

Northern CVP Water Temperature Report

October - 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 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	
Sep	49.6	48.6	58.4	51.0	51.5	52.3	54.0	55.5	57.0	55.8	50.2	55.2	59.5	6434	732	7370	74.3	68.9	70.2	
10/01	49.7	48.5	58.2	50.8	51.3	52.0	53.1	53.9	55.1	53.1	49.4	52.8	56.2	6008	509	6403	66.5	62.7	64.8	
10/02	49.5	48.4	58.2	50.7	51.1	52.0	53.2	54.2	55.3	53.2	49.2	51.8	55.4	5412	499	6412	68.0	63.5	65.2	
10/03	49.2	48.4	58.1	50.8	51.4	52.4	53.7	54.7 ?	55.9	53.9	49.6	53.3	56.8	5774	586	6397	72.0	68.3	70.7	
10/04	48.0	47.5	58.2	51.0	51.7	52.8 ?	54.2 ?	55.5	56.7	54.1	49.7	53.5	57.3	5897	505	6420	83.0	76.5	76.0	
10/05	47.6	47.1	58.1	50.4	51.2	52.4	54.1 ?	55.5	56.9	54.0	49.8	53.3	57.0	5630	505	6414	81.0	70.4	74.4	
10/06	47.9	47.2	58.1	49.4	50.1	51.4	53.3 ?	55.0	56.5	54.0	50.0	53.3	56.9	6026	493	6103	77.5	69.6	73.5	
10/07	47.8	47.0	58.1	49.1	49.7	50.8	52.6	54.2	55.7	53.9	50.0	53.4	56.9	5456	503	6092	75.5	68.4	71.6	
10/08	48.0 ?	47.1	58.1	49.4	50.0	51.0	52.5	53.9	55.3	53.9	50.1	53.4	56.9	5655	504	6095	74.5	67.5	72.0	
10/09	47.8	47.0	58.0	49.1	49.3	50.0	52.0	53.6	54.9	53.4	49.9	52.8	55.8	5818	505	6092	67.0	62.5	65.7	
10/10	48.5	47.4	58.0	48.8	49.0	49.6	51.1	52.5	53.7	53.3	49.8	52.3	55.2	5372	496	6095	60.5	60.5	61.9	
10/11	48.6	47.5	57.9	48.9	49.2	50.0	51.0	51.9	52.8	53.2	49.6	51.6	54.4	5310	497	6132	60.5	57.5	60.7	
10/12	48.7 ?	47.6	57.9	49.4	49.9	50.6	51.5	52.4	53.1	53.4	49.4	51.3	53.8	5695	498	6100	66.0	59.0	62.4	
10/13	48.6	47.6	57.9	49.2	49.4	49.9	51.2 ?	52.1	53.0	53.0	49.5	49.8	52.2	5759	504	6139	59.0	55.7	59.0	
10/14	48.6	47.5	57.9	49.4	49.8	50.4	51.6 ?	52.4	52.8	53.9	49.5	51.3	52.7	5459	494	6103	66.0	61.5	62.9	
10/15	48.6 ?	47.5	57.8	49.4	49.8	50.6	51.8	52.8	53.7	54.2	49.3	52.1	55.1	5738	440	6093	68.5	61.0	64.4	
10/16	48.4	47.4	57.7	49.4	49.5	49.9	51.4 ?	52.6	53.6	54.0	49.1	51.3	54.1	5017	708	6099	64.0	59.8	63.2	
10/17	48.5	47.6	57.7	49.8	50.3	51.1	52.0	52.7	53.3	55.1	49.4	53.1	55.8	5740	737	6098	70.5	64.3	68.1	
10/18	48.7	47.7	57.6	49.7	50.2	51.0	52.5	53.6	54.5	55.4	49.2	54.0	56.5	5709	496	6109	73.0	64.3	67.8	
10/19	49.3 ?	48.0	57.6	49.7	50.2	50.9	52.2 ?	53.3	54.3	55.3	49.2	52.8	56.4	5809	432	6096	73.0	63.7	67.9	
10/20	49.2 ?	48.2	57.4	49.8	50.1	50.8	52.2	53.2	54.1	55.7	49.4	52.4	55.7	6113	426	6497	71.5	63.0	67.7	
10/21	49.0 ?	48.0	57.5	49.9	50.2	50.8	52.2	53.2	54.0	55.9	49.5	52.6	55.7	5793	491	6503	66.5	60.9	62.0	
10/22	48.6	47.8	57.5	49.9	50.0	50.4	51.7 ?	52.7	53.4	55.4	49.5	52.1	55.0	6077	497	6498	58.0	56.1	56.0	
10/23	48.8	48.0	57.4	49.7	50.1	50.8	51.8 ?	52.5	53.1	56.0	49.6	52.8	55.7	5997	500	6491	65.5	60.5	64.9	
10/24	48.6	47.7	57.3	49.6	49.8	50.4	51.7 ?	52.8 ?	53.7	56.1	49.5	53.3	55.6	5621	509	6491	65.5	60.6	62.4	
10/25	49.3	48.0	57.3	49.5	49.7	50.4	51.6 ?	52.5	53.2	55.8	49.2	52.2	54.7	5493	514	6534	57.0	58.4	57.0	
10/26	49.2	48.1	57.2	49.6	49.6	49.9	50.6 ?	50.9	51.7	54.7 ?	48.9 ?	48.1 ?	51.6	5611	490	6596	52.0	47.0	50.5	
10/27	48.9	48.1	57.2	49.5	49.4	49.7	50.2 ?	50.3	50.7	54.5	49.0	47.2	49.3	5718	493	6592	51.0	44.6	48.2	
10/28	49.0	48.4	57.1	49.4	49.4	49.7	50.0	50.0	50.2	54.3	48.7	46.7	48.3	5829	493	6598	52.5	51.2	52.2	
10/29	49.1	48.2	57.0	49.3	49.3	49.7	50.0	49.8	50.1	54.4	48.3	46.1	47.6	6137	491	6586	63.0	51.7	55.2	
10/30	49.4	48.1	56.9	49.1	49.1	49.6	50.1 ?	50.0	50.3	54.2	48.0	45.9	47.3	5897	502	6502	55.5	47.5	51.9	
10/31	49.8	48.3	57.6	49.8	49.7	49.9	50.1 ?	49.9	50.2	53.9	47.9	46.3	47.4	6257	37	6487	56.0	48.3	51.4	
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	
														Total CFS	177827	15354	195867			
														Total AF	352713	30454	388494			

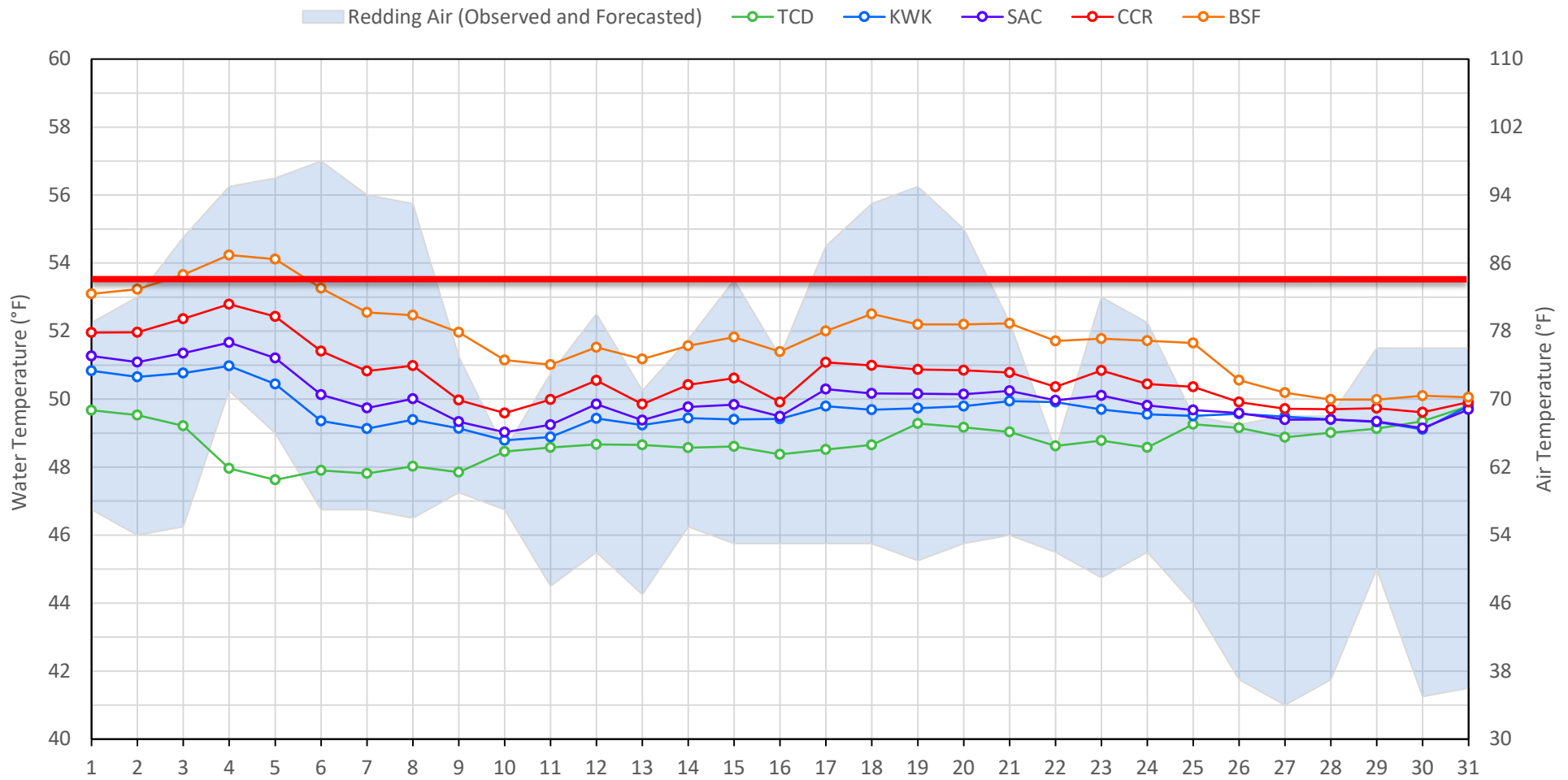
Legend

- ? = 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



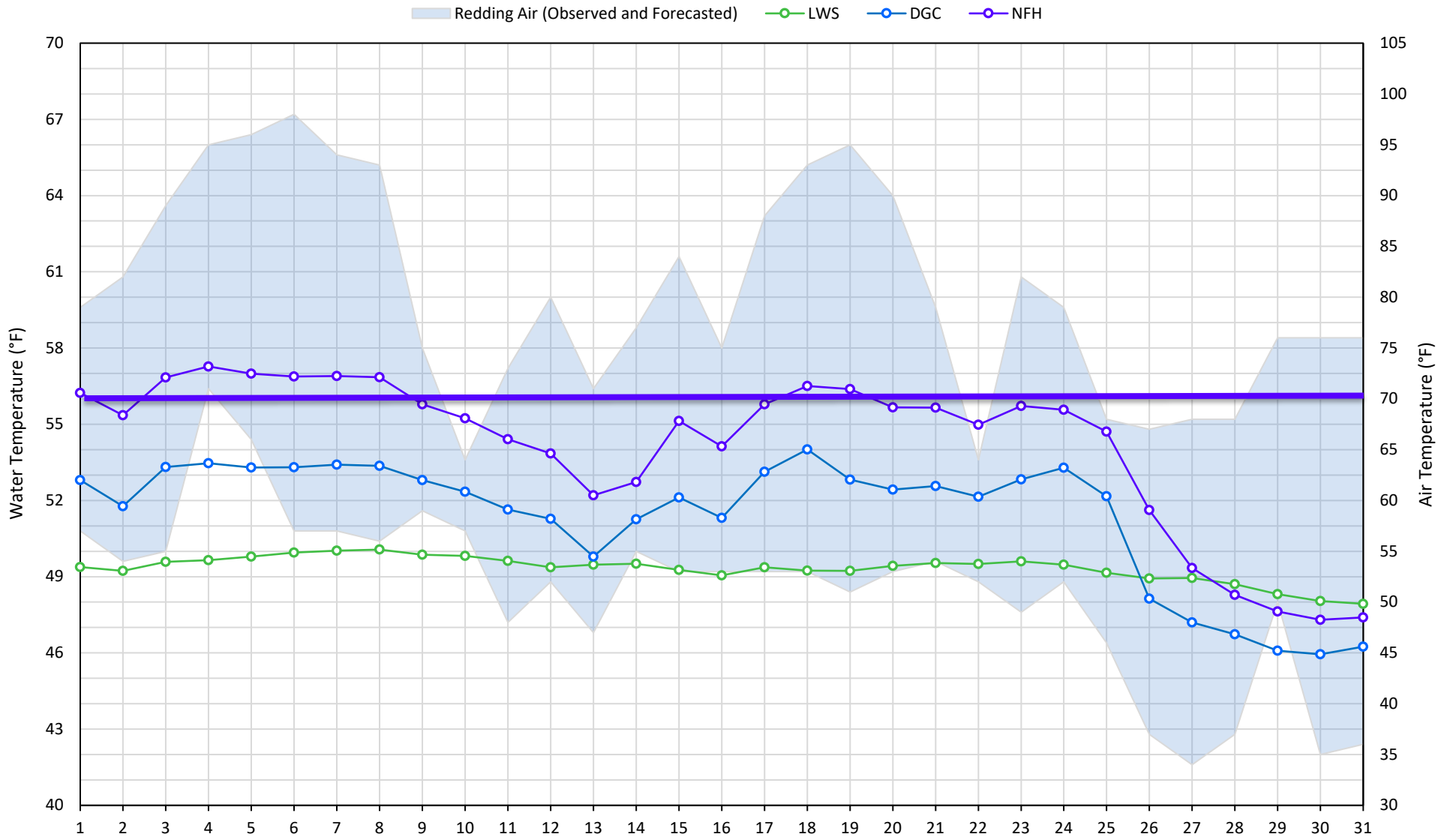
Station Details			
Code	Body of Water	Location ¹	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles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

