

Northern CVP Water Temperature Report

May - 2023

Page	Description
2	- Mean Daily Water Temperature, Release Flow Rates and Air Temperatures with Monthly Averages
3	- Sacramento River Mean Daily Water Temperature Plot
4	- Trinity River Mean Daily Water Temperature Plot
5	- Shasta Lake Isothermobaths & Cold Water Pool Statistics
14	- Trinity Lake Isothermobaths & Cold Water Pool Statistics
23	- Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics
x	- TCD Configuration (External Link)



— BUREAU OF —
RECLAMATION

All Data in this Report is Preliminary and Subject to Change

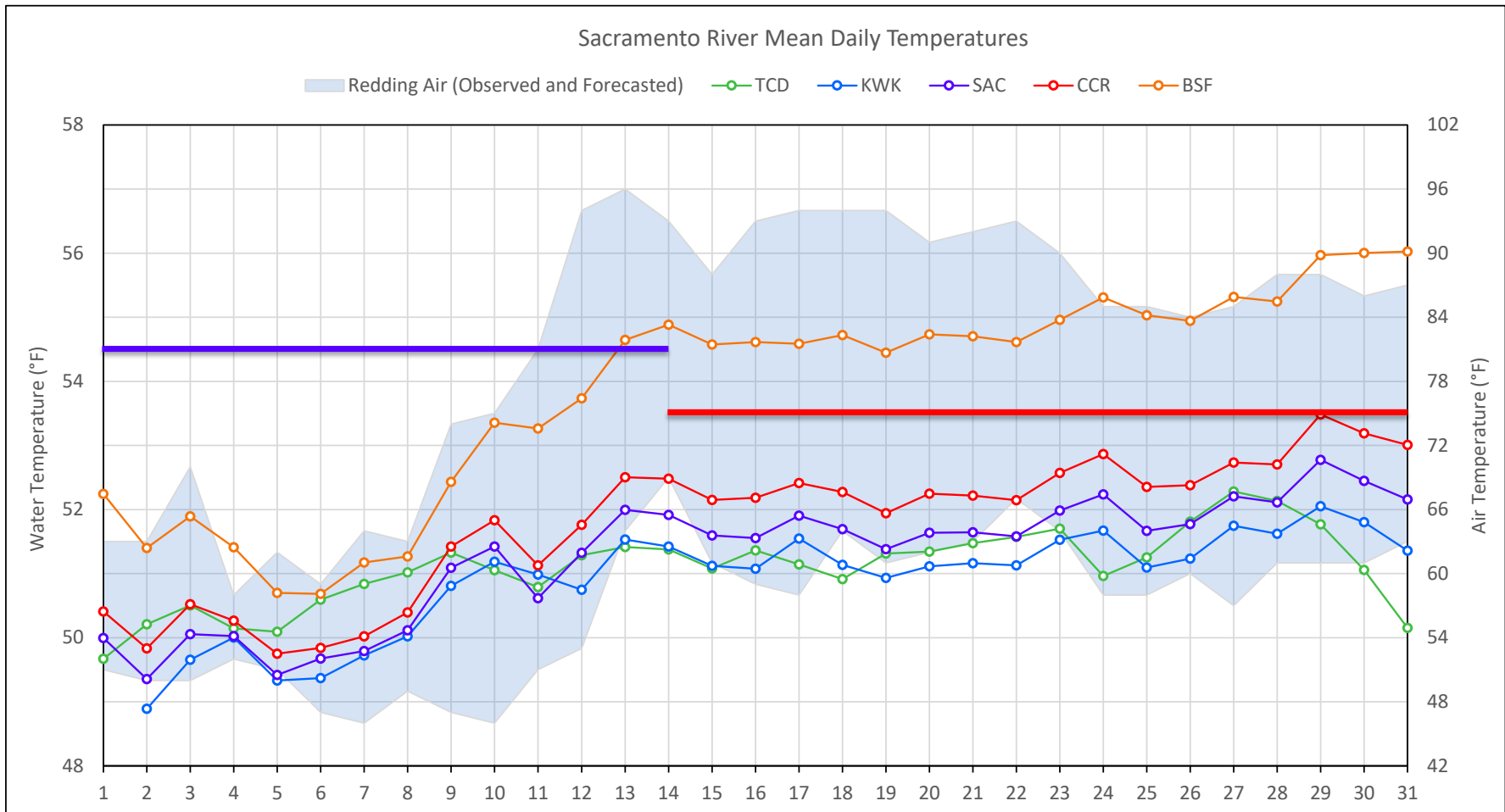
DATE	Mean Daily Water Temperatures (°F)													Mean Daily Release (CFS)			Mean Daily Air Temperatures (°F)			
	TCD ¹	SHD	SPP ¹	KWK	SAC	CCR ²	BSF	BND	RDB	IGO	LWS	DGC ³	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB	
Apr	48.3	47.6	47.7	48.9	49.6	50.5	52.9	55.3	54.8	50.2	45.2		46.6	3078	676	4563	59.7	58.1	59.6	
05/01	49.7	48.1	48.7	#	50.0	50.4	52.2	54.6	? 55.5	50.2	46.3	#	48.1	7617	699	10175	57.0	54.5	54.1	
05/02	50.2	48.5	48.9	! 48.9	49.4	49.8	51.4	52.3	53.1	50.3	46.7	#	47.6	8769	75	10096	56.5	53.5	53.6	
05/03	50.5	? 48.8	48.8	? 49.7	50.1	50.5	51.9	52.6	53.5	51.4	46.1	#	48.2	7740	505	10124	60.0	57.7	57.8	
05/04	50.1	48.9	49.1	50.0	50.0	50.3	51.4	53.0	? 53.6	49.8	45.8	#	47.4	9981	190	12020	55.0	54.1	54.4	
05/05	50.1	48.8	49.1	49.3	49.4	49.8	50.7	51.5	52.0	49.7	46.0	#	? 47.3	10366	655	12975	56.5	53.5	54.0	
05/06	50.6	49.2	48.8	? 49.4	49.7	49.8	50.7	? 51.1	51.8	49.4	? 45.8	#	48.2	9940	434	13074	53.0	51.5	51.9	
05/07	50.8	49.3	49.1	? 49.7	49.8	50.0	51.2	52.0	? 52.5	49.0	46.0	#	47.3	9420	58	12971	55.0	54.5	56.0	
05/08	51.0	50.0	48.8	? 50.0	50.1	50.4	51.3	52.0	? 52.6	49.5	46.4	#	48.2	10979	85	13038	56.0	55.4	55.2	
05/09	51.3	50.1	49.1	? 50.8	51.1	51.4	52.4	52.8	? 53.5	50.6	46.4	#	49.3	10207	64	13088	60.5	57.3	59.3	
05/10	51.1	49.1	49.0	? 51.2	51.4	51.8	53.4	54.3	? 55.2	51.5	46.6	#	50.0	8290	61	12913	60.5	58.3	59.6	
05/11	50.8	49.7	49.2	# 51.0	50.6	51.1	53.3	55.0	? 56.2	52.8	47.2	#	50.9	9659	273	13091	66.0	63.9	64.5	
05/12	51.3	50.5	50.1	50.7	51.3	51.8	53.7	55.1	56.2	53.5	47.6	#	52.0	11382	37	12974	73.5	69.5	71.6	
05/13	51.4	50.2	49.7	51.5	52.0	52.5	54.6	56.4	57.7	54.2	48.1	#	52.2	9647	37	13137	80.0	74.5	78.7	
05/14	51.4	49.9	49.8	51.4	51.9	52.5	54.9	57.0	58.5	54.3	48.6	#	52.1	9659	37	13078	81.0	74.8	78.3	
05/15	51.1	50.1	49.8	51.1	51.6	52.2	54.6	56.7	? 58.3	54.3	49.1	#	52.3	11282	37	13005	74.5	70.8	72.5	
05/16	51.4	50.3	49.8	51.1	51.6	52.2	54.6	? 56.9	? 58.0	? 54.8	49.3	#	52.5	11254	37	13050	76.0	73.1	74.3	
05/17	51.1	49.9	49.4	? 51.5	51.9	52.4	54.6	56.5	? 57.9	55.0	49.4	#	52.7	10286	319	13091	76.0	72.3	74.3	
05/18	50.9	49.6	49.5	51.1	51.7	52.3	54.7	57.0	58.5	54.5	49.8	#	52.8	9417	124	13053	79.0	74.9	74.8	
05/19	51.3	49.9	49.5	50.9	51.4	51.9	54.4	56.8	? 58.4	54.4	49.8	#	52.9	10316	669	13017	77.5	73.8	74.3	
05/20	51.3	50.0	50.2	51.1	51.6	52.2	54.7	57.0	? 58.4	54.6	50.1	#	53.3	10576	47	13003	76.5	73.1	72.5	
05/21	51.5	49.9	49.5	51.2	51.6	52.2	54.7	56.9	? 58.5	54.5	50.4	#	53.7	9802	115	13000	77.5	74.7	73.1	
05/22	51.6	50.3	49.8	51.1	51.6	52.1	54.6	56.9	58.4	54.3	50.5	#	53.4	10170	540	13094	80.0	75.4	77.0	
05/23	51.7	? 50.5	49.8	51.5	52.0	52.6	55.0	57.0	? 58.3	54.1	50.7	#	54.0	9238	144	11269	77.0	73.6	75.3	
05/24	51.0	49.9	49.6	51.7	52.2	52.9	55.3	57.5	# 34.2	54.0	51.0	#	53.9	8667	154	11006	71.5	68.6	68.2	
05/25	? 51.3	? 49.9	49.8	? 51.1	? 51.7	? 52.4	? 55.0	? 57.3	? 58.9	? 54.1	? 51.4	#	? 54.8	8866	446	11011	71.5	67.1	66.5	
05/26	51.8	? 50.2	49.9	51.2	51.8	52.4	54.9	57.2	? 58.7	54.4	51.8	#	55.3	8821	111	11008	72.0	68.8	67.5	
05/27	52.3	49.9	50.4	51.7	52.2	52.7	55.3	57.6	#	54.1	51.9	#	55.3	7964	37	10990	71.0	69.3	67.8	
05/28	52.1	50.6	50.1	51.6	52.1	52.7	55.2	57.7	#	54.1	52.1	#	55.4	9210	53	10947	74.5	71.7	71.0	
05/29	51.8	50.2	50.1	52.1	52.8	53.5	56.0	57.9	#	54.3	51.8	#	55.7	8615	37	10184	74.5	70.7	69.7	
05/30	51.1	49.9	50.2	51.8	52.4	53.2	56.0	58.4	#	54.1	52.0	#	55.7	7832	355	10081	73.5	70.1	68.9	
05/31	50.2	48.7	50.0	51.4	52.2	53.0	56.0	58.4	? 60.1	54.3	52.1	#	55.2	7948	105	10080	75.0	71.3	69.5	
May	51.1	49.7	49.5	50.9	51.2	51.7	53.8	55.5	55.3	52.9	48.8	-	51.7	9532	215	12119	69.1	66.0	66.6	
														Total CFS	293920	6540	373643			
														Total AF	582978	12972	741106			

Legend

- ? = 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

Notes

- ¹ 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
- ² Current Clear Creek River control point (see page 4 for more details)
- ³ DGC not reporting correct water temperatures due to probe being buried fine sediment



