

Northern CVP Water Temperature Report

November - 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	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB	
Oct	48.7	47.7	57.7	49.7	50.0	50.7	51.9	52.8	53.7	54.4	49.4	51.6	54.4	5719	511	6313	66.1	60.6	63.3	
11/01	49.6	48.3	56.7	49.1	49.2	49.7	50.4	? 50.5	50.6	54.1	47.8	47.1	48.2	5284	505	6041	58.5	50.6	54.0	
11/02	49.5	48.3	56.7	49.9	49.8	49.9	50.2	? 50.2	50.6	53.9	47.8	48.0	49.0	5518	463	5797	56.0	51.4	55.4	
11/03	49.3	48.0	56.6	50.1	50.3	50.8	51.2	51.3	51.4	54.9	47.9	49.4	51.2	4872	491	5597	64.5	58.8	62.8	
11/04	49.1	48.0	56.4	50.1	50.1	50.6	51.7	? 52.4	52.8	54.8	47.8	50.7	52.6	5132	516	5491	63.0	60.3	61.5	
11/05	49.2	47.8	56.3	49.9	50.3	50.9	51.6	? 52.2	52.7	54.6	47.9	50.1	52.8	4509	502	5200	60.5	59.1	61.2	
11/06	49.3	48.3	56.5	50.0	50.2	50.9	52.4	53.6	54.4	54.9	48.1	50.2	52.6	4711	526	5023	60.5	58.8	60.7	
11/07	49.2	48.3	56.5	50.2	50.2	50.7	51.5	52.0	52.9	53.7	48.0	49.0	51.1	4227	519	4992	55.0	52.0	54.5	
11/08	49.5	48.3	56.6	50.2	50.2	50.6	51.1	? 51.3	51.8	53.4	48.0	48.1	49.8	4567	364	5005	56.0	51.3	53.7	
11/09	49.3	48.1	56.4	49.6	49.5	49.8	50.4	? 50.4	50.9	53.2	48.0	46.7	47.9	4328	561	4328	49.5	44.6	48.7	
11/10	49.4	48.5	56.2	50.0	50.0	50.4	50.7	50.7	50.7	53.9	48.2	47.4	48.6	4568	501	4991	57.5	51.3	52.6	
11/11	49.7	? 49.0	56.2	49.8	49.8	50.3	50.9	? 51.0	51.3	53.8	48.3	48.2	49.1	4660	528	4992	56.5	50.3	53.6	
11/12	49.1	48.1	55.9	49.9	49.9	50.2	50.7	? 50.8	51.2	53.6	48.2	48.0	49.0	4500	512	4995	54.0	49.8	52.0	
11/13	49.0	48.1	55.9	49.9	50.1	50.6	51.1	? 51.2	51.4	53.7	48.1	48.4	49.4	4528	493	4995	57.5	52.4	53.9	
11/14	49.2	? 47.7	55.9	49.9	49.7	49.9	50.6	50.9	51.2	53.5	48.1	47.9	49.4	4359	463	4998	52.5	49.1	50.0	
11/15	49.5	48.2	55.9	49.8	50.0	50.4	50.9	50.9	50.9	54.1	48.3	48.5	49.8	4852	497	4989	59.0	54.5	55.2	
11/16	49.7	48.2	56.3	49.6	49.8	50.5	51.6	? 52.2	52.4	54.4	48.4	49.8	50.9	5116	40	4998	59.5	55.5	57.0	
11/17	49.8	48.4	55.7	49.7	49.8	50.4	51.1	51.5	52.2	54.1	48.3	49.4	51.2	5041	37	4992	59.0	53.6	56.5	
11/18	49.4	48.1	55.9	49.5	49.6	50.2	51.3	? 52.1	52.3	54.1	48.4	49.7	51.0	4534	418	4992	53.5	55.1	56.1	
11/19	50.1	48.5	56.0	50.0	49.8	50.0	? 50.6	50.8	51.3	52.7	48.0	47.5	48.5	5078	41	5011	50.0	47.9	50.7	
11/20	50.2	48.5	55.6	49.4	49.4	49.8	50.2	? 50.1	50.4	52.7	48.0	46.1	46.8	4714	48	4994	61.5	55.1	55.6	
11/21	49.9	48.4	55.6	49.4	49.2	49.5	49.7	? 49.7	50.0	52.7	48.0	45.6	46.0	4874	44	5005	55.0	47.4	49.5	
11/22	? 49.8	? 48.2	? 55.5	? 49.6	? 49.6	? 49.6	? 49.6	? 49.6	? 49.4	? 49.5	? 53.0	? 48.0	? 45.7	? 45.6	4896	37	5006	? 51.5	46.5	52.0
11/23	? 49.5	48.4	55.4	49.5	49.4	49.9	50.2	? 50.1	50.0	53.2	47.8	46.1	46.3	4856	56	5003	56.0	55.3	56.9	
11/24	50.0	48.5	55.3	49.3	49.1	49.1	49.0	? 48.8	49.1	52.1	47.2	44.3	45.0	4722	53	5009	54.5	51.6	52.2	
11/25	49.9	48.4	55.5	49.2	? 49.0	49.1	49.0	48.3	48.3	52.0	46.8	42.5	43.0	5351	37	5004	50.0	44.0	46.8	
11/26	49.7	48.1	55.2	49.1	48.9	48.9	48.7	? 48.0	48.1	51.6	46.7	41.7	41.7	4947	48	5030	47.5	40.8	45.0	
11/27	50.3	48.5	55.3	49.0	48.8	48.8	48.5	? 47.8	47.8	51.2	46.4	41.4	41.0	4741	37	5119	↓ 44.5	38.8	42.0	
11/28	50.0	48.3	55.0	49.0	48.8	48.8	48.4	? 47.6	47.6	51.3	46.0	41.5	41.0	4775	44	5098	46.0	39.5	43.8	
11/29	49.8	48.5	54.6	49.3	49.1	49.1	48.8	? 48.2	48.0	51.5	45.8	43.1	42.6	4685	112	5089	49.0	42.8	47.5	
11/30	49.8	48.5	55.2	49.3	49.1	49.1	48.9	? 48.4	48.3	51.3	45.5	43.0	43.1	4567	37	5099	45.5	42.4	44.8	
-																				
Nov	49.6	48.3	55.9	49.6	49.6	49.9	50.4	50.4	50.7	53.3	47.7	46.8	47.8	4784	284	5096	54.8	50.4	52.9	
														Total CFS	143512	8530	152883			
														Total AF	284650	16919	303237			

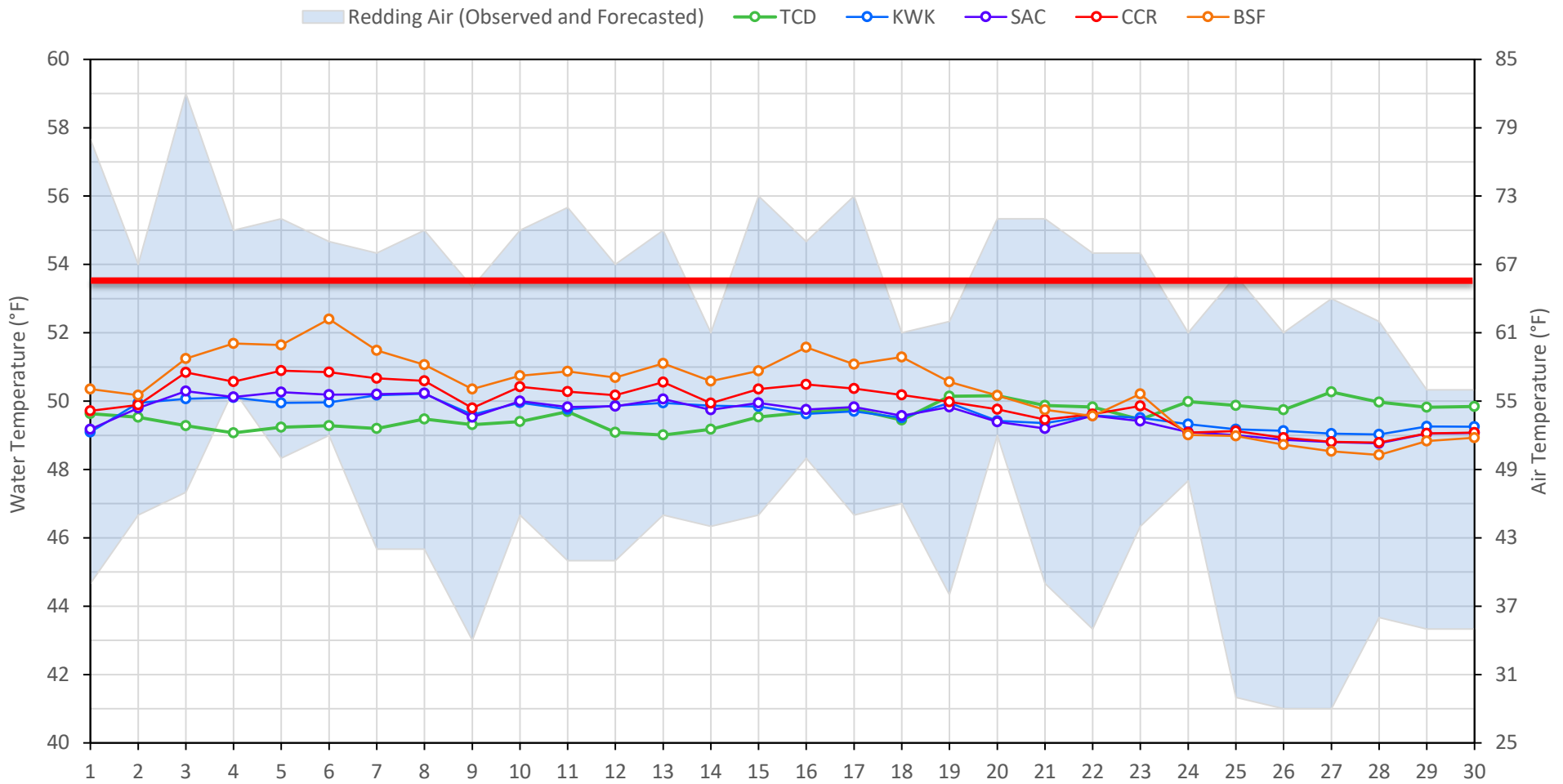
Legend

- ? = 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 3 for more details)

Sacramento River Mean Daily Temperatures



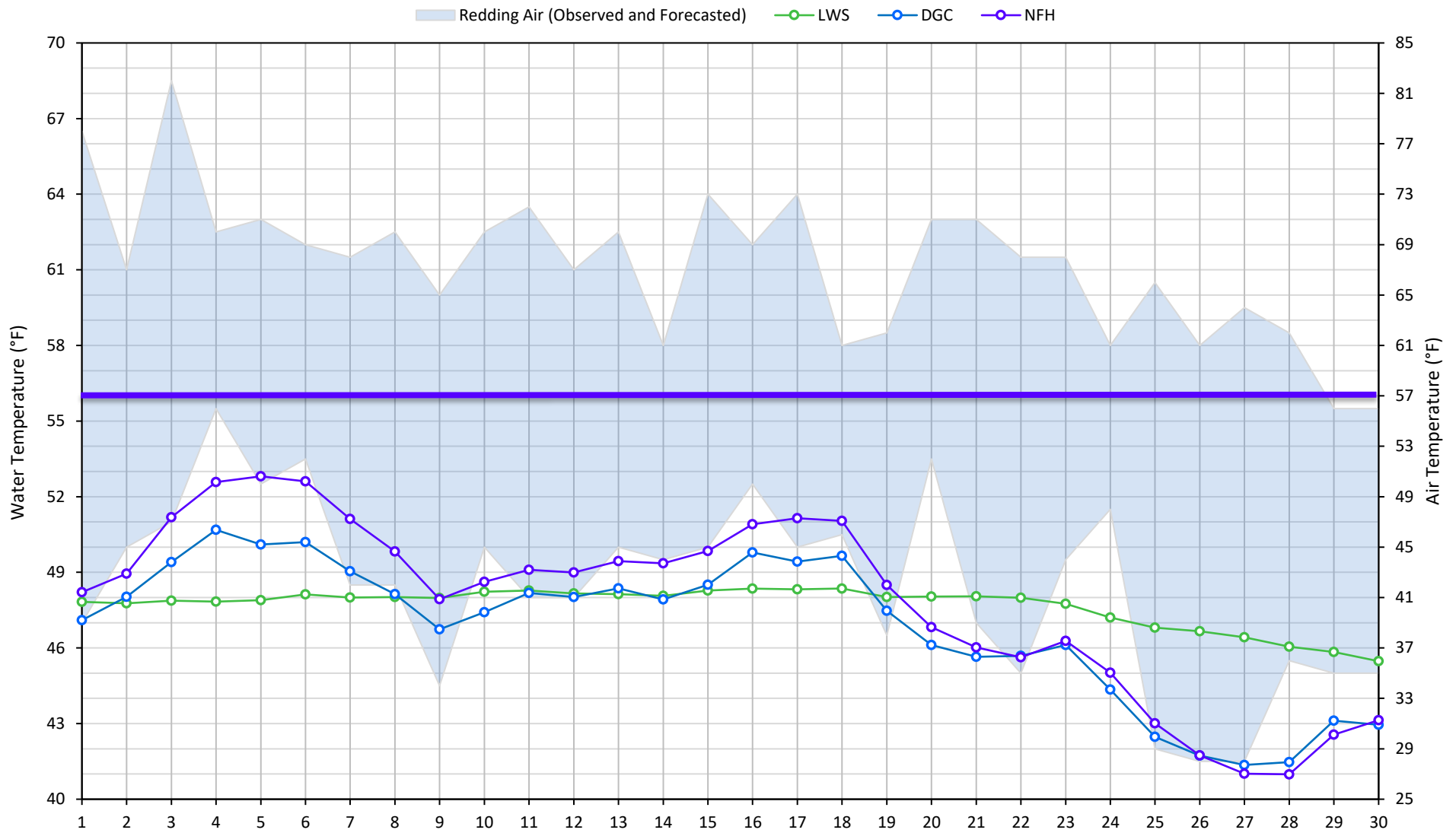
Station Details			
Code	Body of Water	Location ¹	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles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

