

# Northern CVP Water Temperature Report

## April - 2023

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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 <sup>2</sup>	CCR	BSF	BND	RDB	IGO	LWS	DGC <sup>3</sup>	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB	
Mar	46.6	46.3	45.7	46.8	47.1	47.4	48.2	47.9	48.3	46.5	45.1	42.0	43.3	1729	883	3597	47.7	46.9	48.3	
04/01	46.4	45.8	46.2	47.1	47.3	47.9	49.8	#	51.5	47.5	44.5	#	46.1	1717	460	3304	54.5	52.3	53.7	
04/02	46.2	45.8	46.5	47.5	47.9	48.7	50.1	#	? 49.3	47.0	44.7	#	45.3	1018	1653	3315	51.0	51.4	52.3	
04/03	46.4	45.8	46.7	47.1	47.3	47.8	49.2	#	? 50.9	46.7	45.7	#	44.5	965	1650	3322	46.5	45.5	47.4	
04/04	46.4	45.9	46.8	47.2	47.6	48.2	49.1	#	50.1	46.8	46.5	#	44.9	2278	330	3321	46.0	44.9	47.3	
04/05	47.0	? 46.9	47.4	47.2	47.7	48.7	50.1	#	? 50.9	47.6	45.9	#	45.6	2401	37	3320	48.0	48.1	49.6	
04/06	47.4	? 46.8	47.4	47.2	47.4	48.1	50.5	#	51.8	47.8	45.9	#	45.9	2535	37	3303	53.0	50.9	51.0	
04/07	47.0	? 47.0	46.7	47.5	48.0	48.2	50.4	#	51.4	48.6	46.4	#	46.1	2470	333	3281	53.5	53.3	53.0	
04/08	47.1	46.6	46.6	47.9	48.8	49.2	51.2	#	? 52.0	50.3	45.9	#	46.8	2241	533	3310	55.5	54.5	55.3	
04/09	47.5	? 47.3	46.7	48.1	49.1	50.0	52.7	#	53.7	50.7	46.0	#	46.9	1119	1466	3356	59.5	58.5	59.5	
04/10	47.4	46.7	46.9	48.3	49.5	50.7	54.3	#	55.9	51.9	46.2	#	48.1	1130	1561	3344	63.0	62.4	64.4	
04/11	47.9	47.7	47.3	48.9	49.8	51.2	56.0	#	58.0	52.2	45.9	#	48.3	1893	676	3382	64.5	63.5	63.2	
04/12	48.5	47.9	48.4	49.6	50.0	50.8	54.3	#	? 56.7	49.8	45.8	#	46.8	1645	945	2733	57.0	56.1	56.7	
04/13	48.8	48.8	48.1	49.6	50.2	50.9	52.6	!	? 53.6	48.9	44.8	#	46.0	1724	1054	3329	57.0	54.4	55.8	
04/14	48.4	48.9	47.9	49.2	50.0	51.2	52.9	? 52.9	53.7	49.5	44.5	#	46.1	1883	451	3341	57.0	52.0	54.3	
04/15	48.3	? 47.9	47.7	49.4	50.1	51.3	53.6	54.2	? 54.9	50.3	44.7	#	46.9	2056	520	3311	57.0	55.5	56.7	
04/16	48.2	? 47.4	47.7	49.8	50.4	51.7	54.6	55.4	56.1	50.7	44.9	#	47.1	2371	473	3310	57.5	56.0	56.4	
04/17	47.8	47.9	48.3	49.9	50.0	50.8	53.7	55.2	55.8	49.4	43.9	#	45.7	2196	662	3296	52.5	52.8	53.6	
04/18	47.8	47.1	48.2	49.7	50.0	50.6	52.0	52.6	? 53.6	48.2	43.4	#	44.5	1975	612	3318	48.0	48.9	51.5	
04/19	48.3	47.4	48.0	49.2	49.9	51.0	52.7	53.1	? 54.0	48.6	43.6	#	44.8	2128	427	3309	50.5	52.5	54.5	
04/20	48.7	48.4	48.3	49.0	49.7	50.9	53.2	53.7	? 54.5	49.4	44.2	#	45.3	1674	588	3294	56.0	54.9	56.7	
04/21	49.1	? 48.2	48.4	49.0	49.9	51.1	53.9	55.1	? 55.8	50.9	44.6	#	46.6	3081	577	4102	64.0	62.5	65.3	
04/22	49.4	? 48.2	48.1	49.7	50.5	51.7	54.5	56.2	? 57.3	51.9	44.4	#	46.7	3126	706	4414	74.0	69.8	71.8	
04/23	49.0	47.5	48.5	50.1	51.1	52.3	55.6	57.4	? 58.6	52.2	44.7	#	47.1	3429	404	4528	68.0	66.3	70.1	
04/24	49.4	47.8	48.7	50.1	50.6	51.5	55.1	57.4	58.8	51.5	44.9	#	47.0	5211	742	7403	63.5	62.9	64.7	
04/25	50.1	48.9	48.2	49.7	50.2	51.0	53.4	55.1	? 56.6	51.6	45.2	#	47.4	6277	685	8520	73.0	67.8	68.6	
04/26	50.5	49.3	48.2	50.2	50.6	51.2	53.4	55.2	? 56.4	52.3	45.4	#	47.7	7200	738	8506	70.0	67.3	70.7	
04/27	? 49.9	48.3	48.4	50.8	? 51.3	52.0	54.4	? 56.2	? 57.4	? 52.8	? 45.1	#	47.7	5801	465	8592	74.0	70.5	71.3	
04/28	50.0	? 48.3	48.5	!	50.6	51.2	52.0	55.0	57.1	? 58.4	53.1	45.7	#	48.3	6560	536	8671	75.0	70.3	72.2
04/29	50.0	? 48.4	48.7	#	50.9	51.7	54.7	57.2	58.7	53.5	46.2	#	49.0	6718	426	8251	74.5	71.0	73.5	
04/30	50.0	48.5	48.6	#	50.8	51.5	54.4	56.7	? 58.1	52.9	46.5	#	49.1	7528	532	9678	68.5	65.5	65.9	
-																				
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	4615	59.7	58.1	59.6	
														Total CFS	92350	20279	138464			
														Total AF	183172	40223	274638			

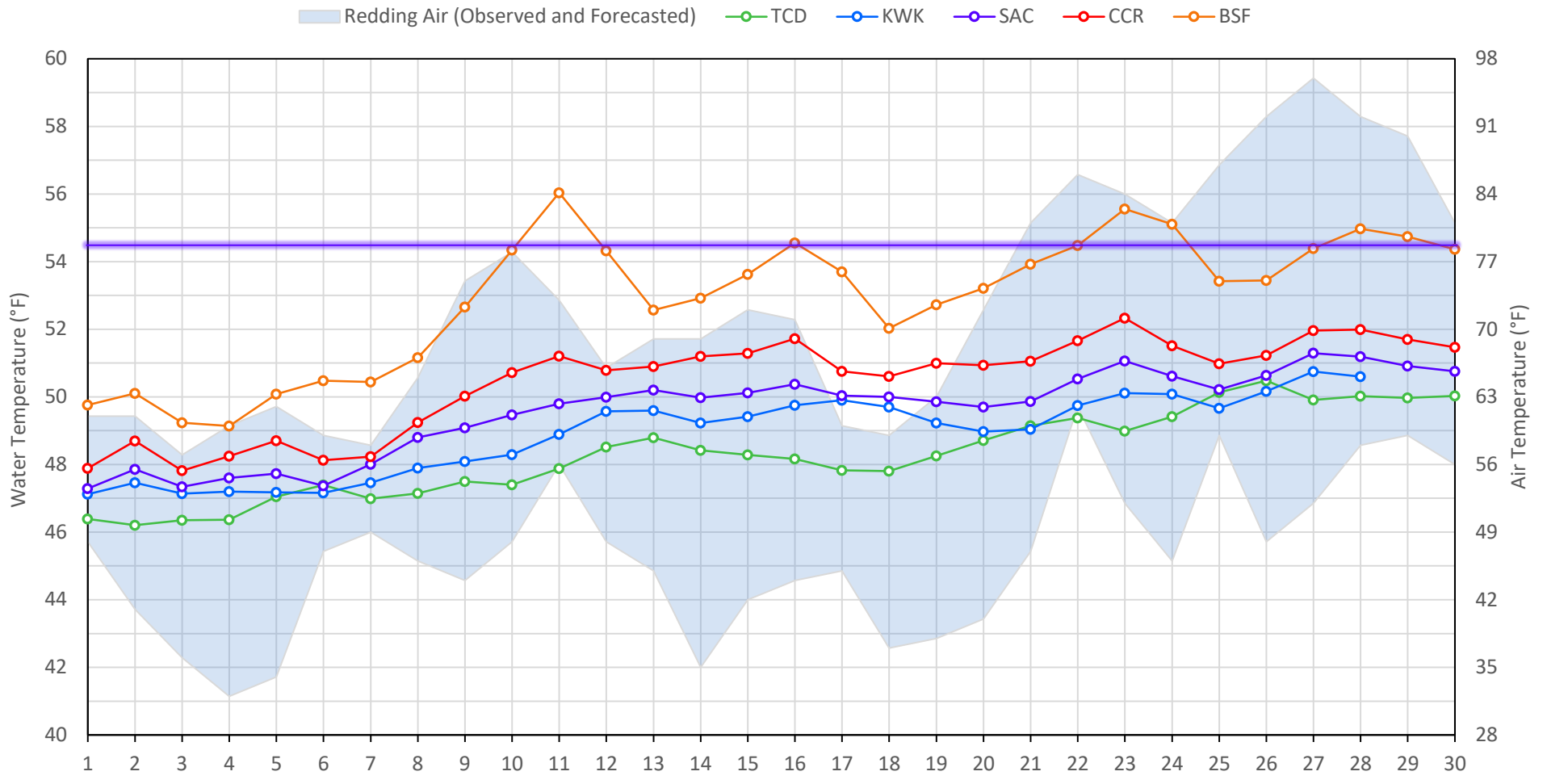
Legend

- ? = 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

- <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 Sacramento River control point (see page 4 for more details)
- <sup>3</sup> DGC reporting incorrect water temperatures due to probe being buried in fine sediment

### Sacramento River Mean Daily Temperatures



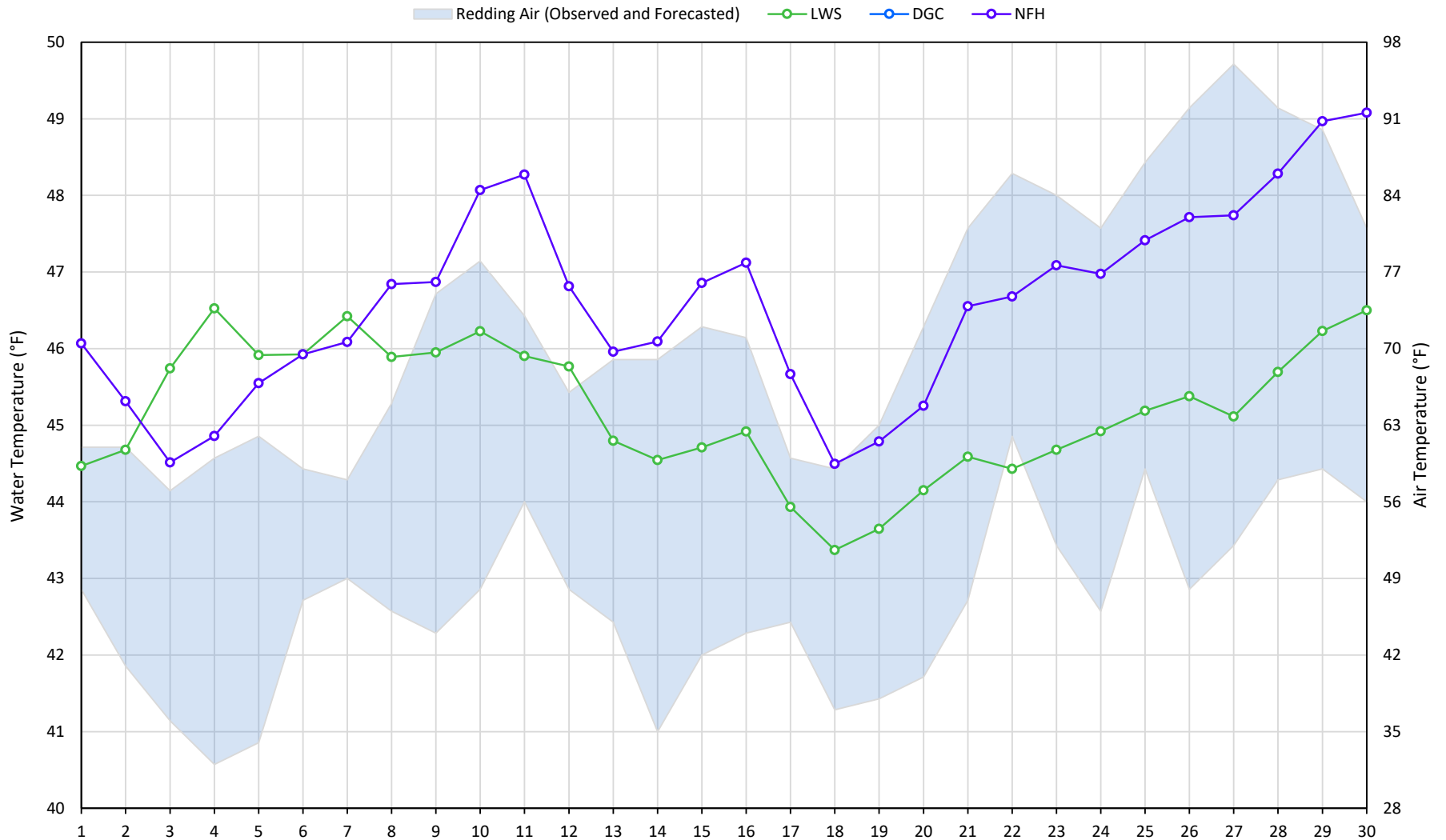
Station Details			
Code	Body of Water	Location <sup>1</sup>	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	<a href="#">Click Here</a>
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	<a href="#">Click 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	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**

