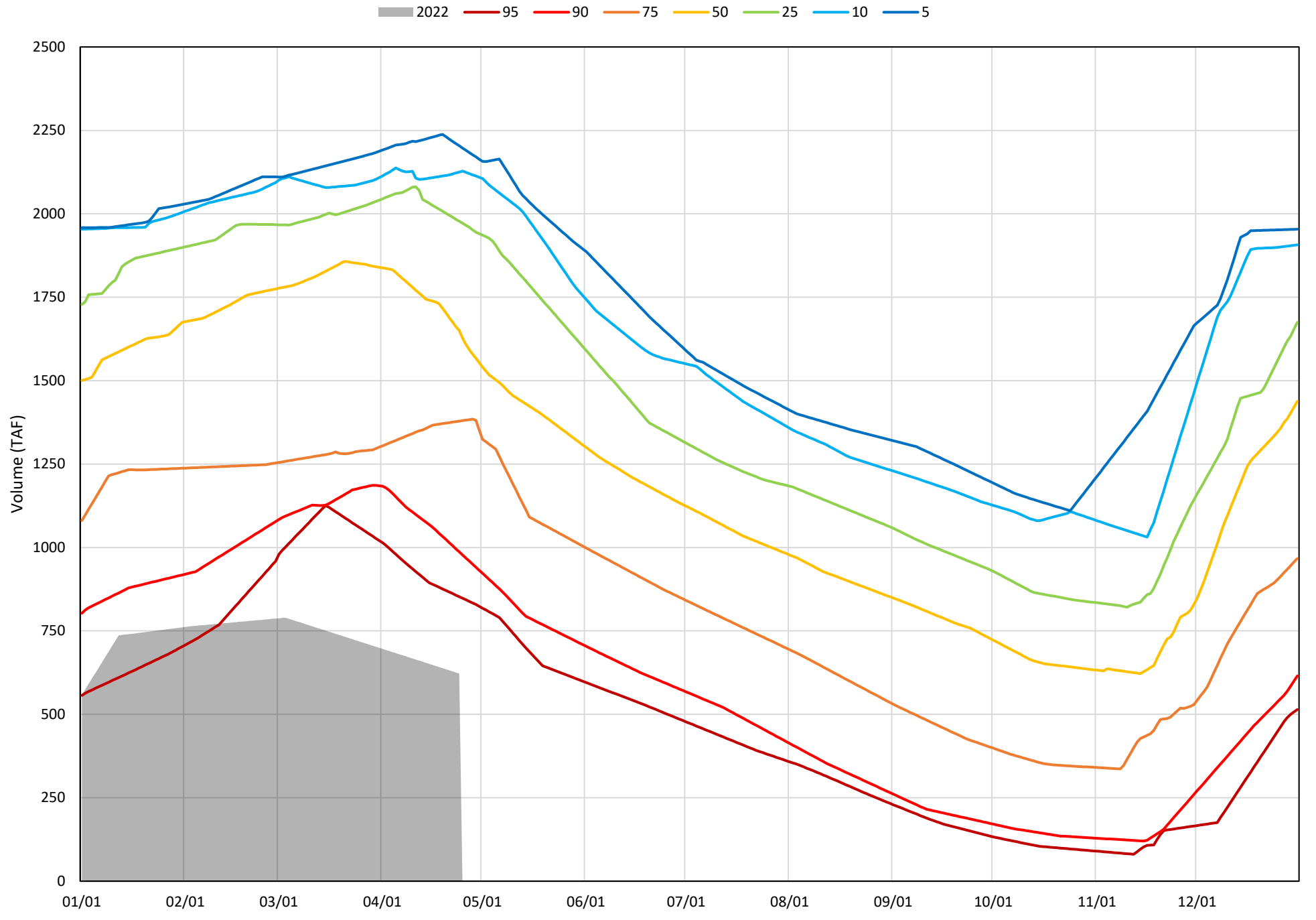


Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

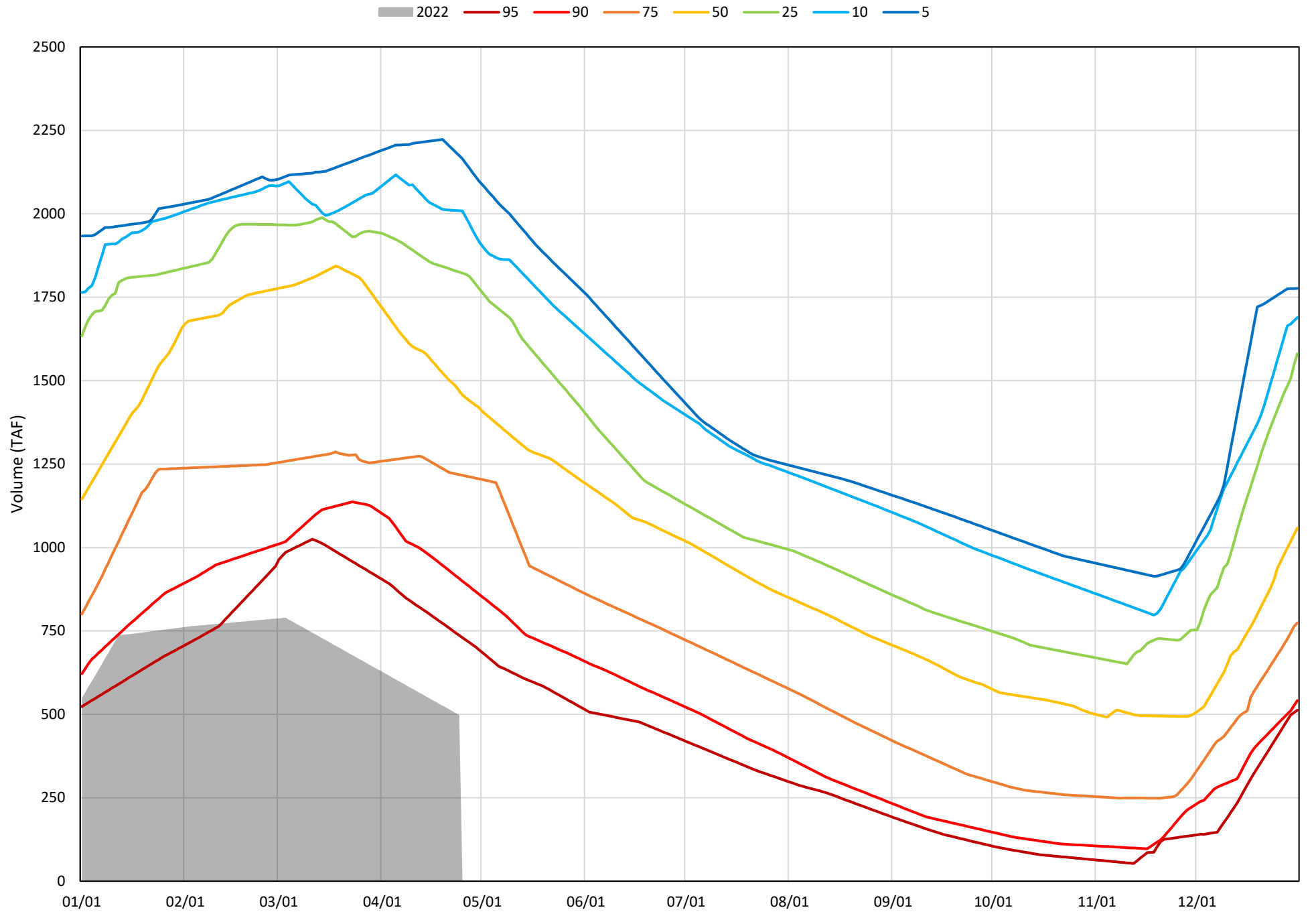
Avg (2000-2021) 2014 2015 2016 2019 2022