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	56	Sep-15	Oct-01
Trinity	NFH	56	Oct-01	Dec-31

Notes

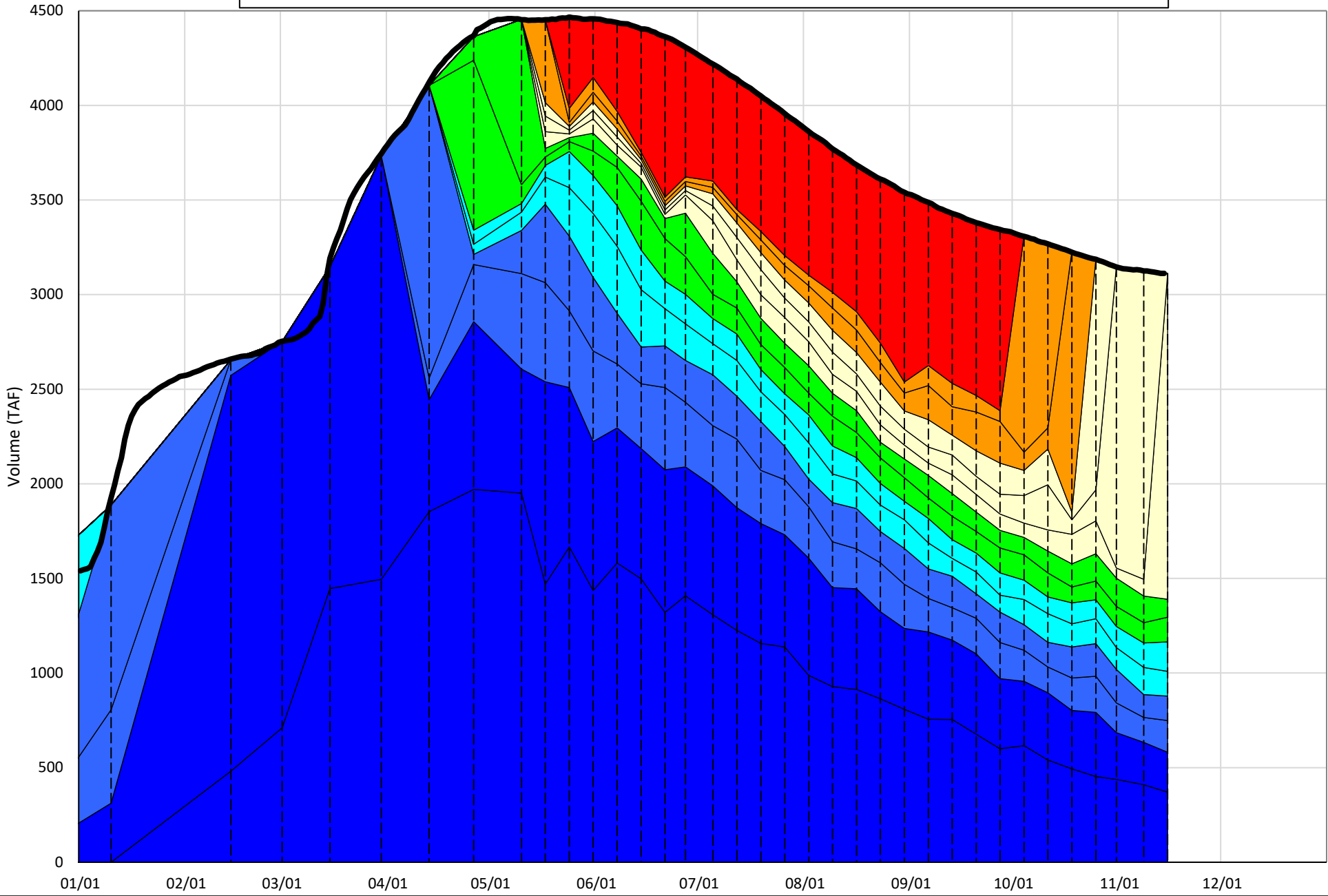
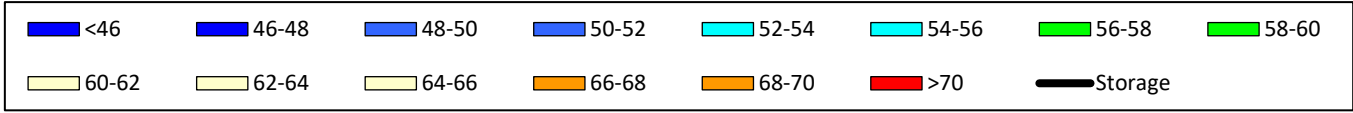
¹ Distances are approximate

Shasta Lake Isothermobaths & Cold Water Pool Statistics

2023

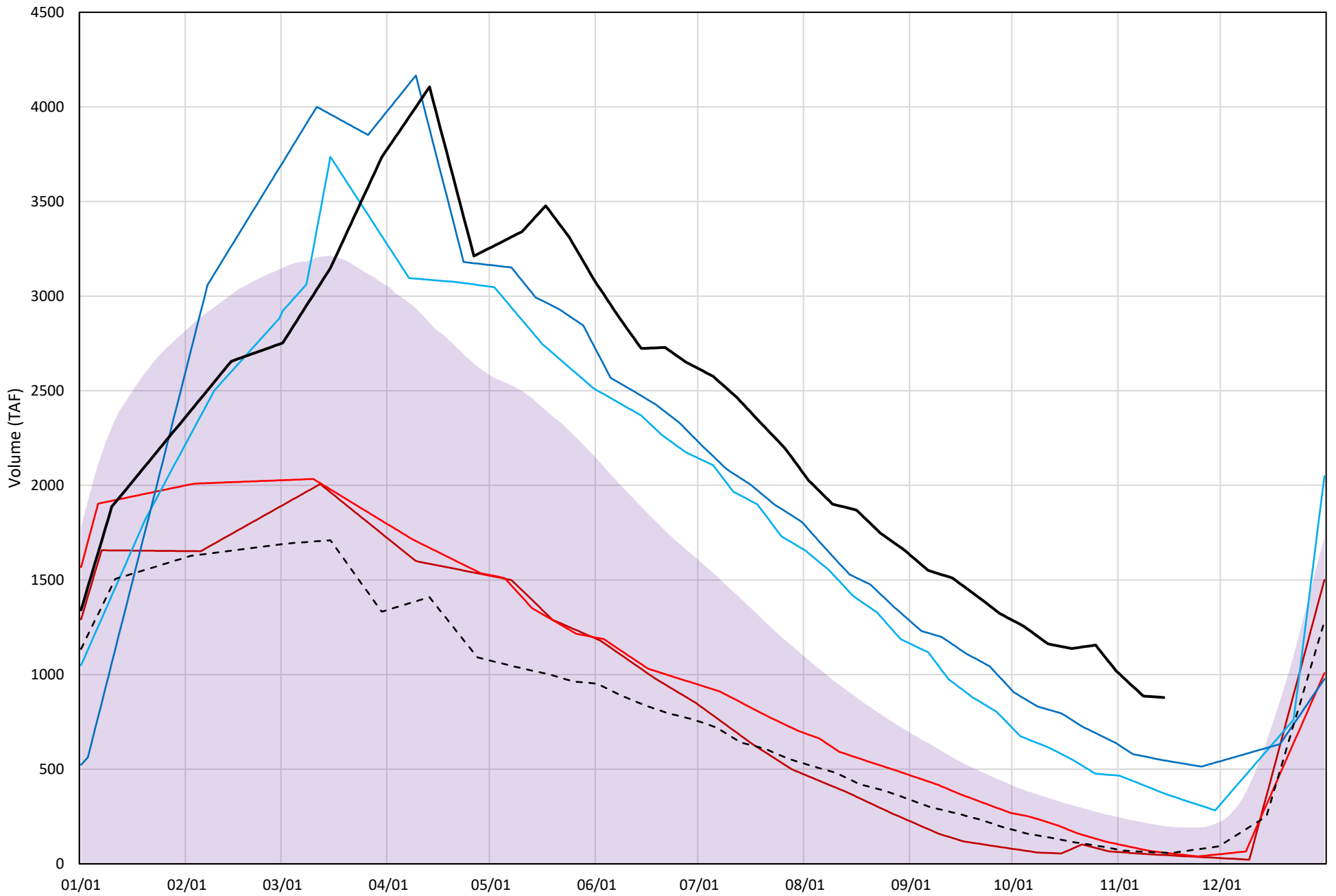
Page	Description
6	- Shasta Lake Isothermobaths Plot
7	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
8	- Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
9	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
10	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - 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



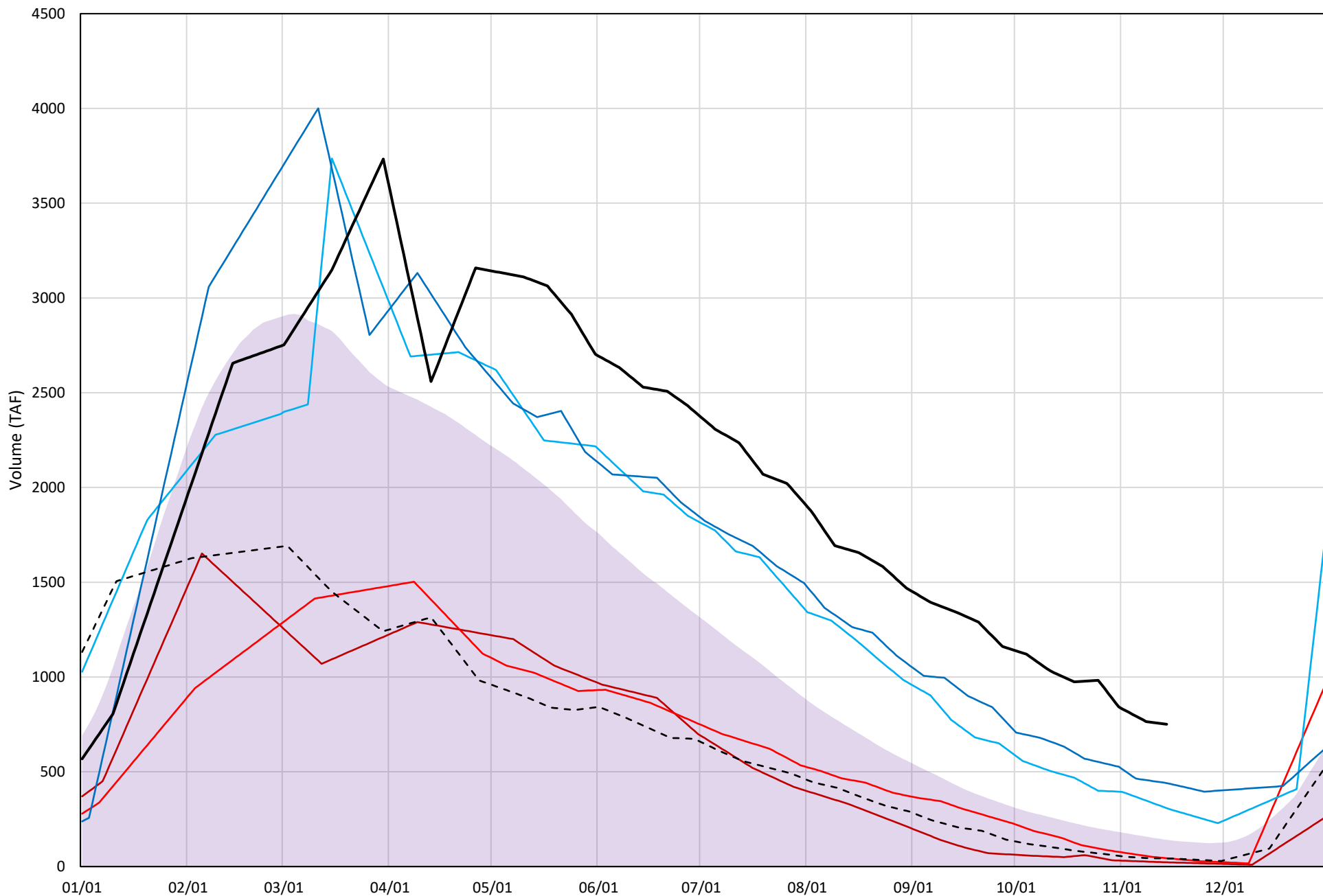
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