<sup>1</sup> Distances are approximate

### Trinity River Mean Daily Temperatures



#### 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
Trinity	DGC <sup>2</sup>	56	Sep-15	Oct-01
Trinity	NFH	56	Oct-01	Dec-31

#### Notes

<sup>1</sup> Distances are approximate

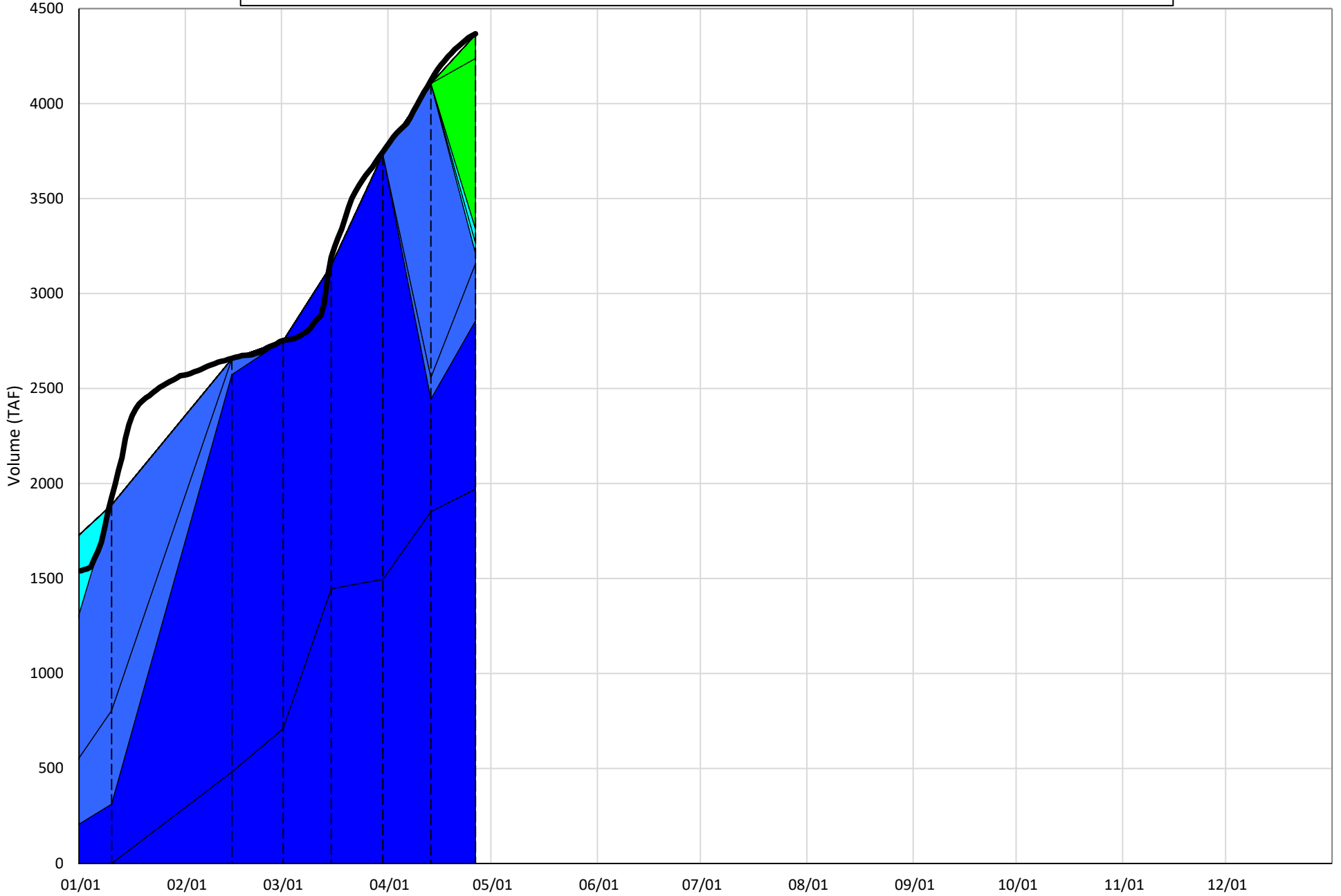
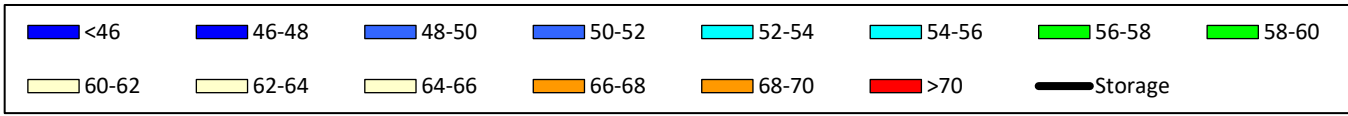
<sup>2</sup> DGC reporting incorrect water temperatures due to probe being buried in fine sediment (no data)

# Shasta Lake Isothermobaths & Cold Water Pool Statistics

## 2023

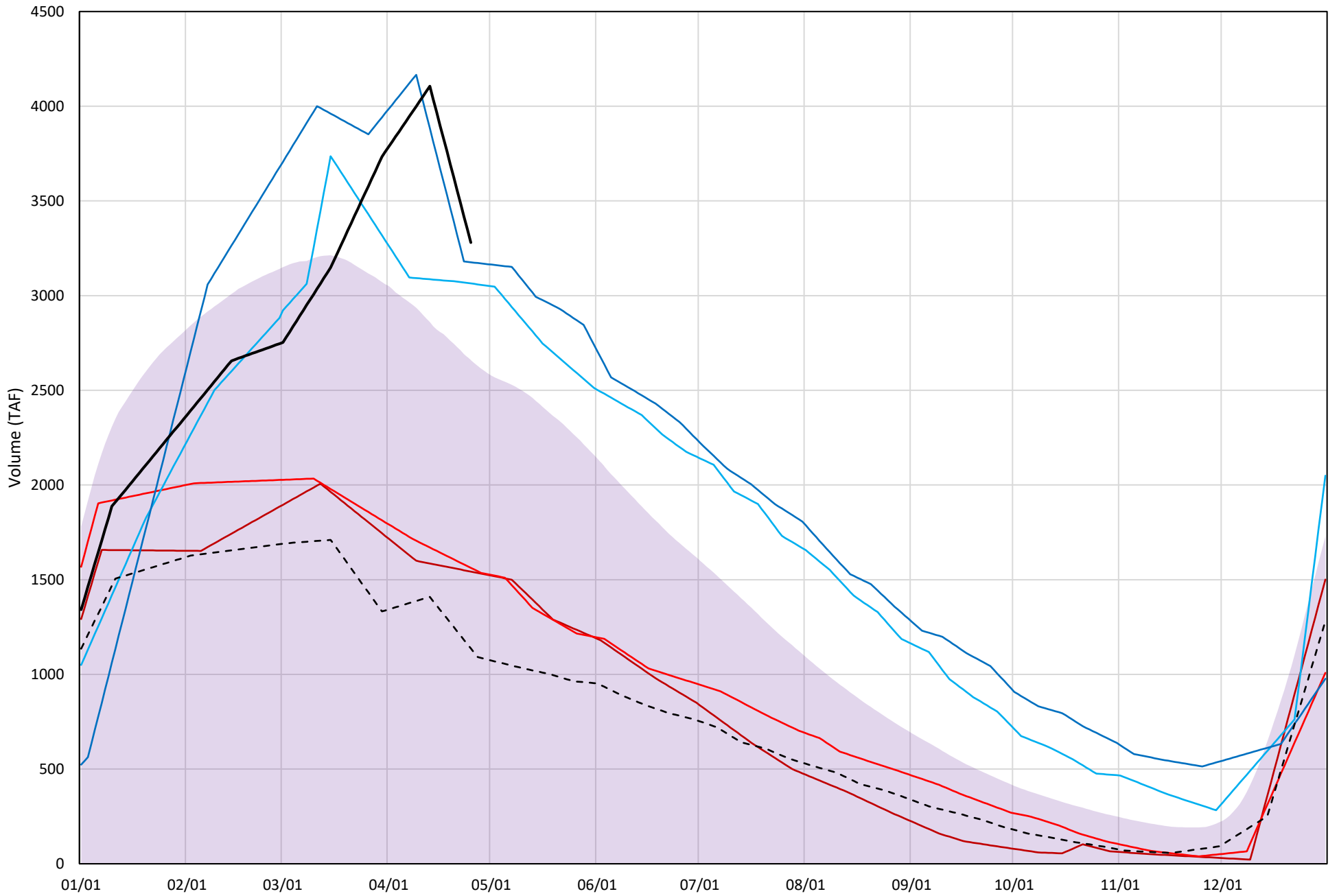
Page	Description
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7	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
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12	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances
13	- Shasta Lake Cold Water Pool Comparison by Year

### Shasta Lake Isothermobaths Plot - 2023



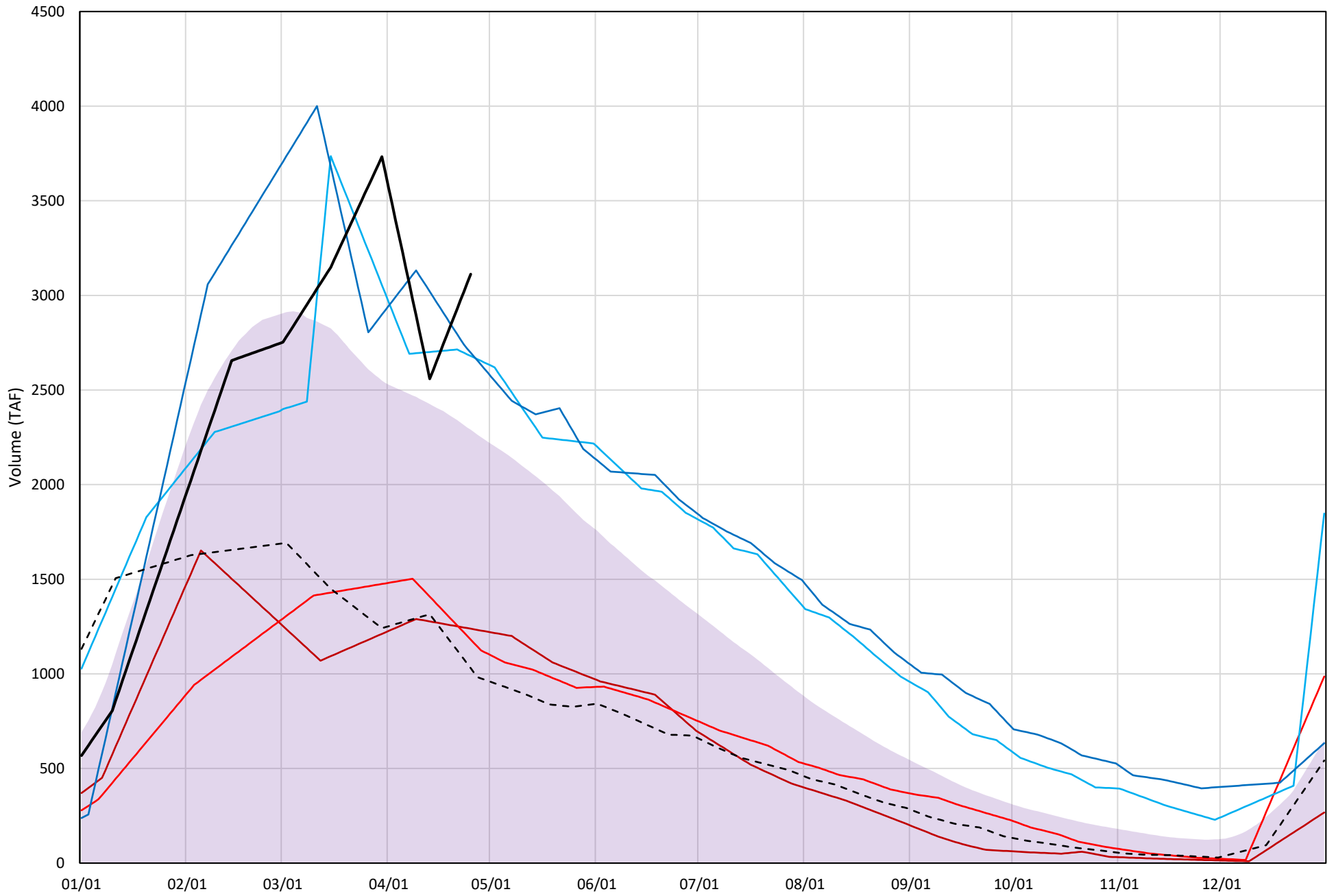
# Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