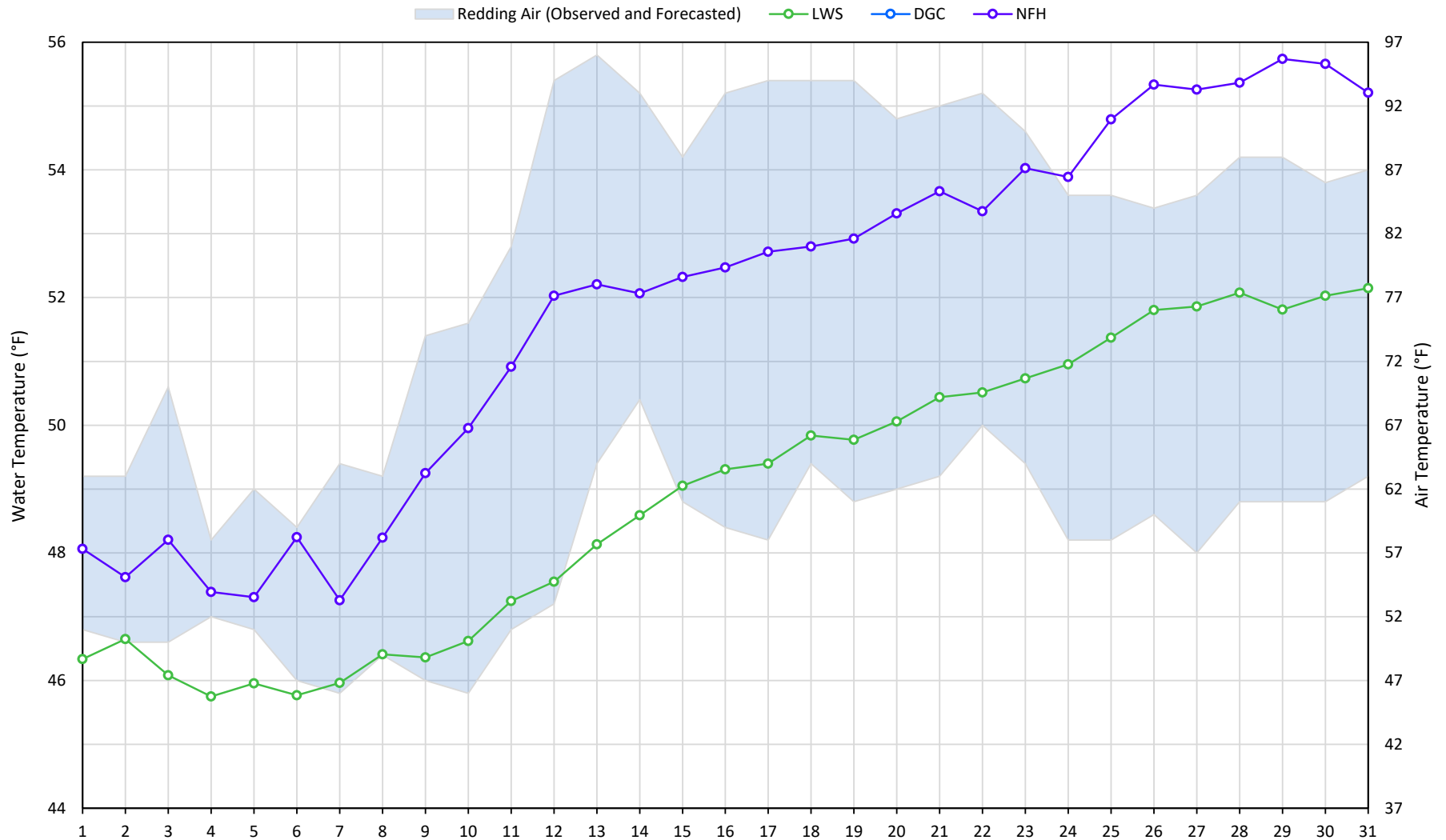
Station Details			
Code	Body of Water	Location ¹	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles 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

Water Right Temperature Control Points				
River	Point	Temp. (°F)	Begin Date	End Date
Sacramento	SAC	54.5	06/07/2022	5/14/2023
Sacramento	CCR	53.5	05/14/2023	TBD

Notes

¹ Distances are approximate

Trinity River Mean Daily Temperatures



Station Details

Code	Body of Water	Location ¹	CDEC Link
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
Trinity	DGC ²	56	Sep-15	Oct-01
Trinity	NFH	56	Oct-01	Dec-31

Notes

¹ Distances are approximate

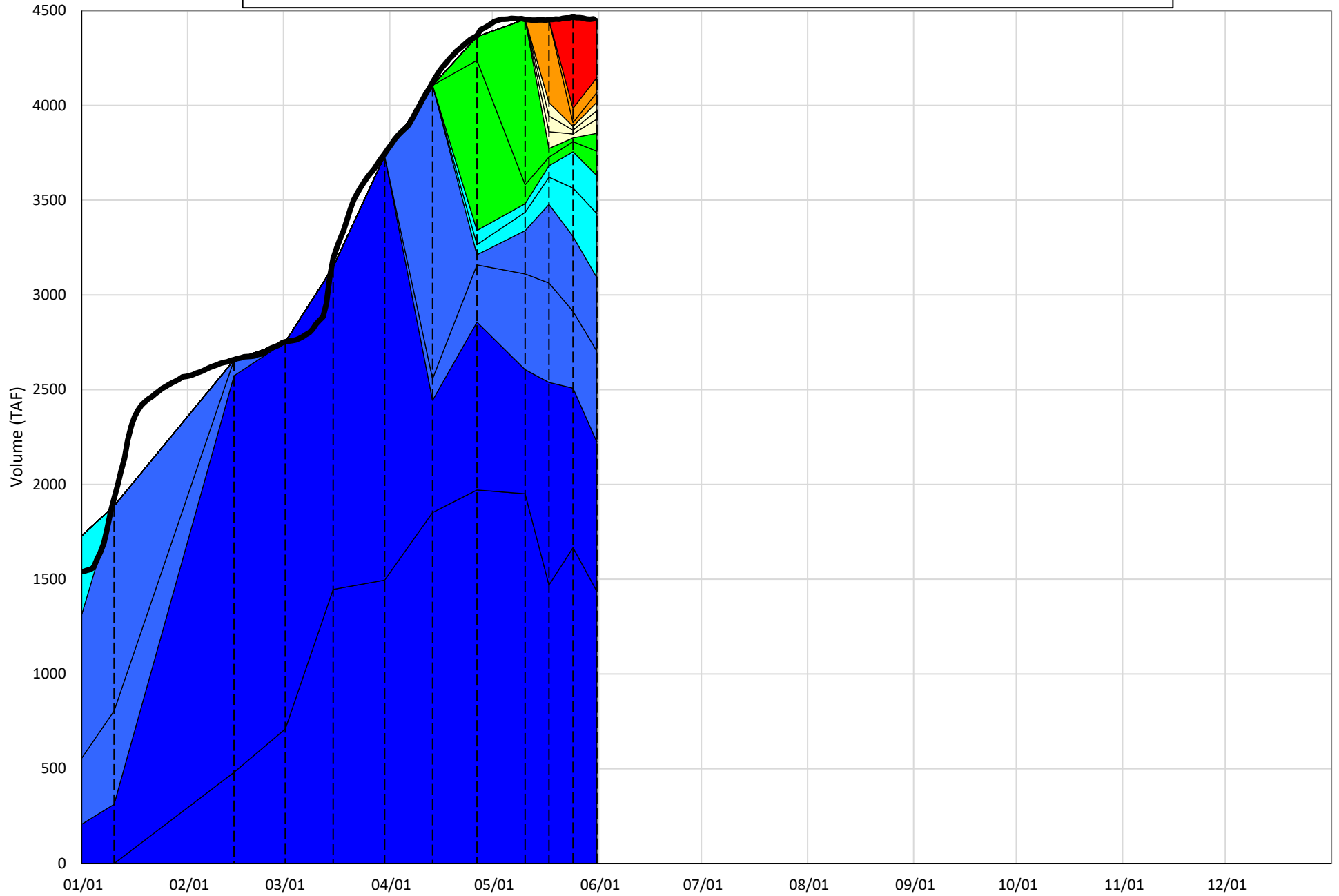
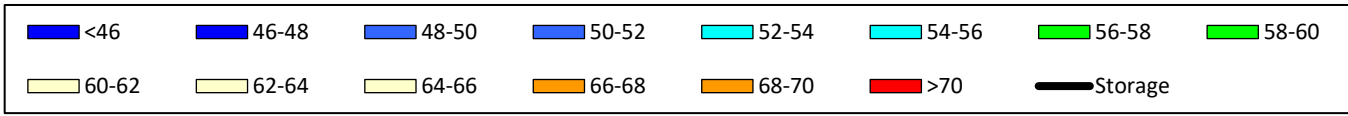
² DGC not reporting correct water temperatures due to probe being buried in fine sediment (no data)

Shasta Lake Isothermobaths & Cold Water Pool Statistics

2023

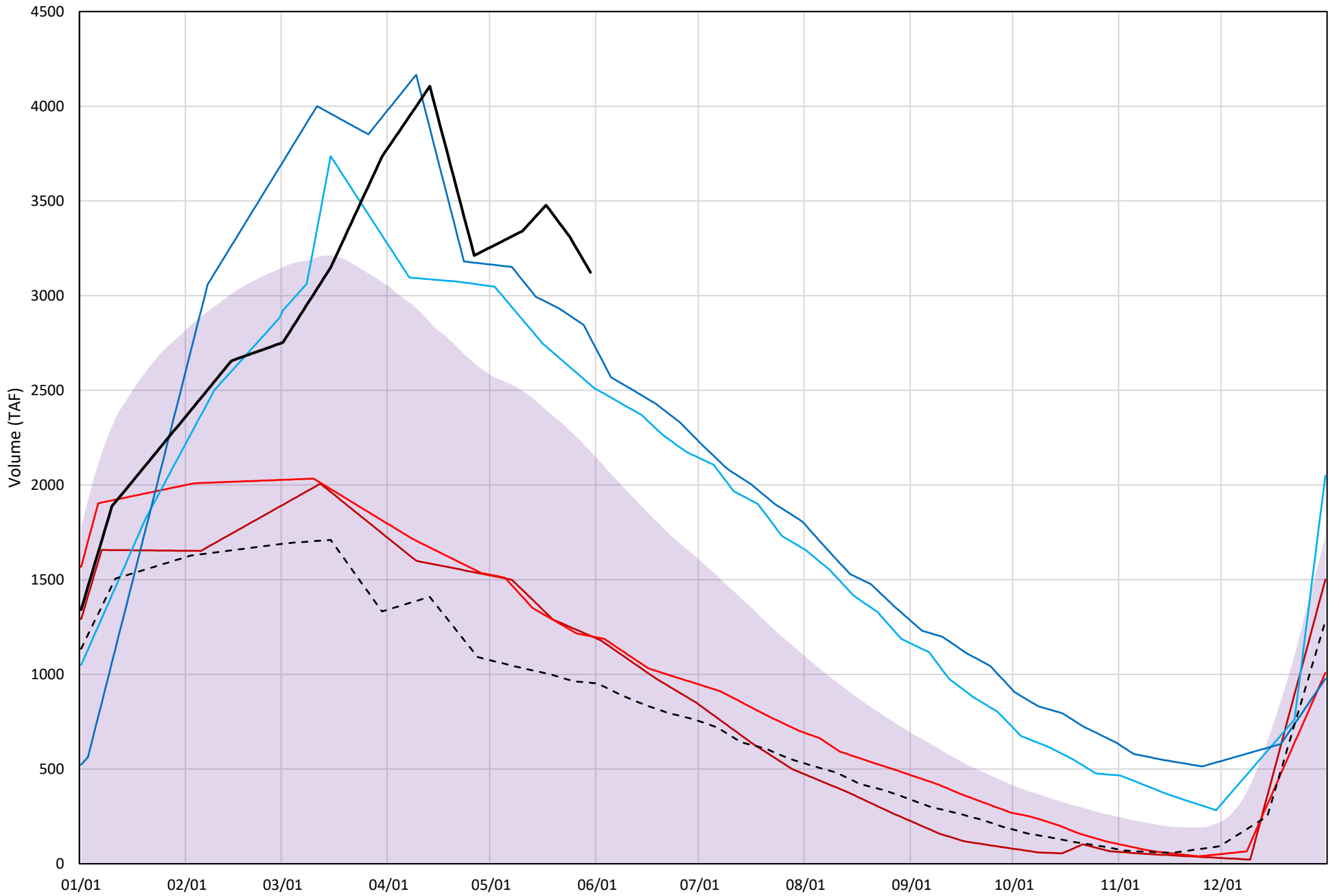
Page	Description
6	- Shasta Lake Isothermobaths Plot
7	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
8	- Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
9	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
10	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances
11	- Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances
12	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances
13	- Shasta Lake Cold Water Pool Comparison by Year