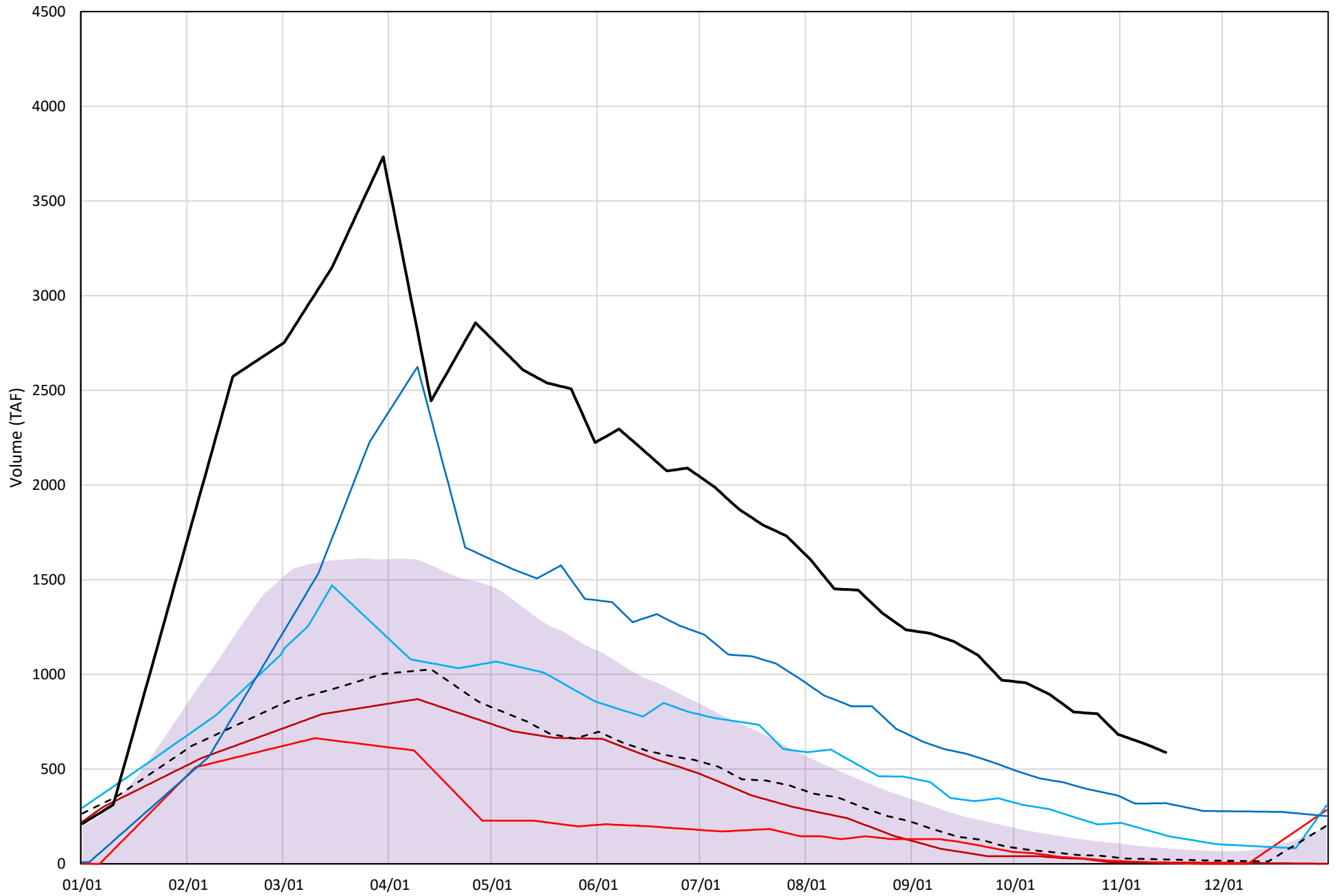
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

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

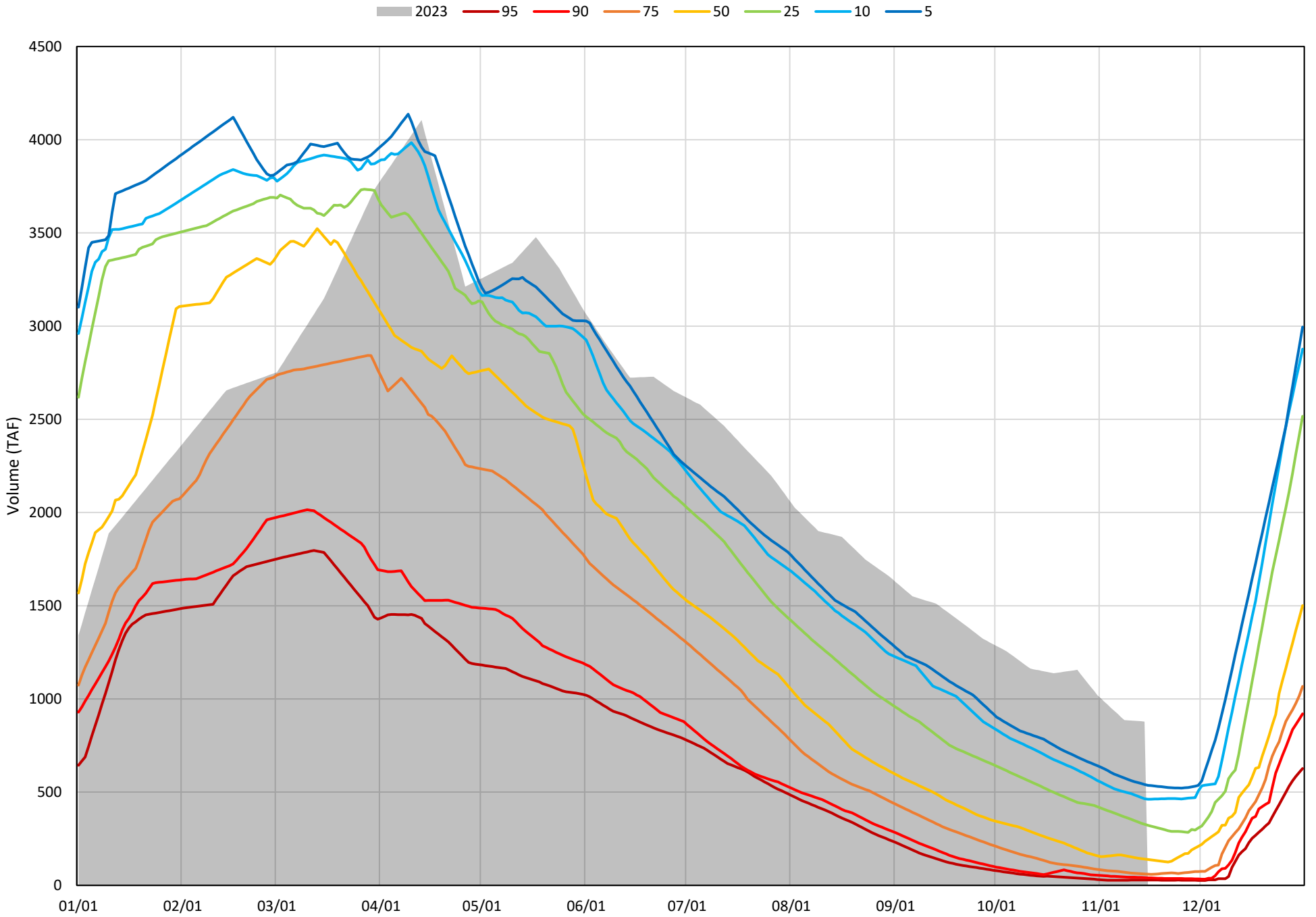


Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

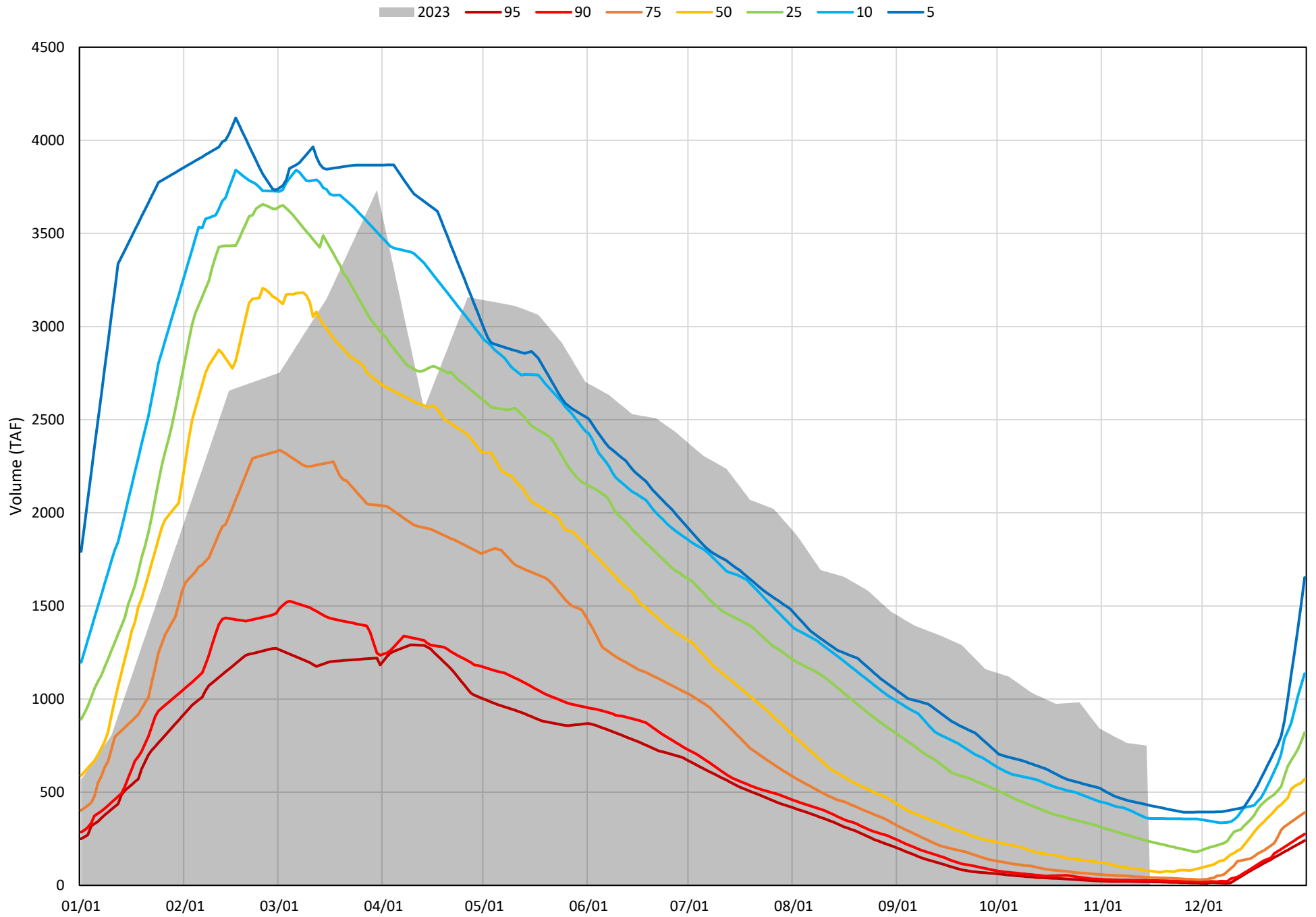
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