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

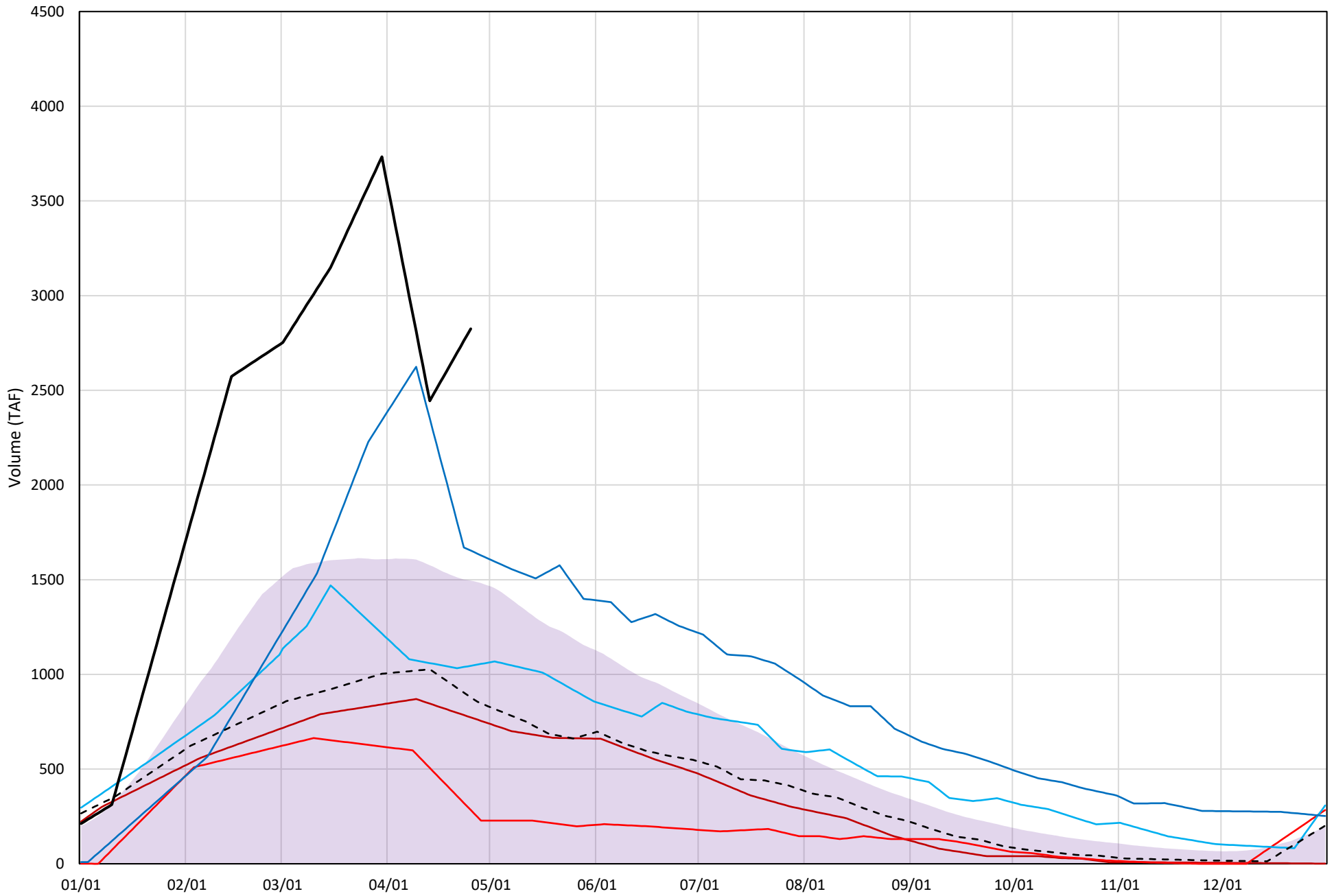
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



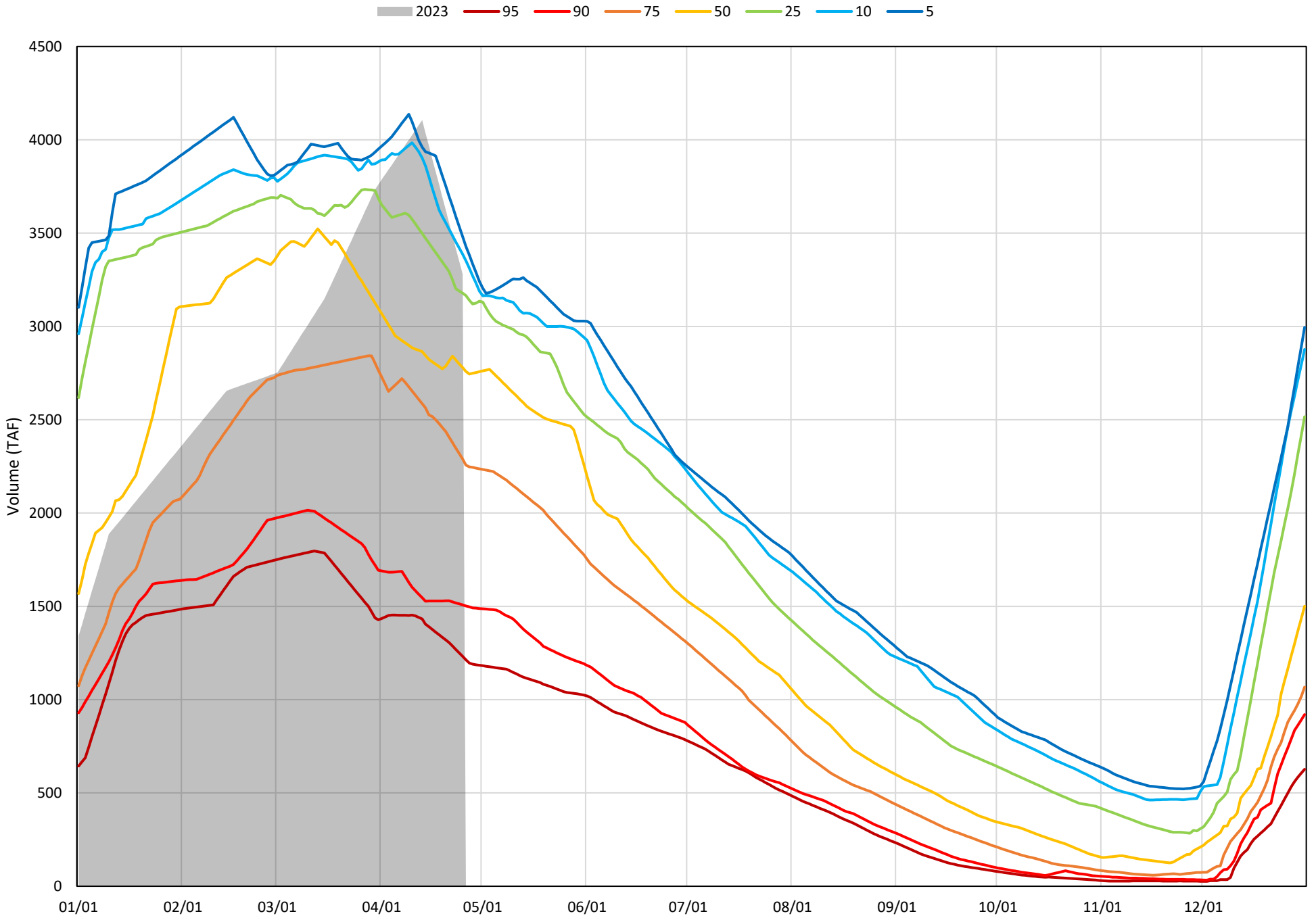


# Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

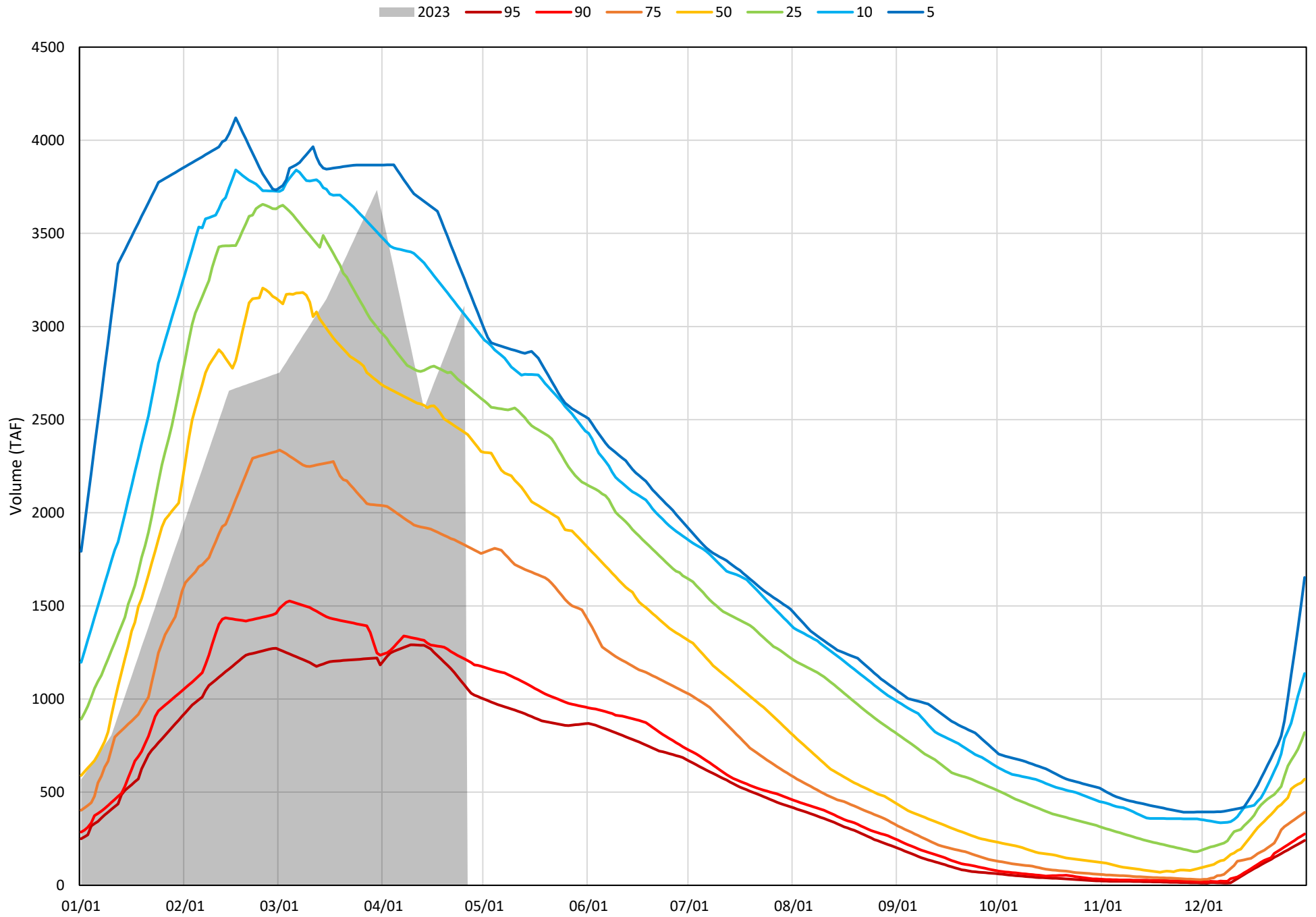
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