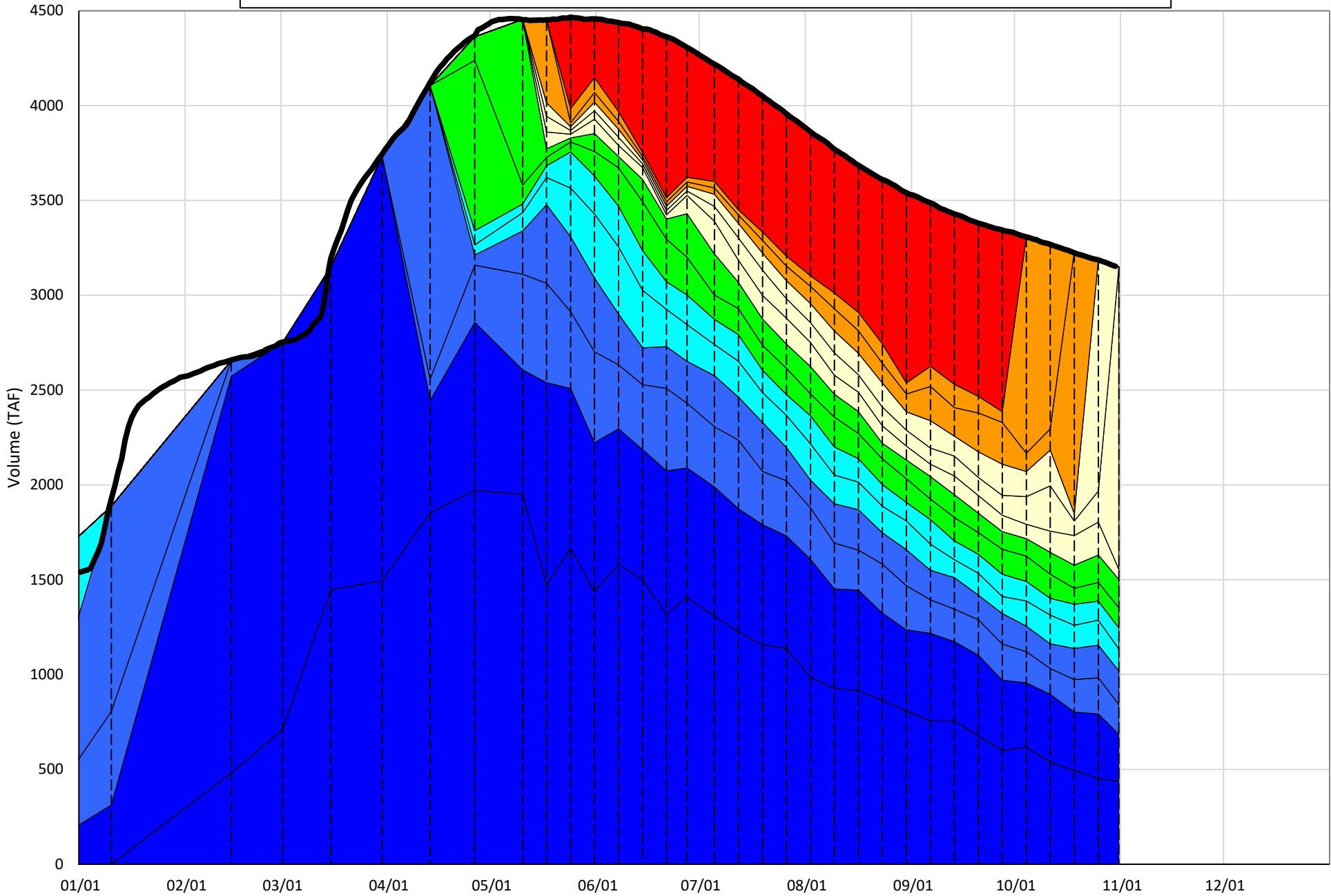
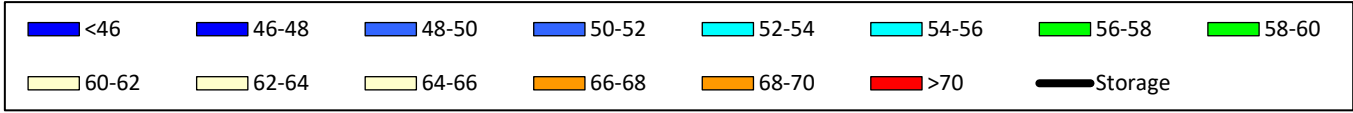
¹ Distances are approximate

Shasta Lake Isothermobaths & Cold Water Pool Statistics

2023

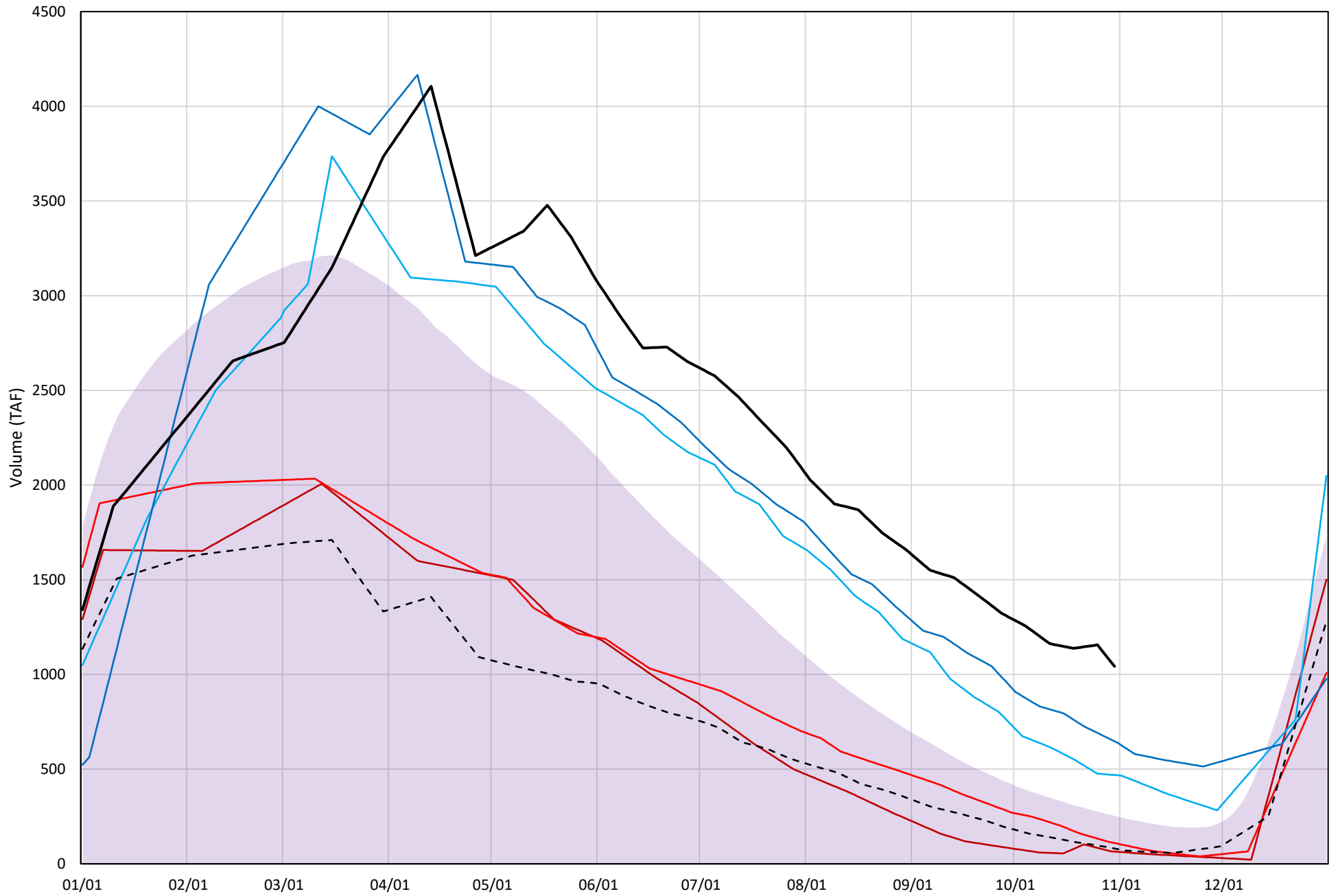
Page	Description
6	- Shasta Lake Isothermobaths Plot
7	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
8	- Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
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10	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$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



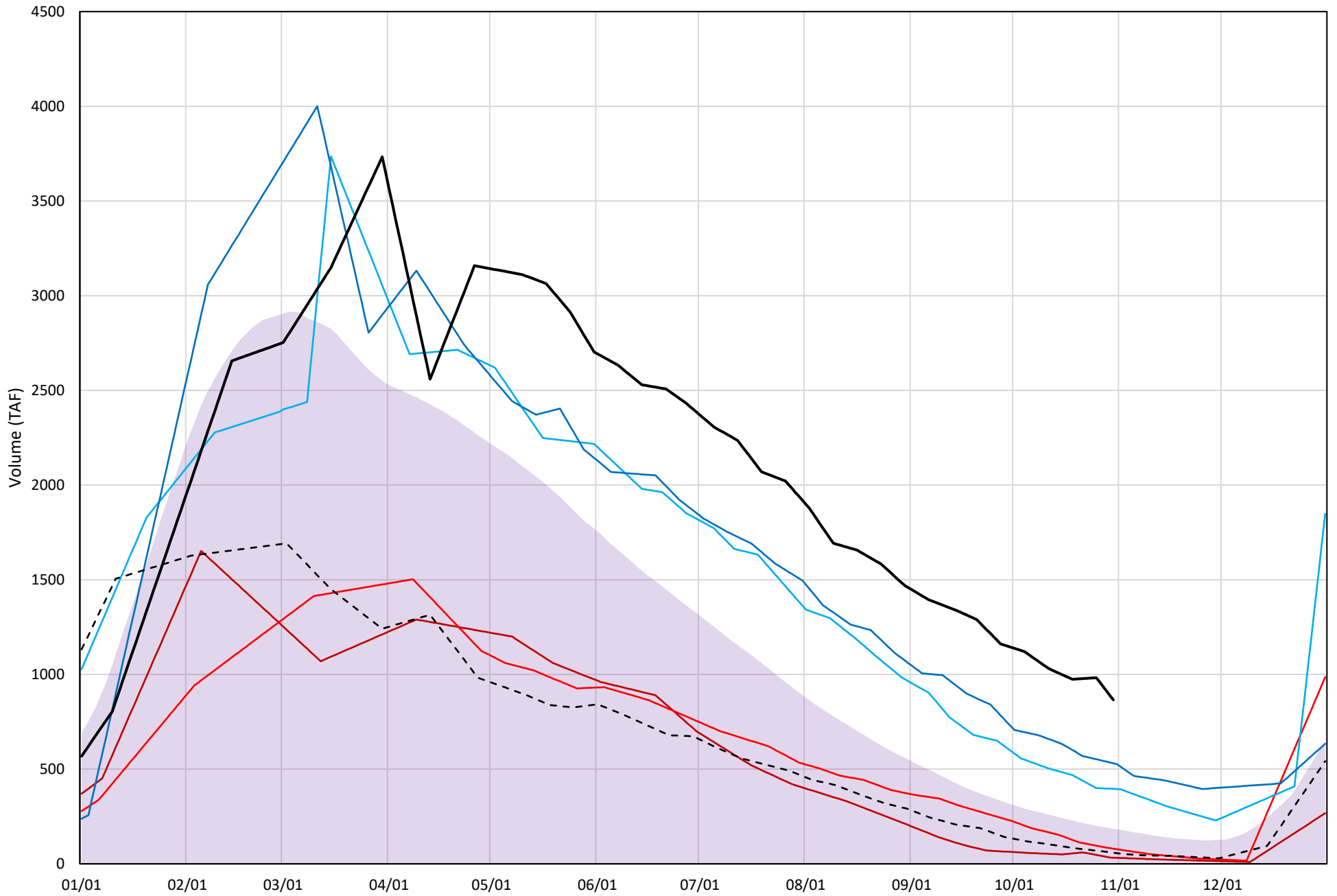
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