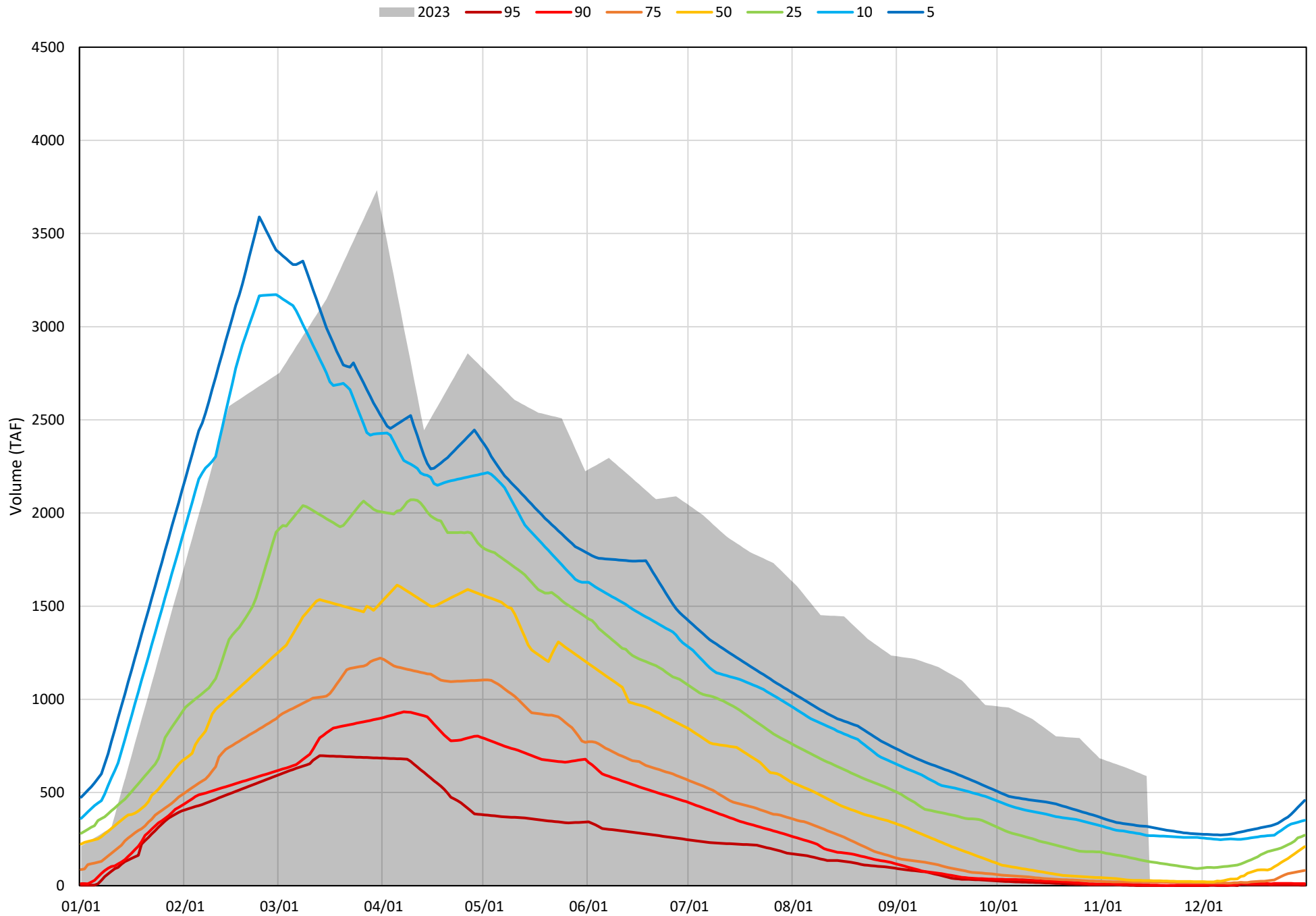
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2022)



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)

Nov-15 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
1998	-701	-708	-585	665	-80	-94	-99	91
1999	-514	-446	-363	441	-59	-59	-62	60
2000	-676	-658	-563	632	-77	-88	-96	87
2001	-784	-681	-543	669	-89	-91	-92	91
2002	-650	-581	-498	576	-74	-77	-85	79
2003	-616	-651	-568	612	-70	-87	-97	84
2004	-806	-707	-566	693	-92	-94	-96	94
2005	-796	-699	-563	686	-91	-93	-96	93
2006	-598	-533	-466	532	-68	-71	-79	73
2007	-836	-716	-561	704	-95	-95	-95	95
2008	-839	-721	-568	709	-95	-96	-97	96
2009	-817	-699	-556	691	-93	-93	-95	94
2010	-472	-513	-480	488	-54	-68	-82	68
2011	-350	-334	-275	320	-40	-44	-47	44
2012	-589	-511	-448	516	-67	-68	-76	70
2013	-776	-671	-534	660	-88	-89	-91	89
2014	-832	-728	-581	714	-95	-97	-99	97
2015	-820	-707	-584	703	-93	-94	-99	96
2016	-506	-442	-438	462	-58	-59	-74	64
2017	-456	-427	-347	410	-52	-57	-59	56
2018	-738	-661	-566	655	-84	-88	-96	89
2019	-332	-310	-268	303	-38	-41	-46	42
2020	-783	-701	-577	687	-89	-93	-98	94
2021	-855	-733	-588	725	-97	-98	-100	98
2022	-820	-708	-565	698	-93	-94	-96	95
2023	0	0	0	0	0	0	0	0

}

Historical - Current

}

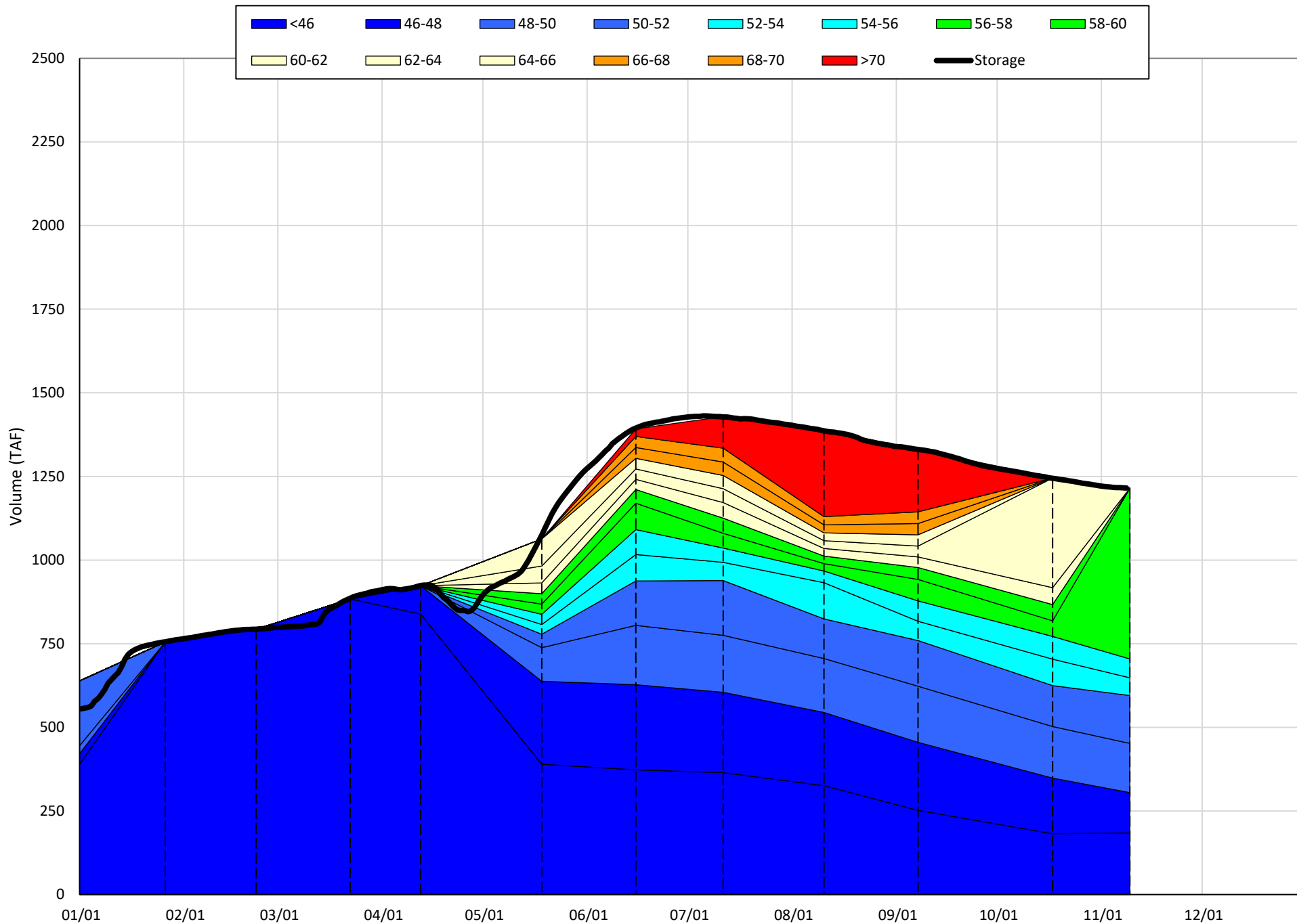
(Historical - Current) / Current

Trinity Lake Isothermobaths & Cold Water Pool Statistics

2023

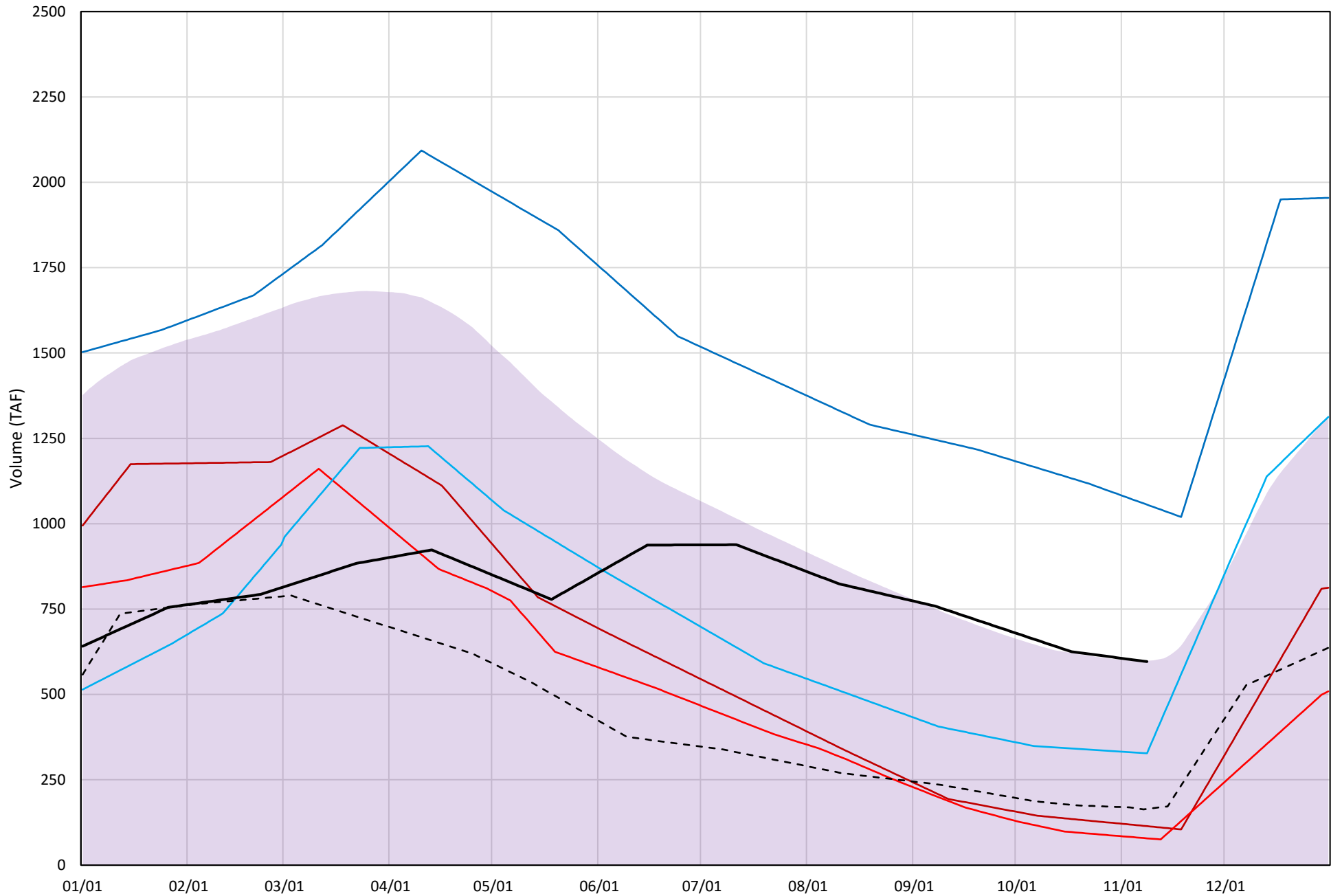
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq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