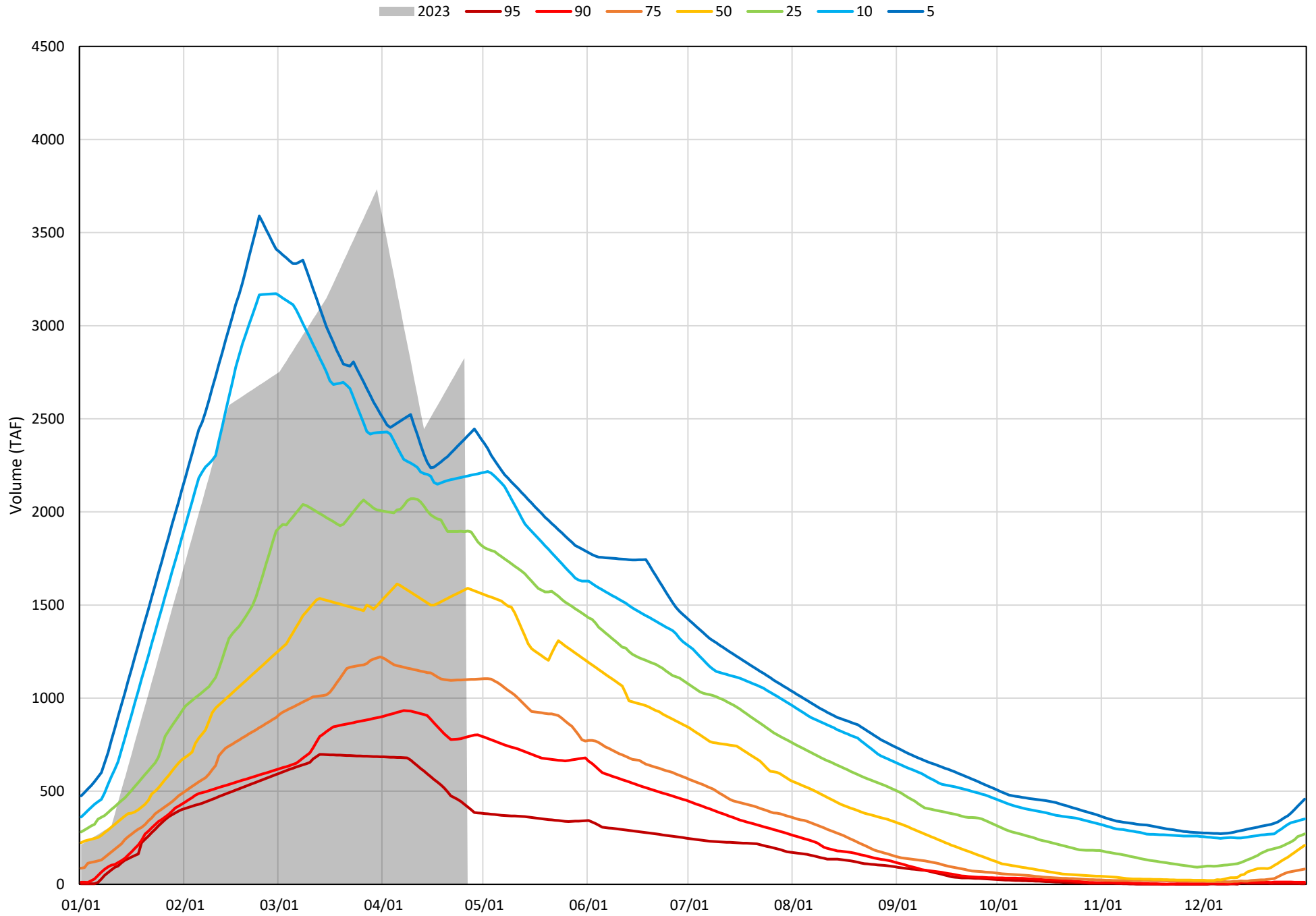
Shasta Lake Cold Water Pool Volume  $\leq 52^{\circ}\text{F}$  - Percent Exceedances (1998-2022)



Shasta Lake Cold Water Pool Volume ≤50°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)

Apr-26 2023	$\Delta$ TAF				% $\Delta$			
	$\leq 52^\circ$	$\leq 50^\circ$	$\leq 48^\circ$	Abs. Avg.	$\leq 52^\circ$	$\leq 50^\circ$	$\leq 48^\circ$	Abs. Avg.
1998	-101	-203	-368	224	-3	-7	-13	8
1999	49	-113	-665	276	2	-4	-24	10
2000	-544	-957	-1565	1022	-17	-31	-55	34
2001	-616	-680	-903	733	-19	-22	-32	24
2002	-395	-522	-958	625	-12	-17	-34	21
2003	-399	-810	-1577	929	-12	-26	-56	31
2004	-669	-766	-1244	893	-20	-25	-44	30
2005	-585	-775	-1673	1011	-18	-25	-59	34
2006	205	183	-1004	464	6	6	-36	16
2007	-584	-627	-1008	740	-18	-20	-36	25
2008	-1314	-1465	-1405	1395	-40	-47	-50	46
2009	-1381	-1421	-1372	1391	-42	-46	-49	45
2010	-77	-522	-910	503	-2	-17	-32	17
2011	48	51	-593	231	1	2	-21	8
2012	191	-272	-951	472	6	-9	-34	16
2013	-669	-776	-1154	867	-20	-25	-41	29
2014	-1738	-1874	-2052	1888	-53	-60	-73	62
2015	-1718	-1931	-2542	2064	-52	-62	-90	68
2016	-216	-432	-1780	809	-7	-14	-63	28
2017	-170	-562	-860	530	-5	-18	-30	18
2018	-277	-570	-1623	823	-8	-18	-57	28
2019	-105	-415	-1172	564	-3	-13	-41	19
2020	-502	-1148	-1893	1181	-15	-37	-67	40
2021	-1825	-1862	-2028	1905	-56	-60	-72	62
2022	-2144	-2082	-1946	2057	-65	-67	-69	67
2023	0	0	0	0	0	0	0	0

}

Historic - Current

}

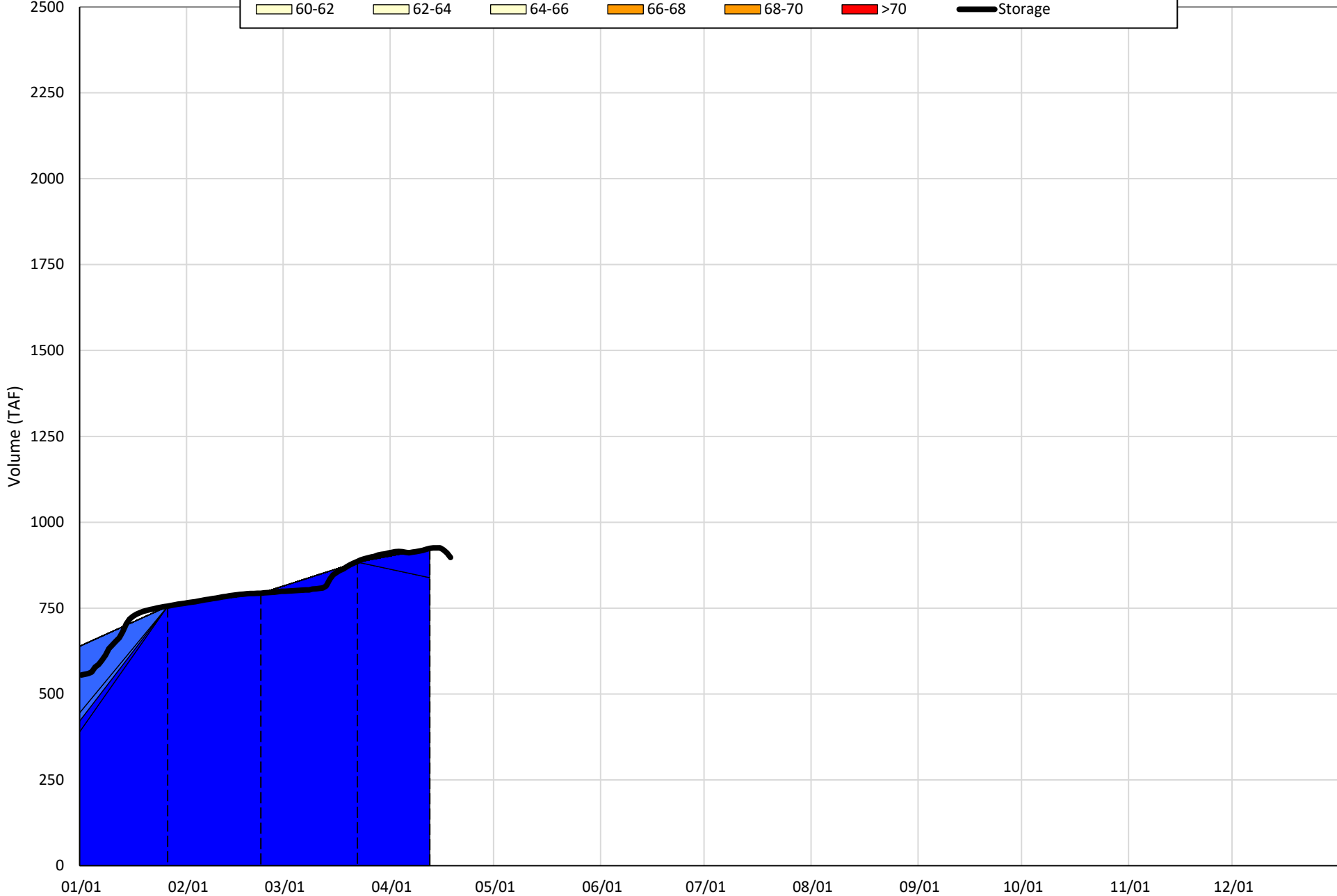
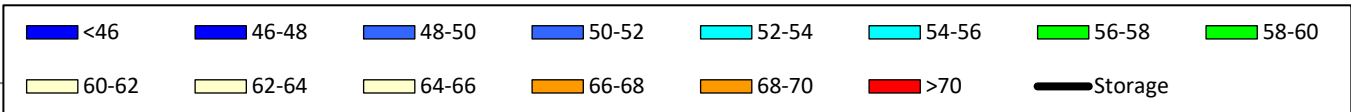
(Historic - Current) / Current

# Trinity Lake Isothermobaths & Cold Water Pool Statistics

## 2023

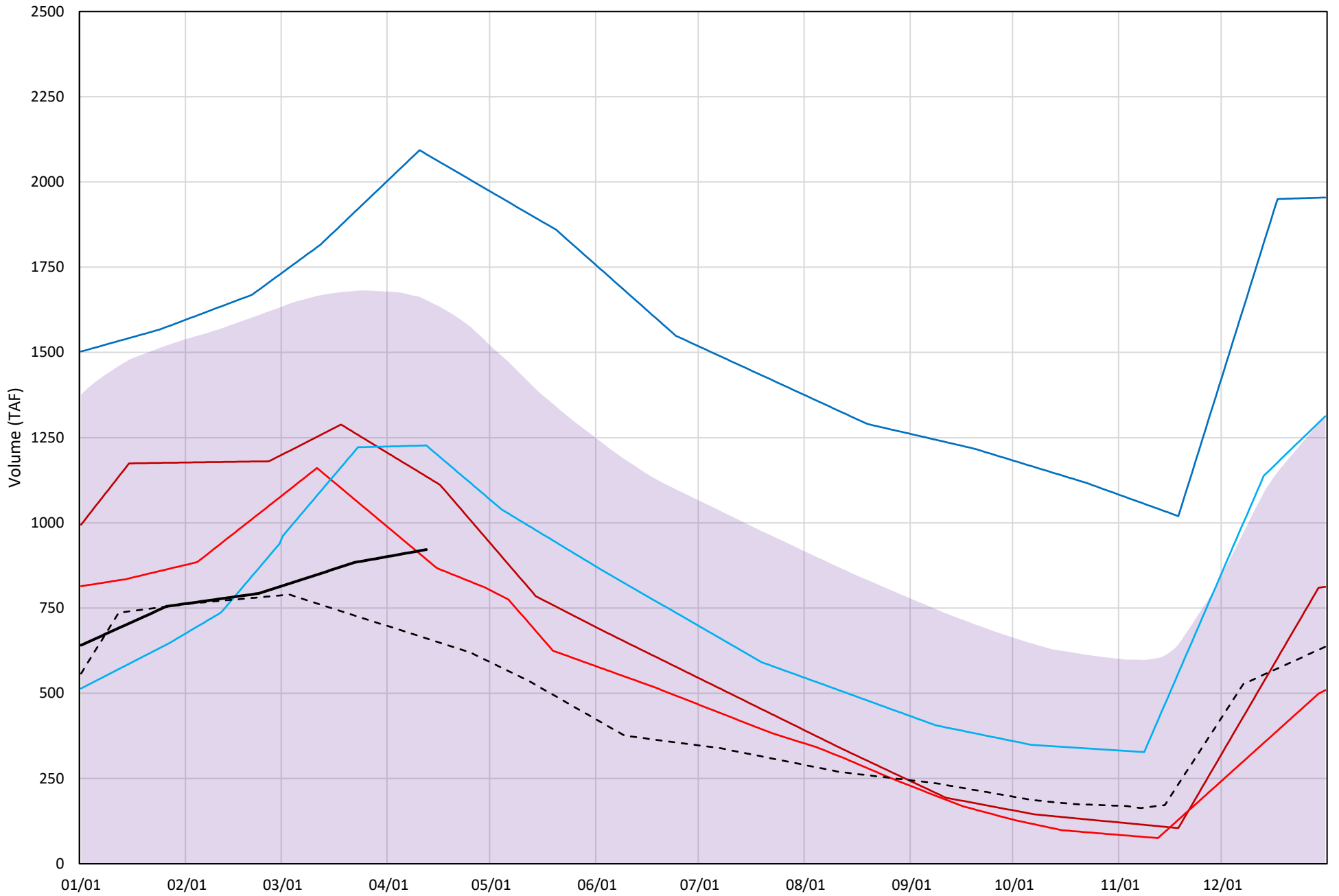
Page	Description
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17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances
20	- Trinity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