Shasta Lake Isothermobaths Plot - 2023



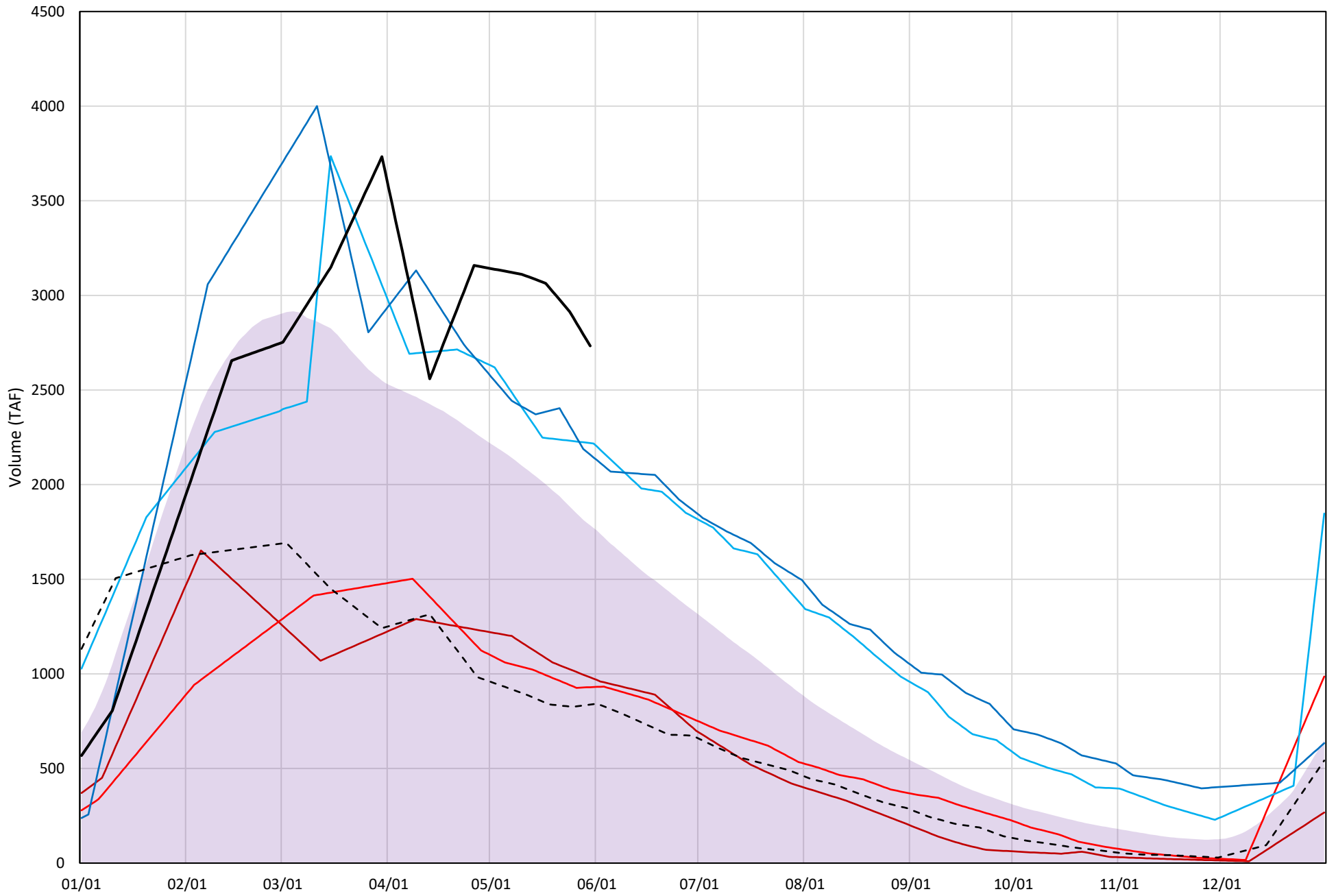
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



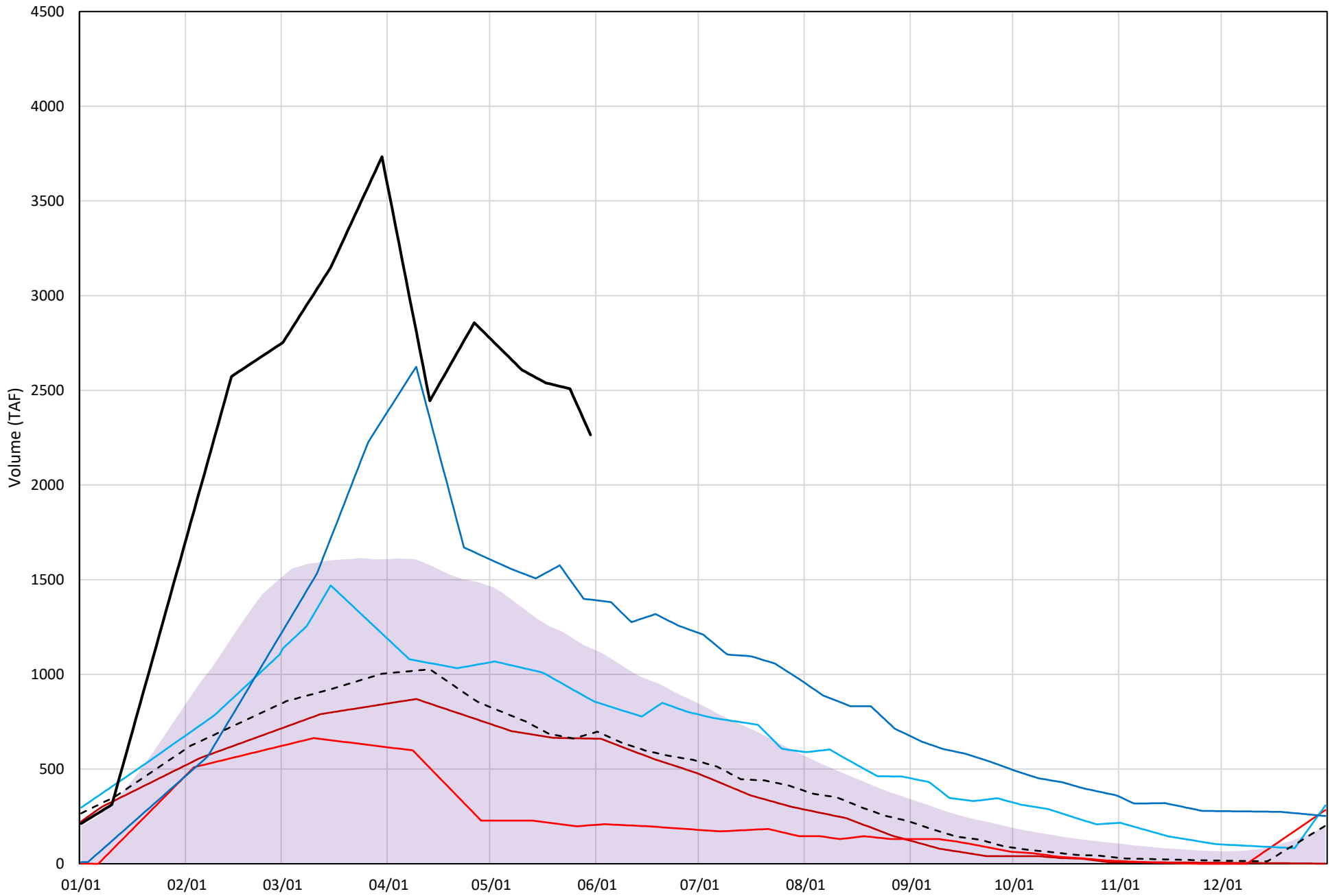
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

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

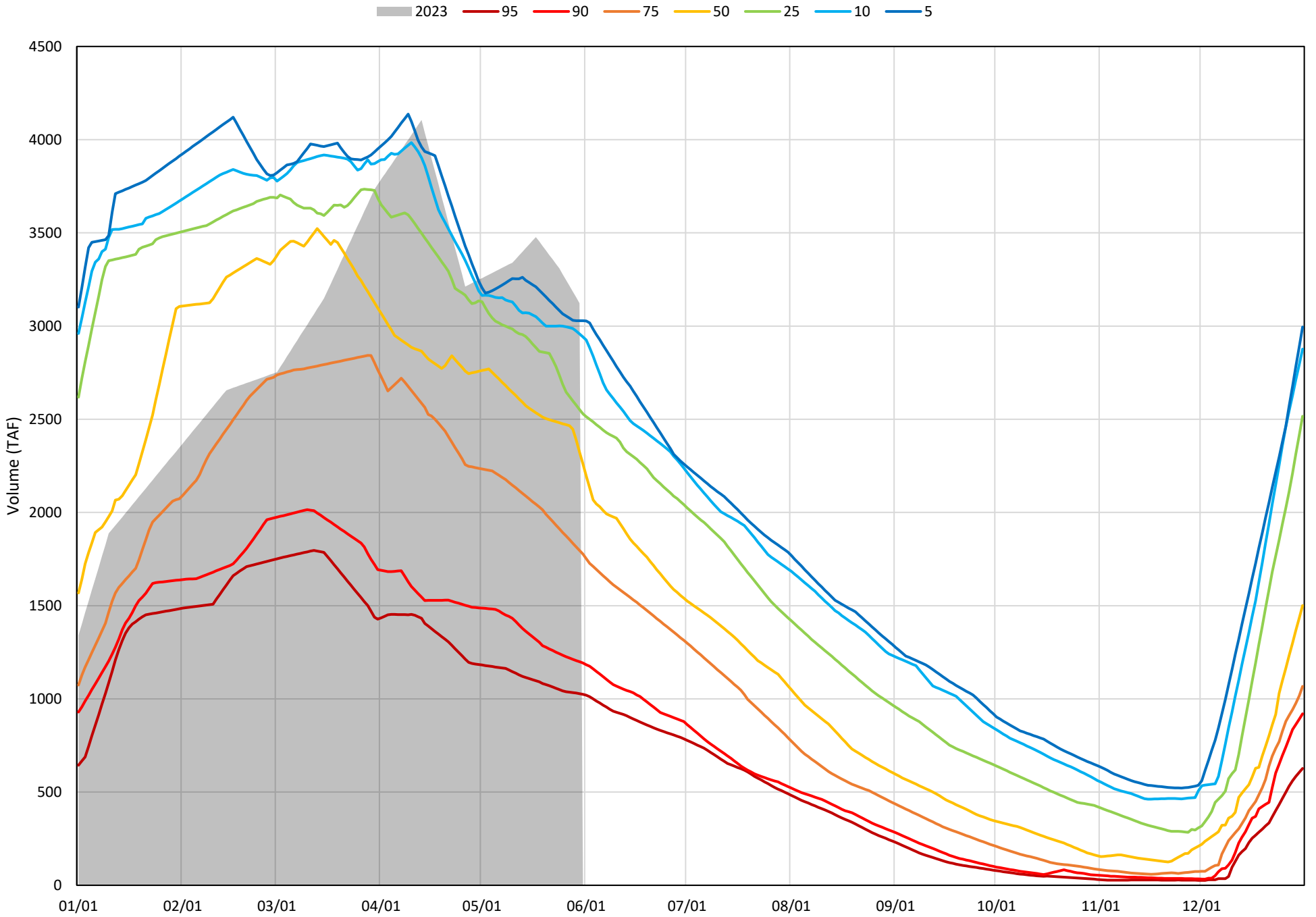


Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

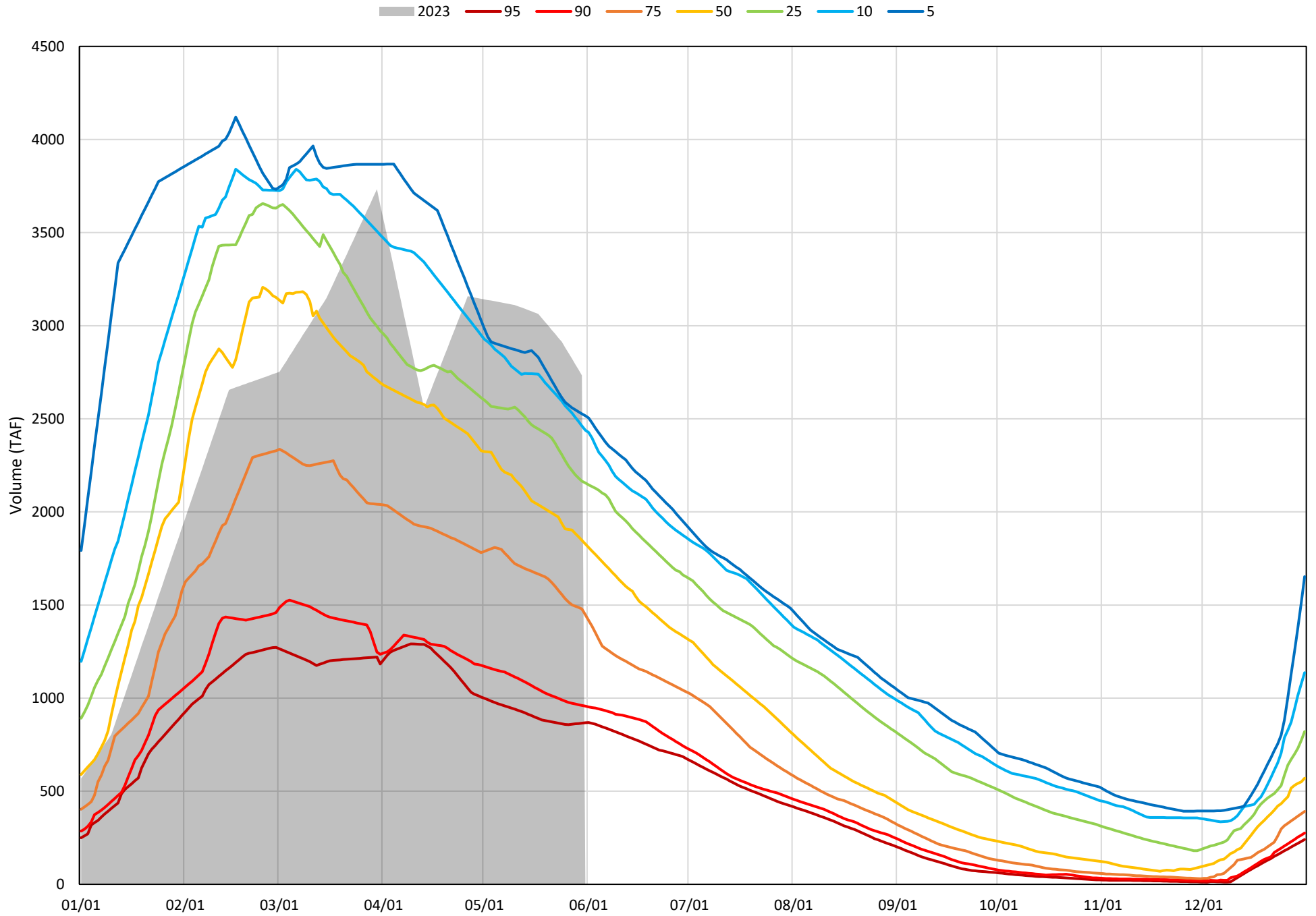
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