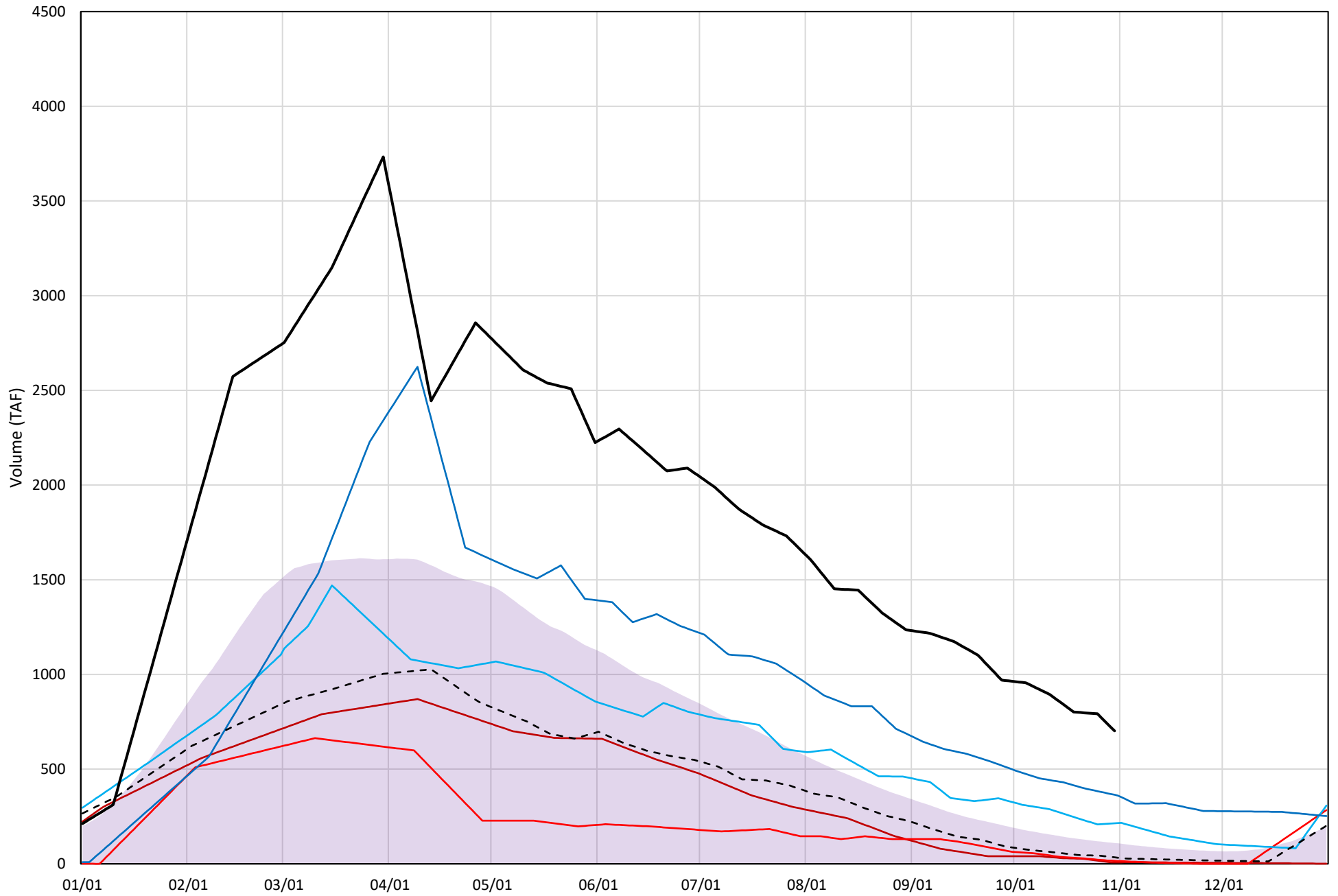
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

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

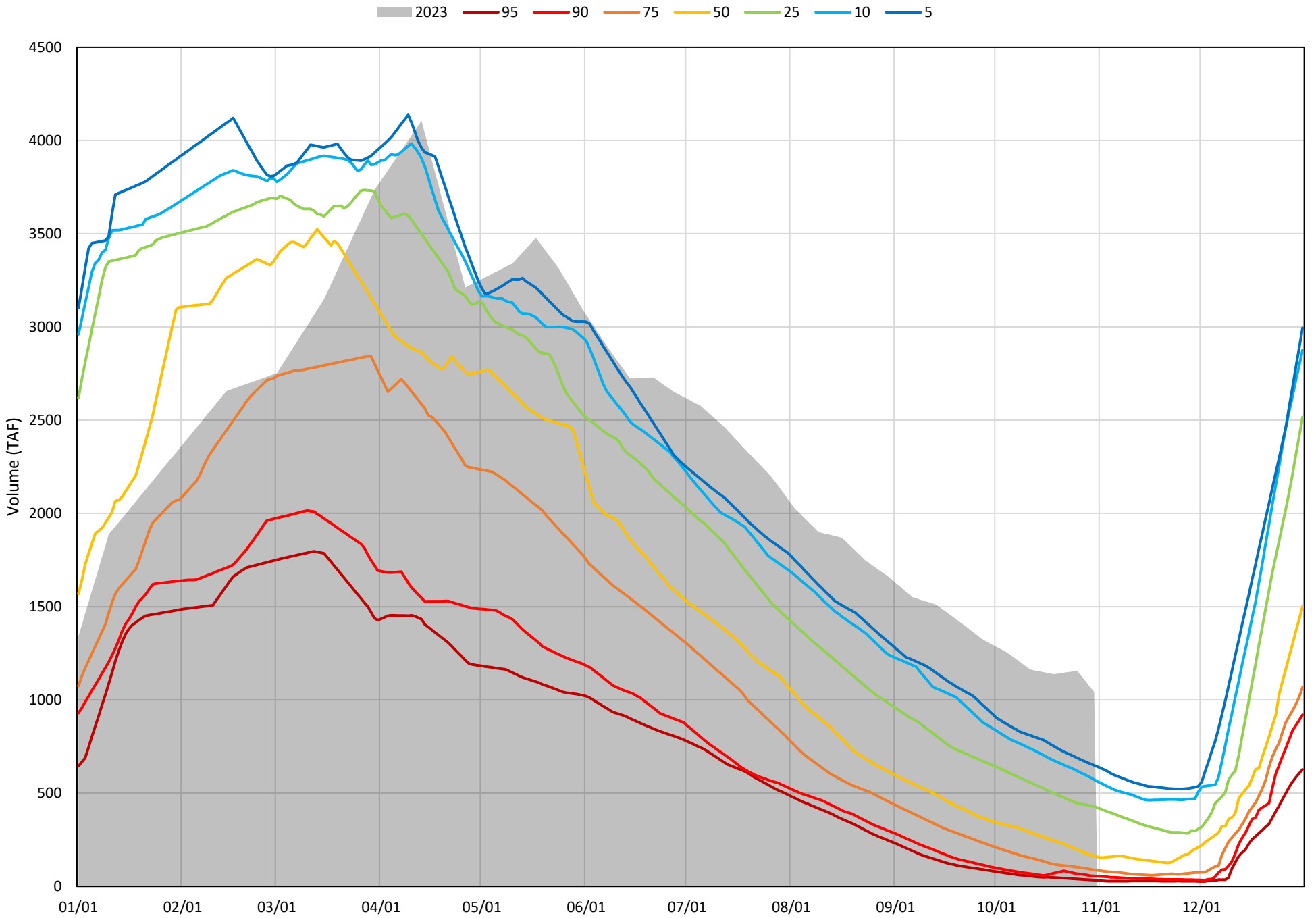


Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

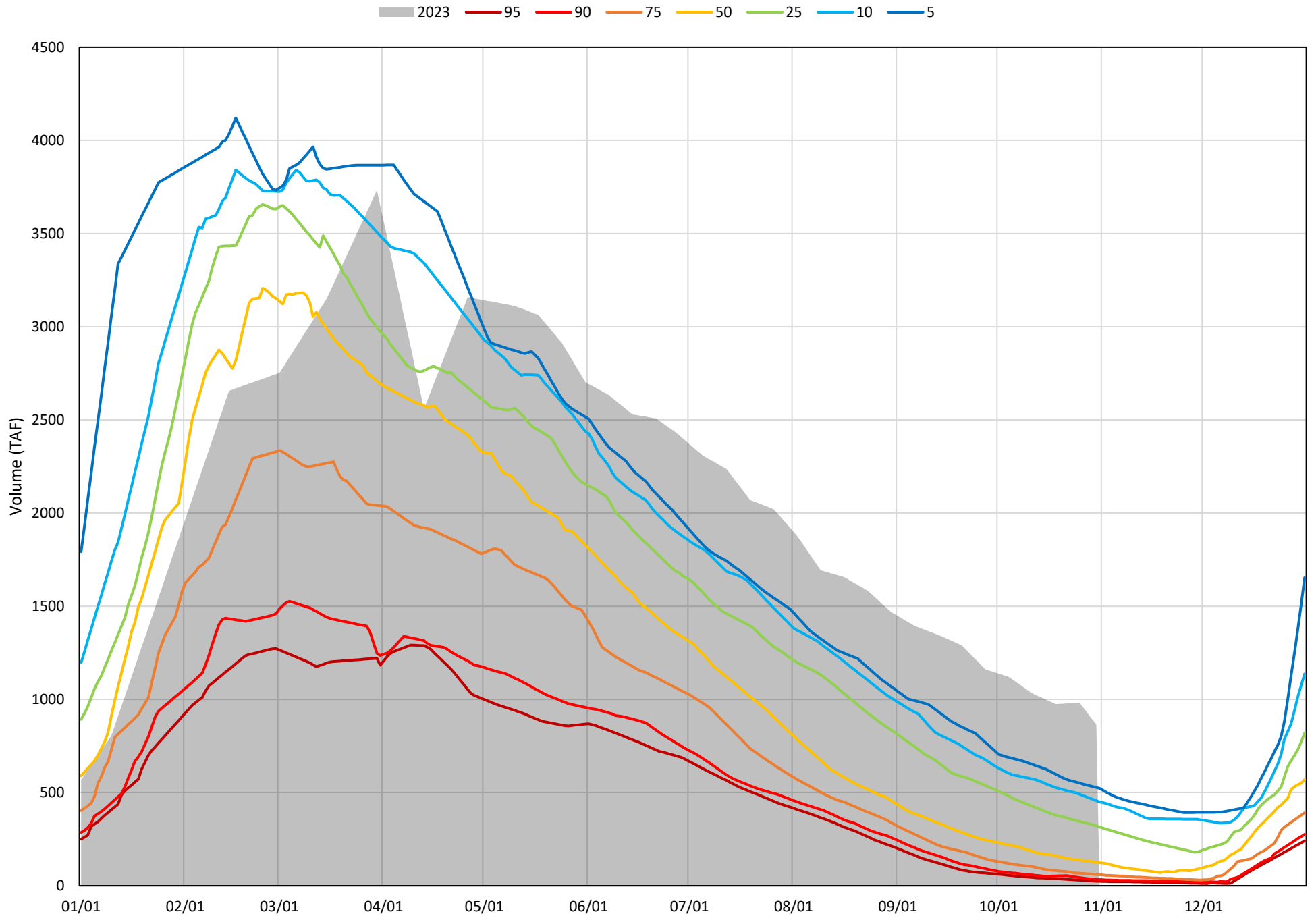
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