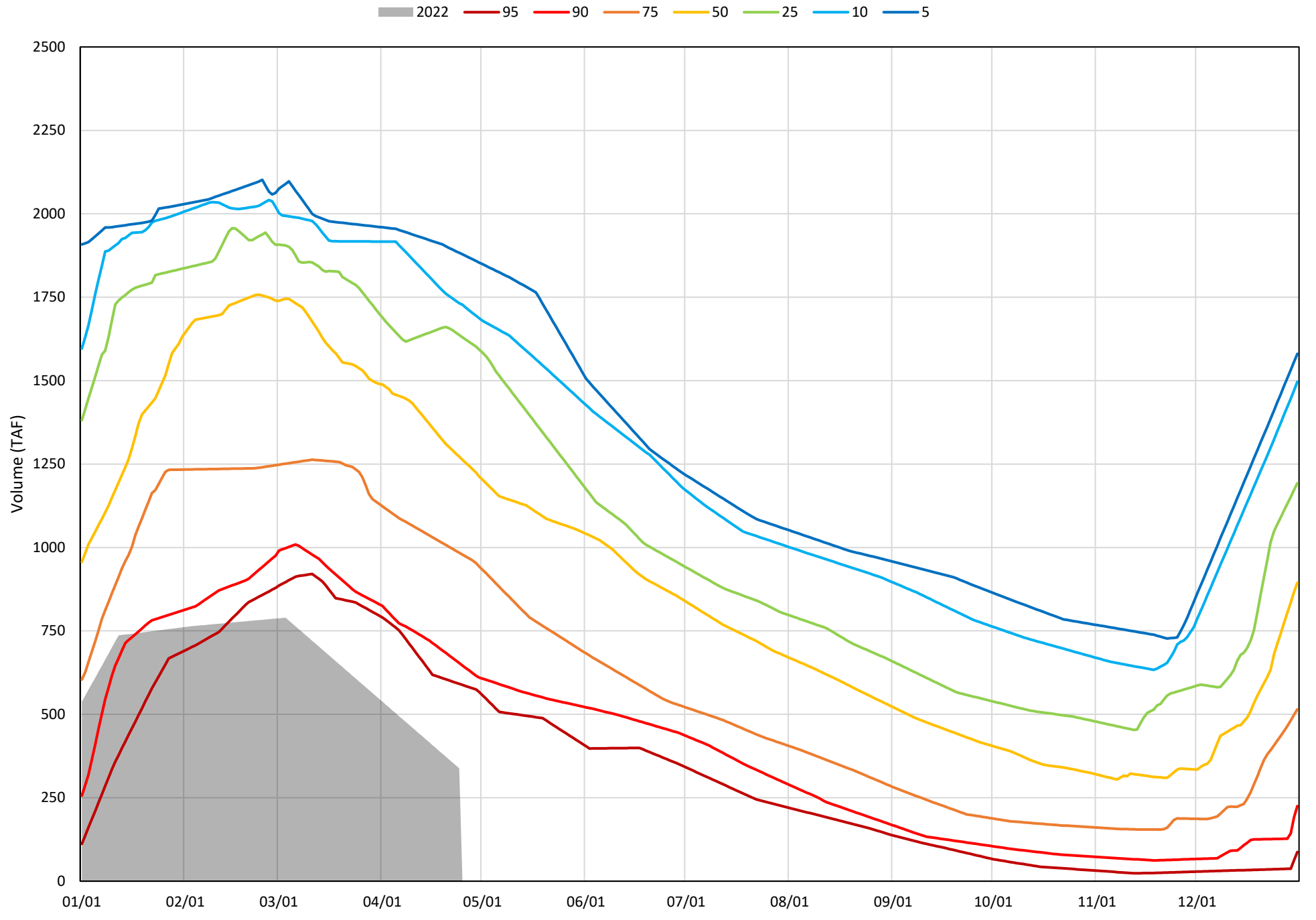
Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (2000-2021)



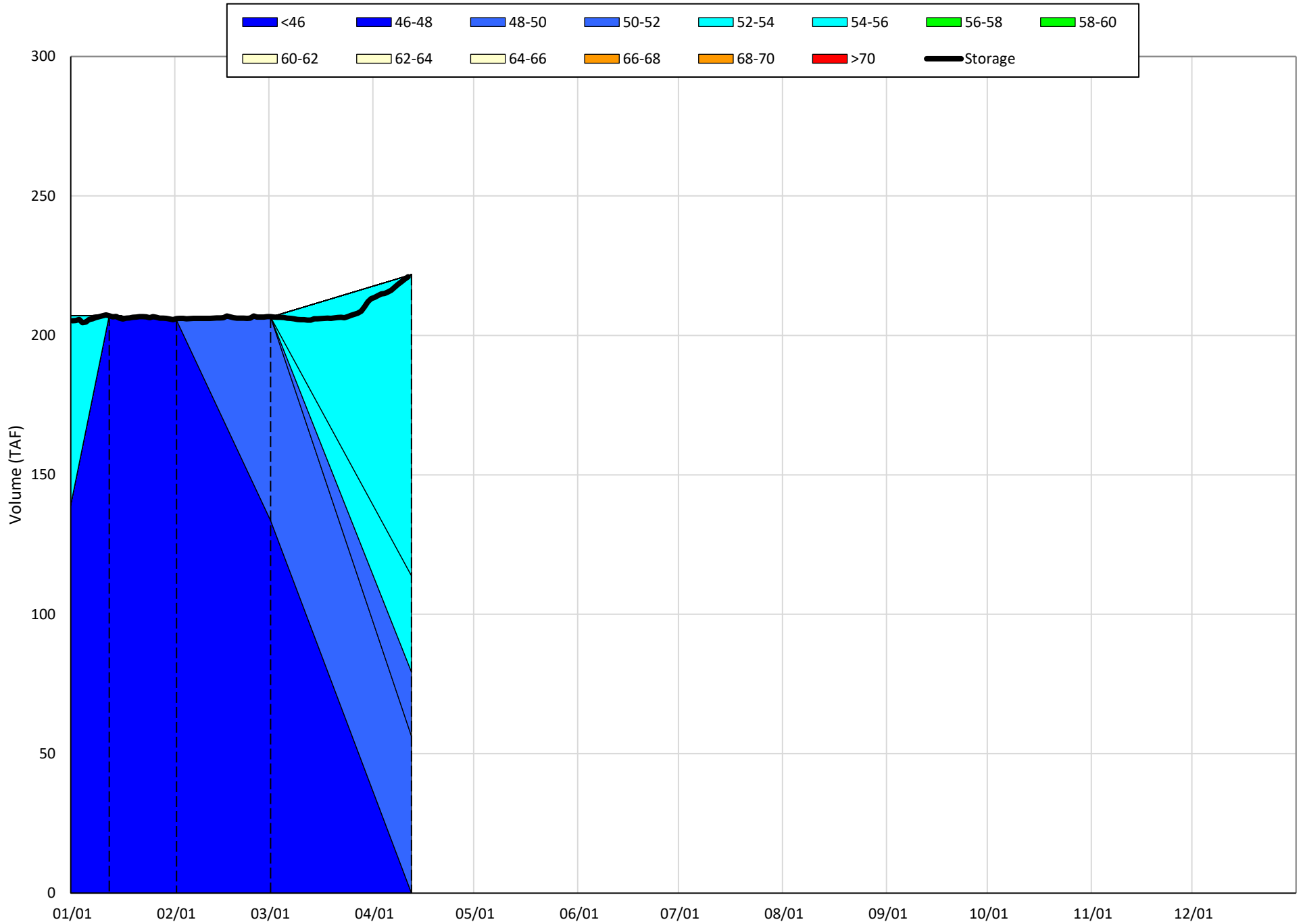
Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (2000-2021)



Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (2000-2021)