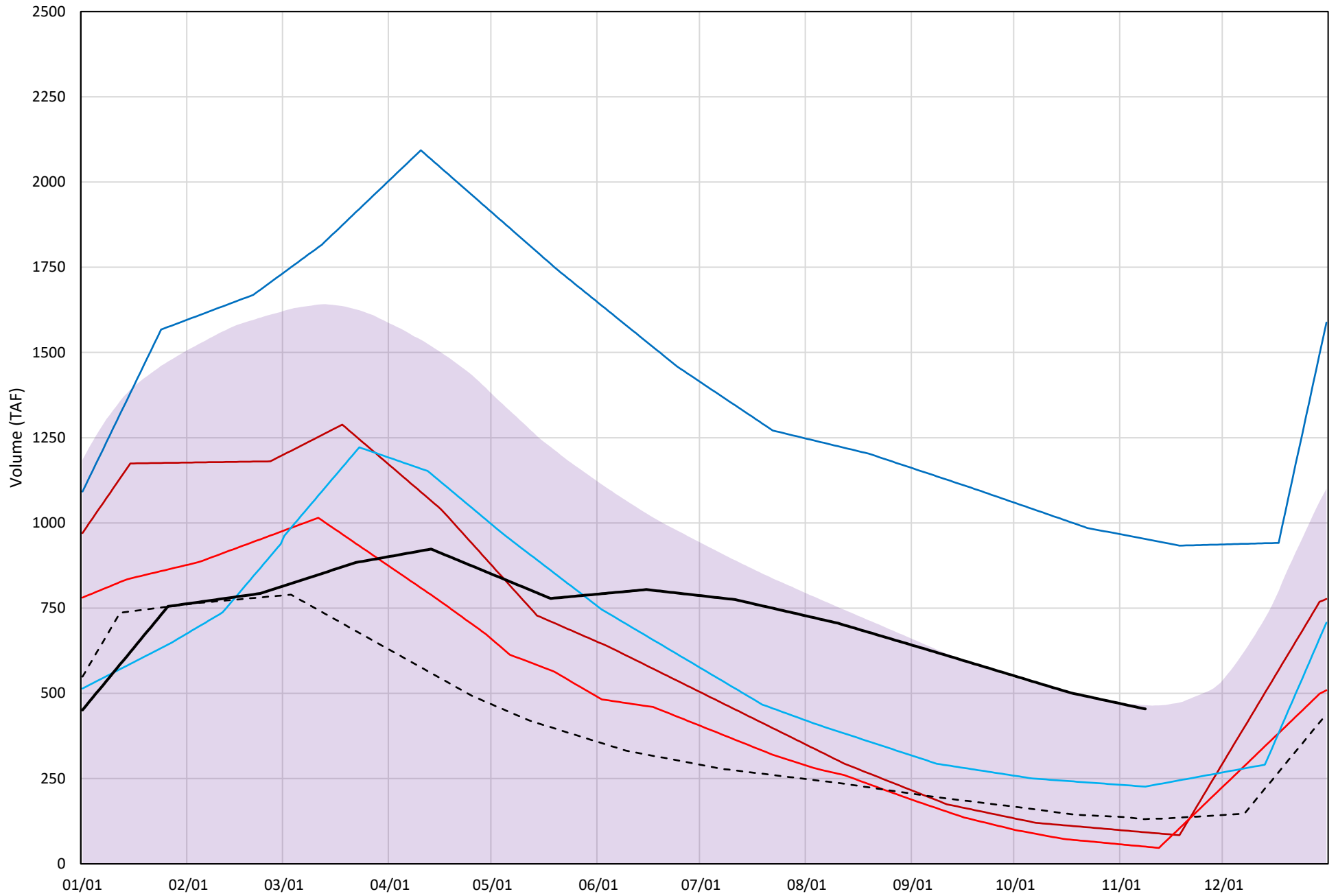
Trinity Lake Cold Water Pool Volume ≤52°F

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



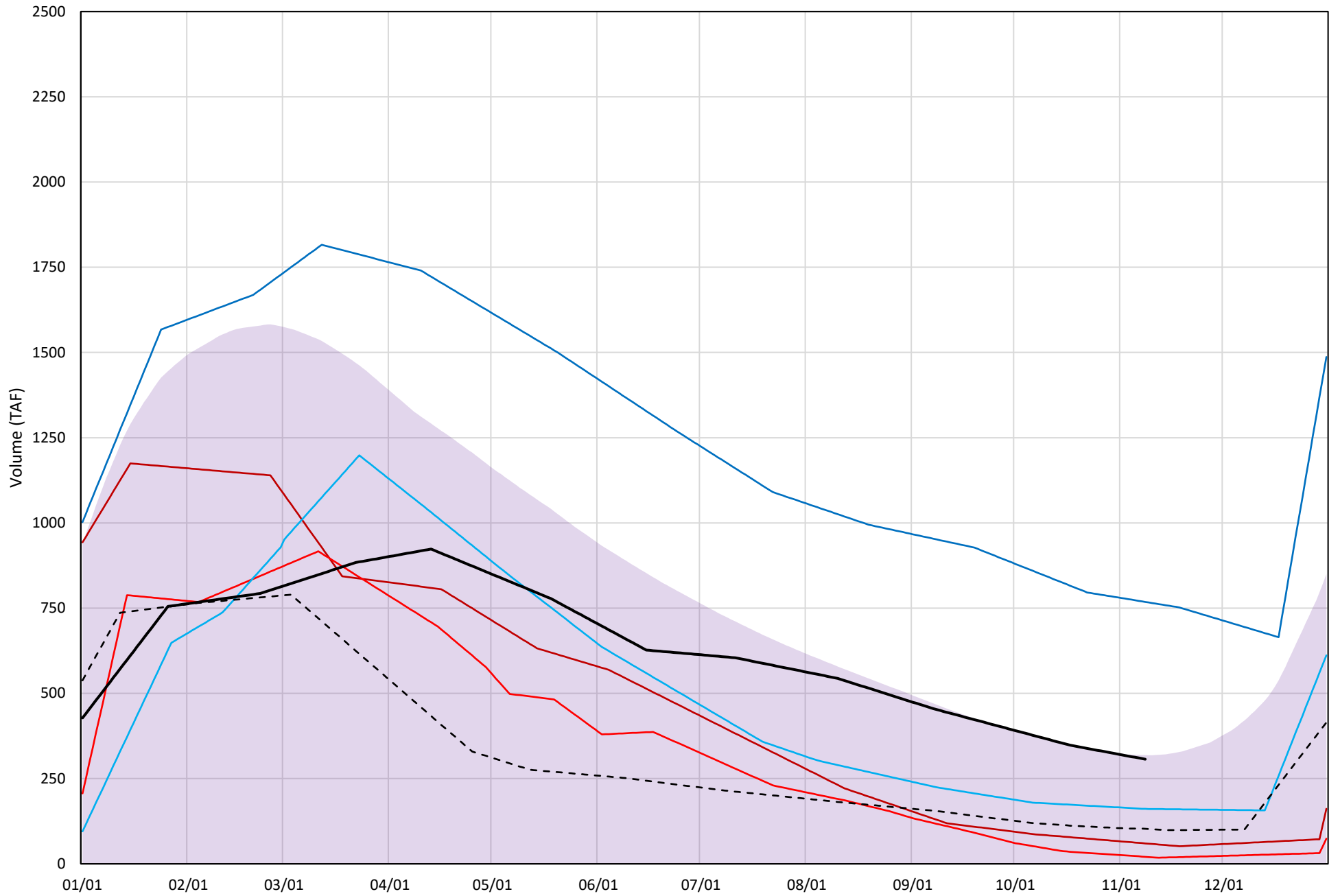
Trinity Lake Cold Water Pool Volume ≤50°F