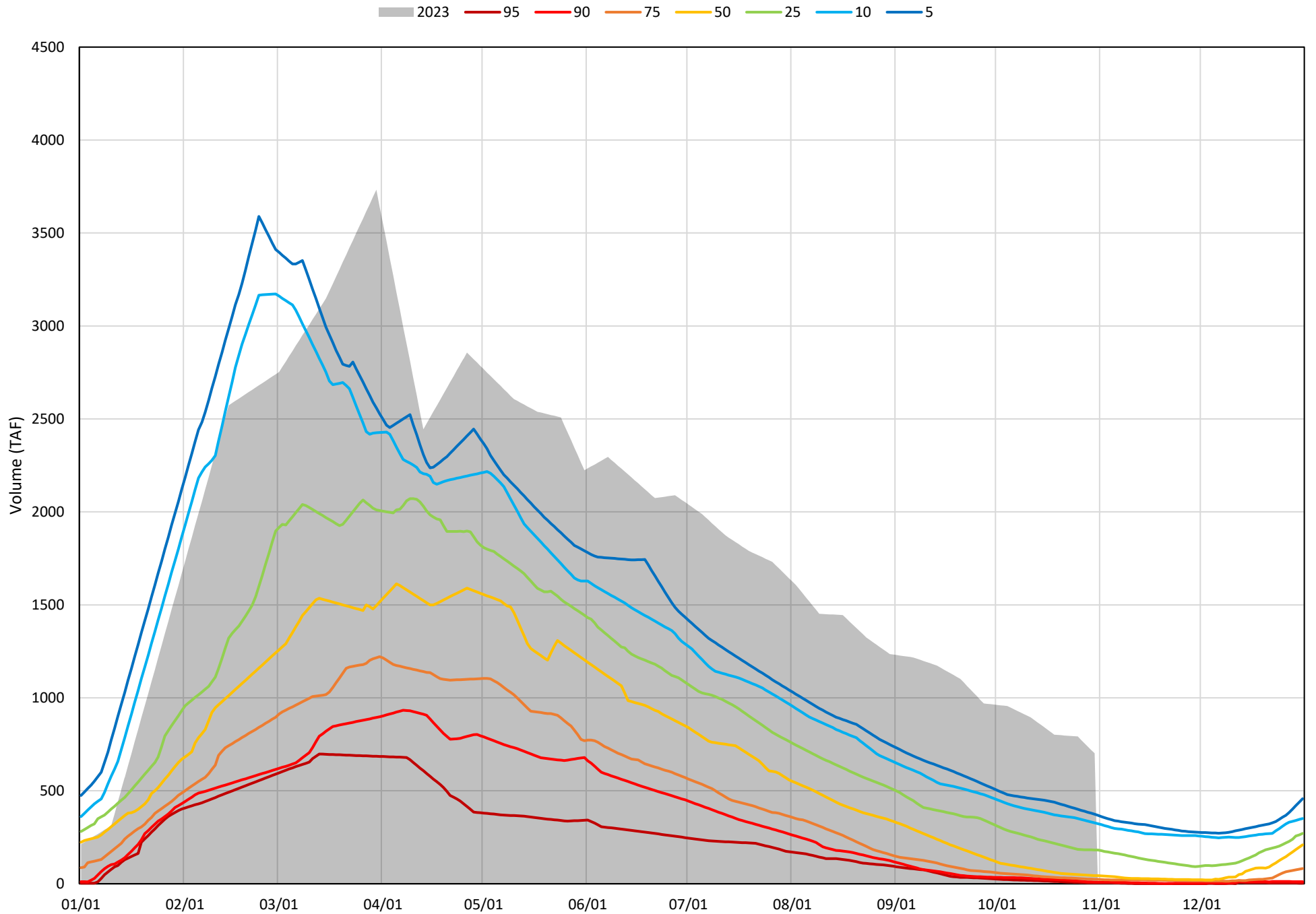
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2022)



Shasta Lake Cold Water Pool Volume ≤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)

Oct-31 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
1998	-894	-816	-692	800	-86	-94	-99	93
1999	-576	-477	-411	488	-55	-55	-59	56
2000	-799	-734	-666	733	-77	-85	-95	85
2001	-892	-754	-630	759	-86	-87	-90	87
2002	-745	-634	-557	645	-71	-73	-79	75
2003	-733	-740	-679	717	-70	-85	-97	84
2004	-947	-793	-662	801	-91	-92	-94	92
2005	-940	-804	-674	806	-90	-93	-96	93
2006	-711	-616	-557	628	-68	-71	-79	73
2007	-973	-813	-666	817	-93	-94	-95	94
2008	-1001	-831	-677	836	-96	-96	-96	96
2009	-962	-801	-658	807	-92	-93	-94	93
2010	-545	-553	-552	550	-52	-64	-79	65
2011	-393	-348	-324	355	-38	-40	-46	41
2012	-653	-536	-482	557	-63	-62	-69	64
2013	-880	-733	-614	742	-84	-85	-87	86
2014	-978	-833	-694	835	-94	-96	-99	96
2015	-933	-786	-686	802	-89	-91	-98	93
2016	-574	-470	-488	511	-55	-54	-70	60
2017	-520	-450	-399	456	-50	-52	-57	53
2018	-826	-718	-647	731	-79	-83	-92	85
2019	-396	-335	-337	356	-38	-39	-48	42
2020	-879	-775	-680	778	-84	-90	-97	90
2021	-1014	-845	-698	852	-97	-98	-99	98
2022	-962	-807	-668	812	-92	-93	-95	94
2023	0	0	0	0	0	0	0	0

Historical - Current

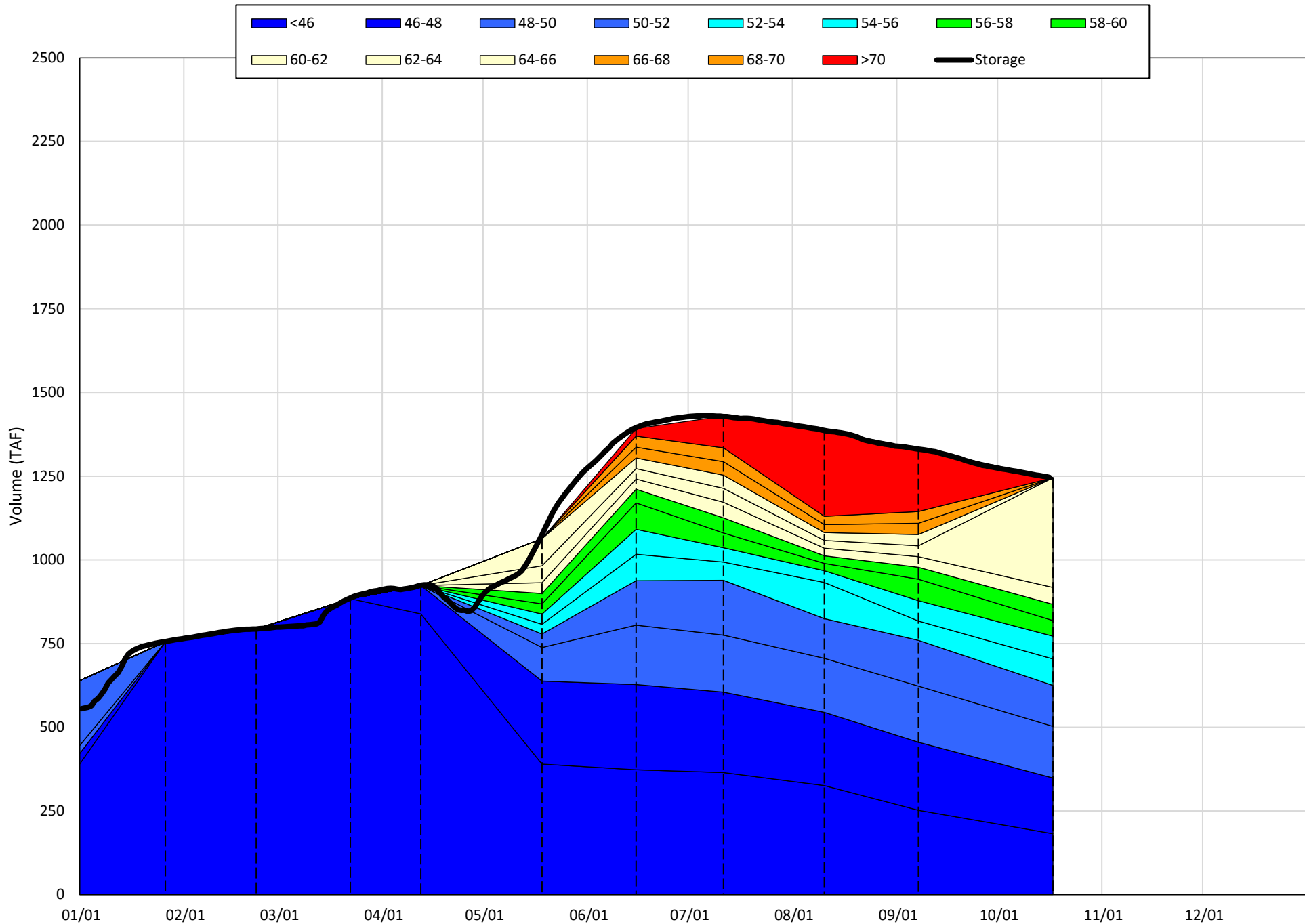
(Historical - Current) / Current

Trinity Lake Isothermobaths & Cold Water Pool Statistics

2023

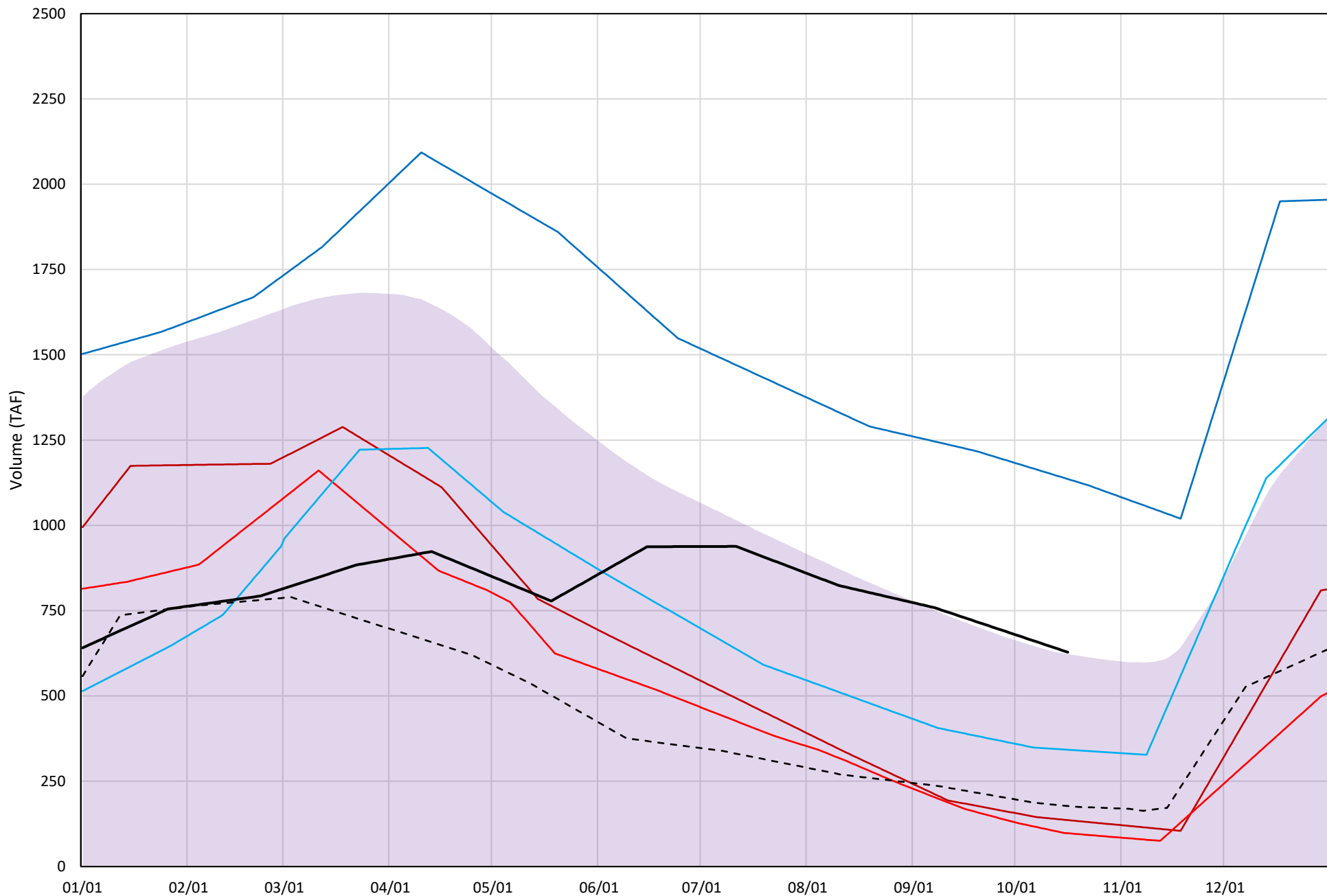
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq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