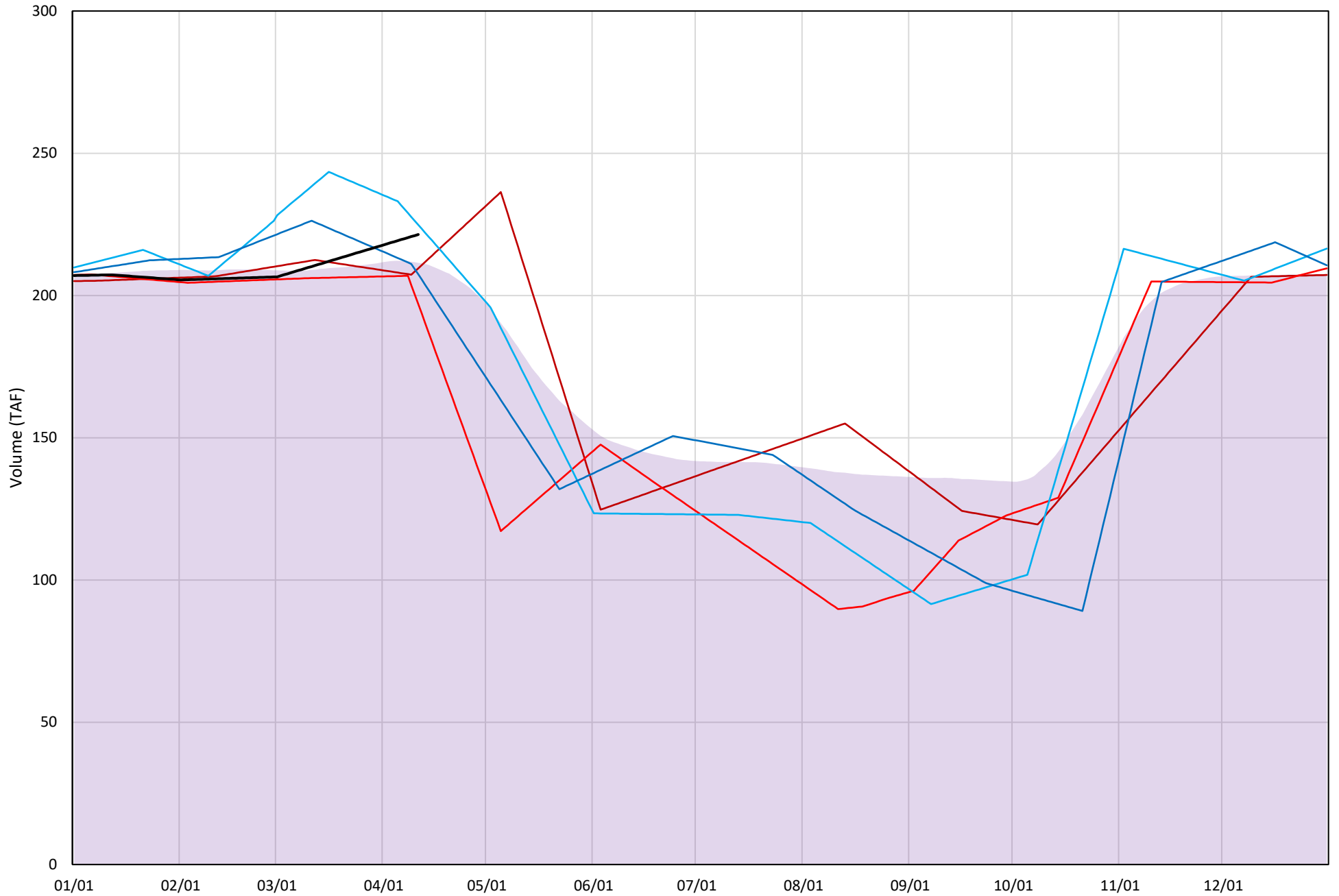


Whiskeytown Lake Isothermobaths Plot - 2022



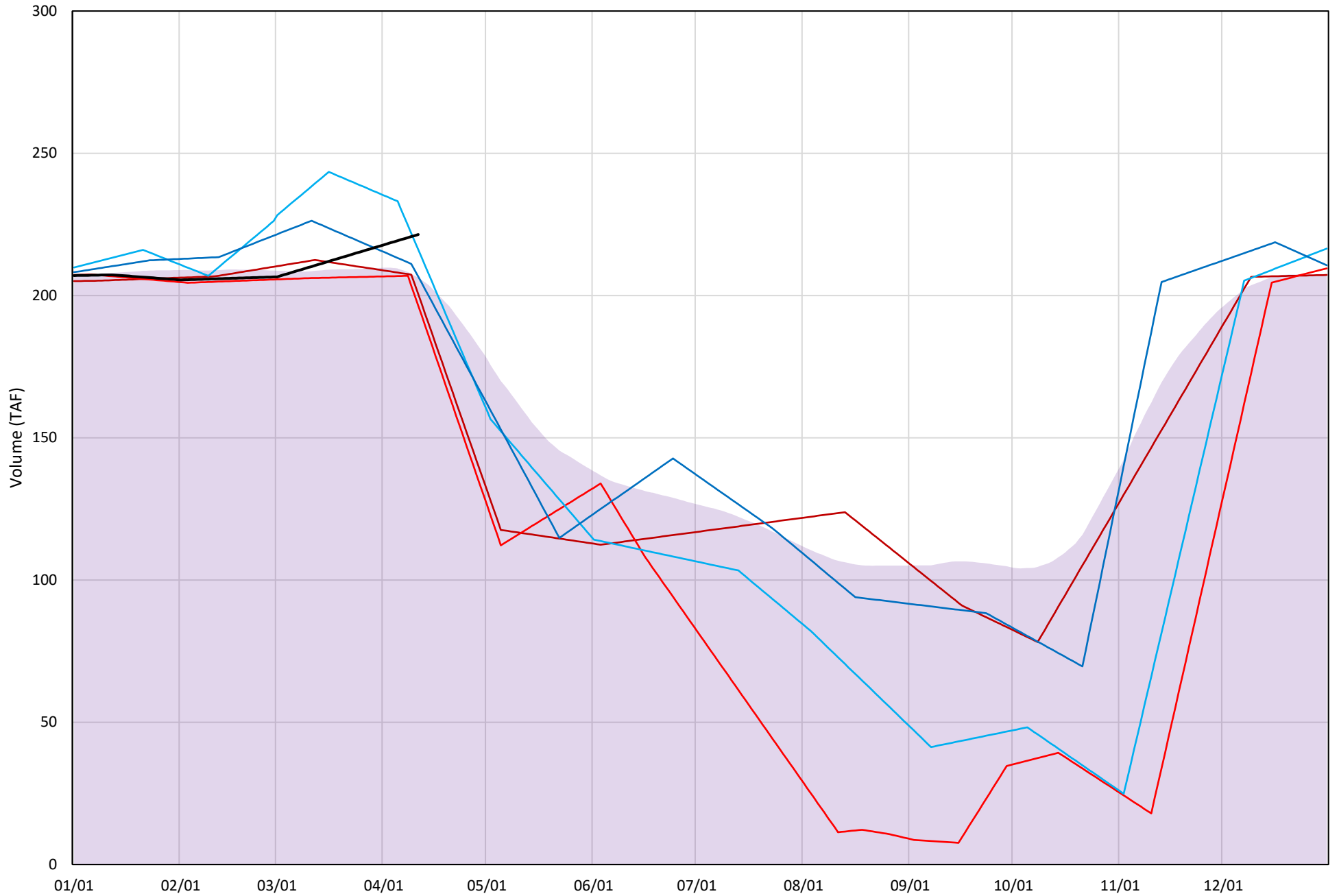
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

Avg (2000-2021) 2014 2015 2016 2019 2022



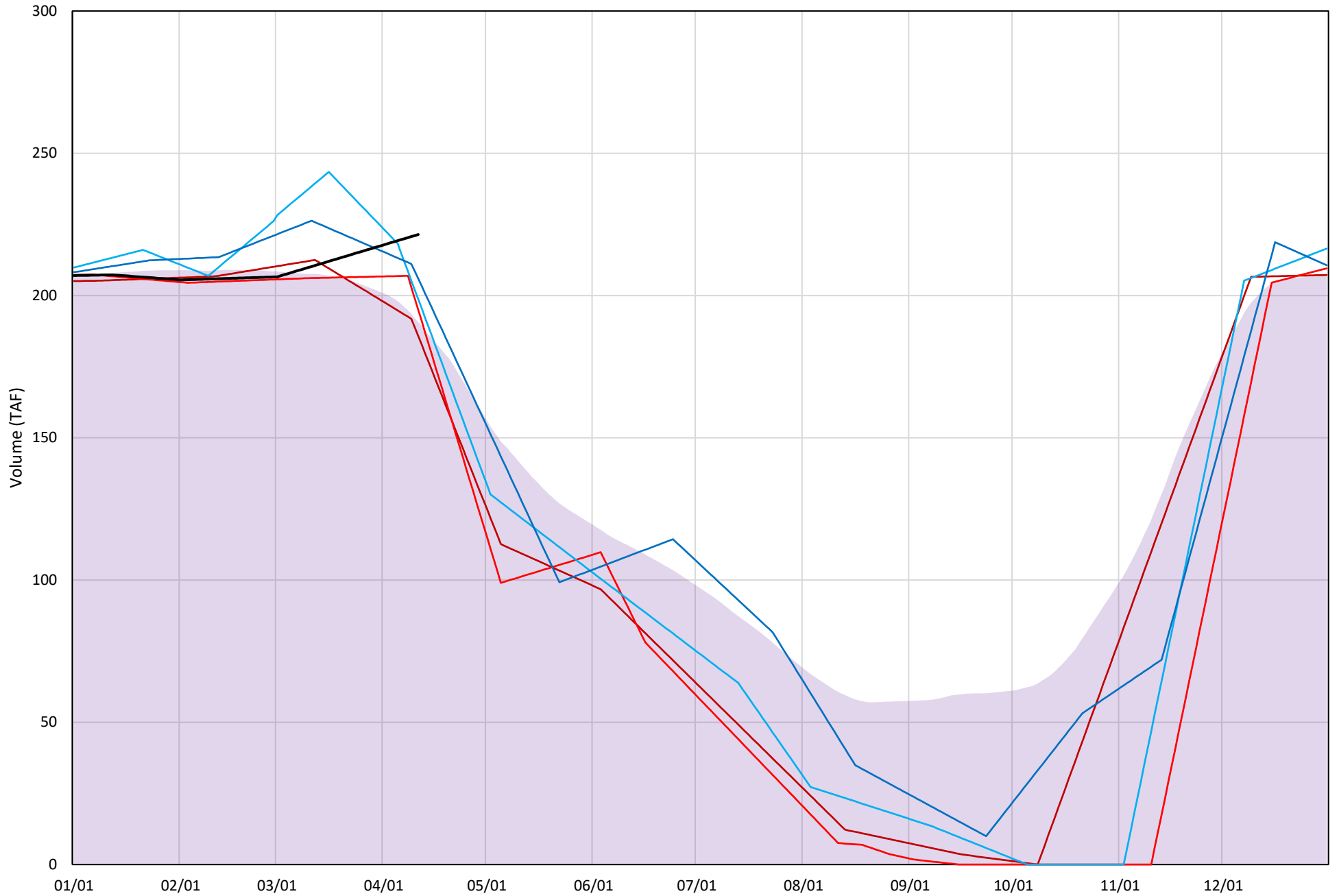
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