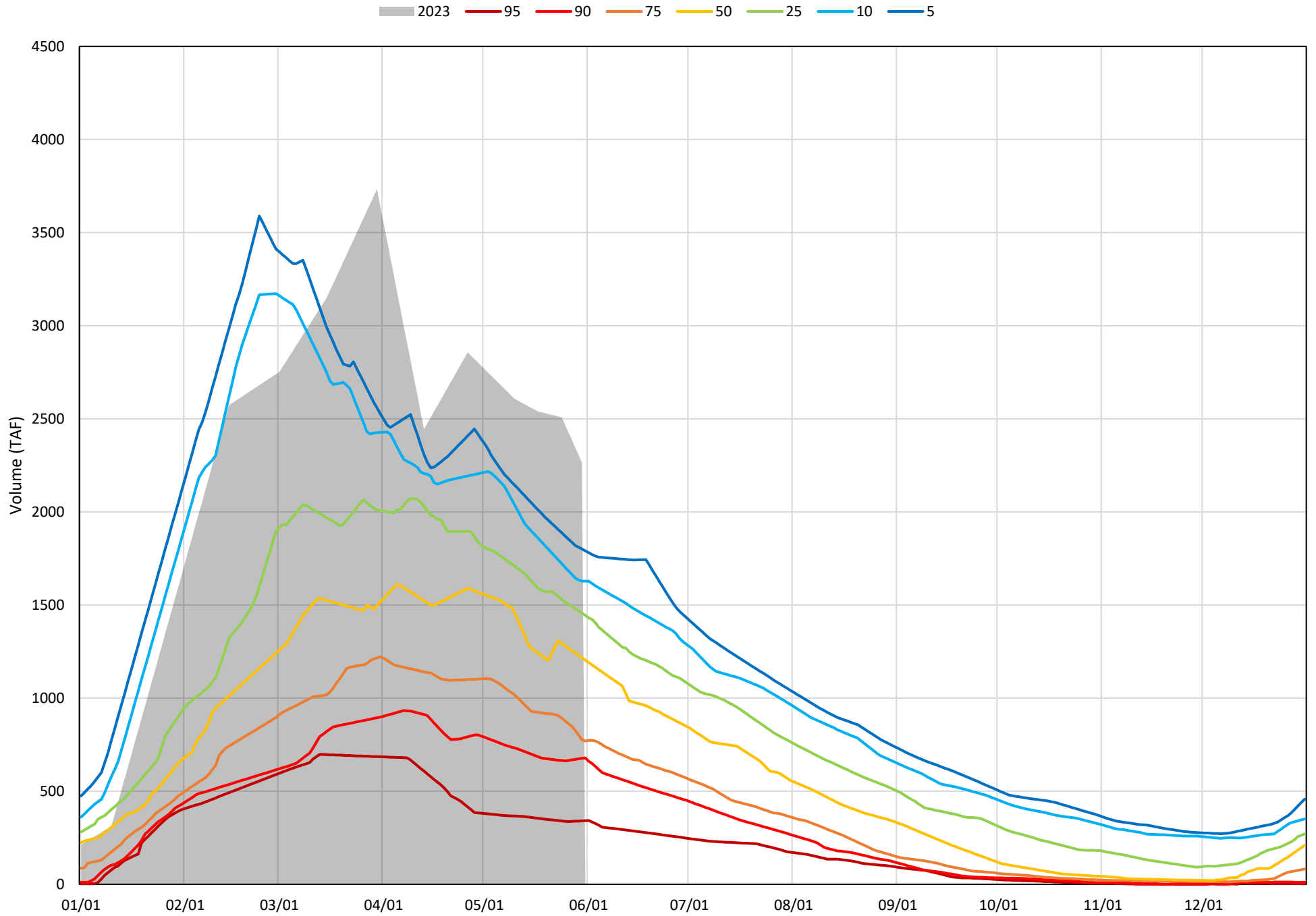
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2022)



Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2022)



Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (1998-2022)



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

May-31 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
1998	-131	-238	-716	362	-4	-9	-32	15
1999	-639	-562	-526	576	-20	-21	-23	21
2000	-674	-1080	-1353	1035	-22	-39	-60	40
2001	-1039	-886	-846	924	-33	-32	-37	34
2002	-722	-663	-771	719	-23	-24	-34	27
2003	-798	-1139	-1541	1159	-26	-42	-68	45
2004	-1106	-1056	-1048	1070	-35	-39	-46	40
2005	-958	-1112	-1380	1150	-31	-41	-61	44
2006	-603	-574	-871	682	-19	-21	-38	26
2007	-998	-837	-873	903	-32	-31	-39	34
2008	-1635	-1431	-1187	1417	-52	-52	-52	52
2009	-1534	-1370	-1187	1364	-49	-50	-52	51
2010	-187	-293	-711	397	-6	-11	-31	16
2011	-78	-193	-437	236	-2	-7	-19	10
2012	-369	-320	-742	477	-12	-12	-33	19
2013	-1119	-956	-945	1007	-36	-35	-42	38
2014	-1919	-1752	-1604	1758	-61	-64	-71	65
2015	-1920	-1804	-2061	1928	-62	-66	-91	73
2016	-594	-514	-1397	835	-19	-19	-62	33
2017	-547	-839	-940	775	-18	-31	-41	30
2018	-626	-778	-1436	947	-20	-28	-63	37
2019	-346	-575	-870	597	-11	-21	-38	24
2020	-977	-1136	-1563	1225	-31	-42	-69	47
2021	-1926	-1696	-1565	1729	-62	-62	-69	64
2022	-2166	-1895	-1578	1880	-69	-69	-70	69
2023	0	0	0	0	0	0	0	0

Historic - Current

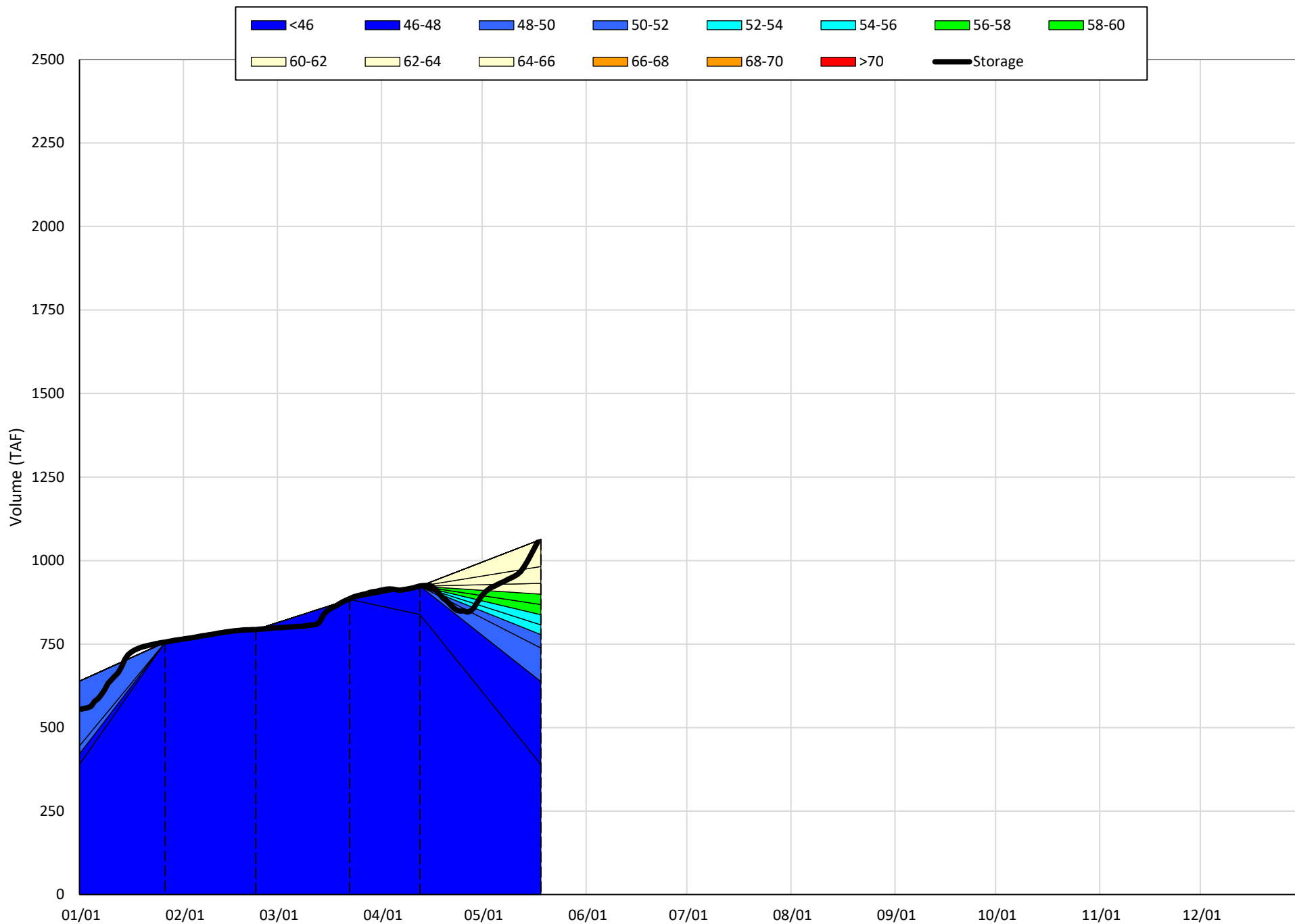
(Historic - Current) / Current

Trinity Lake Isothermobaths & Cold Water Pool Statistics

2023

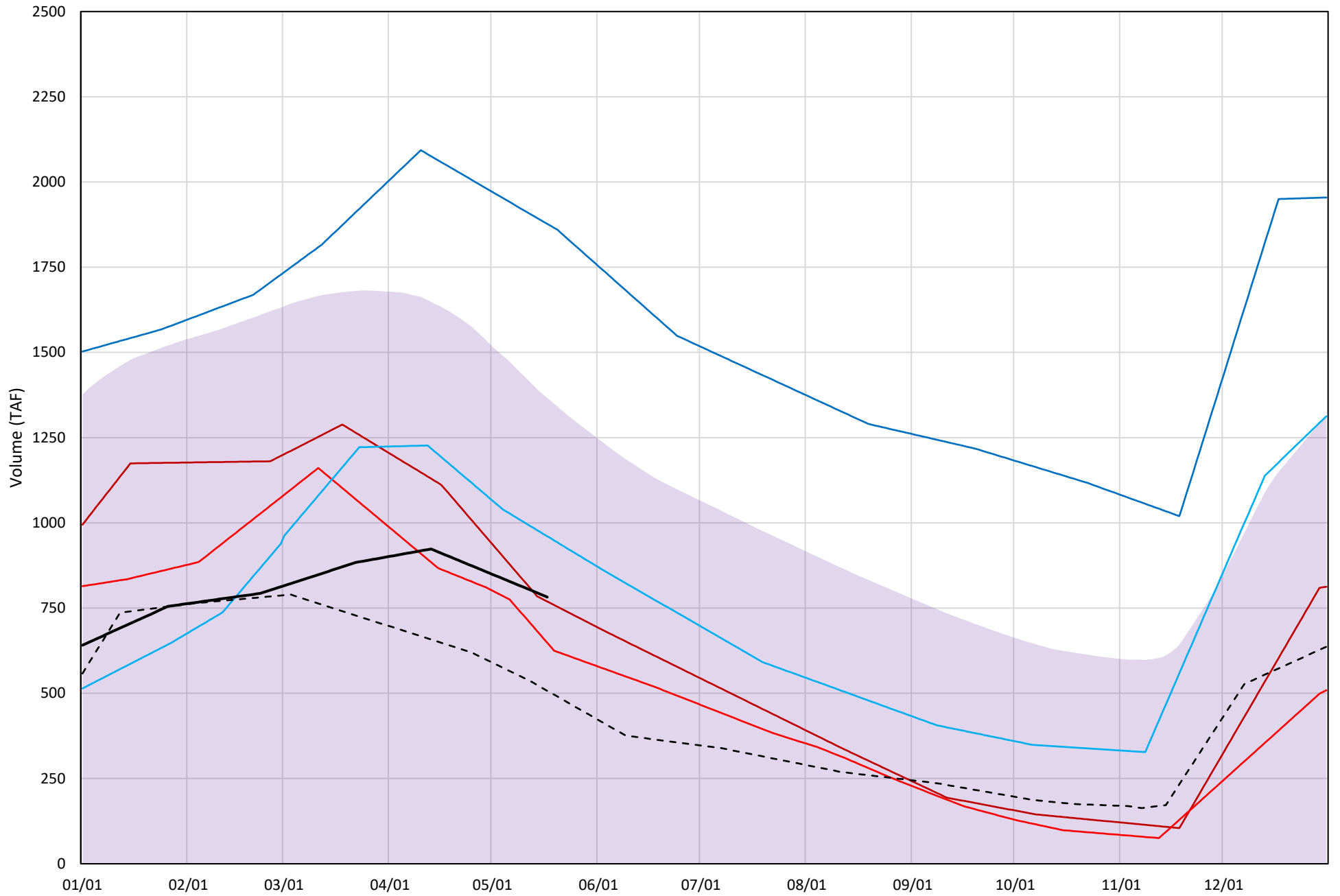
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances
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 - 2023