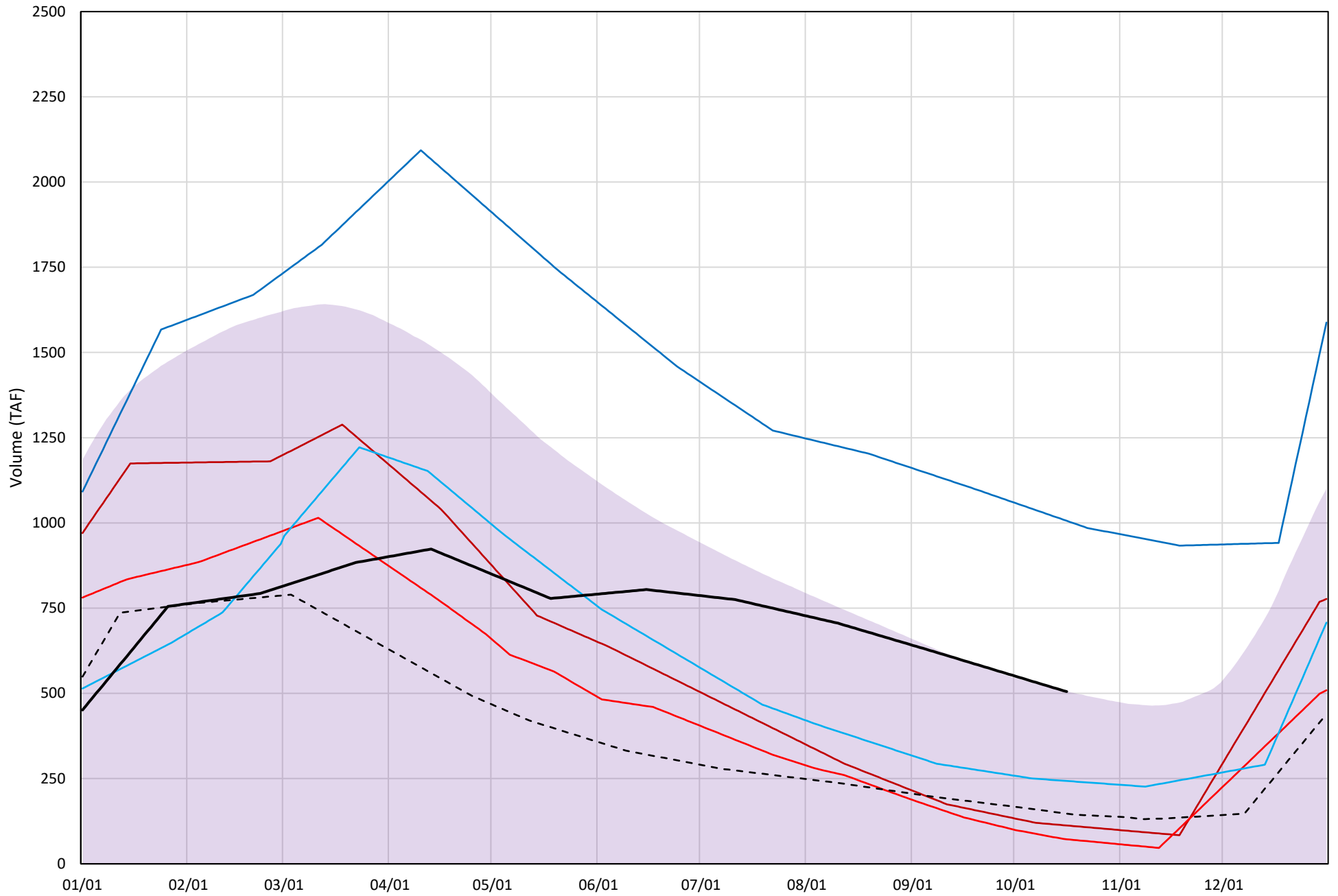
Trinity Lake Cold Water Pool Volume ≤52°F

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



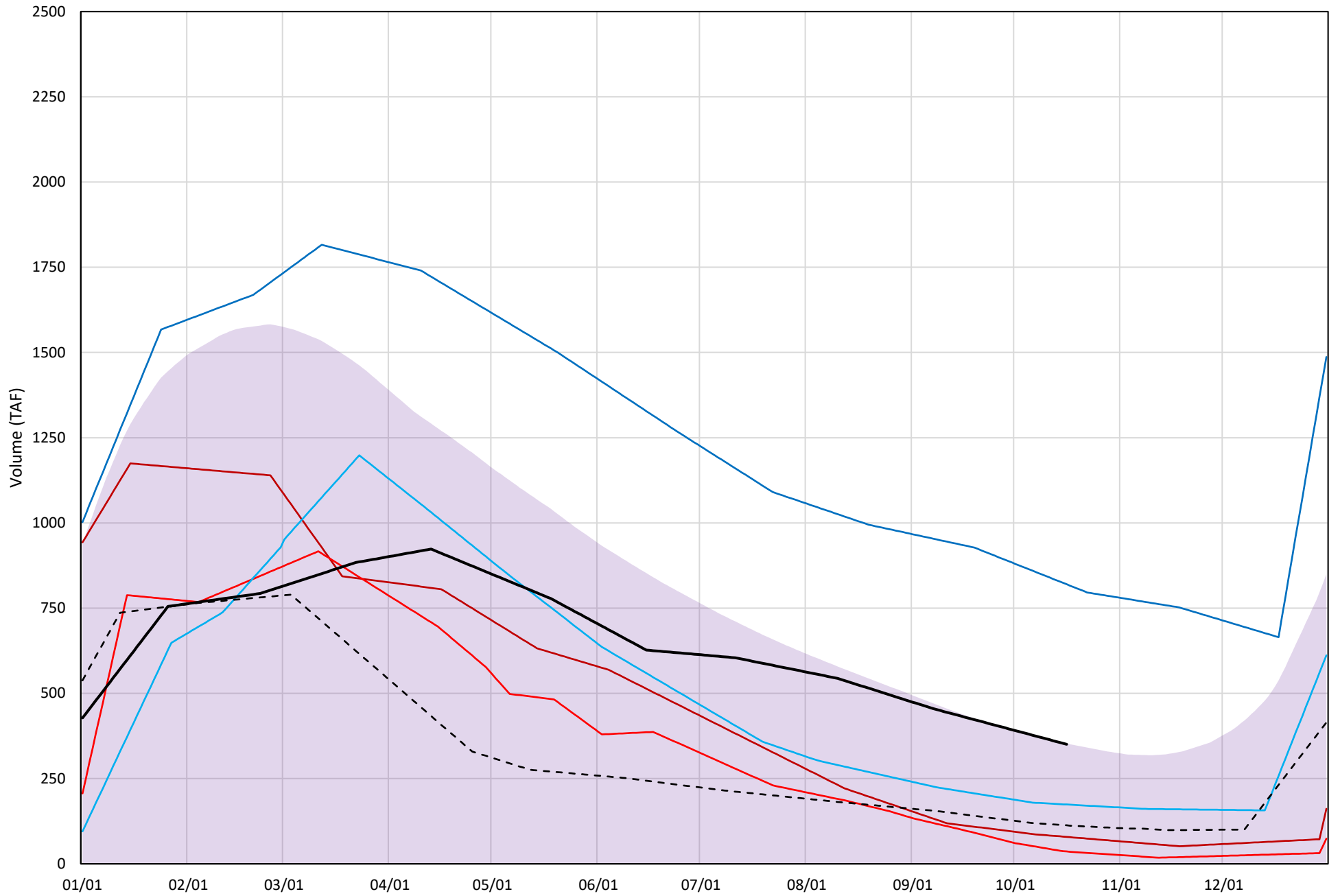
Trinity Lake Cold Water Pool Volume ≤50°F