Avg (2000-2021) 2014 2015 2016 2019 2022

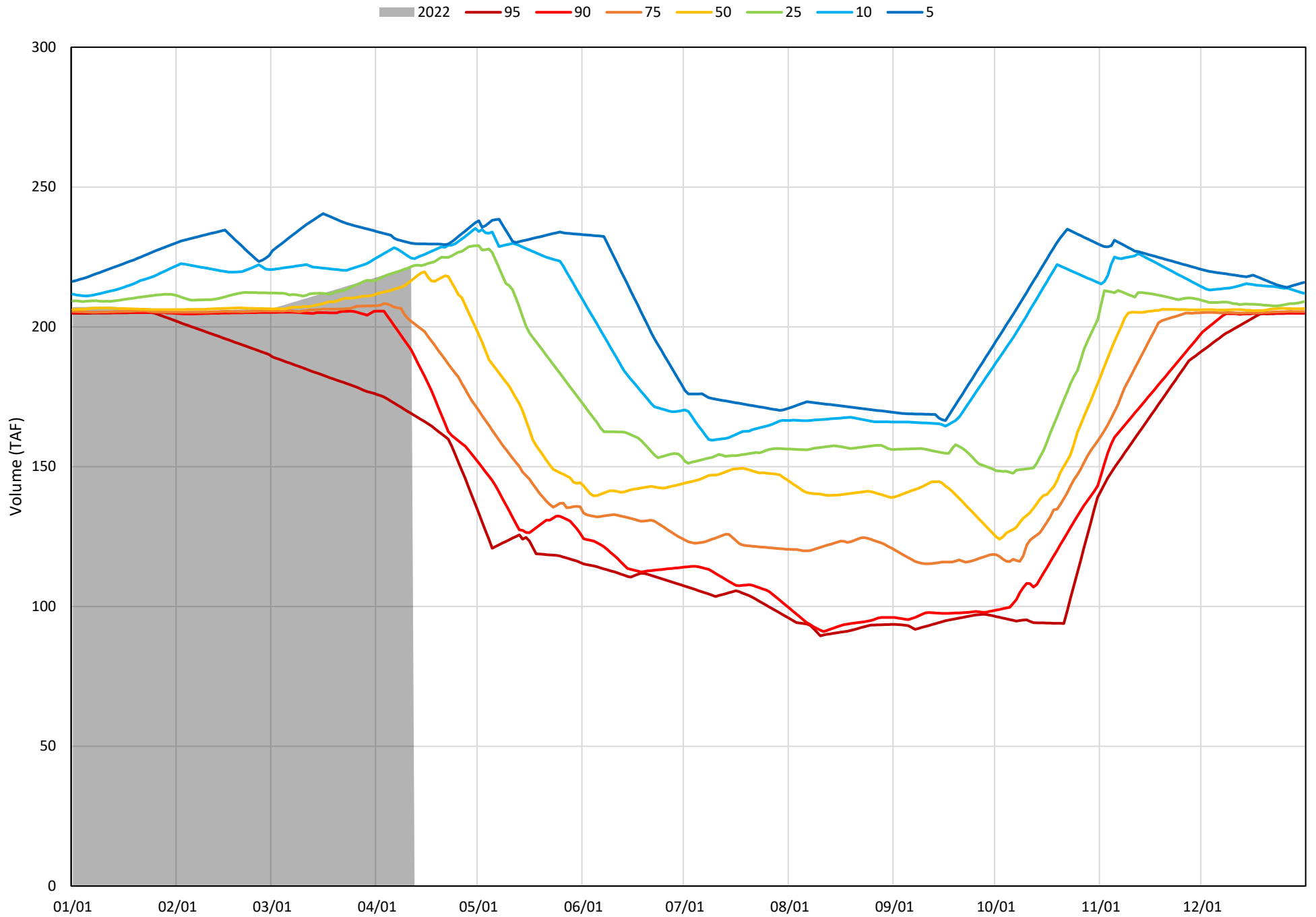


Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

Avg (2000-2021) 2014 2015 2016 2019 2022

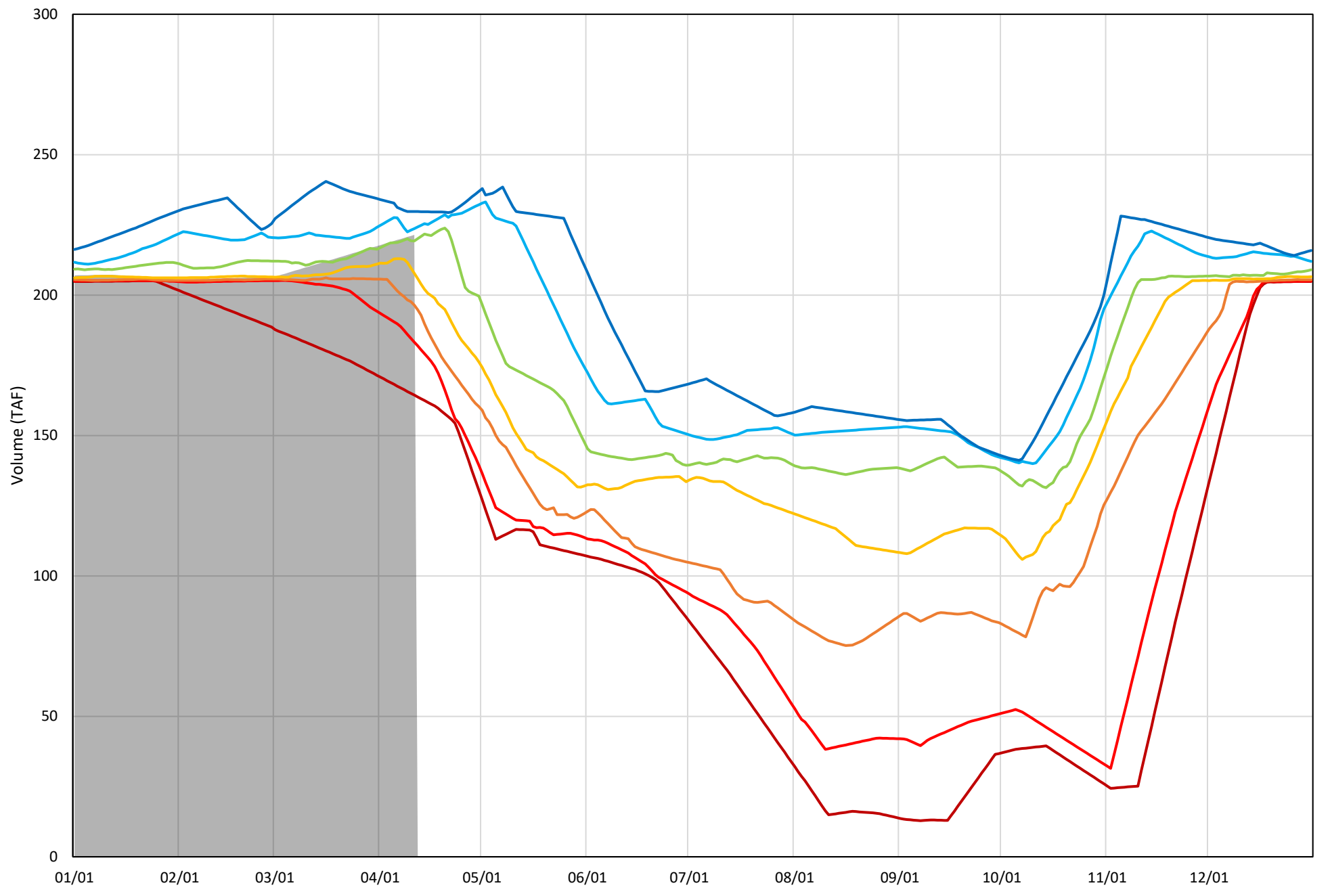


Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2021)



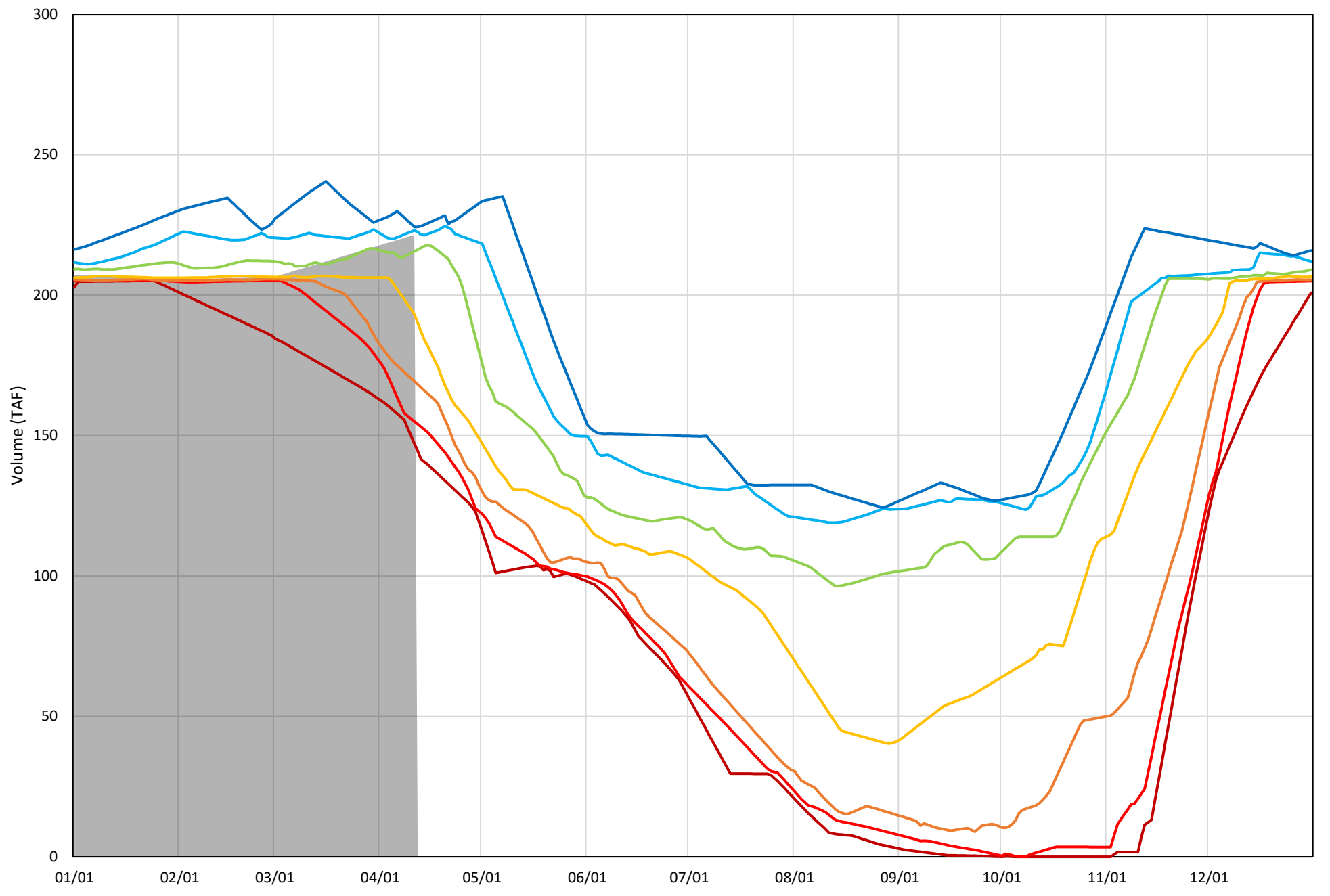
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$ - Percent Exceedances (2000-2021)

2022 95 90 75 50 25 10 5



Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$ - Percent Exceedances (2000-2021)

2022 95 90 75 50 25 10 5



Estimated CVP Operations 90% Exceedance

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

Facility		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Trinity	807	756	693	646	589	505	423	394	372	356	360	393	459
Trinity Elev.		2225	2216	2209	2200	2186	2170	2164	2159	2155	2156	2164	2177
Whiskeytown	213	238	238	238	238	238	238	206	206	206	206	206	206
Whiskeytown Elev.		1209	1209	1209	1209	1209	1209	1199	1199	1199	1199	1199	1199
Shasta	1735	1746	1646	1523	1382	1238	1135	1132	1117	1106	1229	1432	1759
Shasta Elev.		942	935	927	917	906	897	897	896	895	905	921	943
Folsom	584	670	669	556	366	302	298	274	254	243	272	345	293
Folsom Elev.		436	436	423	398	288	287	382	379	377	382	395	386
New Melones	935	908	831	753	690	638	611	569	572	574	580	578	574
New Melones Elev.		929	918	905	894	885	880	872	872	873	874	873	873
San Luis	333	332	300	231	142	110	87	31	73	130	332	328	311
San Luis Elev.		445	438	422	402	391	383	369	379	399	436	432	430