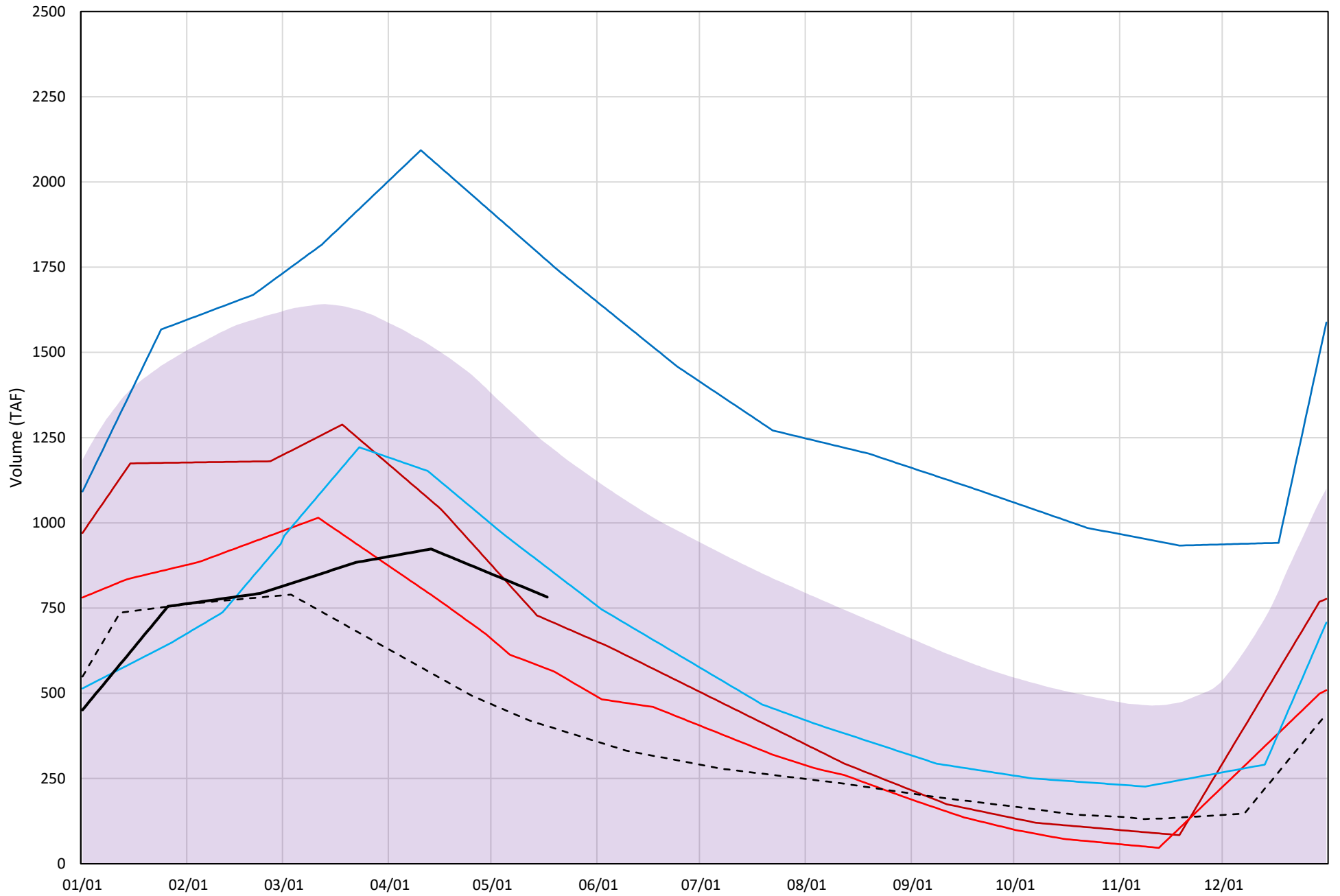
Trinity Lake Cold Water Pool Volume ≤52°F

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



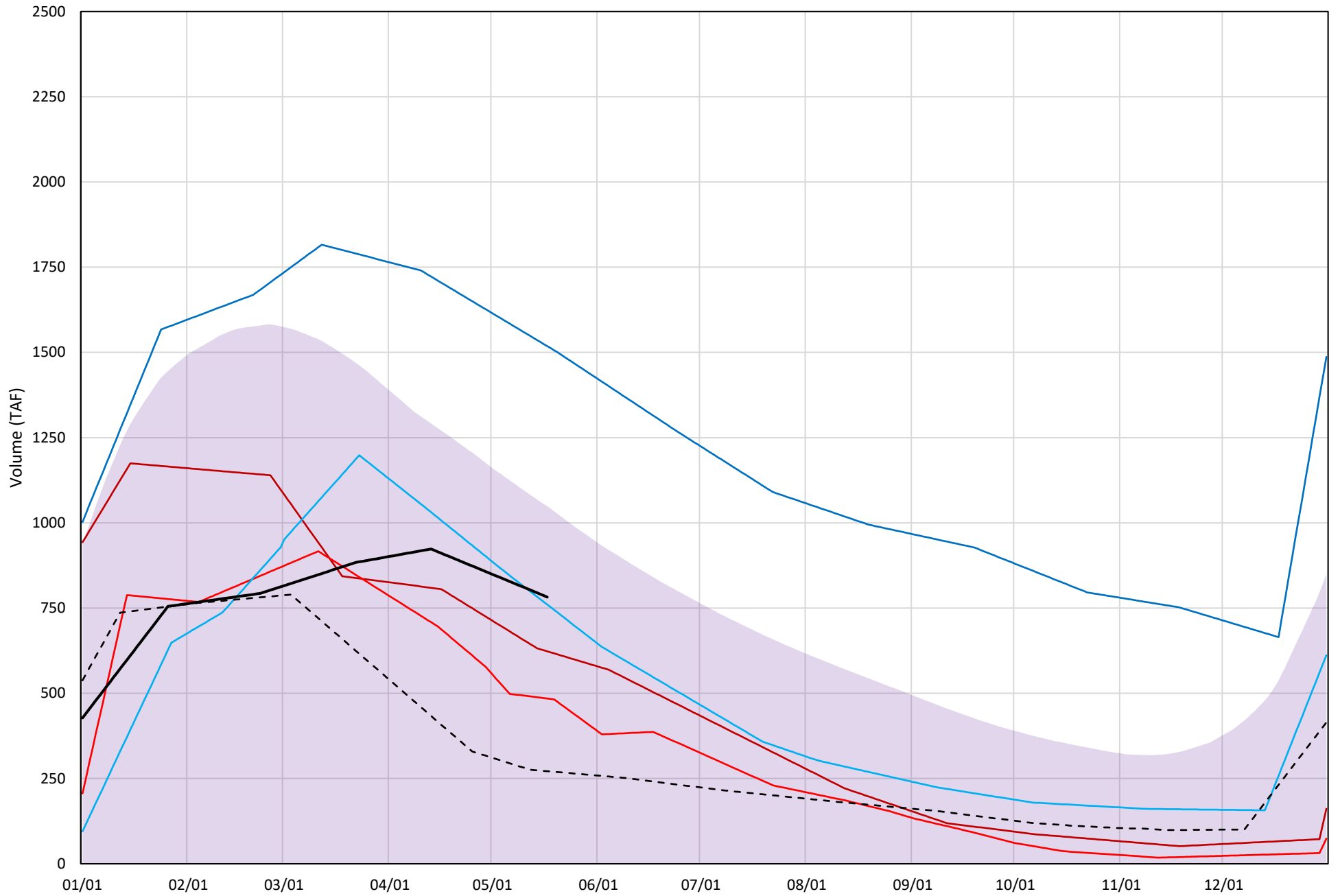
Trinity Lake Cold Water Pool Volume ≤50°F