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

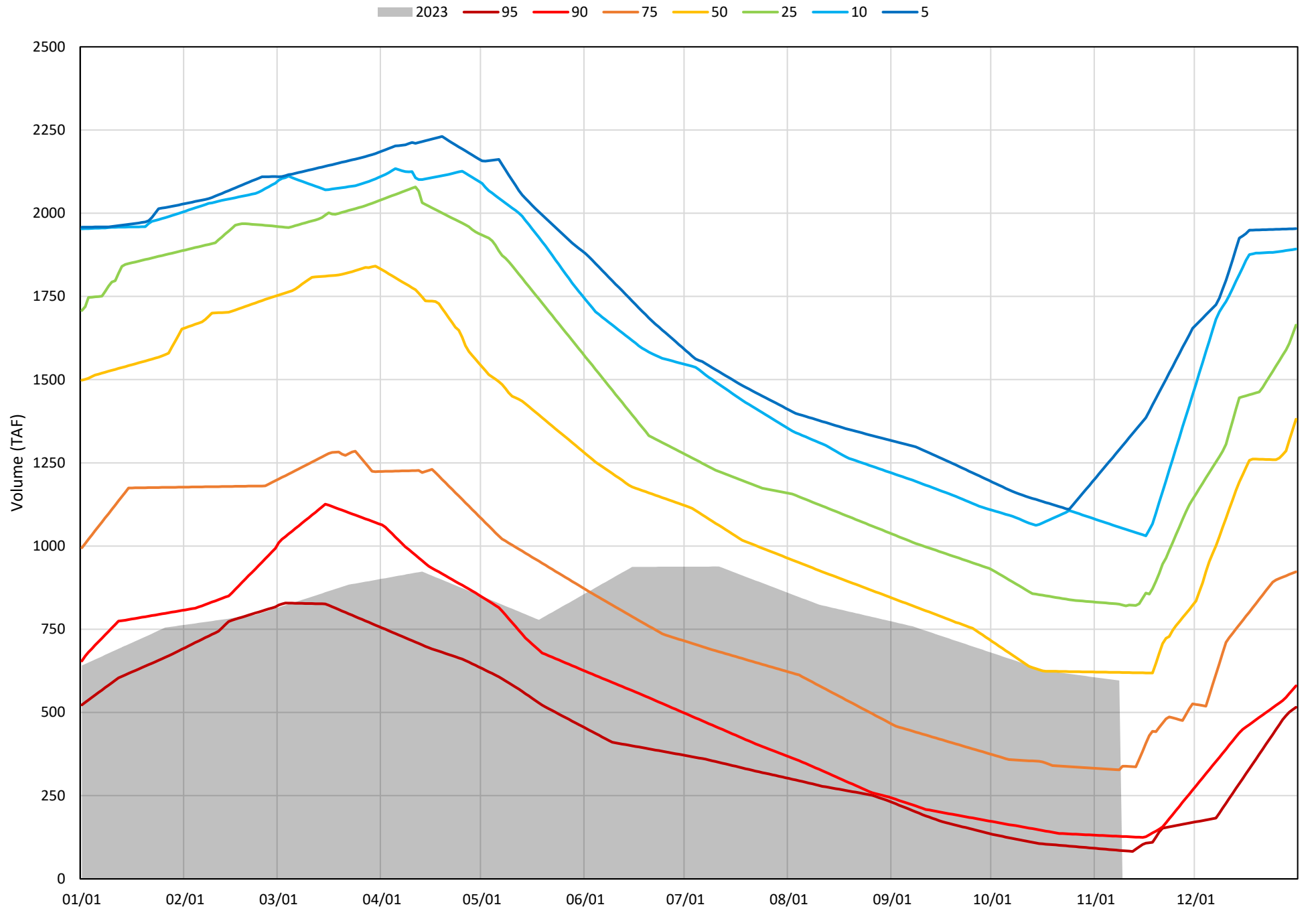


Trinity Lake Cold Water Pool Volume ≤48°F

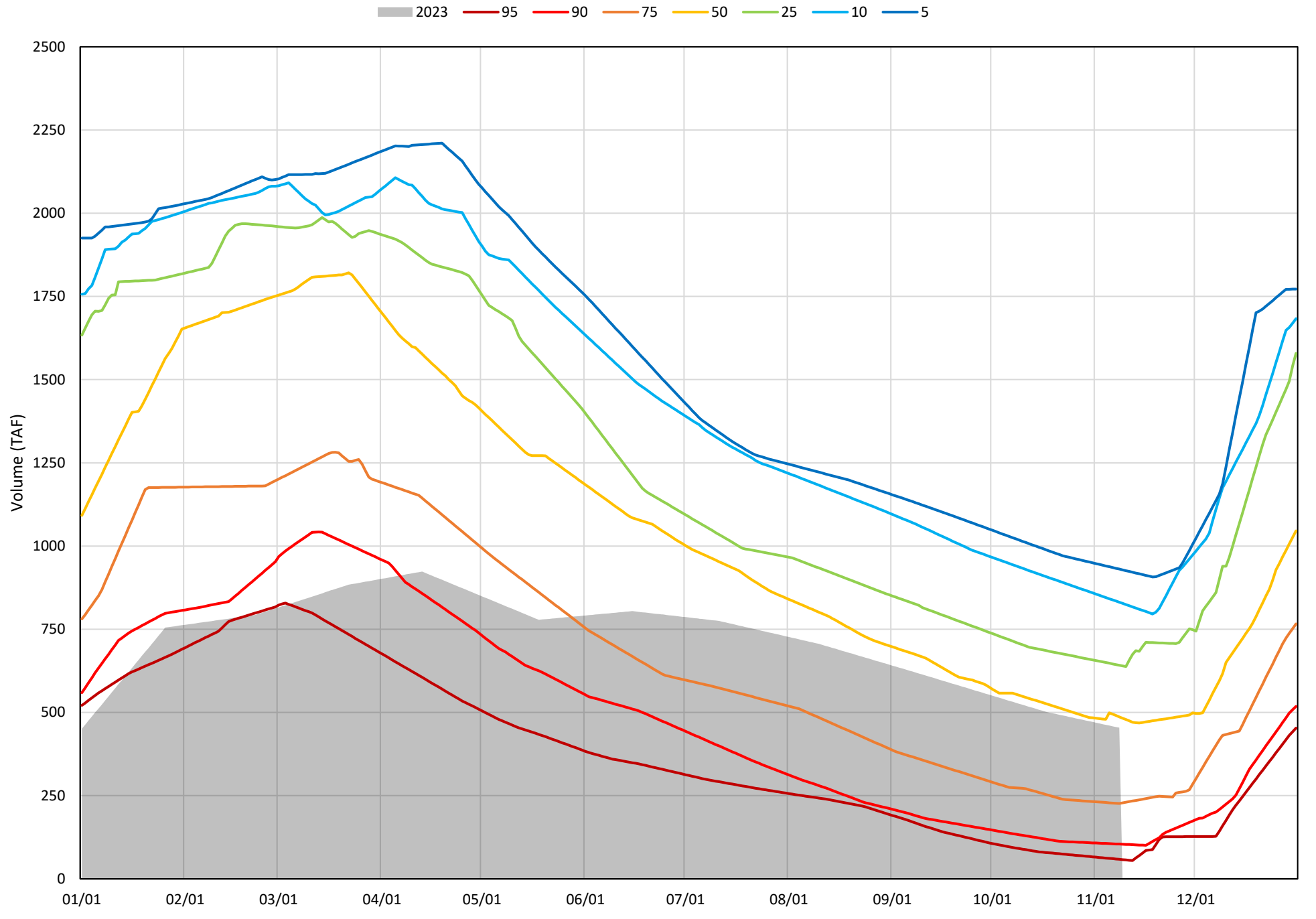
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



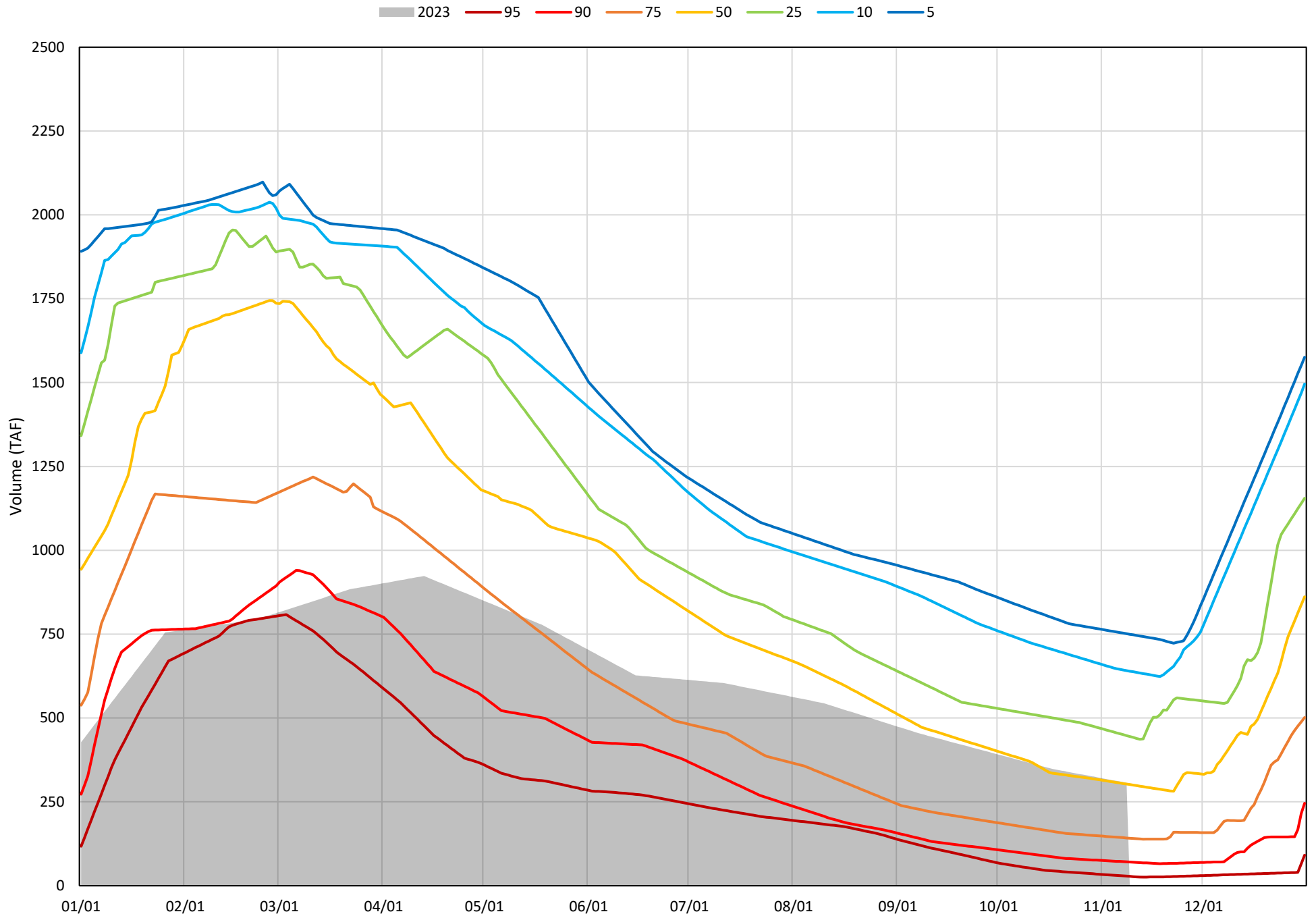
Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (2000-2022)



Trinity Lake Cold Water Pool Volume ≤50°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)

Nov-09 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	140	81	-4	75	23	18	-1	14
2001	-69	-16	-5	30	-12	-3	-2	6
2002	-32	21	50	34	-5	5	16	9
2003	118	33	-53	68	20	7	-17	15
2004	-84	-72	-97	84	-14	-16	-32	20
2005	229	188	25	147	38	41	8	29
2006	751	240	199	397	126	53	65	81
2007	45	111	141	99	7	24	46	26
2008	-314	-254	-176	248	-53	-56	-57	55
2009	-257	-198	-164	206	-43	-44	-54	47
2010	128	105	11	81	21	23	3	16
2011	461	390	261	371	77	86	85	83
2012	286	358	377	341	48	79	123	83
2013	-137	-86	-59	94	-23	-19	-19	20
2014	-482	-362	-247	364	-81	-80	-80	80
2015	-518	-404	-286	403	-87	-89	-93	90
2016	-269	-228	-146	214	-45	-50	-47	48
2017	229	161	100	163	38	35	32	35
2018	215	268	271	251	36	59	88	61
2019	460	498	461	473	77	110	150	112
2020	24	79	43	49	4	17	14	12
2021	-448	-332	-219	333	-75	-73	-71	73
2022	-432	-323	-204	320	-72	-71	-67	70
2023	0	0	0	0	0	0	0	0