Total		4651	4376	3947	3407	3031	2792	2606	2594	2614	2980	3281	3602

State End of the Month Reservoir Storage (TAF)

Facility		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Oroville	1675	1920	1746	1496	1227	1087	1039	1011	1011	1061	1171	1270	1426
Oroville Elev.		775	758	730	697	677	670	666	666	673	689	702	722
State San Luis	558	593	560	480	403	344	307	271	293	385	505	474	473
Total San Luis (TAF)	921	925	859	711	544	454	394	302	367	514	837	801	785

Monthly River Releases (TAF/cfs)

River	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Trinity (TAF)	80	67	27	28	53	52	23	18	18	18	17	18
Trinity (cfs)	1,347	1,092	450	450	857	870	373	300	300	300	300	300
Clear Creek (TAF)	12	12	12	9	9	9	12	12	12	12	11	12
Clear Creek (cfs)	200	200	200	150	150	150	200	200	200	200	200	200
Sacramento (TAF)	193	277	268	277	277	238	200	193	200	200	180	200
Sacramento (cfs)	3250	4500	4500	4500	4500	4000	3250	3250	3250	3250	3250	3250
American (TAF)	59	64	149	226	104	33	36	33	34	34	31	225
American (cfs)	1000	1045	2500	3674	1698	550	581	550	555	551	551	3657
Stanislaus (TAF)	27	25	17	9	9	9	35	12	12	13	12	12
Stanislaus (cfs)	461	401	290	150	150	150	577	200	200	213	214	200
Feather (TAF)	59	105	178	215	169	137	59	57	59	59	100	123
Feather (cfs)	1000	1700	3000	3500	2750	2300	960	960	960	960	1800	2000

Trinity Diversions (TAF)

Diversions Facility	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Carr PP	38	16	25	30	31	30	10	10	10	10	5	3
Spring Creek PP	10	10	15	20	20	20	30	0	0	5	5	10

Delta Summary (TAF)