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

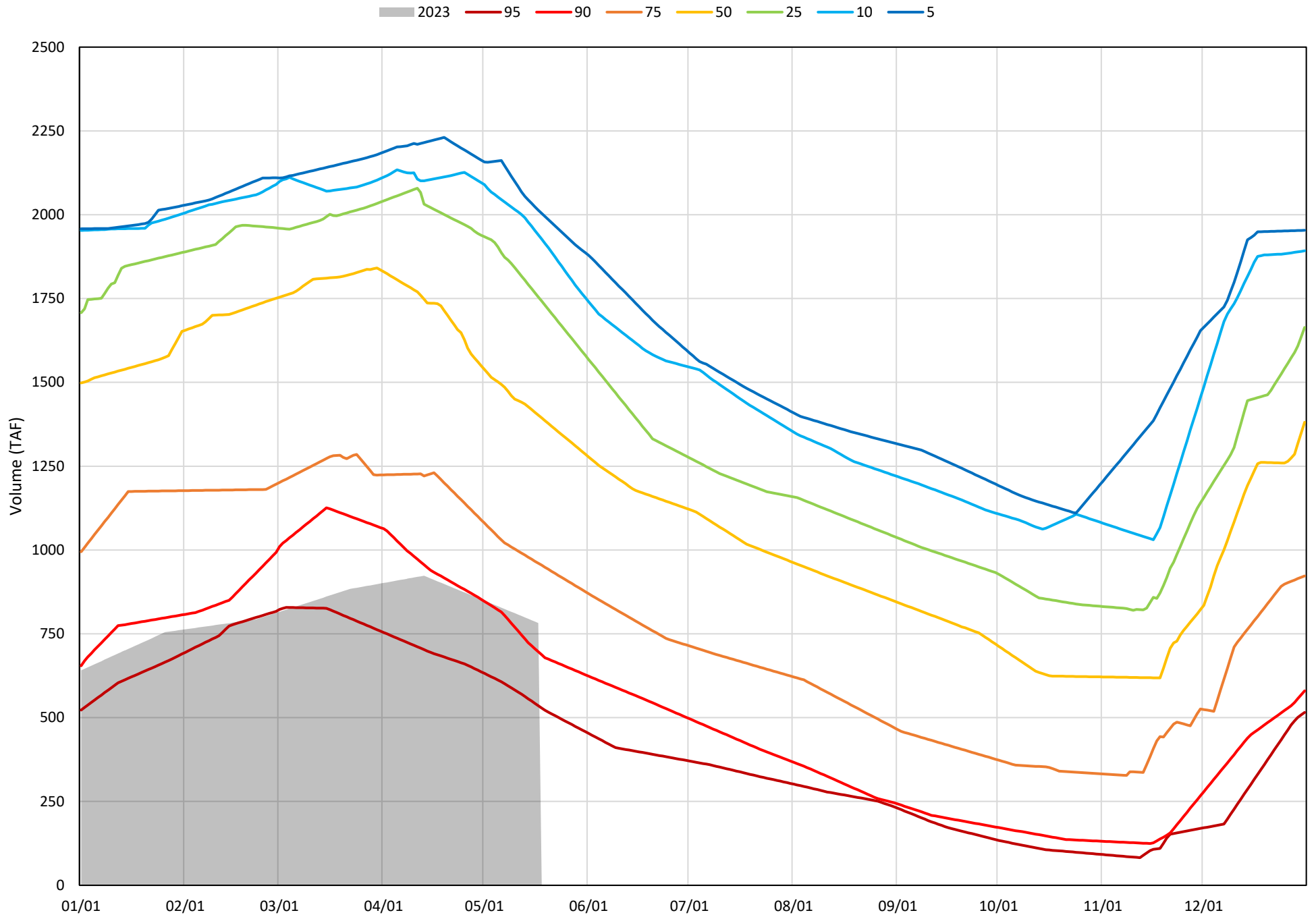


Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

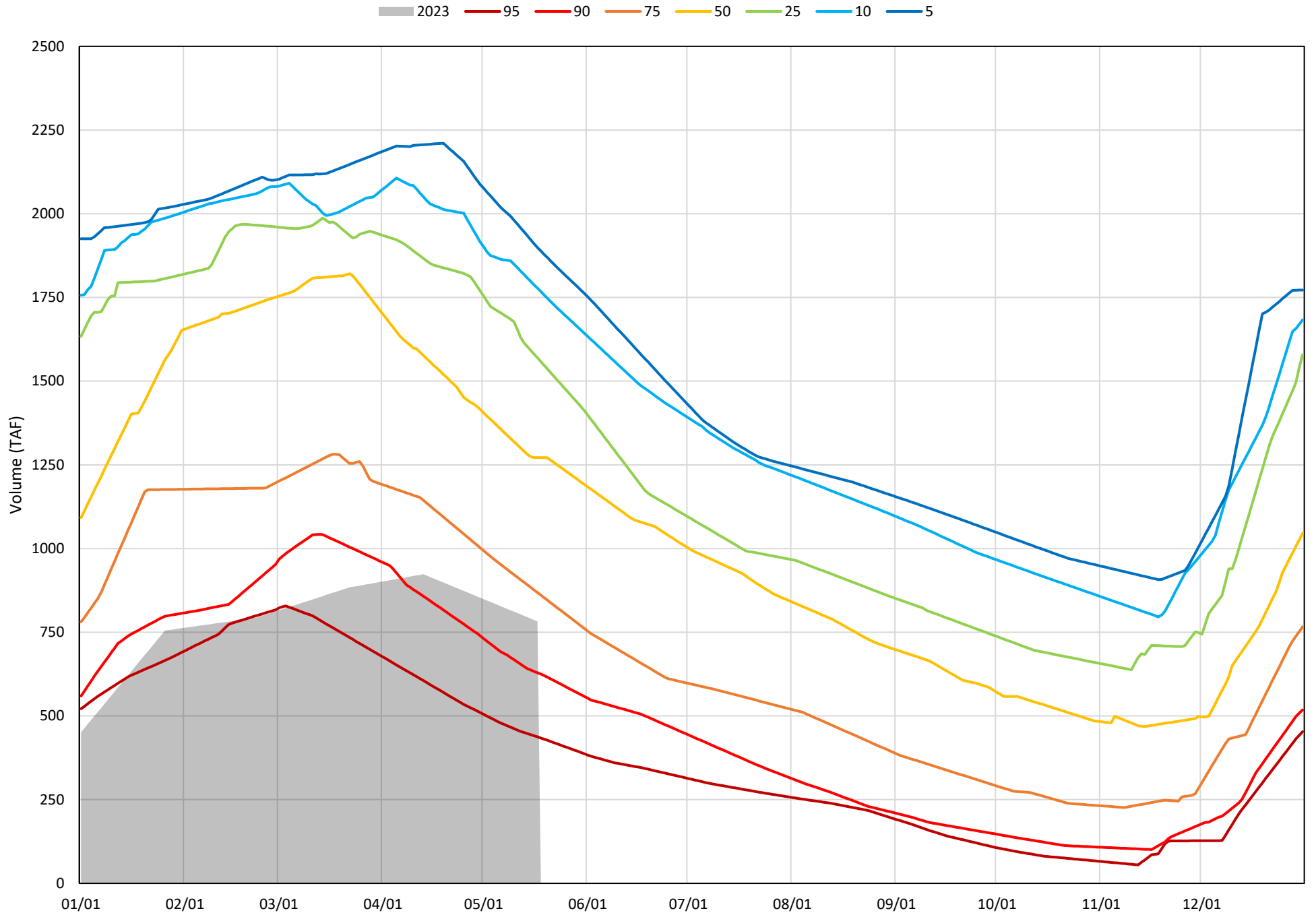
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



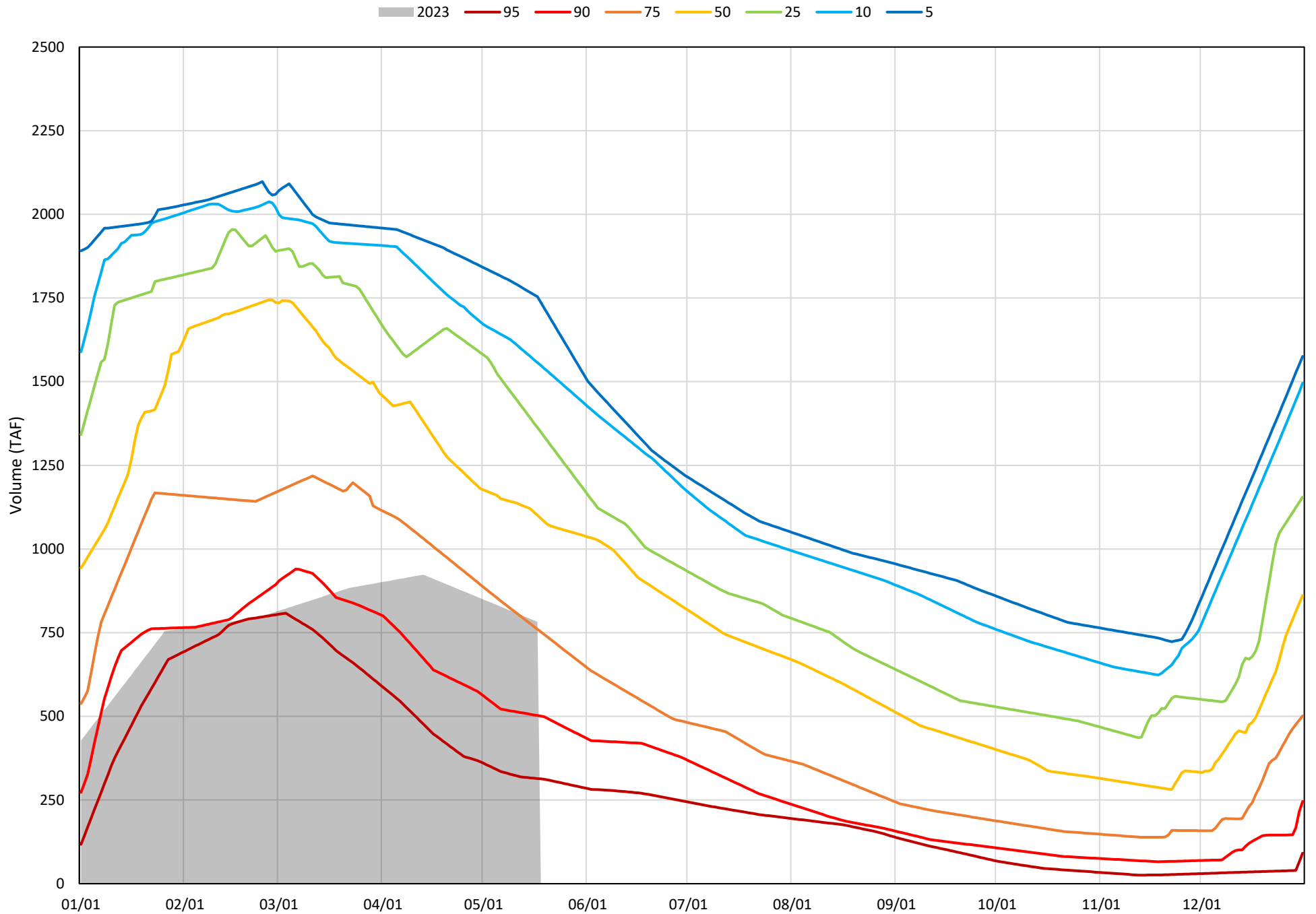
Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (2000-2022)



Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (2000-2022)



Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (2000-2022)



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

May-18 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	872	731	528	710	111	93	68	91
2001	636	519	330	495	81	66	42	63
2002	620	510	392	507	79	65	50	65
2003	1200	787	580	856	153	101	74	109
2004	916	712	462	697	117	91	59	89
2005	764	489	100	451	98	63	13	58
2006	1239	1145	1014	1133	158	146	130	145
2007	592	413	298	434	76	53	38	55
2008	338	175	1	171	43	22	0	22
2009	137	-9	-253	133	18	-1	-32	17
2010	484	340	53	293	62	43	7	37
2011	1005	852	694	850	128	109	89	109
2012	1038	1001	800	947	133	128	102	121
2013	520	428	234	394	67	55	30	50
2014	-13	-67	-159	80	-2	-9	-20	10
2015	-134	-211	-298	214	-17	-27	-38	27
2016	178	86	-22	95	23	11	-3	12
2017	972	814	612	800	124	104	78	102
2018	639	542	378	520	82	69	48	66
2019	1094	986	736	939	140	126	94	120
2020	593	478	318	463	76	61	41	59
2021	17	-37	-164	73	2	-5	-21	9
2022	-275	-379	-511	388	-35	-48	-65	50
2023	0	0	0	0	0	0	0	0