}

Historical - Current

}

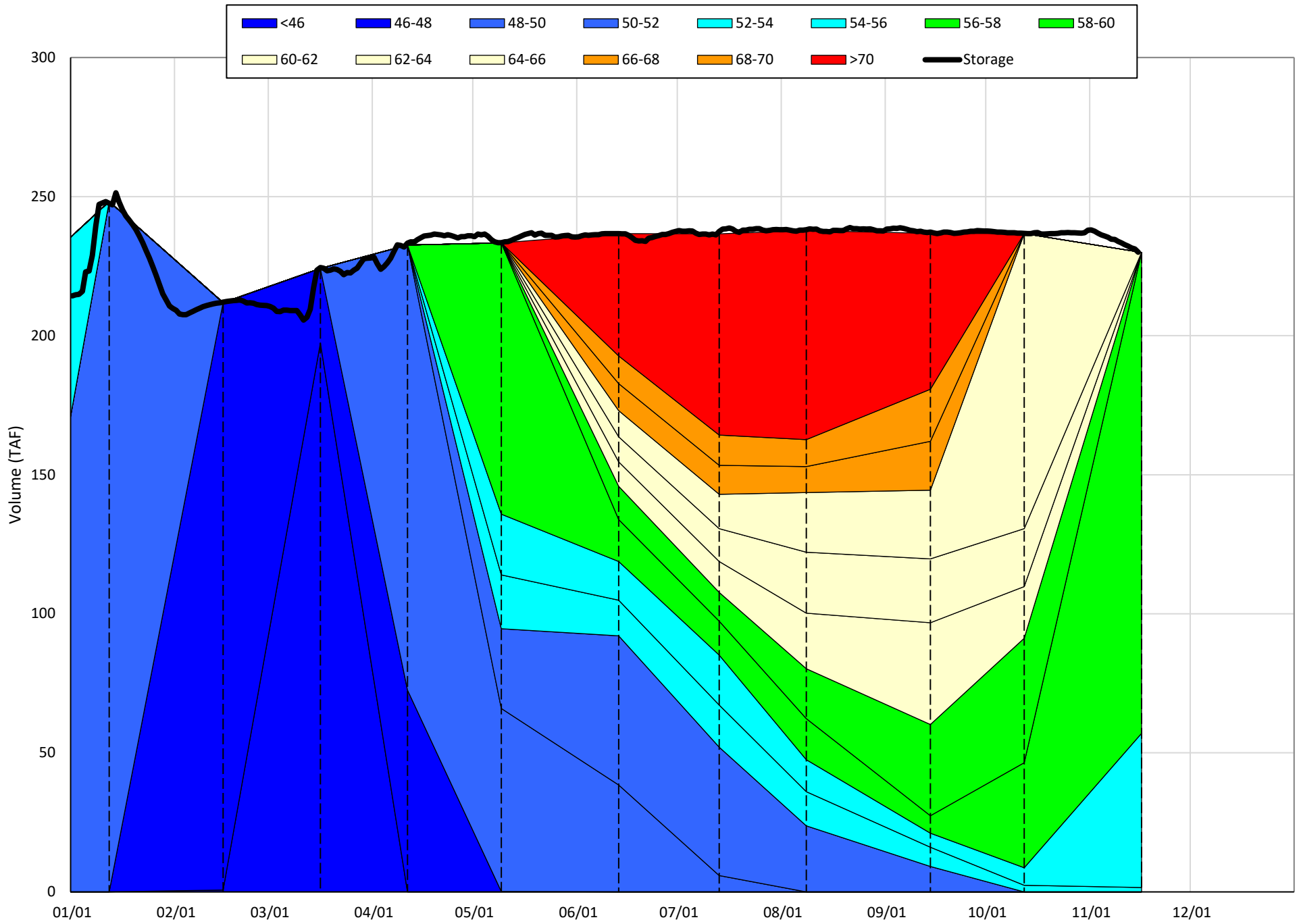
(Historical - Current) / Current

Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

2023

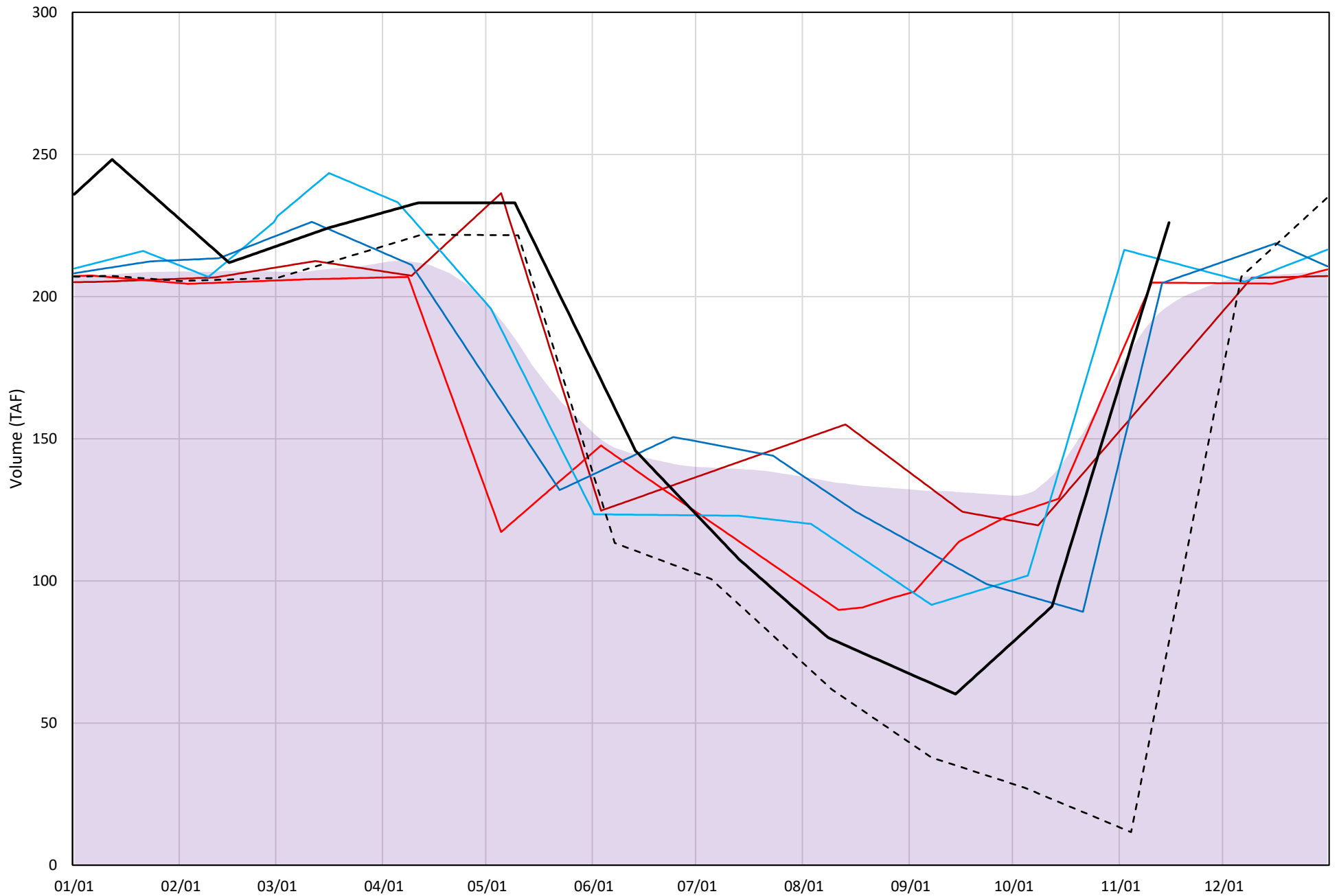
Page	Description
24	- Whiskeytown Lake Isothermobaths Plot
25	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$
26	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$
27	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$
28	- Whiskeytown Lake Cold Water 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



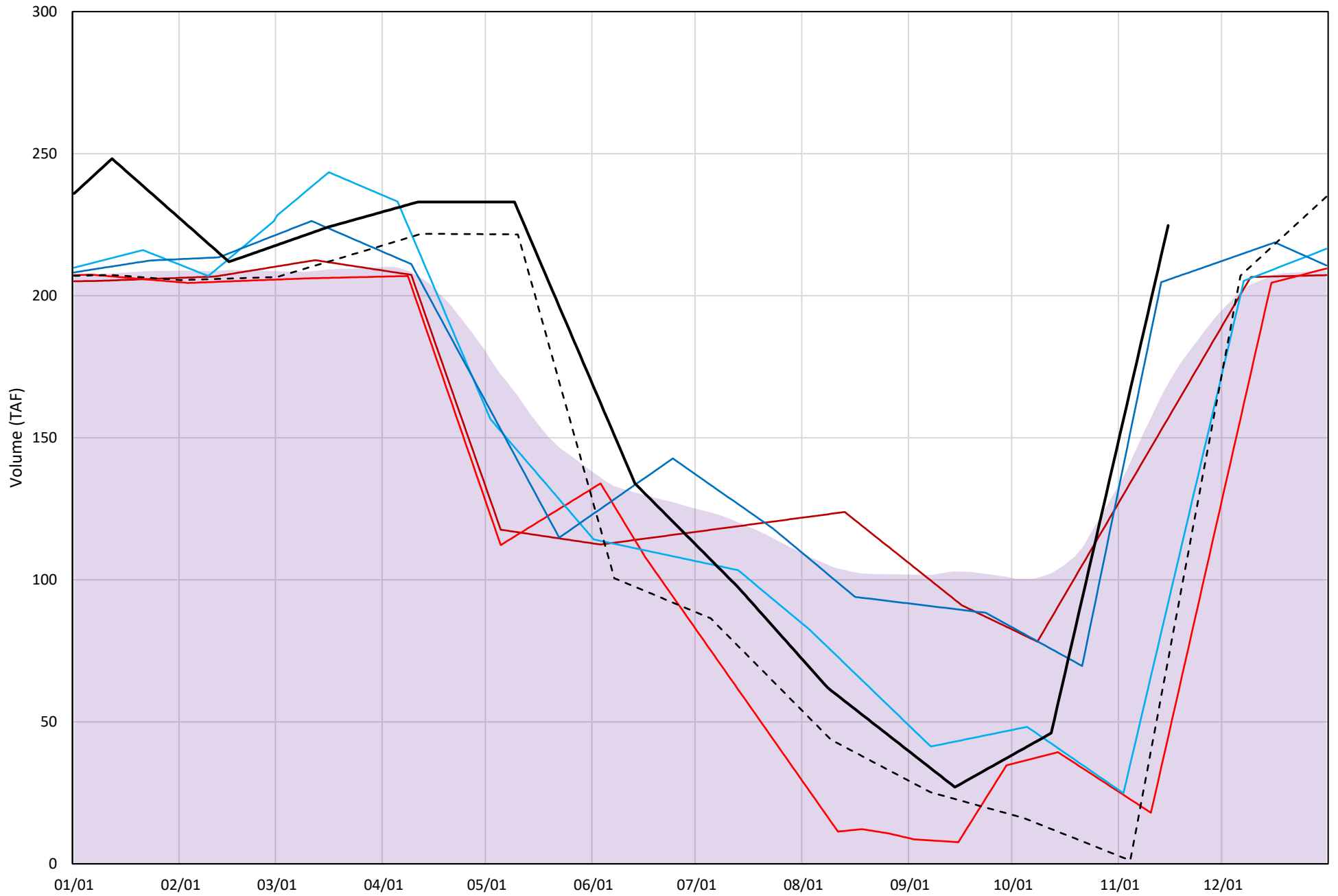
Whiskeytown Lake Cold Water Pool Volume ≤60°F

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



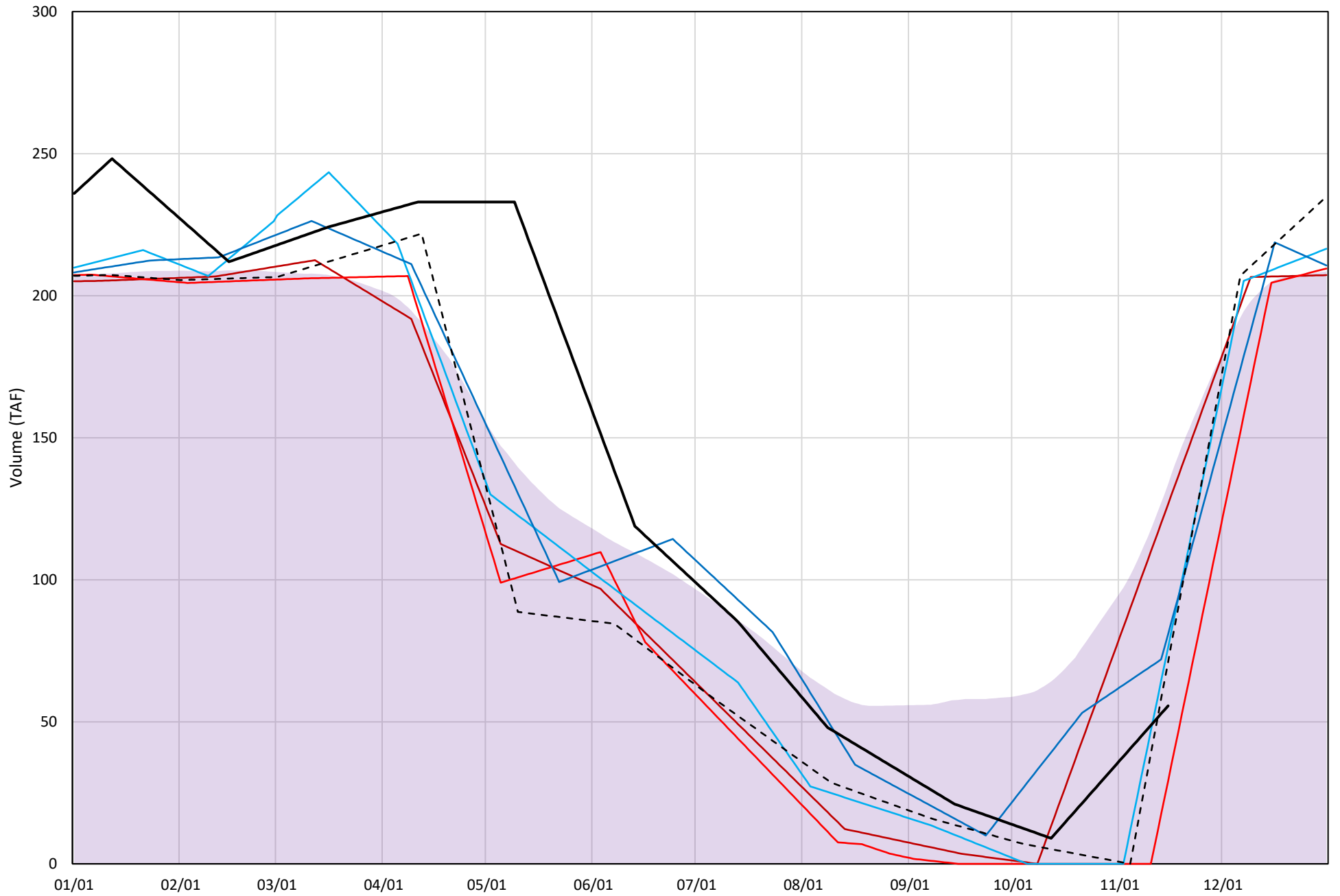
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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