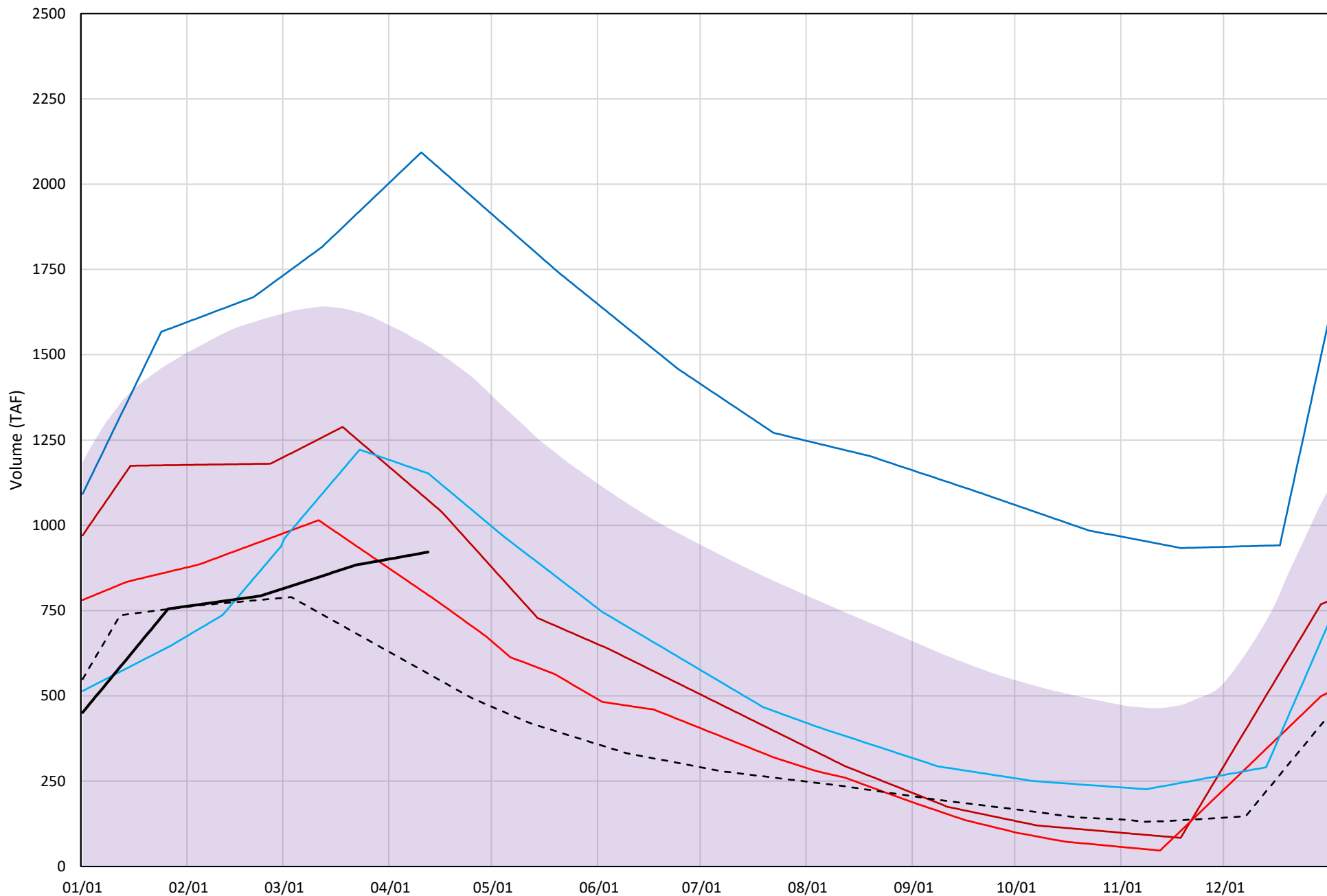
Avg (2000-2022) 2014 2015 2016 2019 2022 2023





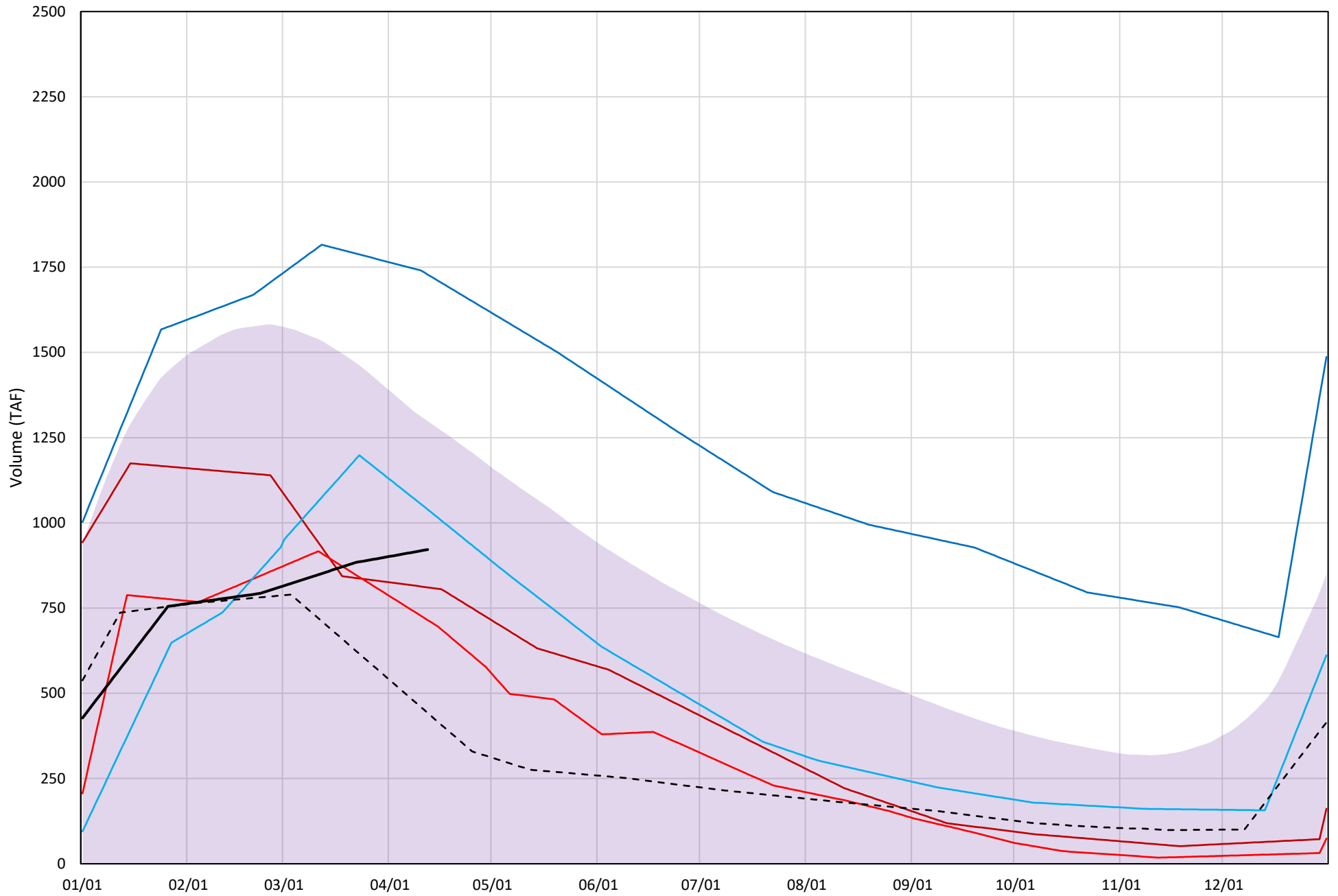
# Trinity Lake Cold Water Pool Volume ≤50°F