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

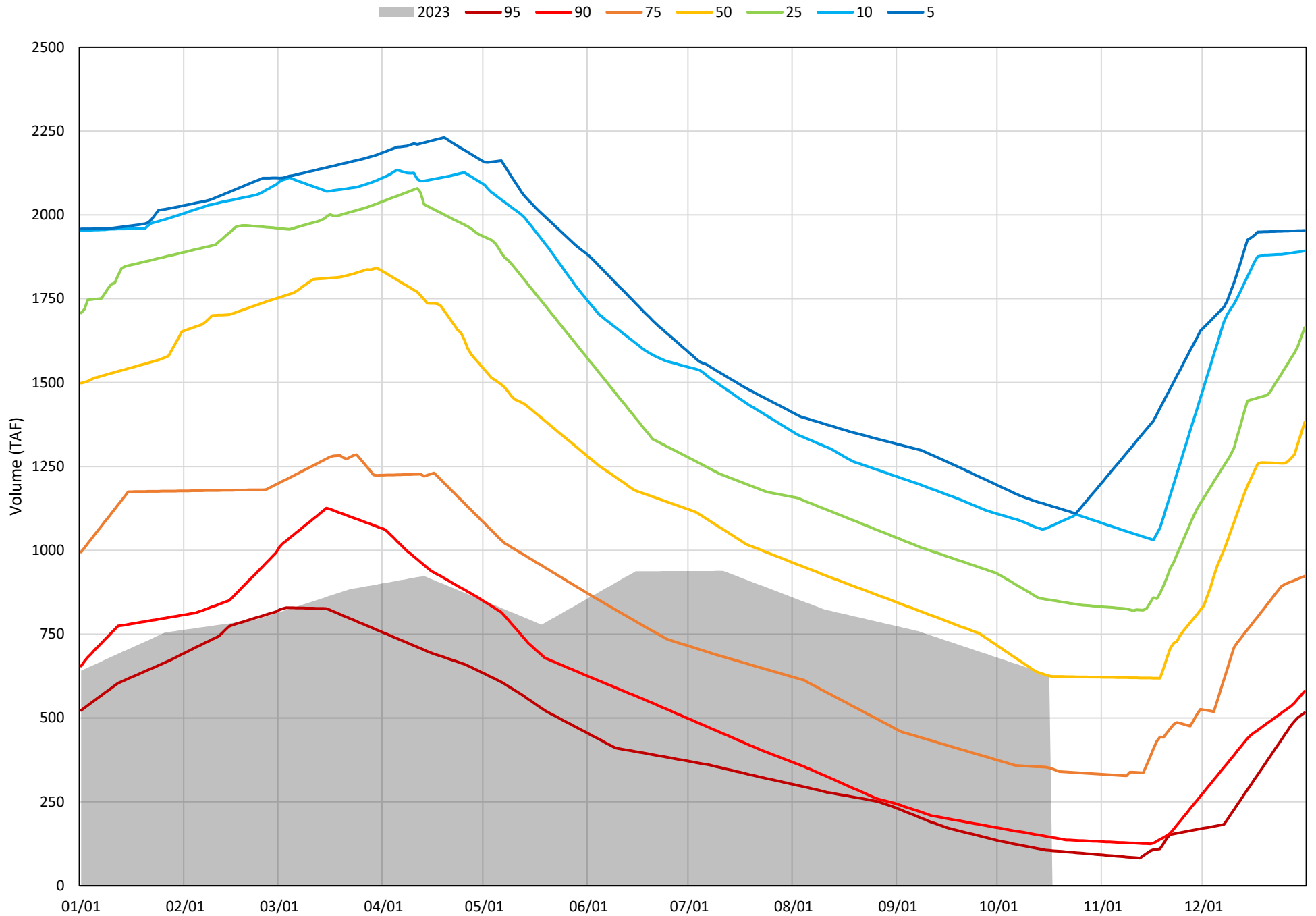


Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

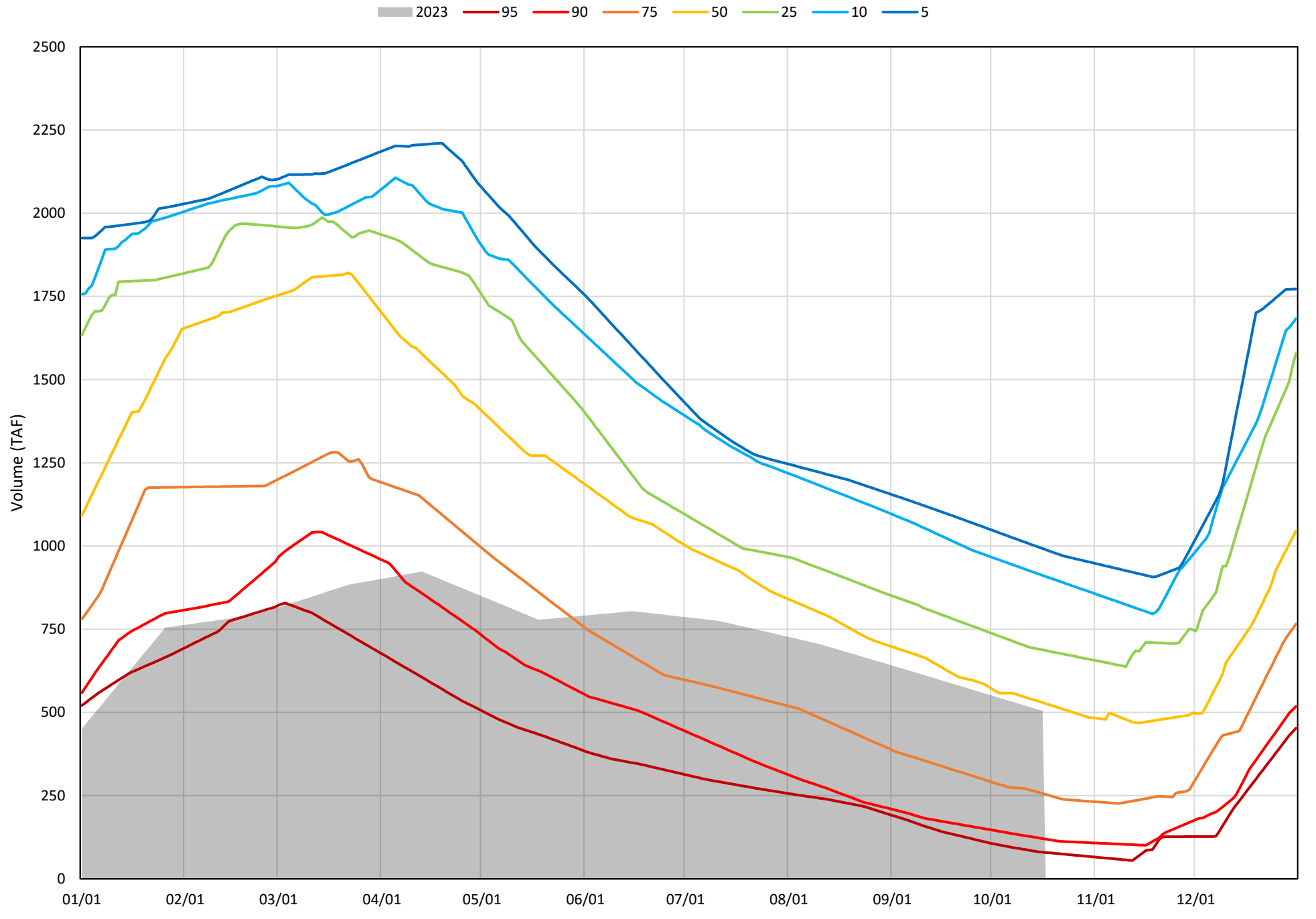
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



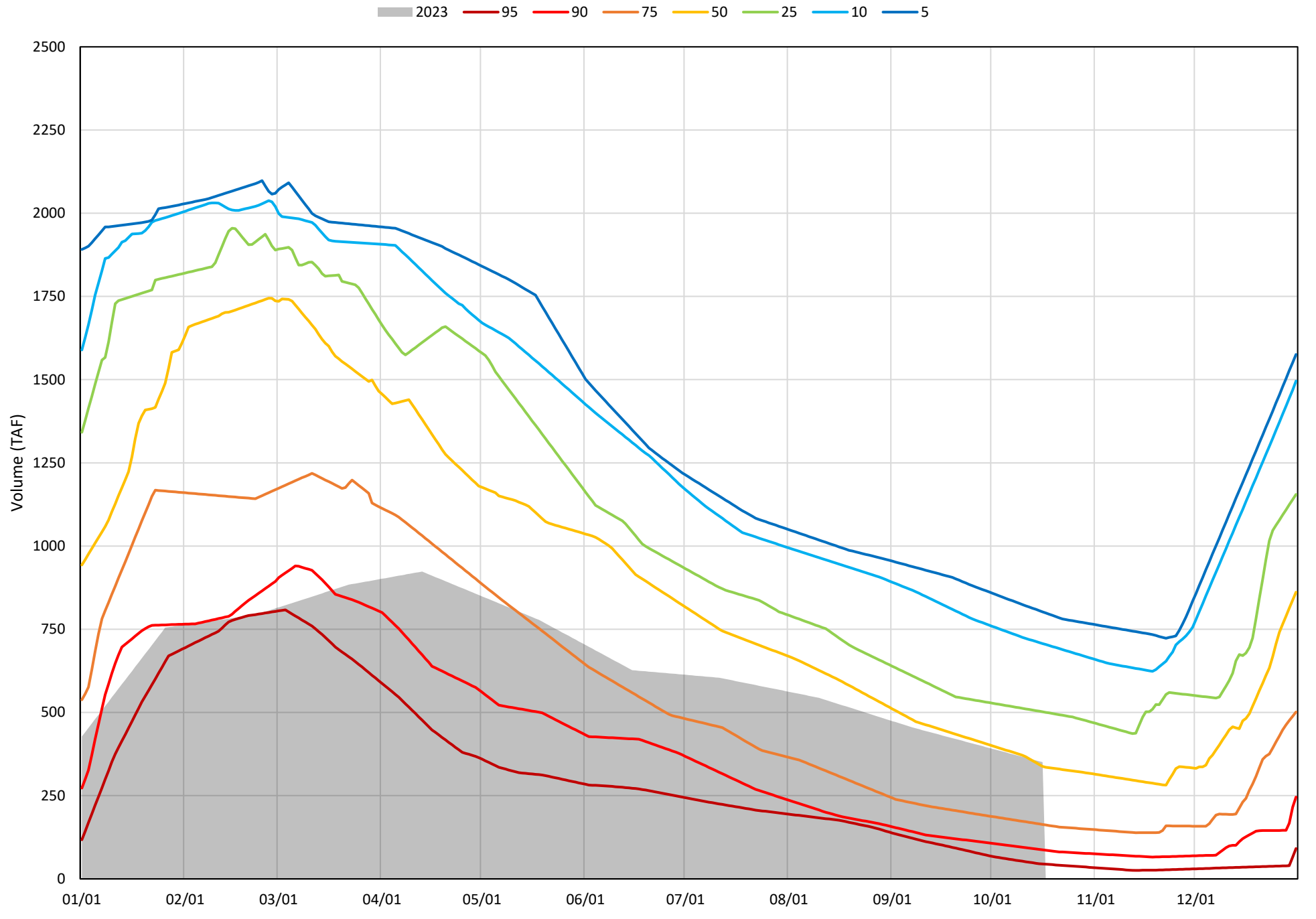
Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (2000-2022)



Trinity Lake Cold Water Pool Volume ≤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)

Oct-17 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	131	53	-14	66	21	11	-4	12
2001	-32	4	18	18	-5	1	5	4
2002	-3	25	60	29	-1	5	17	8
2003	211	97	-13	107	34	19	-4	19
2004	-17	-30	-64	37	-3	-6	-18	9
2005	254	183	9	149	40	36	3	26
2006	355	230	165	250	57	46	47	50
2007	74	117	151	114	12	23	43	26
2008	-277	-248	-187	237	-44	-49	-53	49
2009	-276	-236	-191	234	-44	-47	-54	48
2010	51	-13	-112	59	8	-2	-32	14
2011	498	433	319	417	79	86	91	85
2012	323	368	382	358	51	73	109	78
2013	-127	-86	-63	92	-20	-17	-18	18
2014	-492	-393	-272	385	-78	-78	-77	78
2015	-531	-433	-314	426	-84	-86	-90	87
2016	-286	-262	-177	241	-46	-52	-50	49
2017	224	134	93	150	36	26	27	30
2018	212	252	257	240	34	50	73	52
2019	508	501	469	493	81	99	134	105
2020	-4	55	28	29	-1	11	8	6
2021	-469	-371	-250	363	-75	-73	-71	73
2022	-451	-358	-238	349	-72	-71	-68	70
2023	0	0	0	0	0	0	0	0