Facility	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Tracy	54	54	62	49	50	80	50	114	100	219	45	52
USBR Banks	0	0	0	0	0	0	0	0	0	0	0	0
Contra Costa	4.3	6.6	5.9	7.3	7.3	5.6	4.6	2.8	2.7	2.1	2.0	5.2
Total USBR	58	62	68	56	57	86	55	117	103	221	47	57
State Export	36	37	18	20	21	19	18	50	95	161	18	31
Total Export	94	99	86	76	78	105	73	167	198	382	65	88
COA Balance	281	218	153	121	119	119	118	112	160	144	65	18
Vernalis (TAF)	60	58	42	32	34	40	64	46	40	74	78	37
Vernalis (cfs)	1012	951	710	524	557	671	1049	772	655	1205	1403	607
Old/Middle River Std.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Old/Middle River calc.	-1,346	-1,404	-1,382	-1,310	-1,320	-1,642	-1,027	-2,402	-2,771	-4,834	-860	-1,422
Computed DOI	6505	4002	4001	4002	2993	3009	2993	3496	3497	6003	11400	11403
Excess Outflow	2505	0	0	0	0	0	0	0	0	0	0	0
% Export/Inflow	16%	19%	15%	12%	14%	23%	20%	39%	44%	54%	9%	11%
% Export/inflow std.	35%	35%	35%	65%	65%	65%	65%	65%	65%	65%	45%	35%

Hydrology

Statistic	Trinity	Shasta	Folsom	New Melones
Water Year Inflow (TAF)	421	2,725	1,387	502
Year to Date + Forecasted % of mean	35%	49%	51%	47%

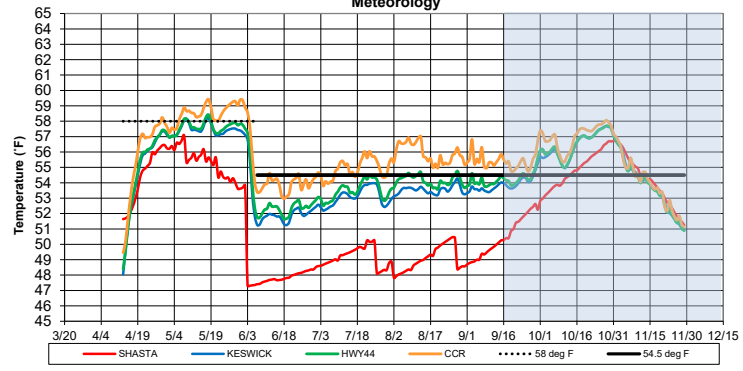
CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions.

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 Map

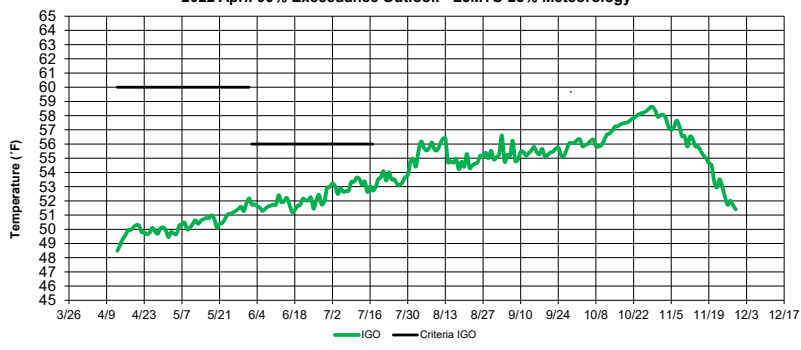
**Sacramento River Modeled Temperature
2022 April 90%-Exceedance Water Outlook - L3MTO 25%
Meteorology**



	Shasta deg F	Keswick deg F	Hwy44 deg F	CCR deg F	Igo deg F	Trinity deg F	Lewiston deg F
Apr							
May	55.4	57.5	57.6	58.5	50.6	47.3	50.2
Jun	48.2	52.5	53.0	54.5	51.8	48.2	53.4
Jul	49.2	53.0	53.5	54.9	53.3	48.9	53.8
Aug	49.0	53.5	54.1	55.9	55.2	50.6	55.0
Sep	50.5	53.9	54.2	55.4	55.5	54.3	56.7
Oct	54.9	56.5	56.5	57.0	57.1	57.4	58.6
Nov	54.0	53.7	53.7	53.9	55.2	54.6	53.8

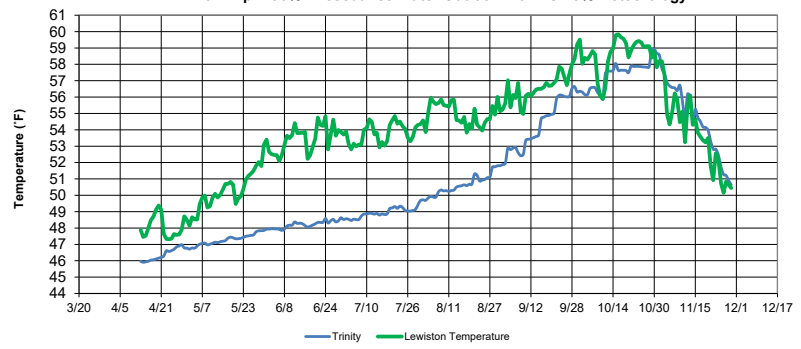
Run date: 4/25/22
EOM Sept storage: 1.14 MAF
 Trinity profile date: 4/25/22
 Whiskeytown profile date: 4/12/22
 Shasta profile date: 4/13/22
 Projected Side gates: First Jul 27 Full Sep 1
 Shaded area denotes period of model limitations - see Fall Temperature Index
End of September Cold-Water-Pool less than 56 deg F: 186 TAF

**Clear Creek - Igo Modeled Temperature
2022 April 90% Exceedance Outlook - L3MTO 25% Meteorology**



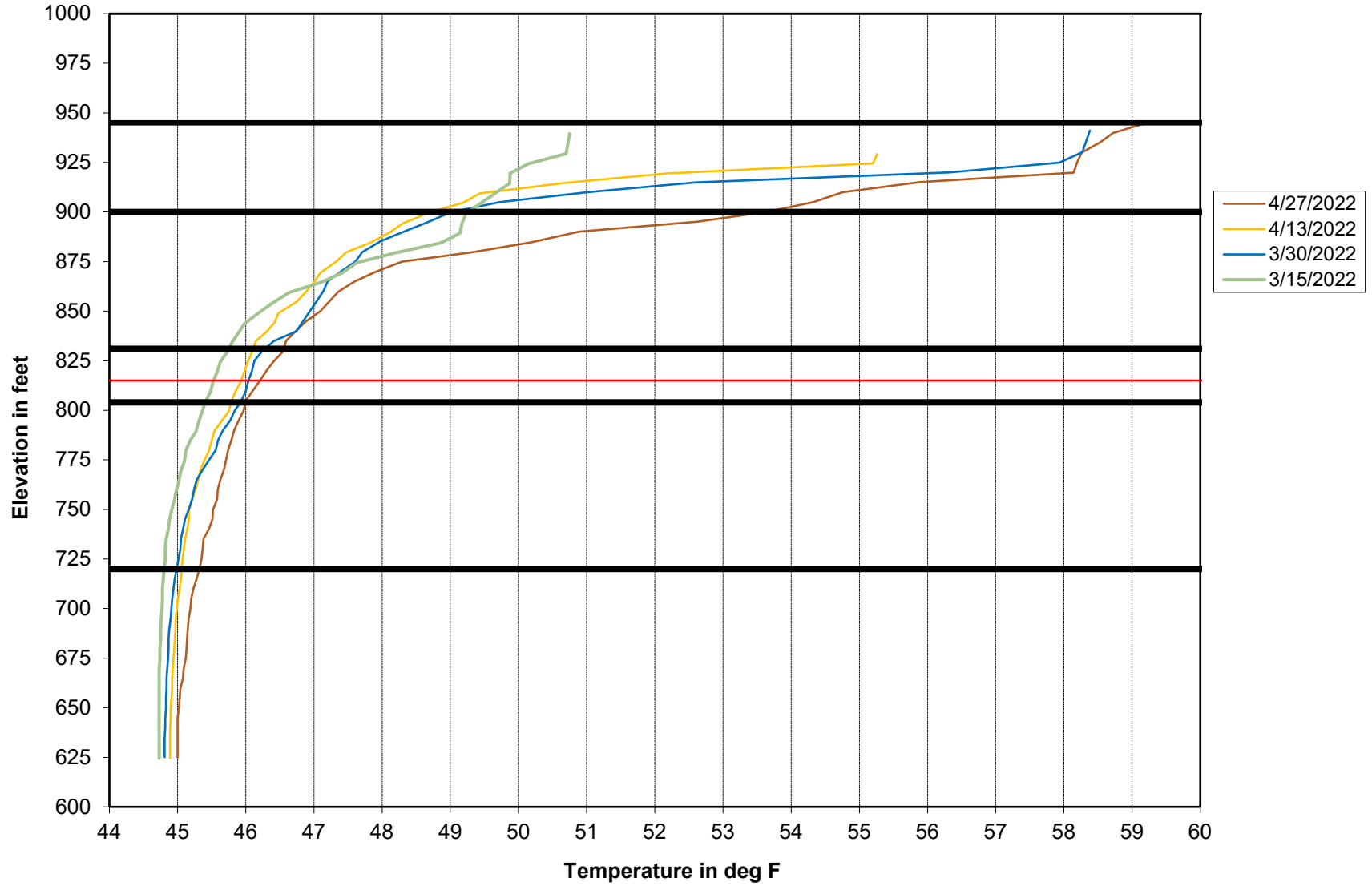
	Igo deg F
Apr	
May	50.6
Jun	51.8
Jul	53.3
Aug	55.2
Sep	55.5
Oct	57.1
Nov	55.2