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

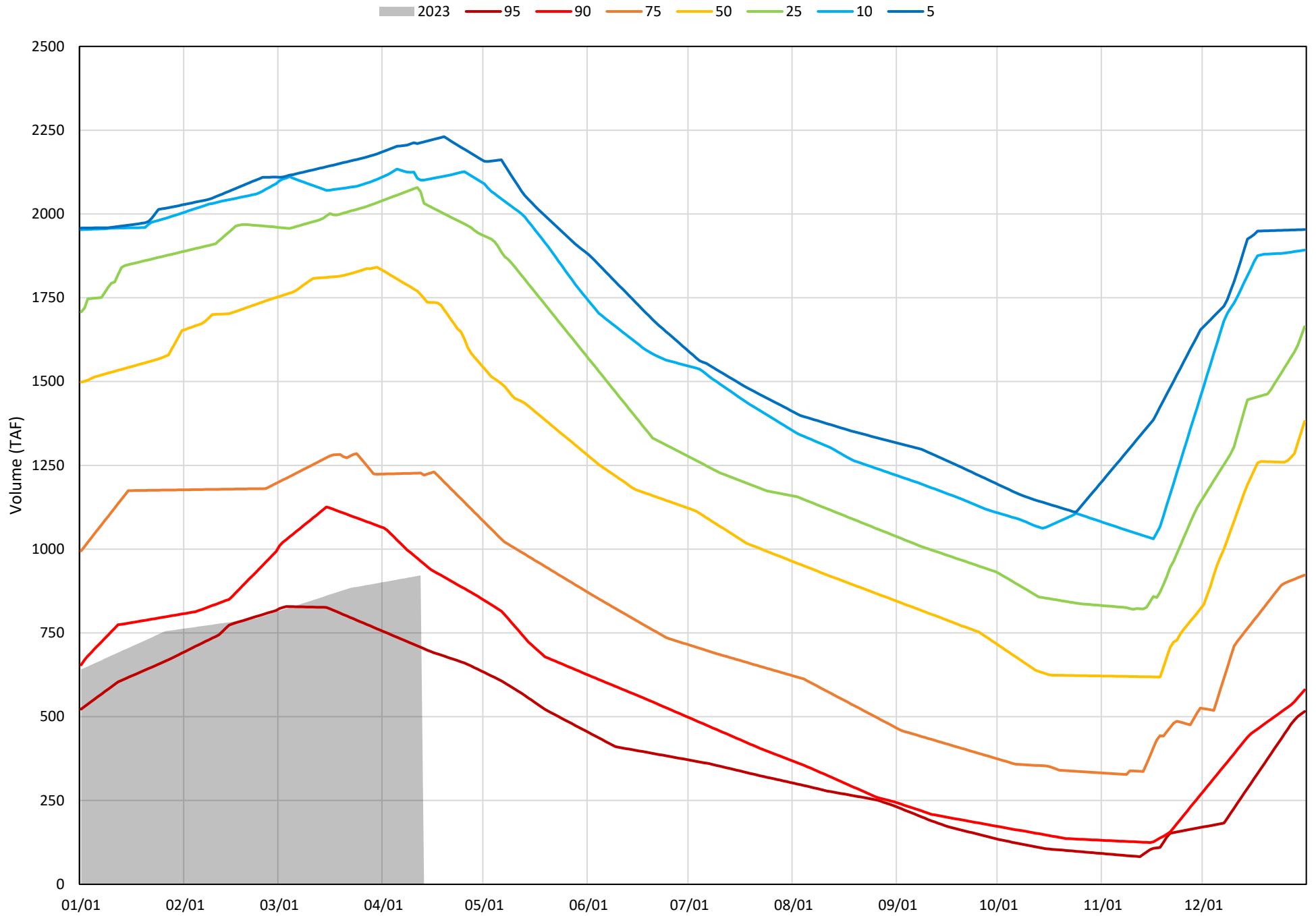


# Trinity Lake Cold Water Pool Volume ≤48°F

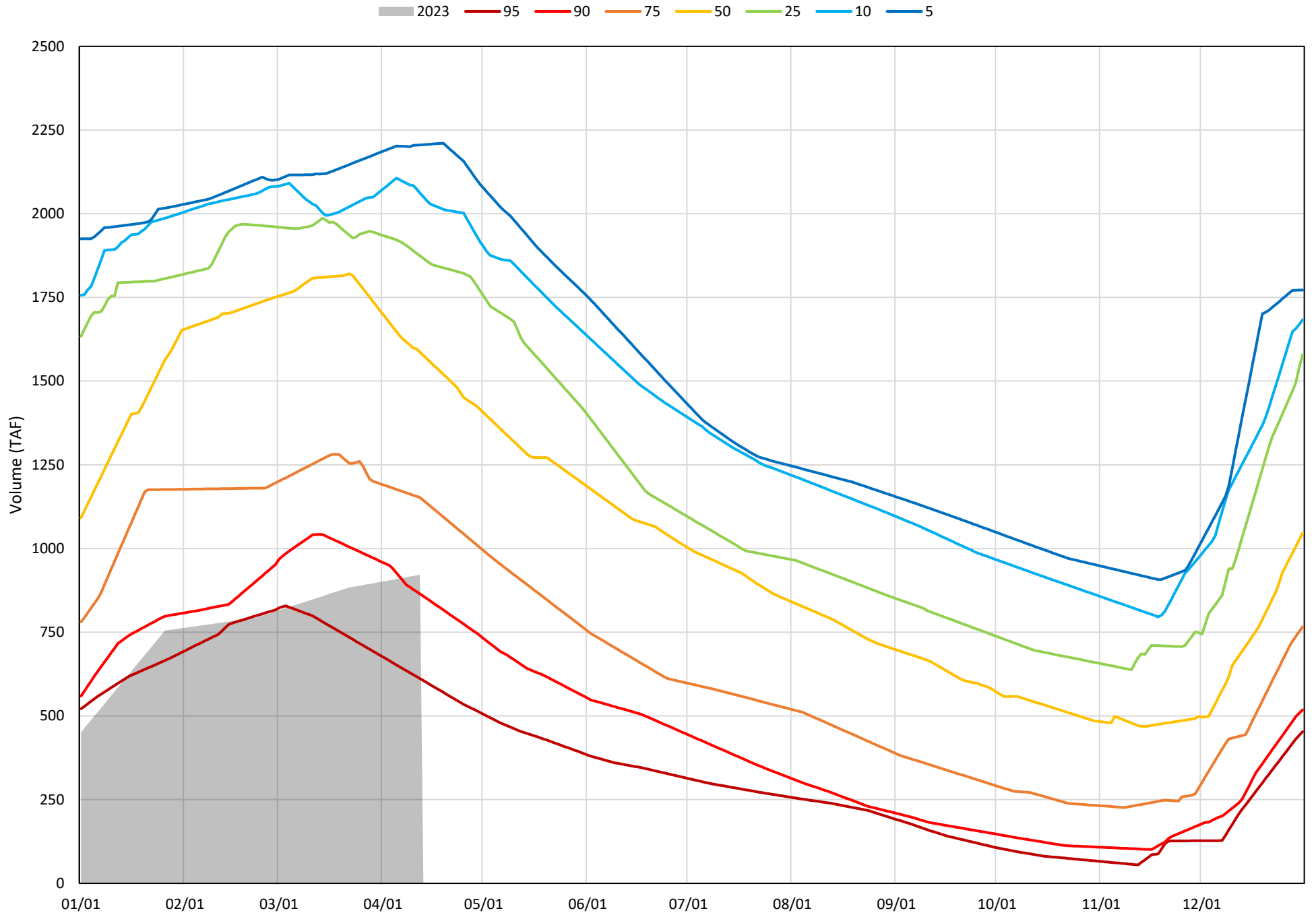
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



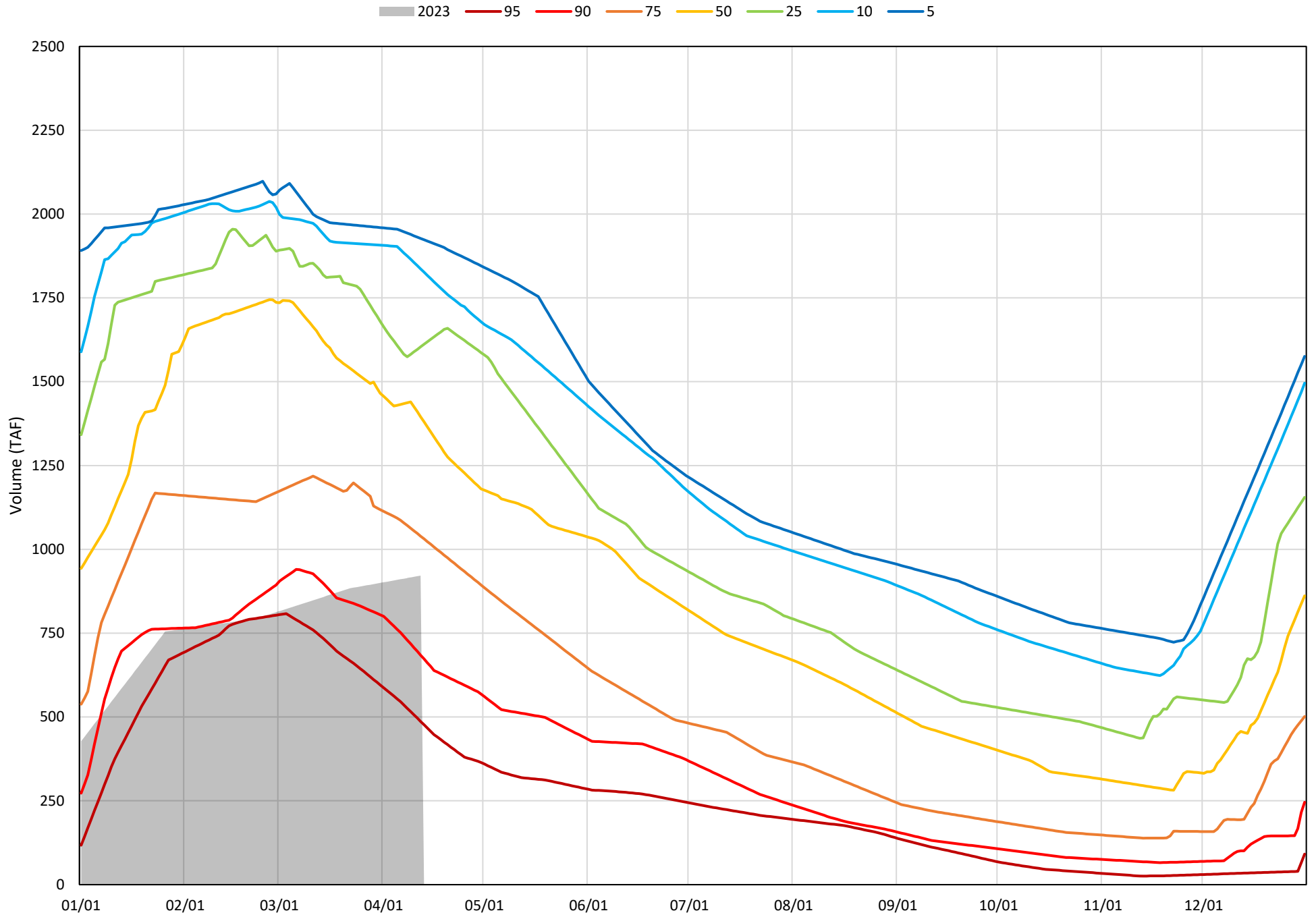
Trinity Lake Cold Water Pool Volume  $\leq 52^{\circ}\text{F}$  - Percent Exceedances (2000-2022)



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)

Apr-13 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	1188	1069	682	980	129	116	74	106
2001	656	589	430	558	71	64	47	61
2002	776	699	594	690	84	76	64	75
2003	1161	953	526	880	126	103	57	95
2004	890	750	598	746	97	81	65	81
2005	813	396	188	466	88	43	20	51
2006	1316	1316	1022	1218	143	143	111	132
2007	843	637	542	674	91	69	59	73
2008	698	676	323	566	76	73	35	61
2009	296	153	-257	235	32	17	-28	26
2010	469	393	137	333	51	43	15	36
2011	1166	1120	942	1076	127	122	102	117
2012	1038	936	875	950	113	102	95	103
2013	1145	809	474	809	124	88	51	88
2014	214	152	-111	159	23	17	-12	17
2015	-29	-126	-207	120	-3	-14	-22	13
2016	305	231	118	218	33	25	13	24
2017	1115	965	796	959	121	105	86	104
2018	838	660	498	665	91	72	54	72
2019	1160	1154	807	1040	126	125	88	113
2020	888	665	295	616	96	72	32	67
2021	150	46	-125	107	16	5	-14	12
2022	-261	-356	-479	365	-28	-39	-52	40
2023	0	0	0	0	0	0	0	0

Historic - Current

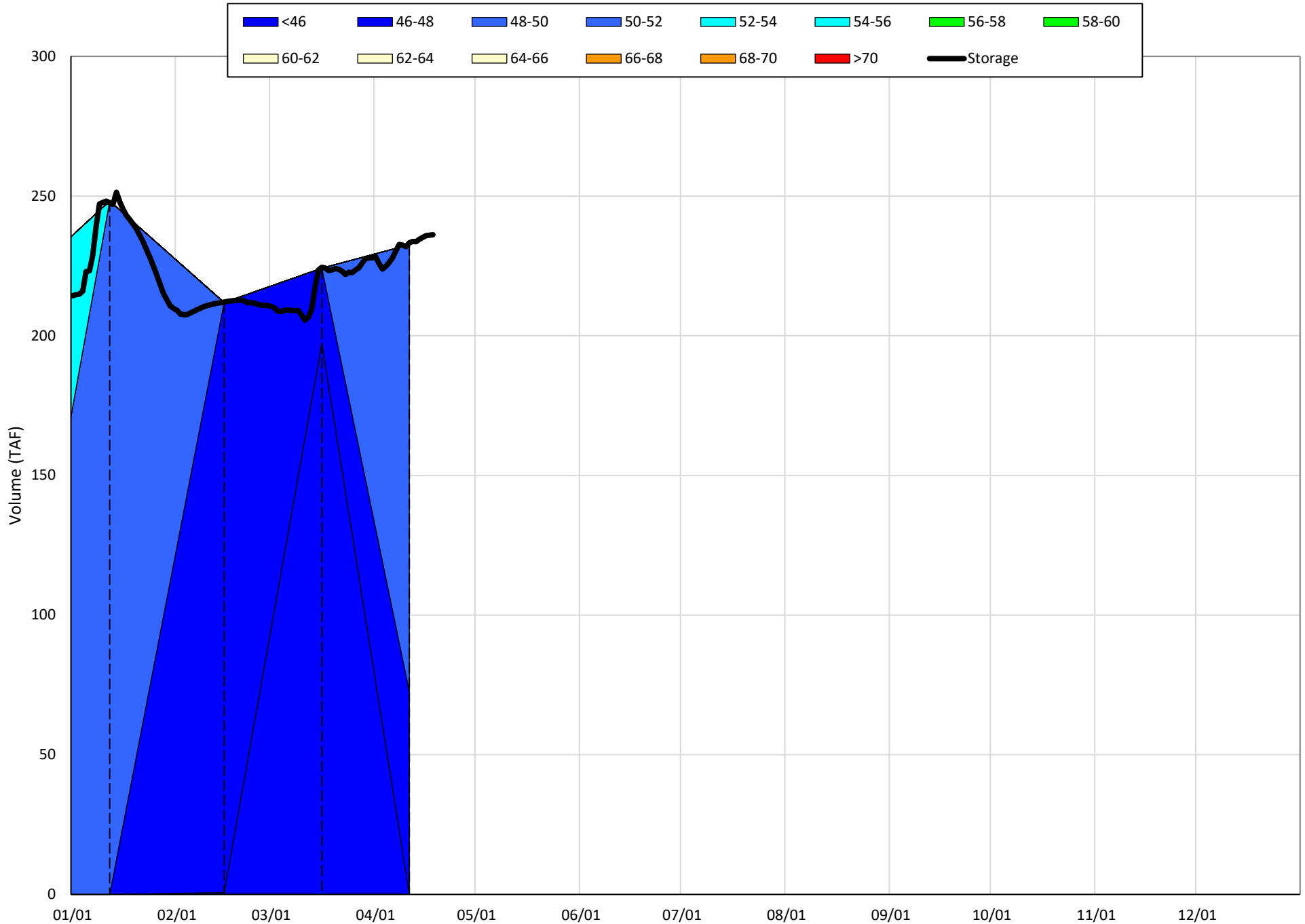
(Historic - Current) / Current

# Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

## 2023

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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