}

Historical - Current

}

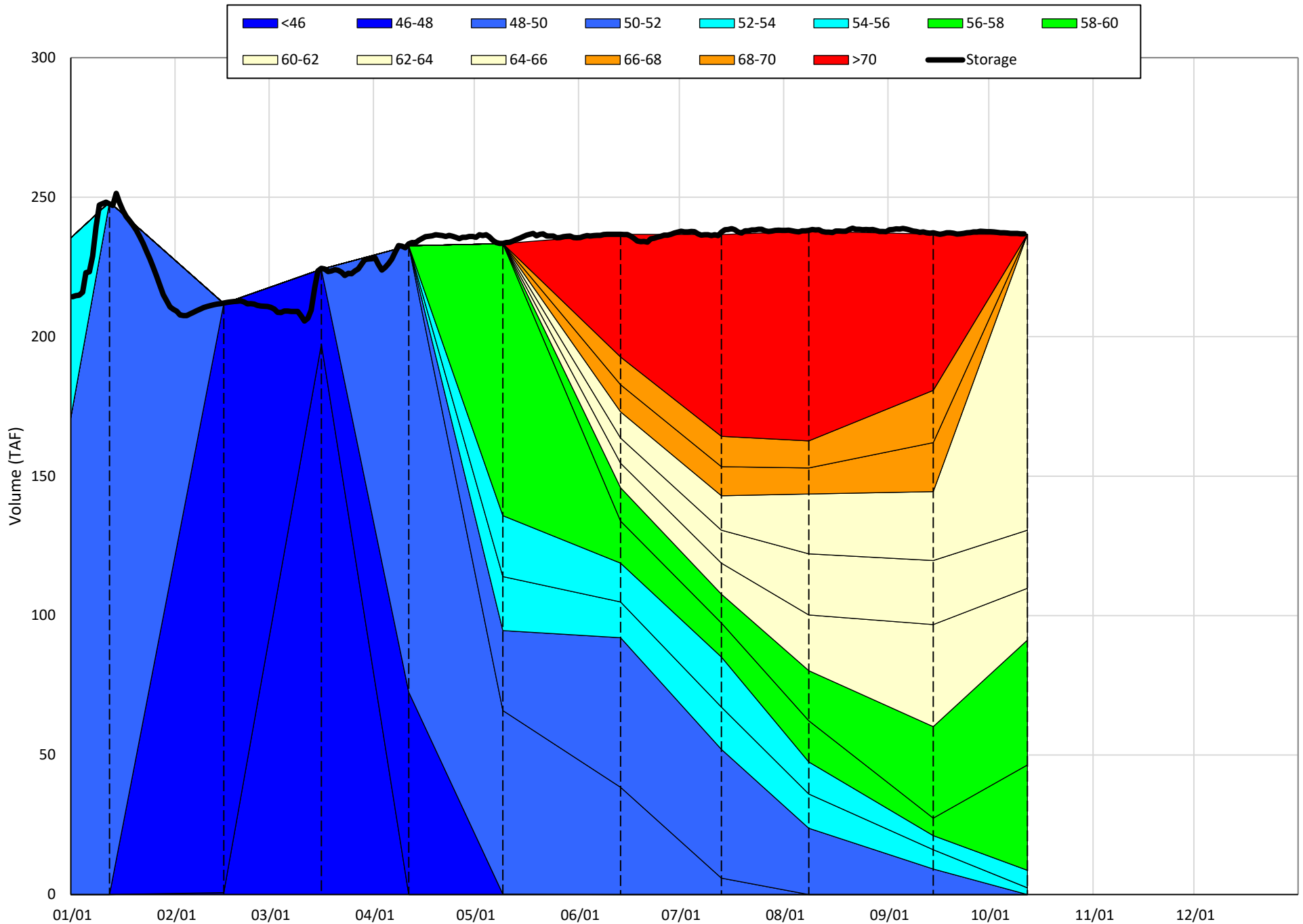
(Historical - Current) / Current

Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

2023

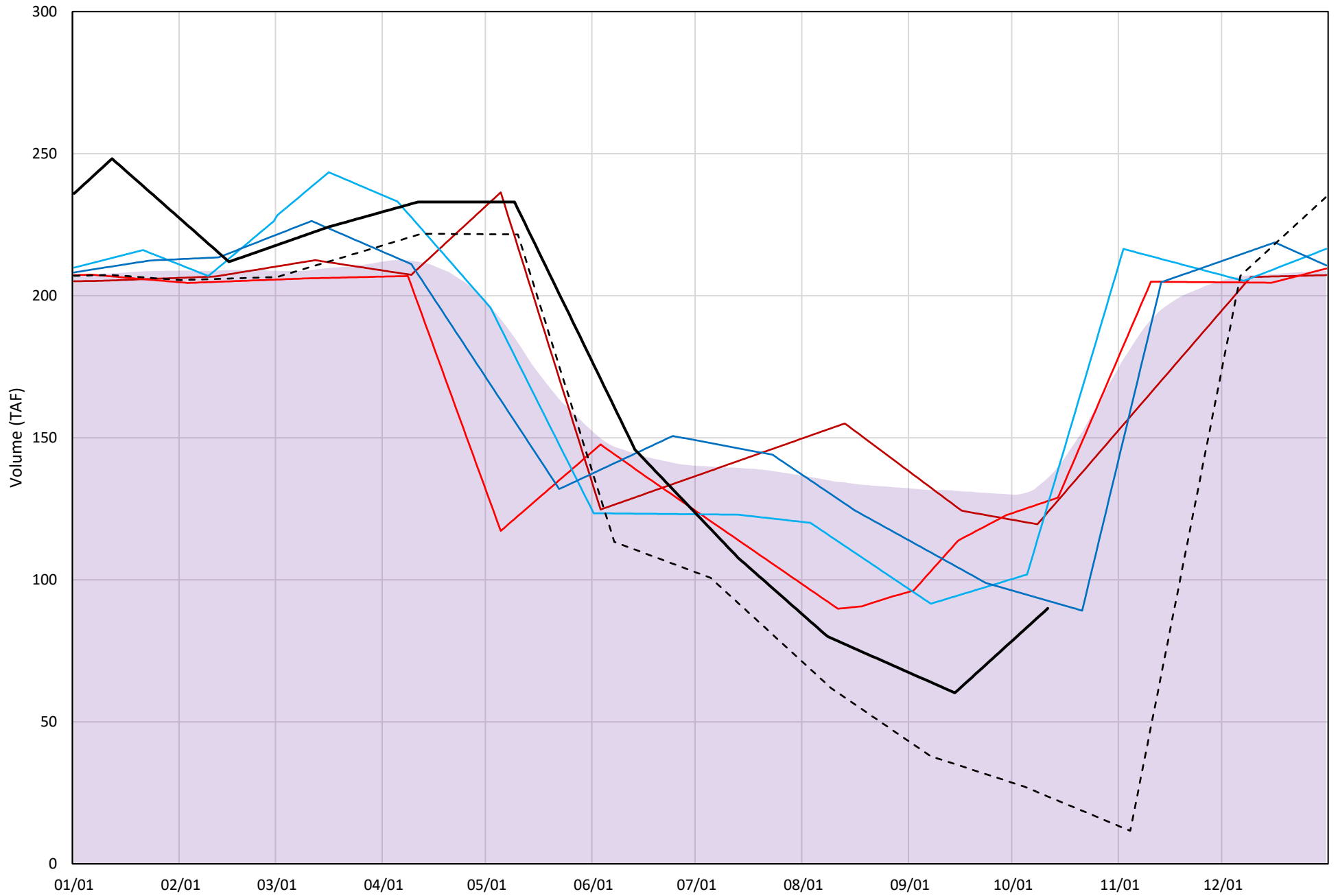
Page	Description
24	- Whiskeytown Lake Isothermobaths Plot
25	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$
26	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$
27	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$
28	- Whiskeytown Lake Cold Water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



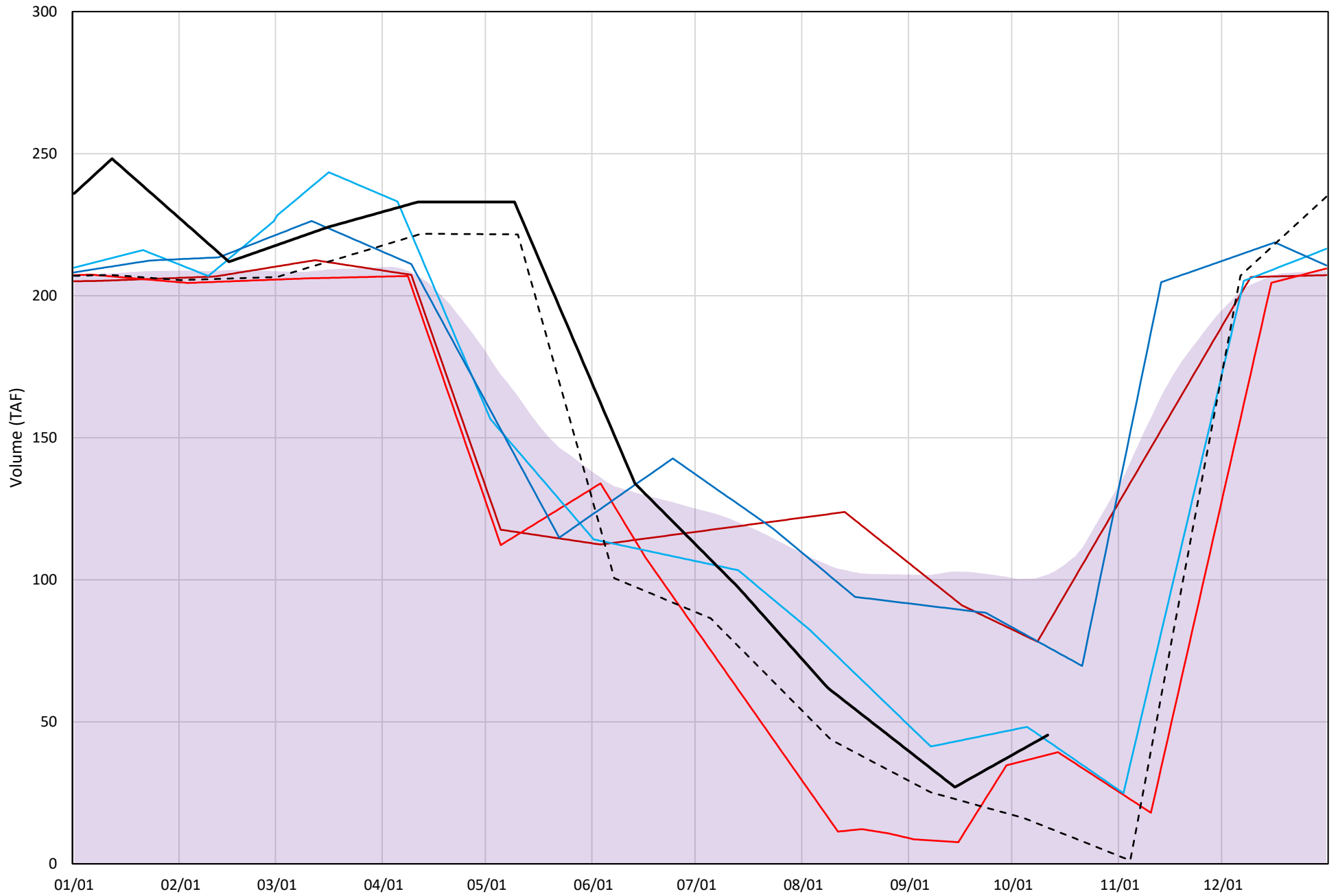
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

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



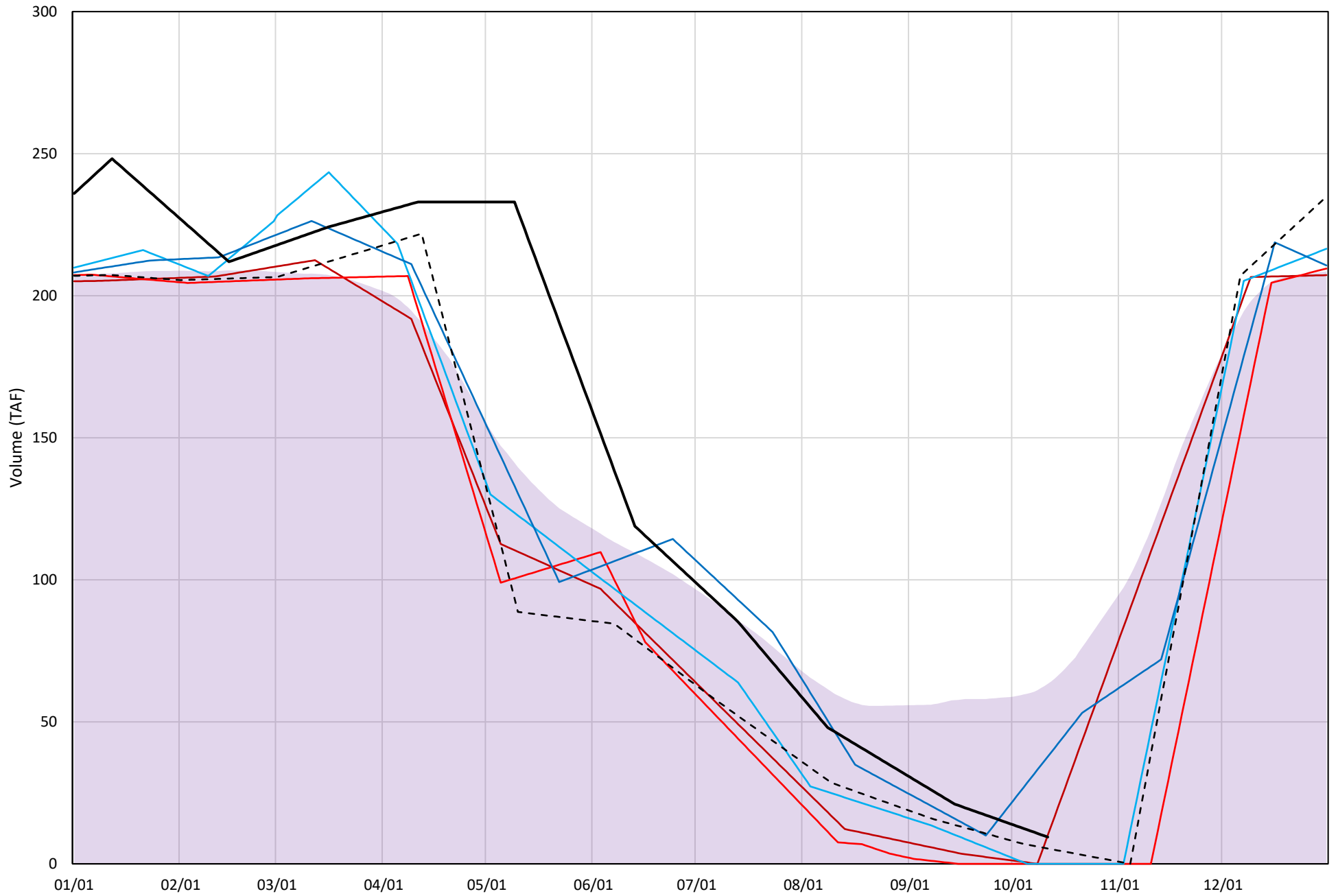
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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