Historic - Current

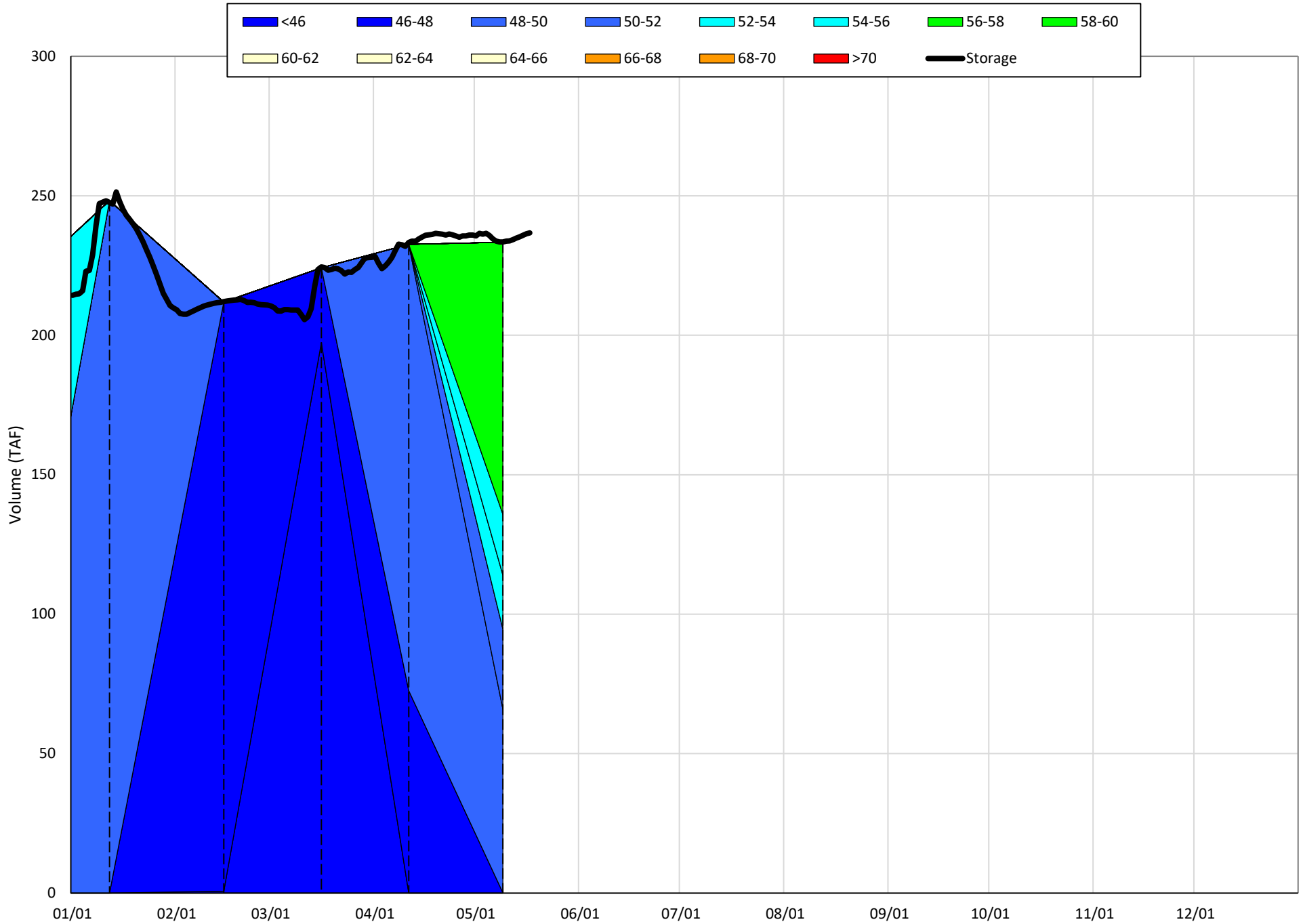
(Historic - Current) / Current

Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

2023

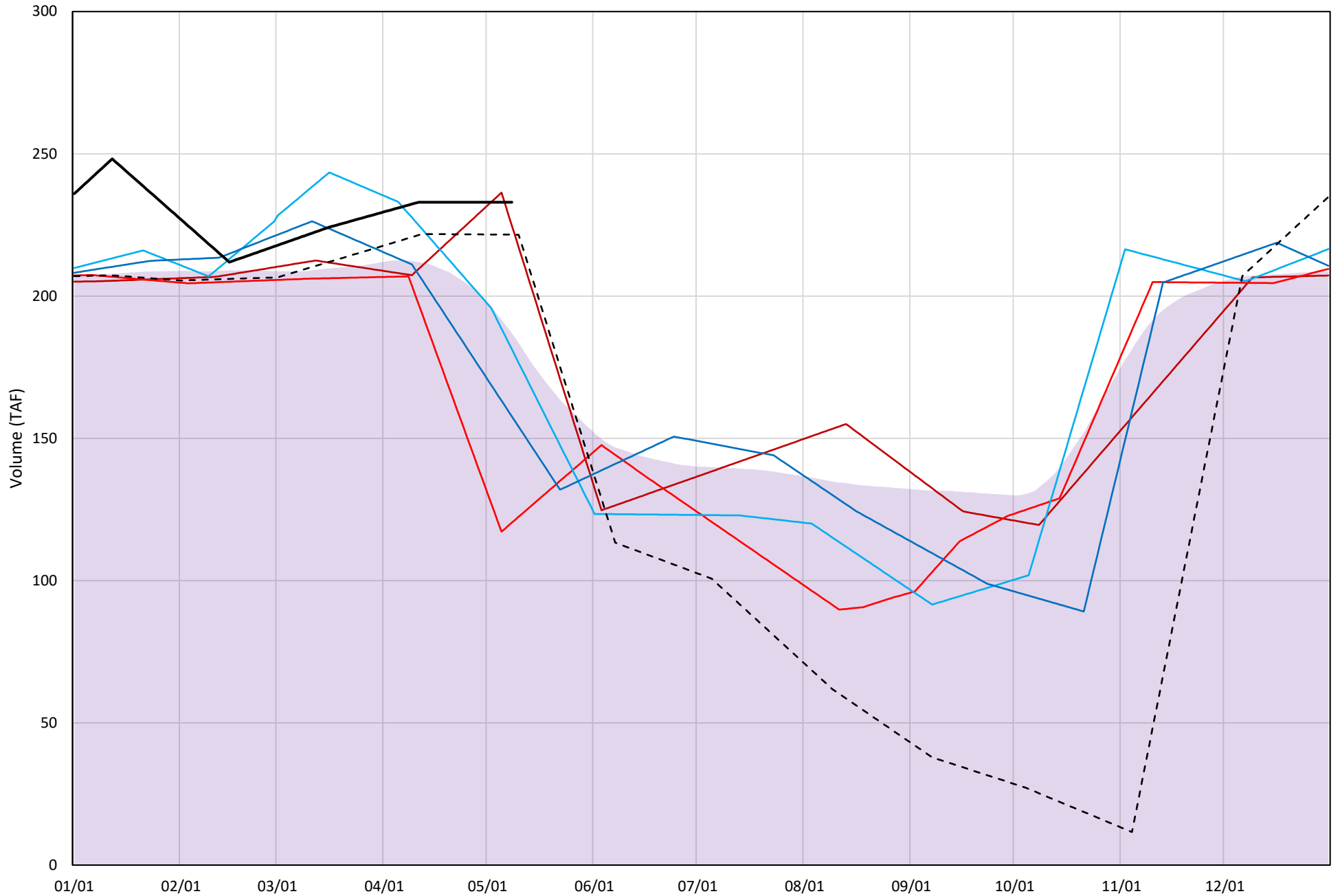
Page	Description
24	- Whiskeytown Lake Isothermobaths Plot
25	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$
26	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$
27	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$
28	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances
29	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$ - Percent Exceedances
30	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$ - Percent Exceedances
31	- Whiskeytown Lake Cold Water Pool Comparison by Year

Whiskeytown Lake Isothermobaths Plot - 2023



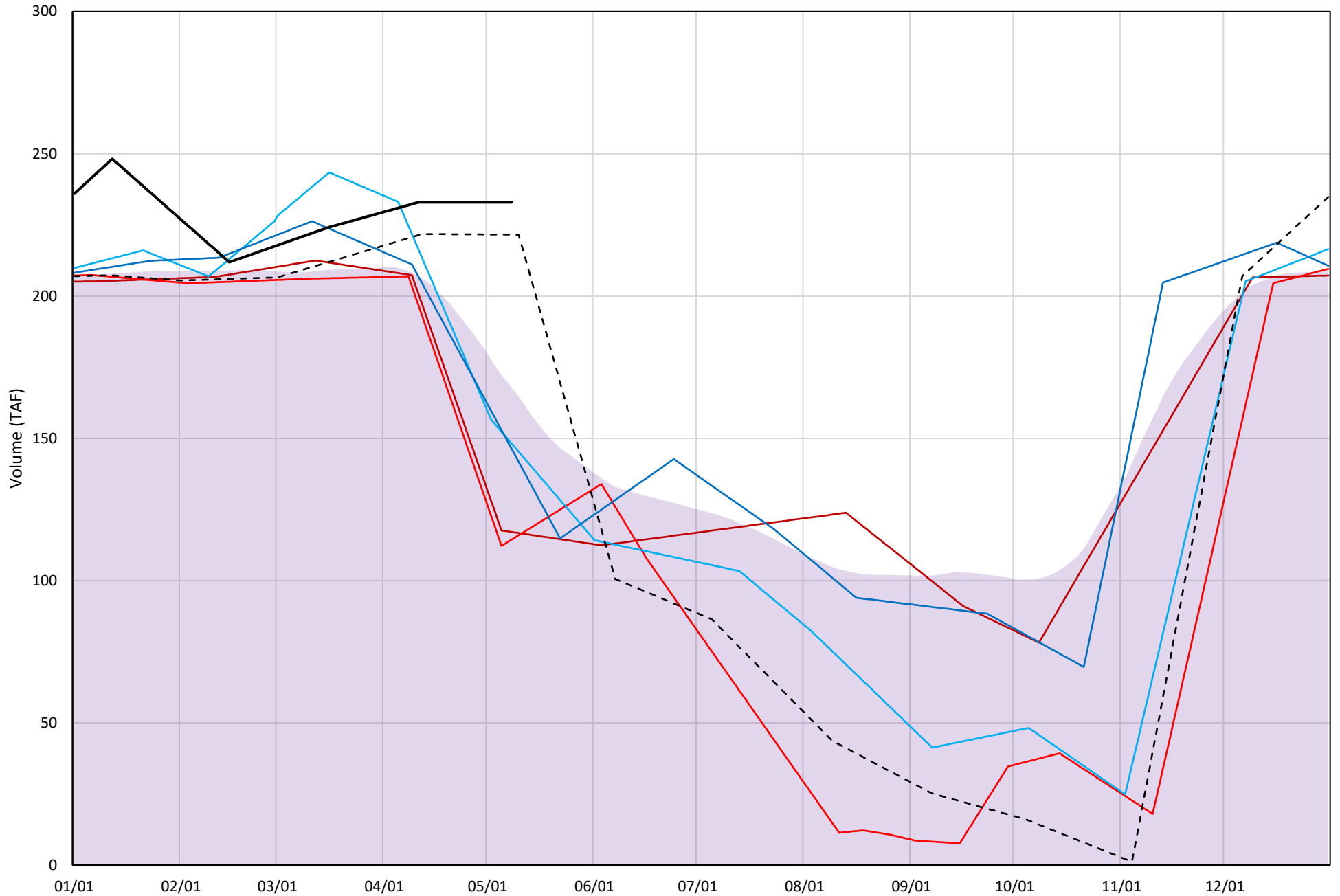
Whiskeytown Lake Cold Water Pool Volume $\leq 60^\circ\text{F}$

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



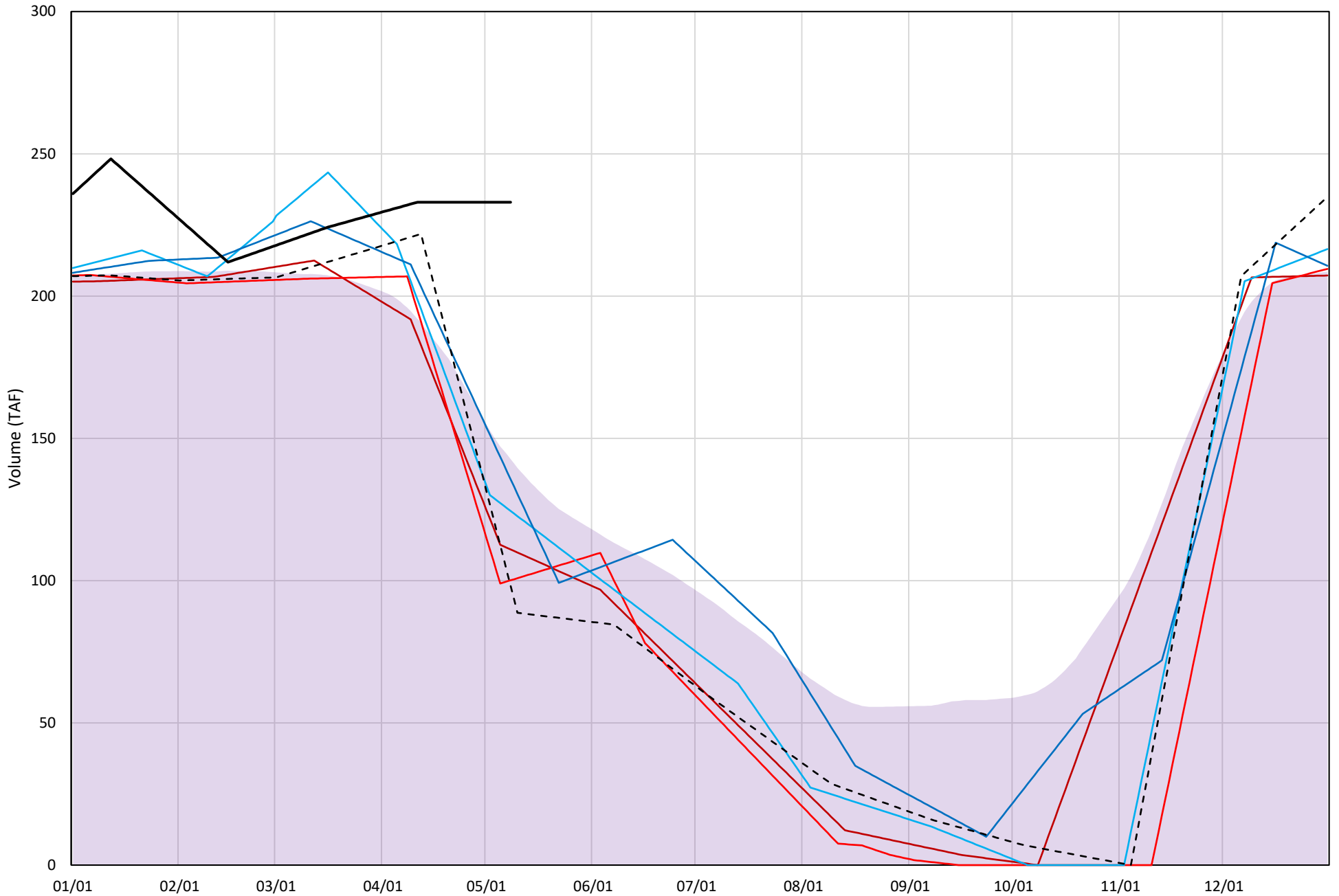
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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