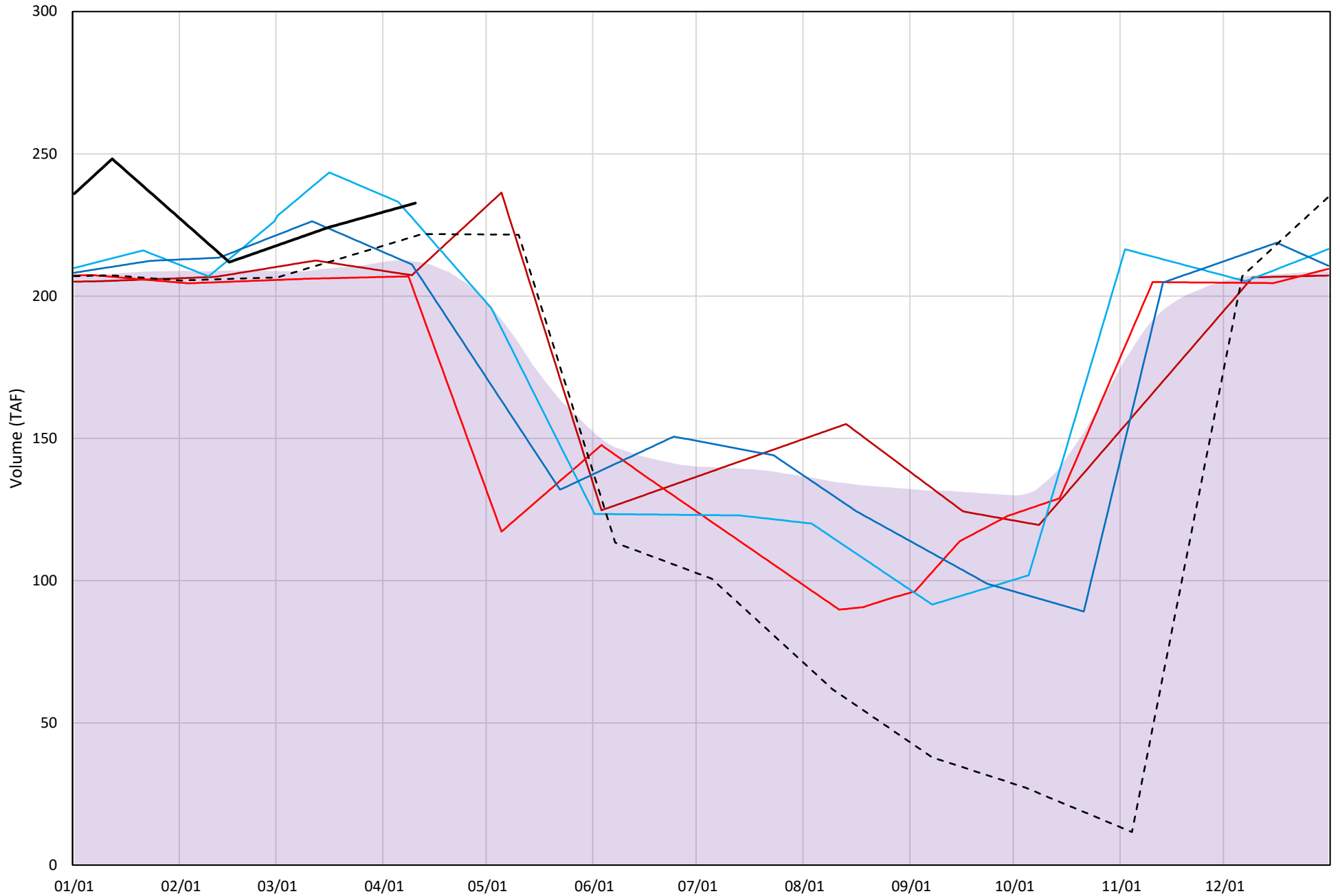
# Whiskeytown Lake Isothermobaths Plot - 2023





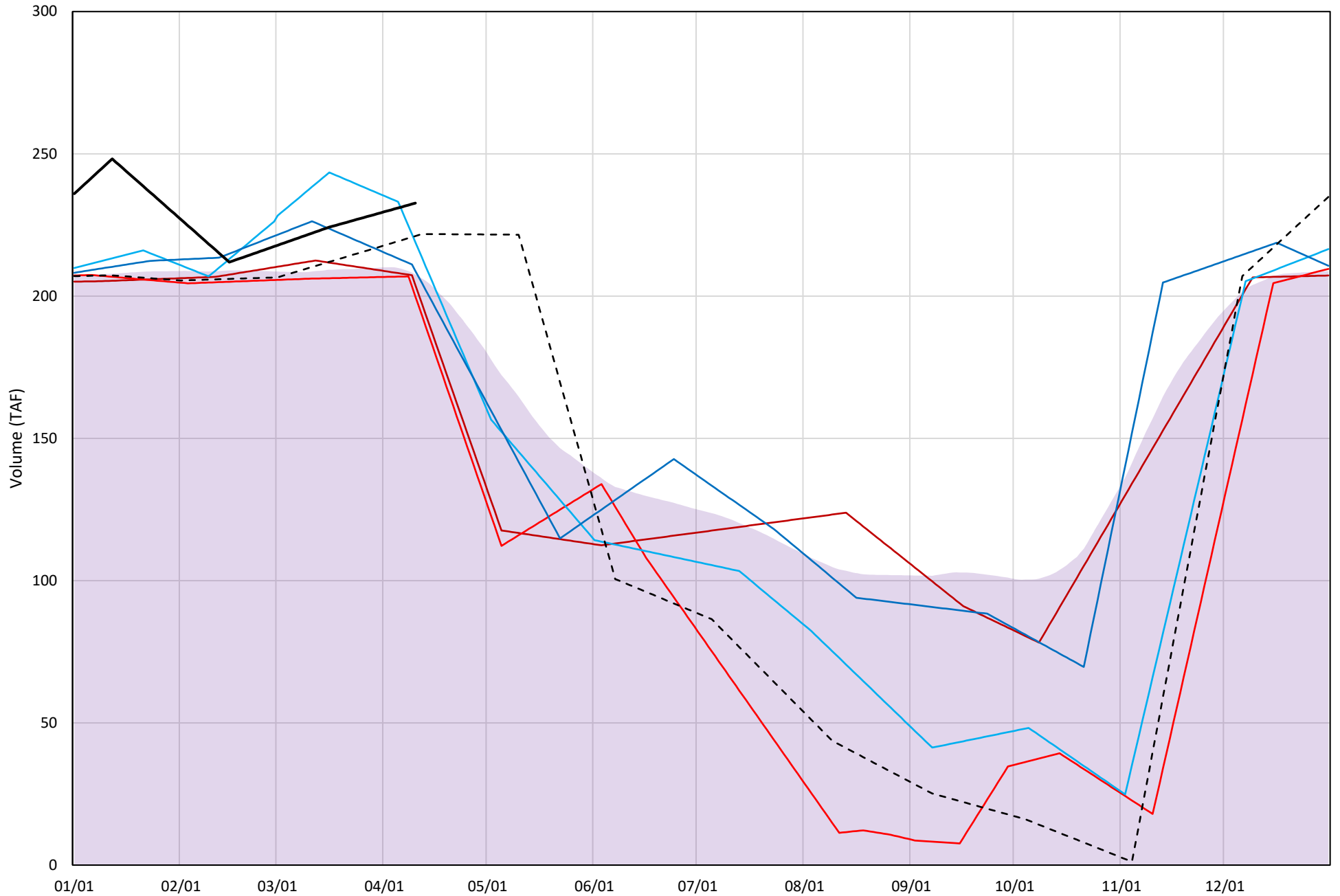
# Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

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



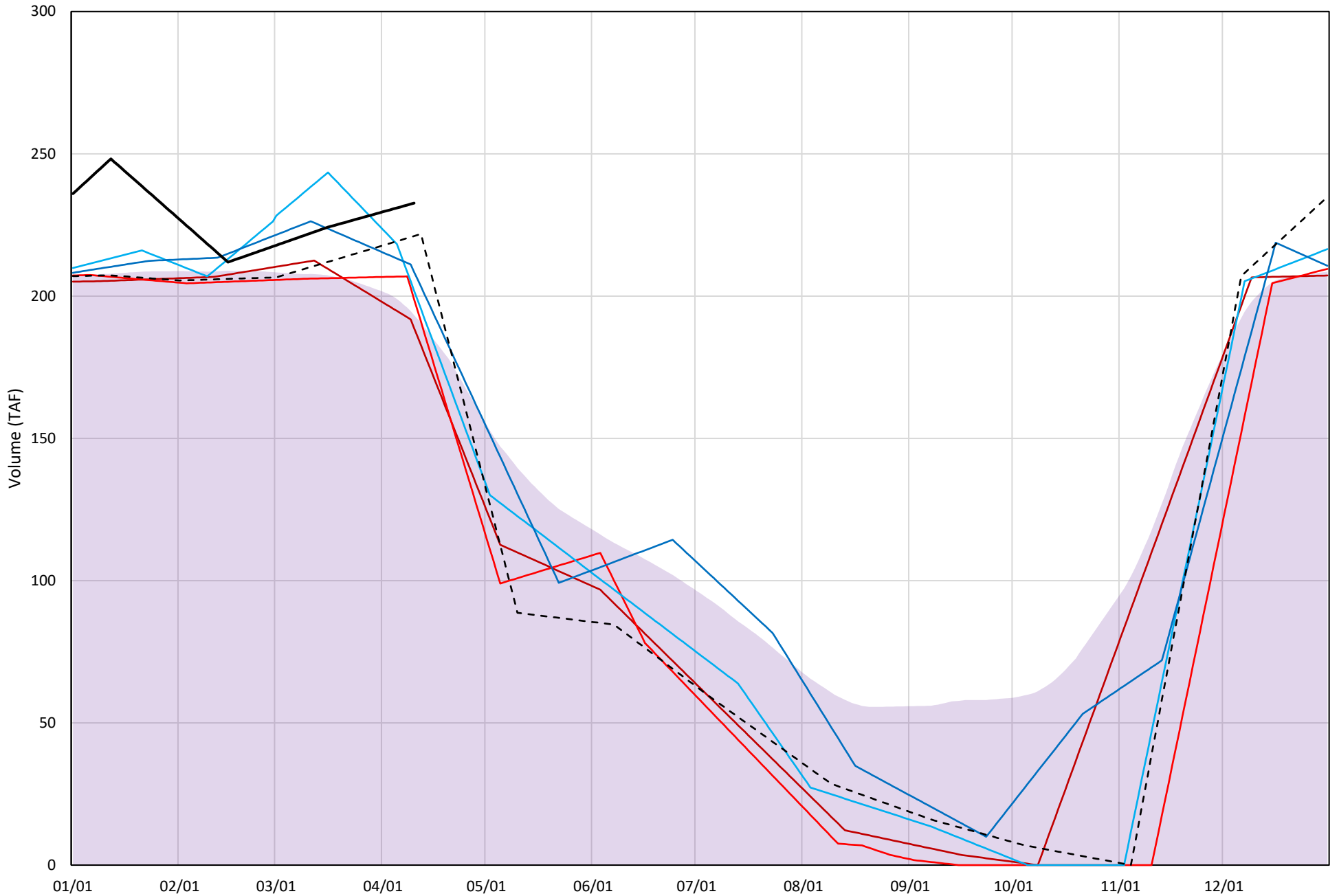
# Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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