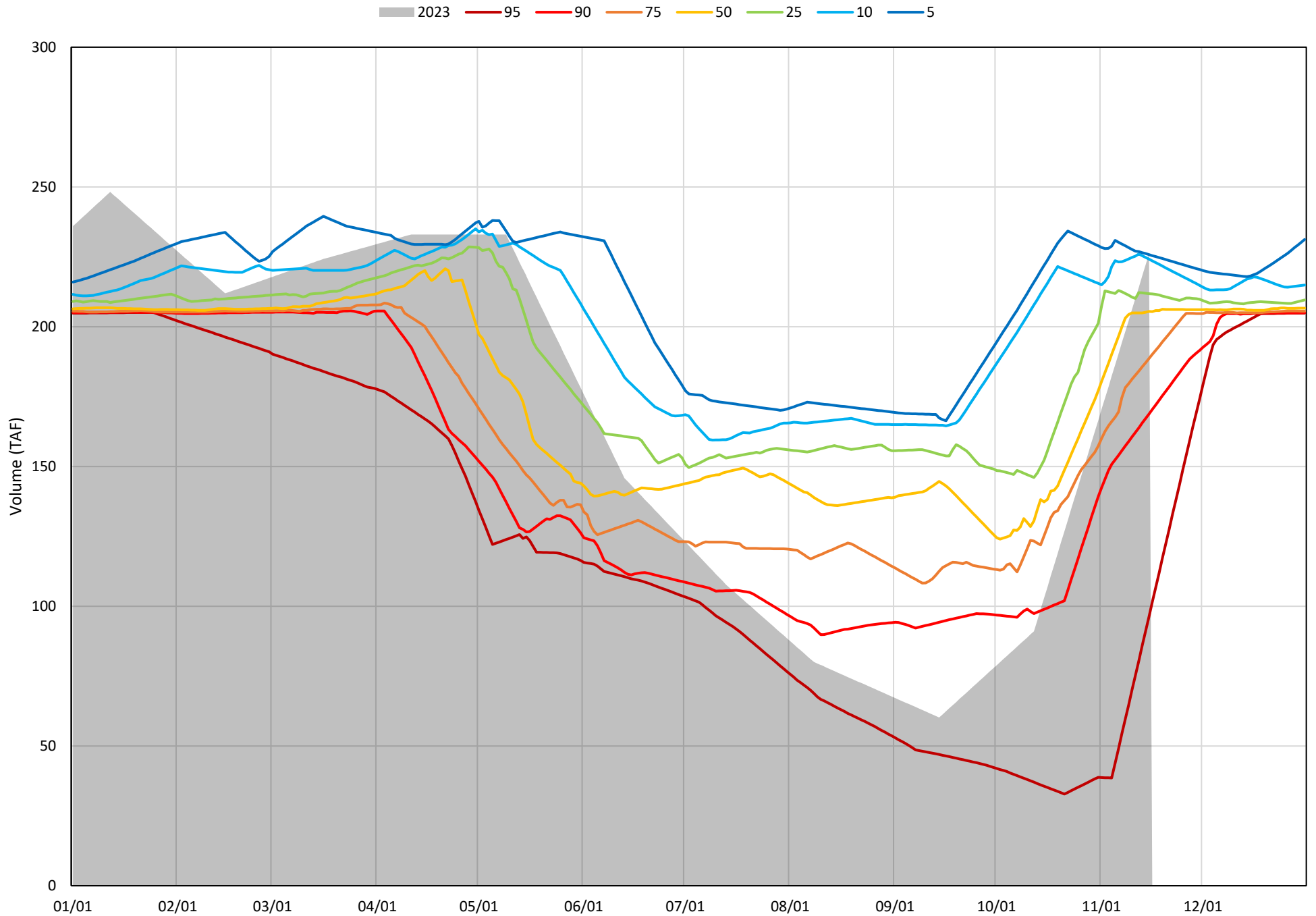


Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

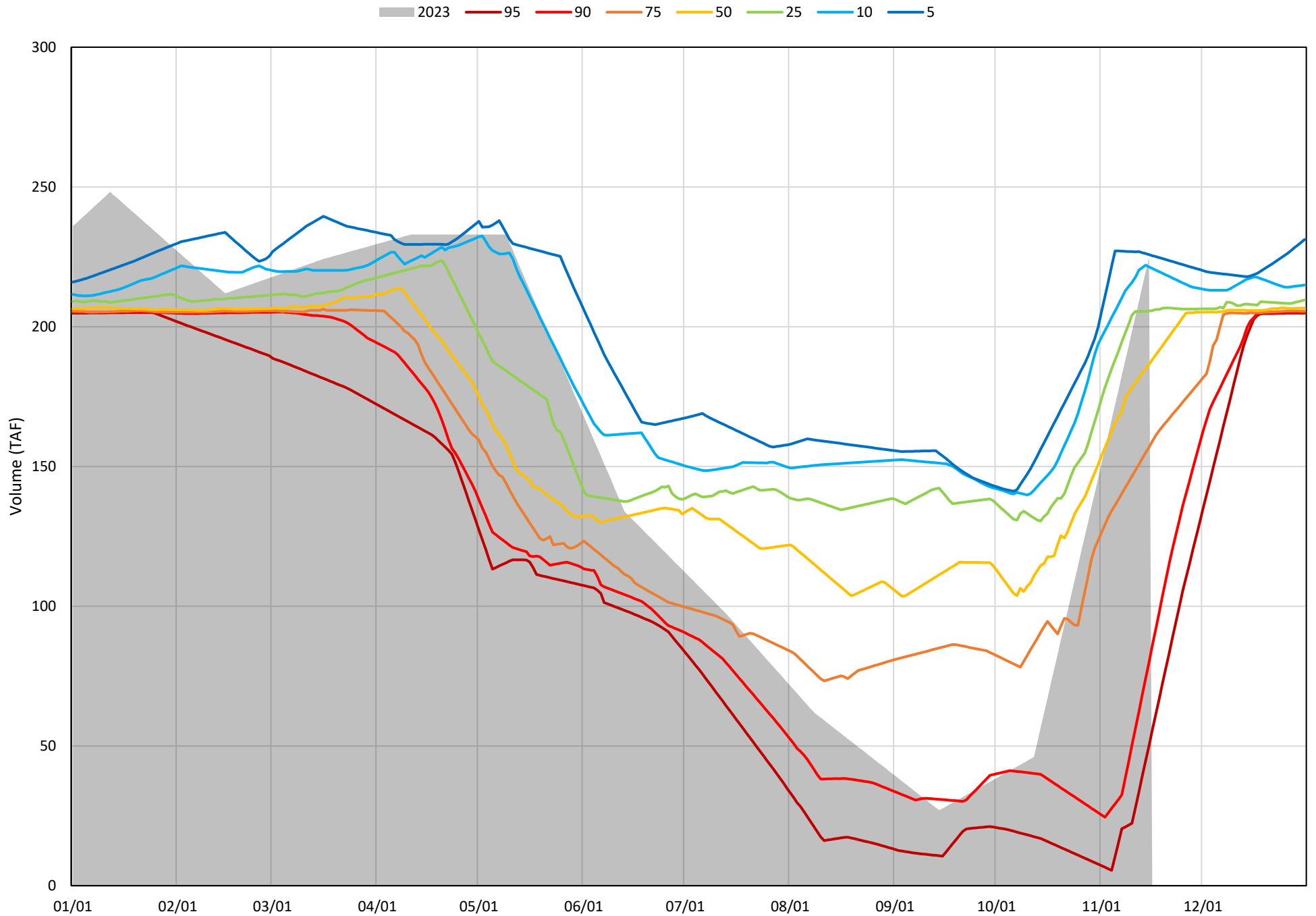
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



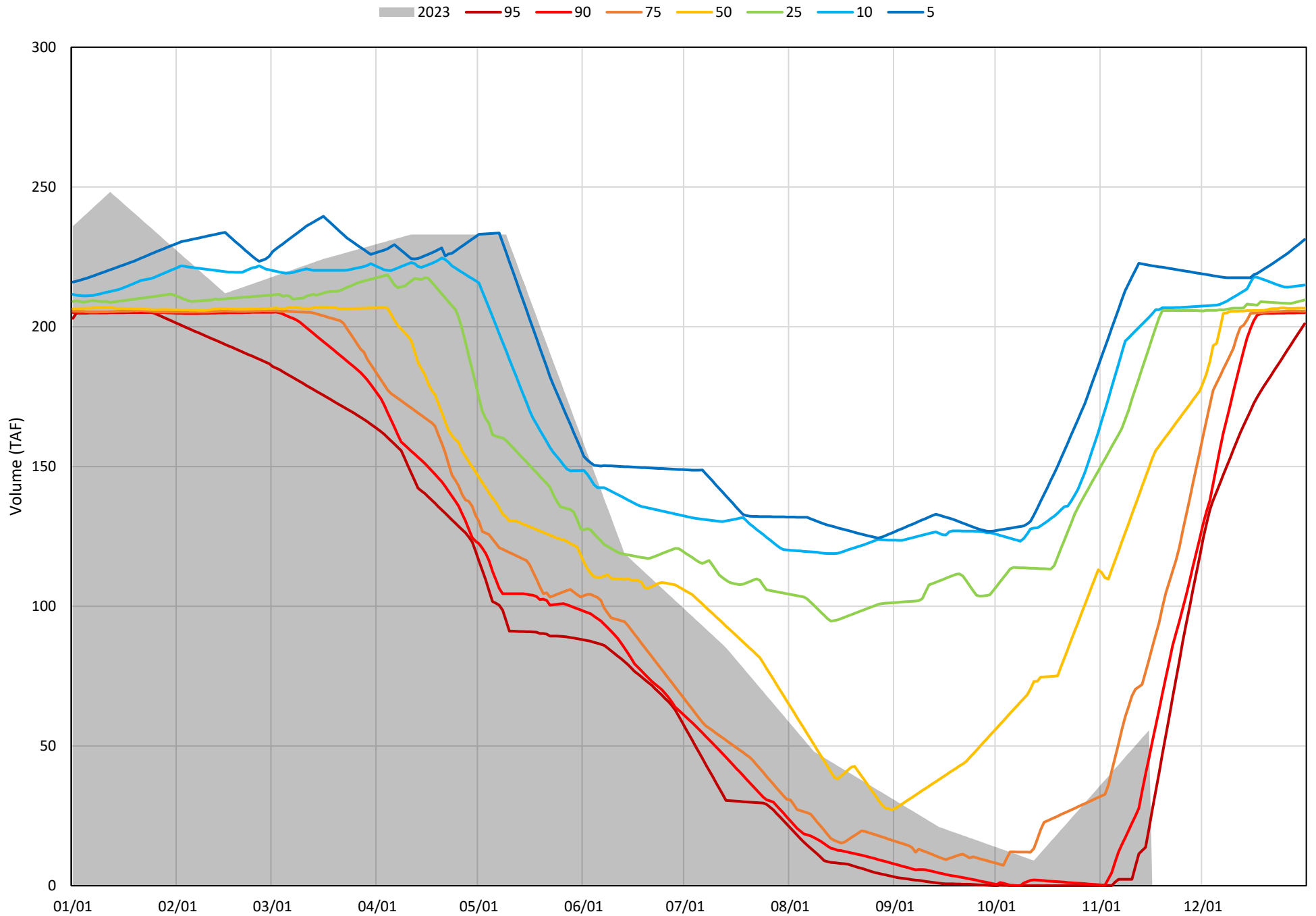
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2022)



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



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



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

Nov-16 2023	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	-60.0	-61.4	102.5	74.6	-26.6	-27.3	184.3	79.4
2001	-28.8	-27.8	140.1	65.6	-12.7	-12.4	251.8	92.3
2002	-37.4	-38.2	125.4	67.0	-16.6	-17.0	225.4	86.3
2003	-1.3	0.0	73.9	25.1	-0.6	0.0	132.8	44.5
2004	0.0	1.3	170.4	57.3	0.0	0.6	306.4	102.3
2005	-19.8	-18.5	14.8	17.7	-8.7	-8.2	26.7	14.5
2006	-42.7	-42.3	125.1	70.0	-18.9	-18.8	224.9	87.5
2007	-20.6	-19.3	37.5	25.8	-9.1	-8.6	67.5	28.4
2008	-25.3	-24.4	144.1	64.6	-11.2	-10.8	259.1	93.7
2009	-46.2	-50.4	94.0	63.5	-20.4	-22.4	168.9	70.6
2010	-14.2	-119.3	39.6	57.7	-6.3	-53.1	71.2	43.5
2011	-20.2	-19.0	150.2	63.1	-9.0	-8.4	269.9	95.8
2012	-20.9	-120.9	30.8	57.6	-9.3	-53.8	55.4	39.5
2013	-2.7	-66.3	96.8	55.2	-1.2	-29.5	174.0	68.2
2014	-53.2	-67.9	71.0	64.0	-23.5	-30.2	127.6	60.4
2015	-21.2	-180.1	-26.4	75.9	-9.4	-80.1	-47.5	45.7
2016	-13.8	-132.9	20.6	55.8	-6.1	-59.1	37.0	34.1
2017	-17.2	-59.3	104.8	60.4	-7.6	-26.4	188.3	74.1
2018	-9.6	-8.3	-37.4	18.4	-4.2	-3.7	-67.2	25.0
2019	-20.4	-19.2	25.2	21.6	-9.0	-8.5	45.4	21.0
2020	-29.6	-29.6	136.7	65.3	-13.1	-13.2	245.8	90.7
2021	-18.6	-24.7	141.4	61.6	-8.2	-11.0	254.3	91.1
2022	-147.2	-152.8	15.5	105.2	-65.1	-68.0	27.9	53.7
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Historical - Current

(Historical - Current) / Current