**Trinity - Lewiston Modeled Temperature
2022 April 90%-Exceedance Water Outlook- L3MTO 25% Meteorology**



	Trinity deg F	Lewiston deg F
Apr		
May	47.3	50.2
Jun	48.2	53.4
Jul	48.9	53.8
Aug	50.6	55.0
Sep	54.3	56.7
Oct	57.4	58.6
Nov	54.6	53.8

2022 Shasta Temperature Profiles



SACRAMENTO RIVER TEMPERATURE STRATEGY

The Keswick Reservoir release schedule was developed through multi-agency coordination including Reclamation, NMFS, USFWS, CDFW, California Department of Water Resources (DWR), SWRCB, the California Environmental Protection Agency (CalEPA) and the Sacramento River Settlement Contractors. The release schedule was finalized in late March and Reclamation completed preliminary HEC-5Q modeling on April 4. This preliminary modeling was used for the draft temperature management plan shared on April 6th. This plan targeted 56 deg F at Highway 44 bridge gage (SAC) throughout the entire temperature management season until the available cold water was used. This plan resulted in a temperature dependent mortality above 70% but conserved the most cold water for maintaining temperatures in the fall. The draft plan also projected an initial side gate opening of July 16 and full side gate opening of September 1.

Reclamation received feedback from SRTTG members that the tradeoff of having lower TDM with warmer temperatures in the fall was favored and recommended targeting 54.5 deg F at SAC with the understanding this may mean warmer fall temperatures. This tradeoff was viewed in context with the maximum temperatures allowable by the Livingston Stone National Fish Hatchery which was determined to be 66 deg F from Shasta Dam assuming 10 deg F of cooling capability with the chillers. The fall temperatures seen in the temperature modeling targeting 54.5 deg F were well below 66 deg F and therefore this was the selected plan for the final temperature management plan. Reclamation also received feedback from SRTTG members that an initial target of 58 deg F would help to conserve cold water for later during the more critical portion of the temperature management season.

The final temperature management strategy, based on recommendations received from SRTTG, is to target 58 deg F at SAC during the initial part of the season and then target 54.5 deg F for 16 weeks around the estimated peak spawning date of Aug 2. This would result in targeting 54.5 deg F from June 7 through September 27 or until the cold water is used.

Updated reservoir temperature profiles, updated meteorology, redd distribution assumptions, and shaping approaches were included in HEC-5Q modeling on April 25. The April 25 temperature modeling is presented here and is reflected in resulting biological and water supply performance metrics as shown in Table 2, Table 3, Attachment 2, and Attachment 3. Further refinement to the temperature management strategy will occur through coordination with SRTTG and SPG as the season progresses.

Table 2. Estimated water temperature in degrees Fahrenheit at Shasta, Keswick, SAC, and CCR from April 25 HEC-5Q run. HEC-5Q does not perform well after mid-September under low storage conditions. Water temperatures may be warmer than these targets and HEC-5Q results. Warmer water temperatures described in Attachment 2 describe the late season water temperatures that were used for the temperature dependent mortality modeling.

Month	Shasta	Keswick	SAC	CCR
May	55.4	57.5	57.6	58.5
June	48.2	52.5	53.0	54.5
July	49.2	53.0	53.5	54.9
August	49.0	53.5	54.1	55.9
September	50.5	53.9	54.2	55.4
October	54.9	56.5	56.5	57.0
November	54.0	53.7	53.7	53.9

Trinity River and Clear Creek modeled temperatures are included in Attachment 2.

Table 3. Fish and water performance metrics.

Metric	April 25 Scenario
Stage-independent TDM	2021 redds: 42% 2016-2021 redds: 51%
Stage-dependent TDM	2021 redds: 36% 2016-2021 redds: 45%
End of Sept CWP Storage (TAF)	186 TAF
First Side Gate Use	July 27
Full Side Gate	September 1
End of September Storage (MAF)	1.14 MAF

TDM Modeling

April 27, 2022
SWFSC

Additional information available at:
<https://oceanview.pfeg.noaa.gov/CVTEMP/download>

Modeling Assumptions

1. April 99% B120 Exceedance Forecast Shasta Inflow
2. April 27 Shasta initial profile
3. 2015 meteorology
4. Spring Creek PP contributions to Keswick as provided in USBR 90% exceedance operational outlook from April 26
5. SAC gage temperature target location (achieving target NOT guaranteed)
6. Redds distributed in time and space according to 2021 aerial redd surveys (a compressed distribution relative to historical variability; 2016-2021 for comparison)
7. One scenarios considered (Target Temperature of 54.5F)
8. Combination of CE-QUAL-W2 models for Shasta and Keswick, and RAFT for temperature predictions

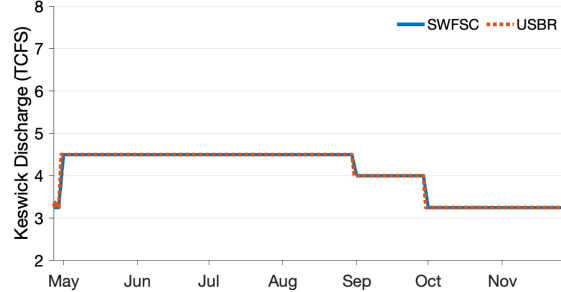
Model Outputs (Scenario 1, 54.5F Target)

*Redd year specified

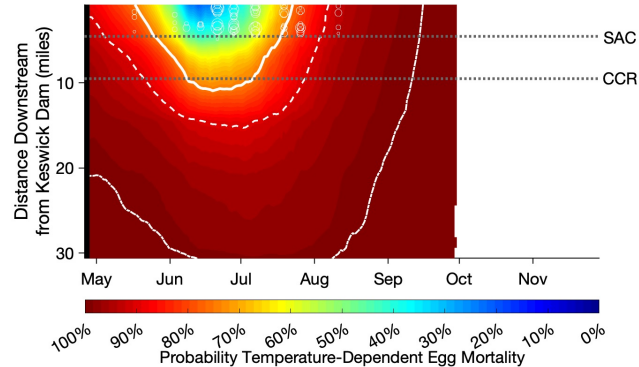
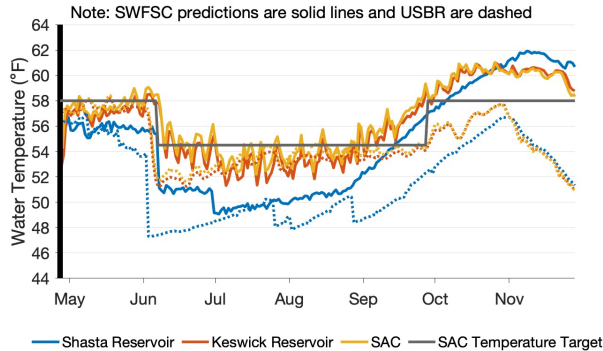
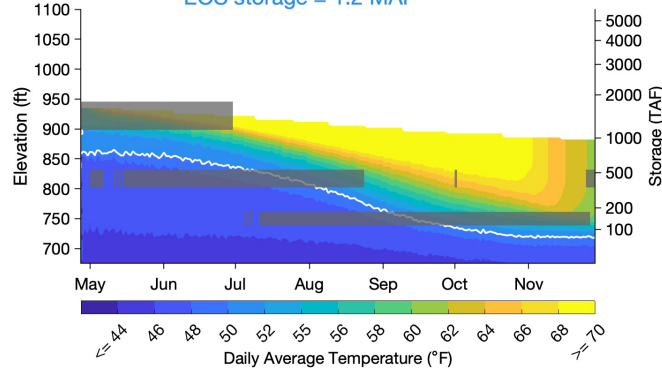
DRAFT: FOR DISCUSSION PURPOSES