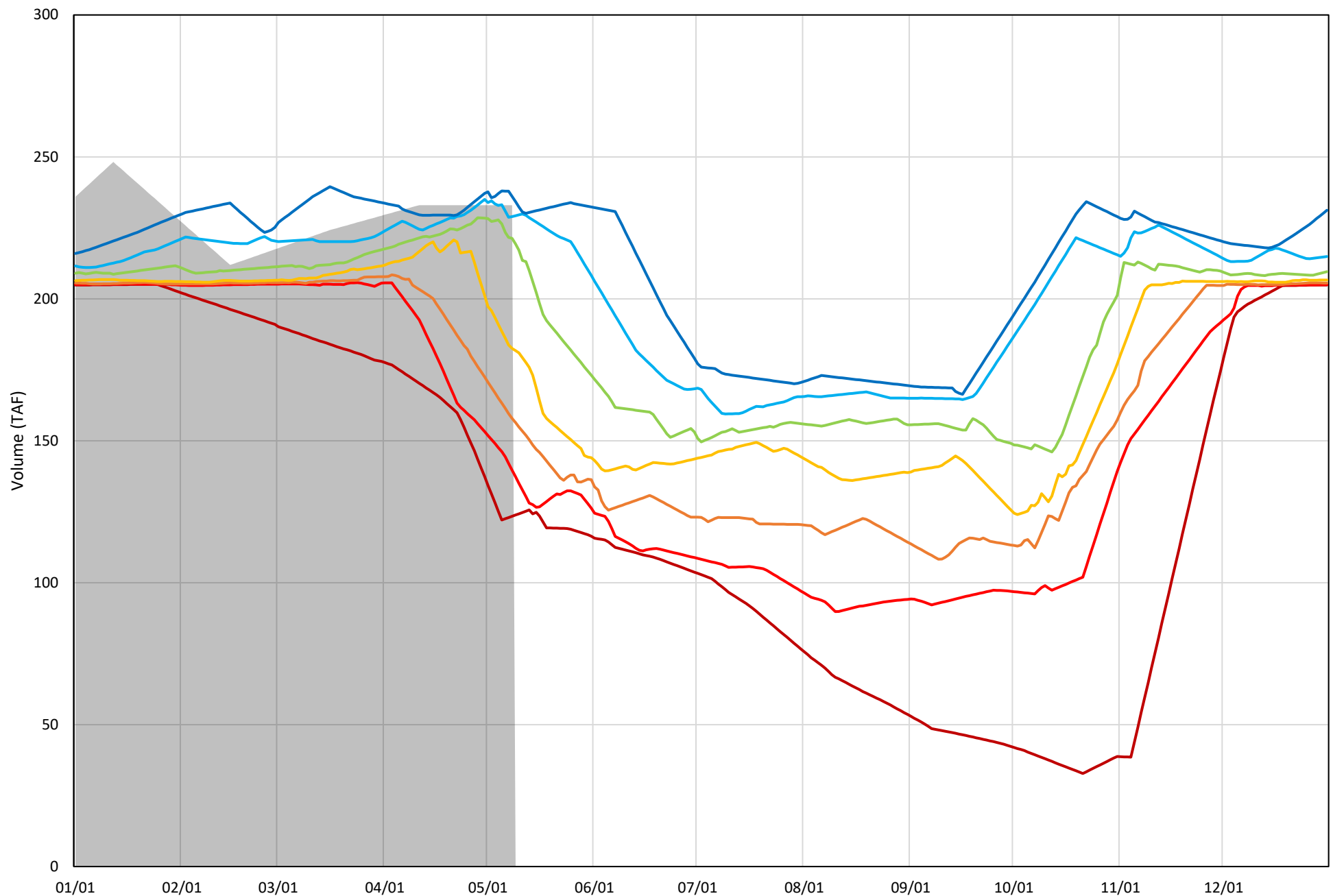
Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

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



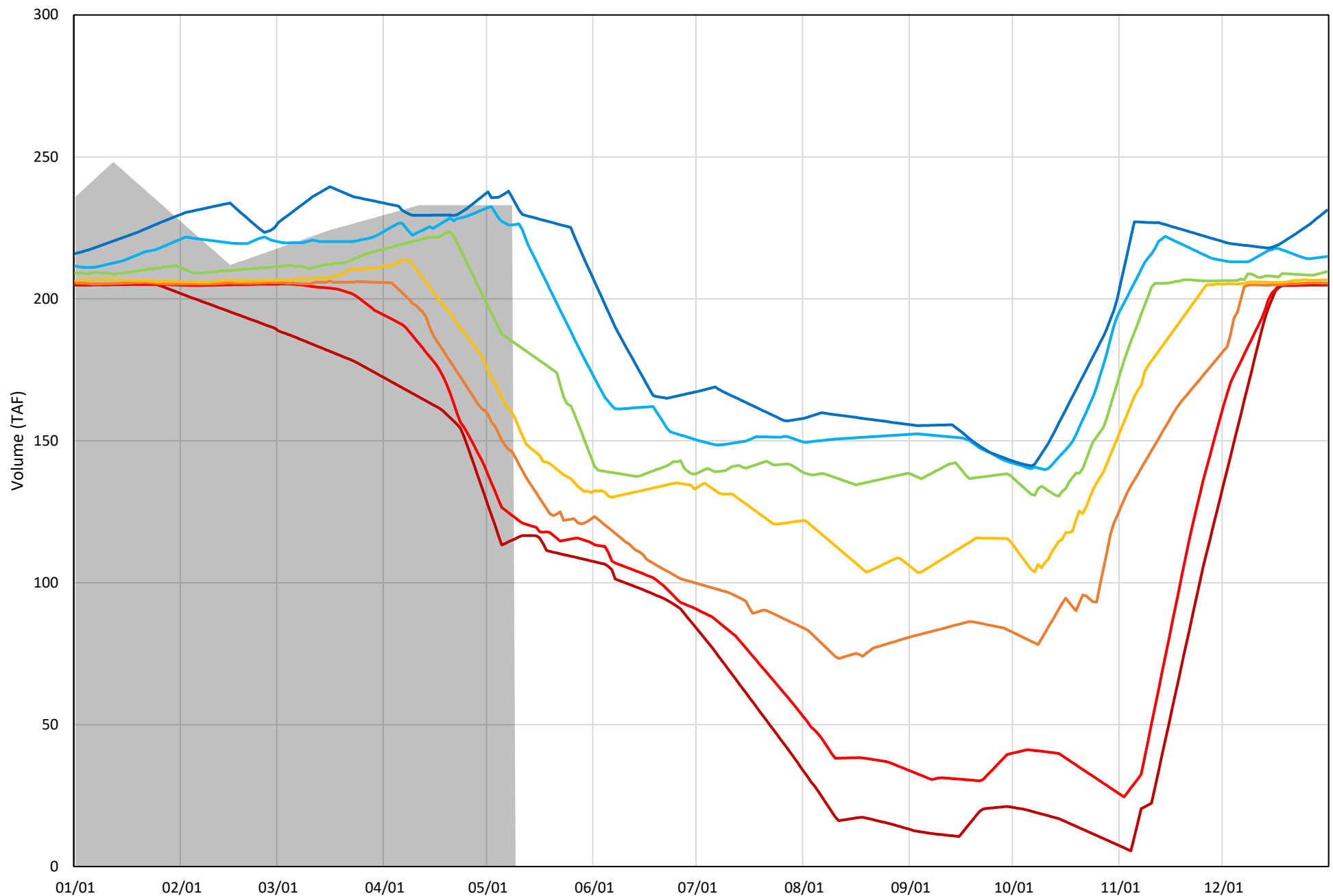
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5



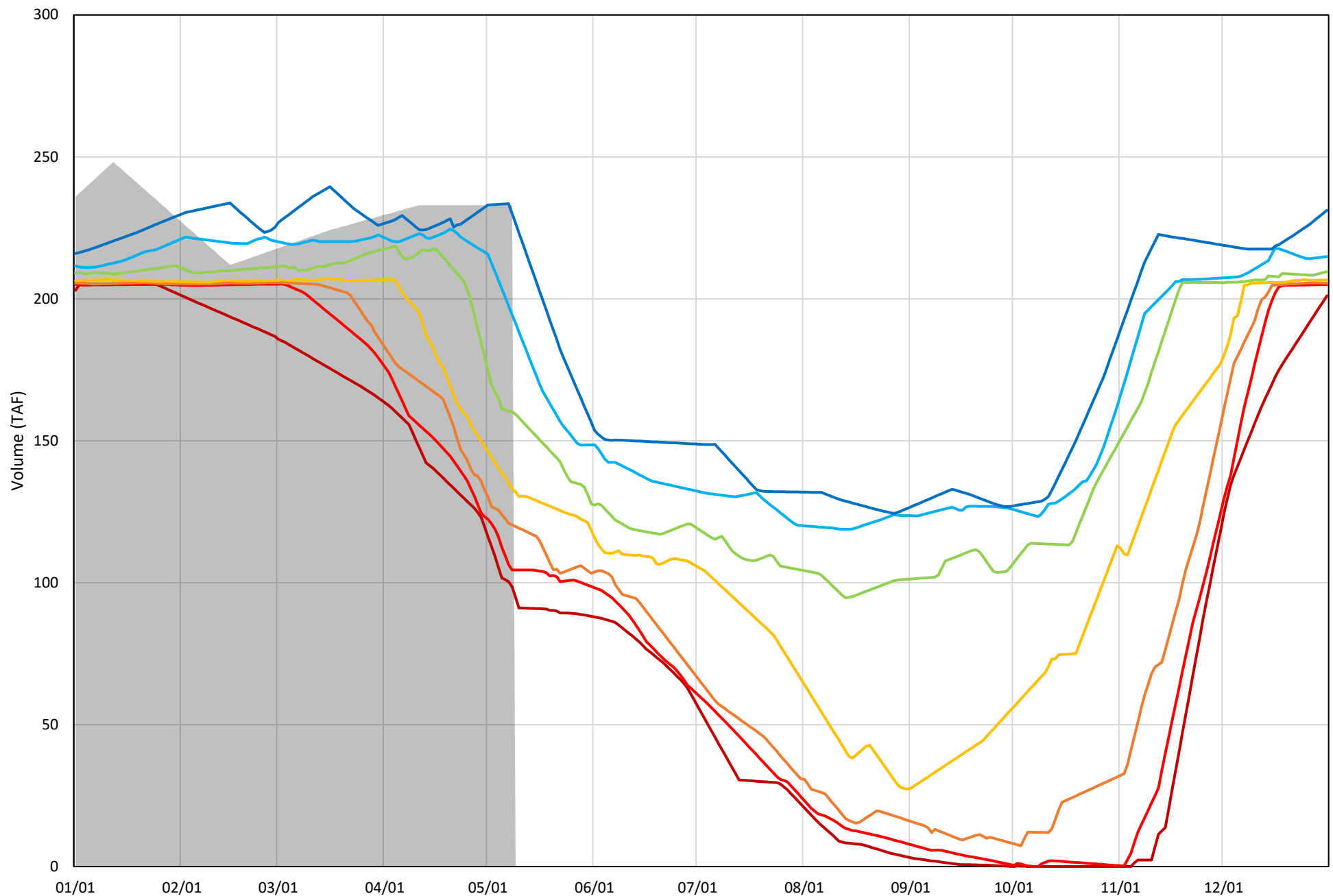
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5



Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5



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

May-09 2023	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	-18.2	-76.5	-113.7	69.5	-7.8	-32.8	-48.8	29.8
2001	-33.0	-60.5	-112.6	68.7	-14.2	-25.9	-48.3	29.5
2002	-35.5	-80.3	-100.5	72.1	-15.2	-34.5	-43.1	30.9
2003	4.9	4.4	3.8	4.4	2.1	1.9	1.6	1.9
2004	-63.0	-72.7	-87.4	74.4	-27.0	-31.2	-37.5	31.9
2005	-69.1	-73.0	-76.8	73.0	-29.7	-31.3	-33.0	31.3
2006	-25.8	-48.0	-72.8	48.9	-11.1	-20.6	-31.2	21.0
2007	-50.5	-69.2	-90.6	70.1	-21.7	-29.7	-38.9	30.1
2008	-15.7	-16.6	-29.7	20.7	-6.7	-7.1	-12.8	8.9
2009	-75.2	-88.4	-100.0	87.9	-32.3	-37.9	-42.9	37.7
2010	-4.0	-4.0	-52.3	20.1	-1.7	-1.7	-22.5	8.6
2011	-4.0	-12.9	-51.8	22.9	-1.7	-5.5	-22.2	9.8
2012	-81.4	-86.7	-97.2	88.5	-35.0	-37.2	-41.7	38.0
2013	-97.4	-99.4	-102.6	99.8	-41.8	-42.7	-44.0	42.8
2014	-8.2	-115.9	-122.0	82.0	-3.5	-49.8	-52.4	35.2
2015	-112.7	-118.6	-132.9	121.4	-48.4	-50.9	-57.0	52.1
2016	-51.7	-84.9	-108.5	81.7	-22.2	-36.5	-46.6	35.1
2017	-11.7	-61.1	-104.1	59.0	-5.0	-26.2	-44.7	25.3
2018	-64.5	-67.4	-72.4	68.1	-27.7	-28.9	-31.1	29.2
2019	-75.3	-86.8	-97.4	86.5	-32.3	-37.3	-41.8	37.1
2020	-69.0	-77.8	-100.0	82.3	-29.6	-33.4	-42.9	35.3
2021	-87.3	-92.4	-119.1	99.6	-37.5	-39.6	-51.1	42.7
2022	-11.4	-11.4	-134.8	52.6	-4.9	-4.9	-57.9	22.6
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Historic - Current

(Historic - Current) / Current