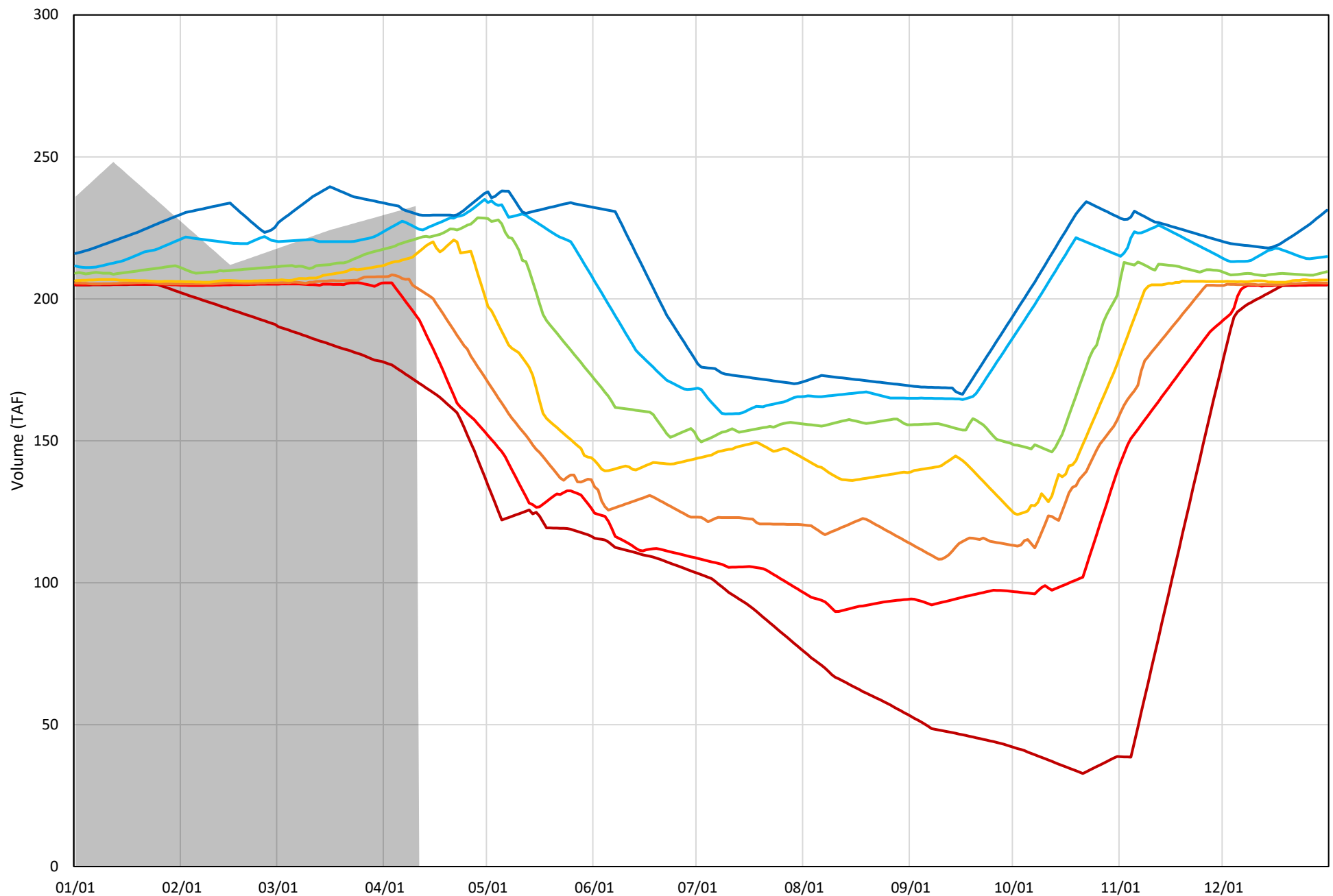
# Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

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



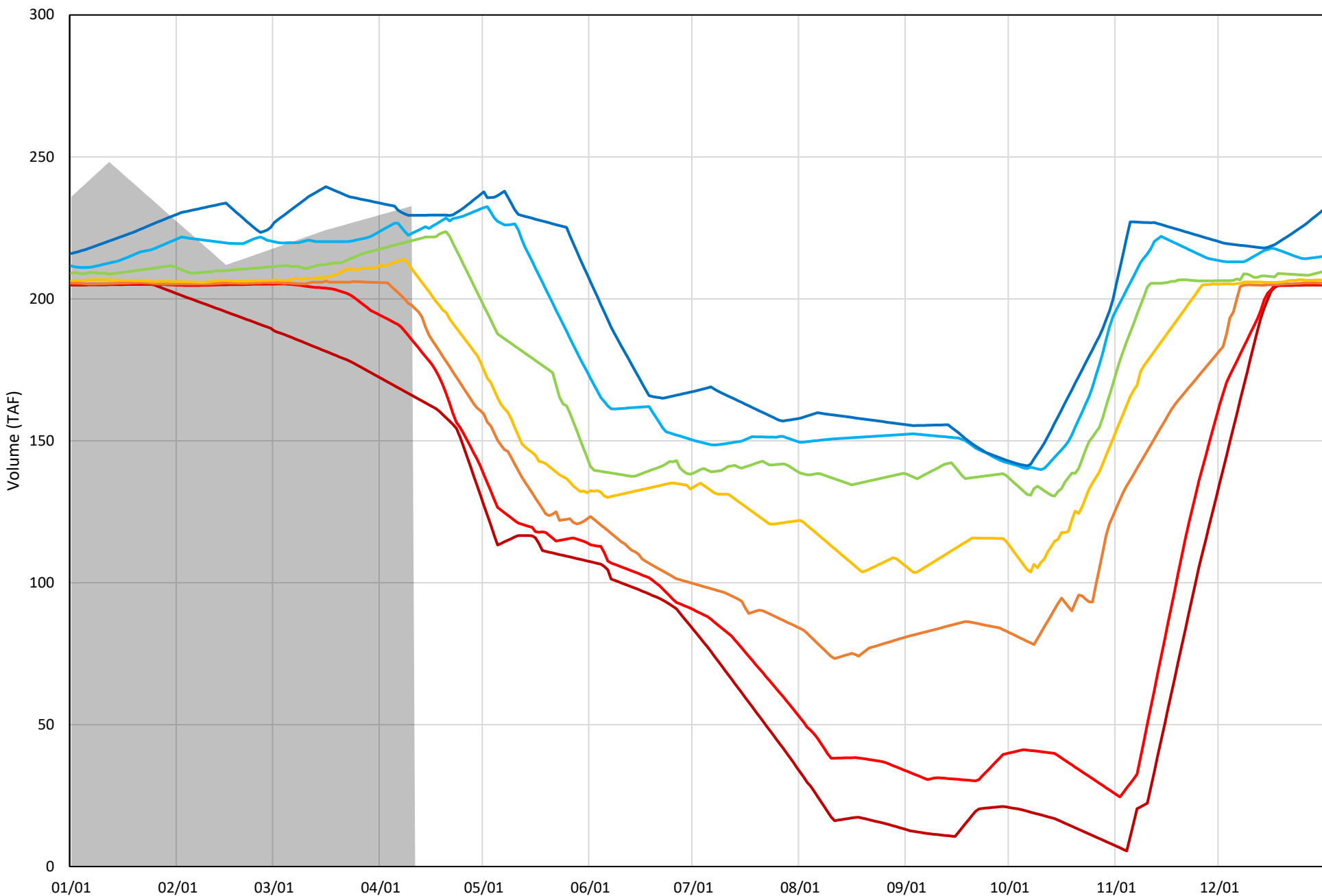
Whiskeytown Lake Cold Water Pool Volume  $\leq 60^{\circ}\text{F}$  - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5



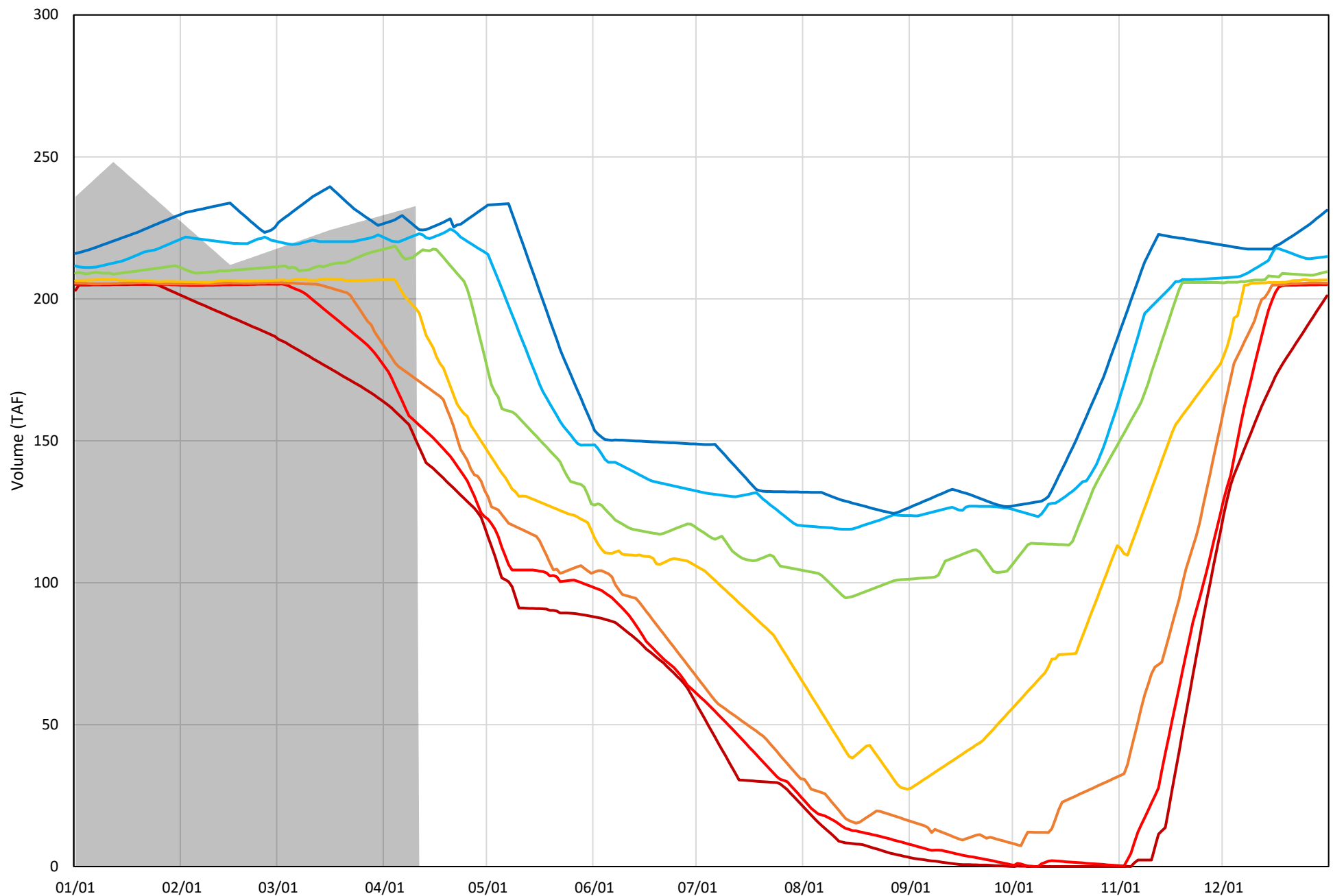
Whiskeytown Lake Cold Water Pool Volume  $\leq 58^{\circ}\text{F}$  - Percent Exceedances (2000-2022)

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)

Apr-11 2023	$\Delta$ TAF				% $\Delta$			
	$\leq 60^\circ$	$\leq 58^\circ$	$\leq 56^\circ$	Abs. Avg.	$\leq 60^\circ$	$\leq 58^\circ$	$\leq 56^\circ$	Abs. Avg.
2000	-10.3	-10.3	-69.5	30.0	-4.4	-4.4	-29.9	12.9
2001	-17.0	-34.4	-72.7	41.4	-7.3	-14.8	-31.2	17.8
2002	-15.5	-50.8	-66.2	44.2	-6.7	-21.8	-28.5	19.0
2003	-17.2	-17.2	-17.2	17.2	-7.4	-7.4	-7.4	7.4
2004	-19.1	-35.0	-60.9	38.3	-8.2	-15.0	-26.2	16.5
2005	-9.3	-9.3	-9.3	9.3	-4.0	-4.0	-4.0	4.0
2006	-14.8	-14.8	-14.8	14.8	-6.4	-6.4	-6.4	6.4
2007	-28.6	-31.4	-43.7	34.6	-12.3	-13.5	-18.8	14.9
2008	-14.9	-14.9	-17.9	15.9	-6.4	-6.4	-7.7	6.8
2009	-33.0	-36.2	-39.0	36.1	-14.2	-15.6	-16.8	15.5
2010	-12.2	-12.2	-12.2	12.2	-5.2	-5.2	-5.2	5.2
2011	-1.8	-1.8	-6.9	3.5	-0.8	-0.8	-3.0	1.5
2012	-66.7	-70.6	-78.3	71.9	-28.7	-30.3	-33.7	30.9
2013	-41.1	-41.5	-48.6	43.7	-17.7	-17.8	-20.9	18.8
2014	-24.2	-28.8	-43.9	32.3	-10.4	-12.4	-18.9	13.9
2015	-32.4	-32.8	-33.7	33.0	-13.9	-14.1	-14.5	14.2
2016	-6.4	-13.7	-30.7	17.0	-2.8	-5.9	-13.2	7.3
2017	-9.7	-22.1	-32.7	21.5	-4.2	-9.5	-14.1	9.2
2018	-34.5	-35.1	-36.0	35.2	-14.8	-15.1	-15.5	15.1
2019	-23.4	-23.8	-24.2	23.8	-10.1	-10.2	-10.4	10.2
2020	-12.1	-12.1	-51.6	25.3	-5.2	-5.2	-22.2	10.9
2021	-17.6	-17.6	-83.4	39.5	-7.6	-7.6	-35.8	17.0
2022	-11.6	-11.6	-11.6	11.6	-5.0	-5.0	-5.0	5.0
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

}

Historic - Current

}

(Historic - Current) / Current