Scenario = 4500 cfs
 Center Date = 08/02/2022
 Target Temperature = 54.5°F
 Shoulder Temperature = 58°F
 Window Length = 16 weeks

27-Apr-2022
 Hindcast | Forecast



Mean annual TDM Redd Yr 2021= 52%
 Mean annual TDM Redd Yr 2016-2021= 58%
 Date first side gate = 05/Jul/2022
 EOS storage = 1.2 MAF



*Model output generated 27-Apr-2022

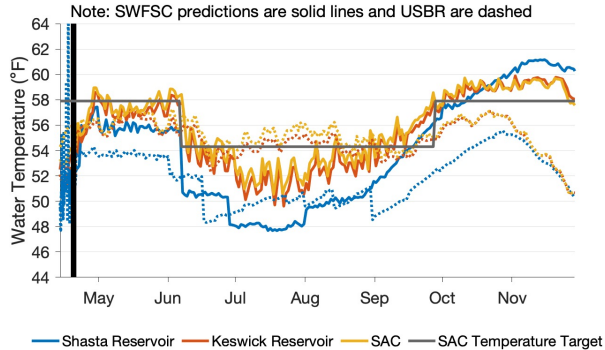
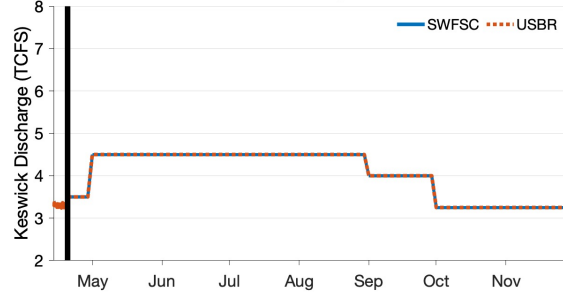
DRAFT - Preliminary Results - For Discussion Purposes Only

Model Outputs (*Last meeting's most similar*)

DRAFT: FOR DISCUSSION PURPOSES

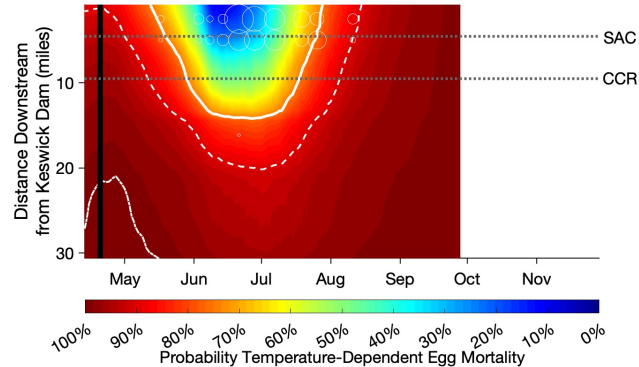
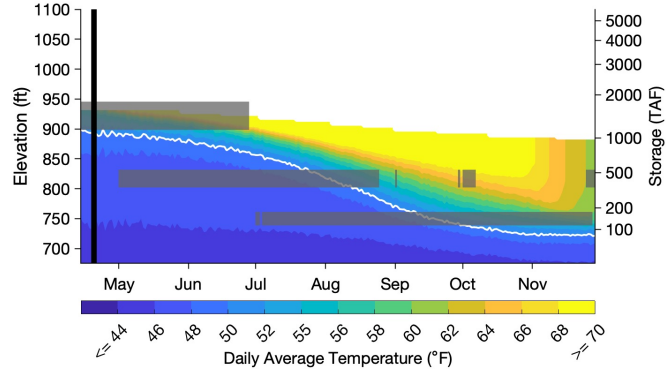
Scenario = 4500 cfs
 Center Date = 08/02/2022
 Target Temperature = 54.3°F
 Shoulder Temperature = 57.9°F
 Window Length = 16 weeks

20-Apr-2022
 Hindcast | Forecast

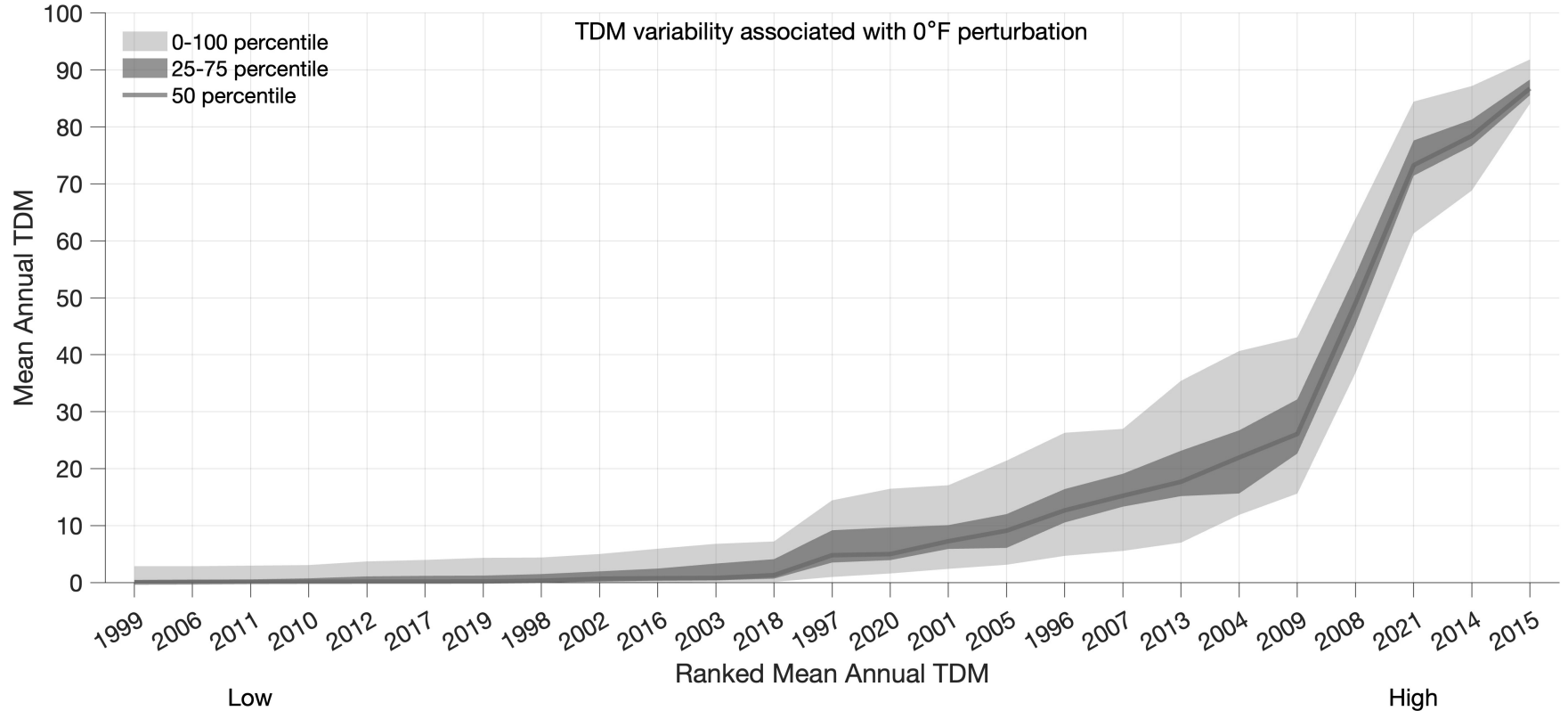


*Model output generated 20-Apr-2022

Mean annual TDM = 42%
 Date first side gate = 01/Jul/2022
 EOS storage = 1.1 MAF



TDM estimate sensitivity to redd distribution assumption



DRAFT - Preliminary Results - For Discussion Purposes Only

TDM estimate sensitivity to redds distribution assumption