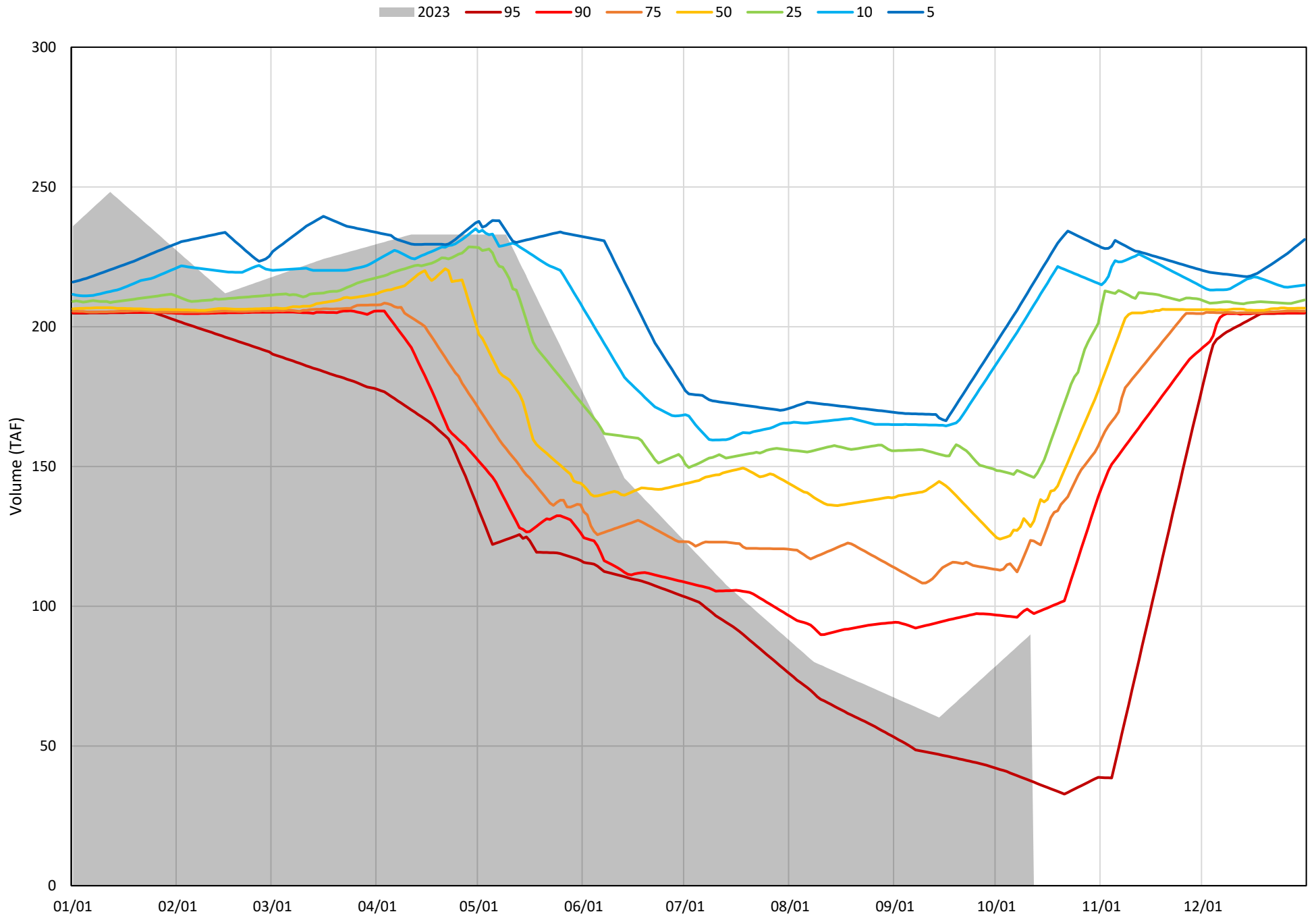


Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

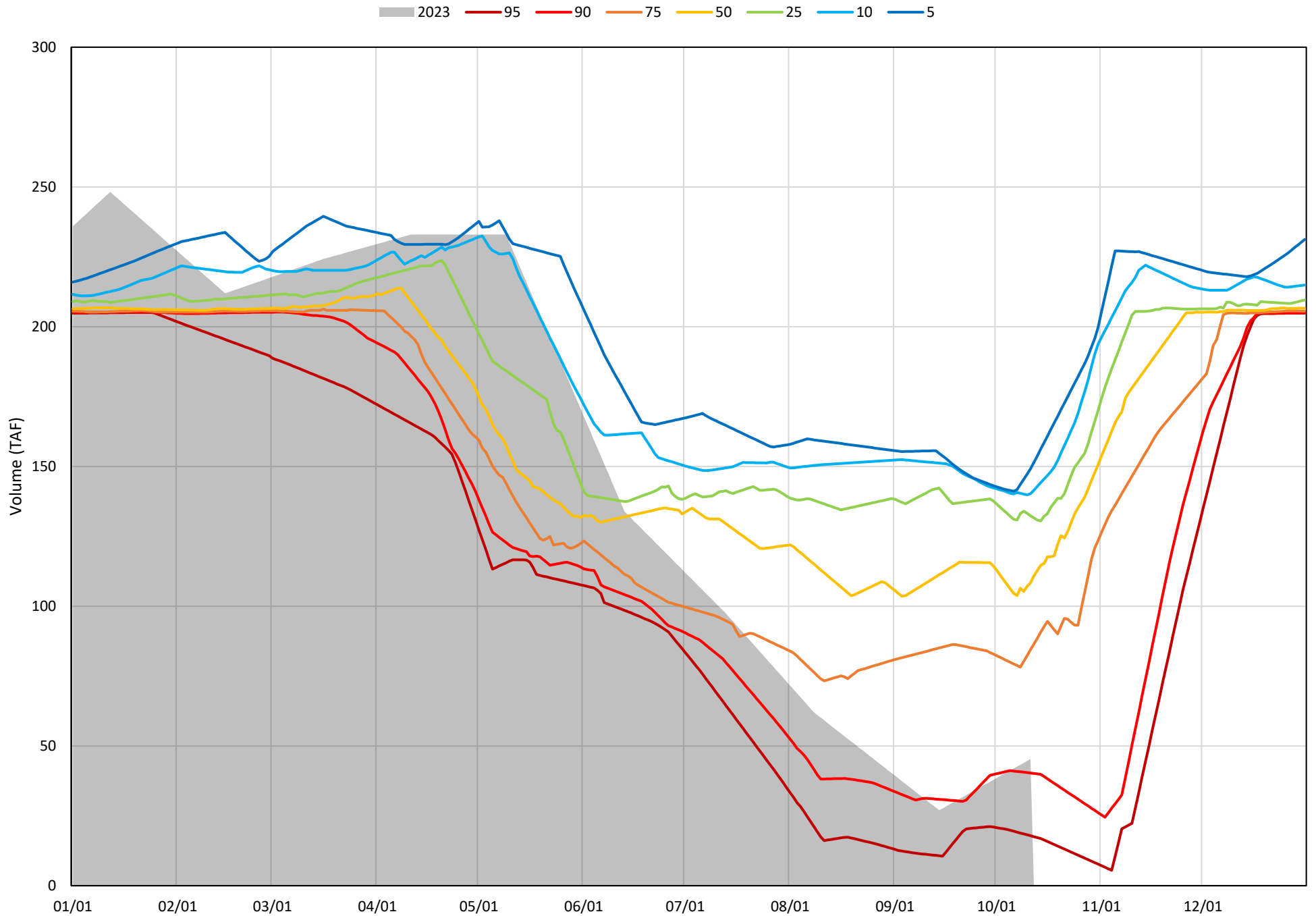
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



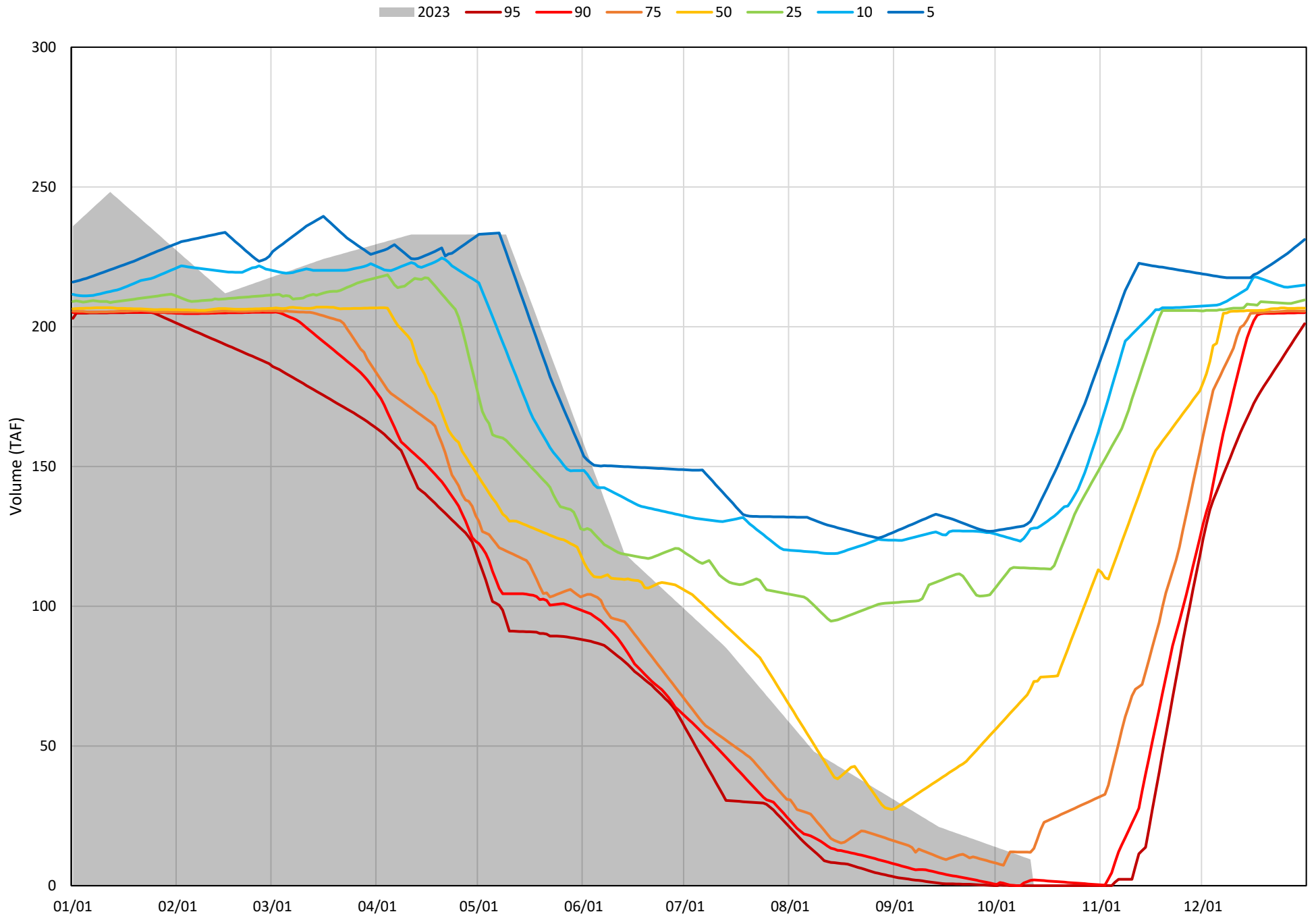
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2022)



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)

Oct-12 2023	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	16.5	51.1	67.1	44.9	18.4	112.6	711.3	280.8
2001	50.6	90.7	114.6	85.3	56.3	200.0	1215.0	490.4
2002	56.7	93.1	105.5	85.1	63.0	205.4	1118.8	462.4
2003	52.9	95.0	121.0	89.6	58.9	209.5	1282.8	517.1
2004	68.0	106.0	120.6	98.2	75.7	233.9	1279.1	529.5
2005	22.3	44.7	11.0	26.0	24.8	98.6	116.7	80.0
2006	38.6	80.3	110.1	76.3	42.9	177.1	1167.7	462.6
2007	53.3	94.8	64.9	71.0	59.3	209.2	688.3	318.9
2008	34.2	72.1	95.6	67.3	38.0	159.0	1013.8	403.6
2009	35.7	63.7	23.8	41.1	39.7	140.5	252.6	144.3
2010	48.7	15.4	-4.6	22.9	54.1	34.0	-49.3	45.8
2011	33.6	71.2	60.9	55.3	37.4	157.1	646.4	280.3
2012	71.6	61.7	44.0	59.1	79.6	136.1	467.0	227.6
2013	125.7	87.1	104.2	105.7	139.9	192.1	1104.8	478.9
2014	33.8	39.1	0.6	24.5	37.6	86.3	6.0	43.3
2015	37.8	-7.0	-9.4	18.1	42.0	-15.4	-100.0	52.5
2016	36.5	-2.1	-9.4	16.0	40.6	-4.7	-100.0	48.4
2017	114.4	56.7	69.0	80.0	127.3	125.1	731.9	328.1
2018	48.8	63.0	2.5	38.1	54.3	139.1	27.0	73.5
2019	2.7	31.0	28.3	20.7	3.0	68.4	300.1	123.9
2020	22.9	52.5	60.2	45.2	25.5	115.9	638.7	260.0
2021	116.9	72.5	63.5	84.3	130.0	160.0	673.6	321.2
2022	-66.2	-32.6	-4.0	34.3	-73.6	-71.9	-42.7	62.7
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Historical - Current

(Historical - Current) / Current