

# Northern CVP Water Temperature Report

## December - 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	- <a href="#">TCD Configuration</a> (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 <sup>1</sup>	SHD	SPP <sup>1</sup>	KWK	SAC	CCR <sup>2</sup>	BSF	BND	RDB	IGO	LWS	DGC	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB	
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	
12/01	49.8	48.6	54.6	49.1	48.9	48.8	48.7	48.4	48.2	51.1	45.3	43.8	43.8	4954	37	5144	42.5	40.9	43.6	
12/02	49.7	48.7	54.7	49.1	49.1	49.2	49.2	49.0	48.8	51.8	45.3	44.7	45.3	4910	37	5156	50.5	47.8	49.8	
12/03	49.9	48.6	54.6	49.3	49.4	49.7	50.1	50.3	50.2	52.7	45.5	45.7	46.2	4914	37	5107	56.5	55.3	56.1	
12/04	50.2	49.1	54.2	49.4	49.6	50.1	50.6	50.8	51.0	52.8	45.5	46.9	47.6	4811	48	5093	59.5	54.6	55.6	
12/05	50.0	48.8	54.2	49.5	49.5	49.9	50.4	? 50.8	51.2	52.5	45.5	? 47.3	48.5	4946	37	5099	56.5	50.8	52.7	
12/06	? 50.3	? 49.0	? 54.2	? 49.7	? 49.6	? 49.8	? 50.1	? 50.3	? 50.5	? 52.0	? 45.3	? 46.6	? 48.0	5062	37	5039	52.0	49.5	50.2	
12/07	# 49.9	# 49.0	# 53.7	# 49.5	# 49.4	# 49.5	# 49.8	# 49.7	# 49.9	# 51.3	# 45.0	# 44.9	# 46.3	4646	122	5159	# 49.0	45.3	49.0	
12/08	? 50.7	? 49.9	? 52.5	? 49.4	? 49.3	? 49.5	? 49.5	? 49.2	? 49.4	? 50.5	? 44.8	? 43.7	? 44.7	4955	60	5224	? 48.0	46.3	45.6	
12/09	? 49.6	? 49.5	? 52.0	? 49.2	? 49.1	? 49.0	? 48.8	? 48.3	? 48.4	? 50.9	? 44.7	? 42.8	? 43.5	5095	99	5007	? 50.0	41.9	45.8	
12/10	? 50.3	? 48.9	? 50.6	? 49.6	? 49.4	? 49.2	? 48.7	? 47.9	? 47.8	? 50.6	? 44.6	? 42.4	? 42.8	4737	55	5005	? 45.5	38.3	42.3	
12/11	51.0	49.3	42.6	49.6	49.6	49.7	49.1	48.2	47.9	51.2	44.6	42.5	42.8	4747	14	4997	49.5	41.9	44.7	
12/12	50.5	49.5	42.4	49.5	49.4	49.7	49.6	? 49.0	! 48.3	51.6	44.7	43.0	43.1	4590	14	5018	54.0	46.8	50.1	
12/13	50.8	49.9	42.4	49.6	49.4	49.5	49.5	49.0	? 49.0	50.9	44.6	42.8	43.1	4883	14	5081	53.5	44.9	50.0	
12/14	51.4	50.6	42.9	49.7	49.6	49.5	49.3	48.7	48.7	50.3	44.5	42.7	43.1	4842	14	5084	50.5	42.4	45.0	
12/15	54.0	53.1	42.5	49.8	49.7	49.7	49.3	? 48.5	48.4	50.2	44.3	42.5	42.5	4953	14	5047	50.5	41.1	46.0	
12/16	53.9	52.9	42.4	50.7	50.3	50.0	49.4	? 48.8	? 48.5	50.1	44.1	41.9	42.2	4861	14	5096	53.5	44.0	49.2	
12/17	53.6	52.7	42.3	52.0	51.7	51.3	50.2	? 49.1	48.6	50.1	43.9	41.2	41.3	4975	14	5088	45.5	41.3	46.4	
12/18	53.7	52.8	42.2	52.4	52.2	52.1	51.6	50.9	50.2	50.6	44.0	42.6	43.0	5149	14	5087	51.0	49.1	49.4	
12/19	53.2	52.4	51.7	52.6	52.5	52.7	51.8	51.9	? 52.1	51.1	44.2	44.5	44.8	4572	324	5085	↓ 57.0	58.5	58.3	
12/20	52.9	52.1	51.9	52.8	52.7	53.0	53.1	52.6	? 52.7	51.8	44.5	45.6	46.1	3530	670	5111	57.0	54.1	55.9	
12/21	53.2	52.4	43.5	52.6	52.4	52.6	52.6	? 51.9	52.3	50.5	44.4	45.8	46.7	4556	16	5101	53.5	49.0	50.7	
12/22	53.1	52.4	50.9	52.4	52.2	52.3	52.1	? 51.2	? 51.4	50.2	? 44.3	45.3	? 46.5	4533	123	5109	55.0	49.7	53.4	
12/23	53.2	52.4	51.7	52.3	51.9	51.7	51.2	50.4	50.5	49.3	44.2	43.7	45.0	4267	380	5111	50.0	49.1	50.5	
12/24	52.9	52.2	51.5	52.0	51.7	51.5	50.8	49.6	49.5	49.0	44.2	42.6	43.0	4300	391	5108	44.5	41.4	44.1	
12/25	52.8	52.1	49.6	52.1	51.9	51.9	51.6	? 50.7	50.1	50.1	44.4	43.8	44.1	5015	49	5094	51.0	48.0	48.3	
12/26	52.7	52.0	49.1	52.2	51.9	51.9	51.6	? 50.9	50.8	49.8	44.6	44.3	45.0	4898	47	5101	49.5	46.5	48.7	
12/27	53.2	51.6	49.1	52.1	51.8	51.7	51.5	50.9	50.7	49.4	44.7	44.1	45.0	4288	646	6100	47.5	45.9	47.2	
12/28	51.1	51.8	51.0	52.0	51.7	51.9	51.4	51.2	51.3	50.1	45.1	45.1	45.7	4171	348	5065	52.5	51.0	52.1	
12/29	52.0	51.5	51.2	51.9	51.8	52.0	52.1	51.9	51.7	50.7	45.4	46.0	46.9	2959	1501	5050	↑ 55.0	52.0	53.1	
12/30	51.9	51.8	51.2	51.8	51.8	52.1	52.2	52.1	52.3	51.1	45.6	46.1	46.9	2752	1725	5037	55.5	51.5	52.3	
12/31	52.2	51.8	51.1	51.8	51.7	52.0	52.3	52.2	52.3	50.7	45.7	46.1	46.8	3679	1132	5022	53.5	50.7	51.4	
Dec	51.7	50.9	49.3	50.8	50.6	50.7	50.5	50.1	50.0	50.8	44.7	44.2	44.8	4596	230	5120	51.5	47.3	49.5	
														Total CFS	141550	8033	158625			
														Total AF	280759	15933	314626			

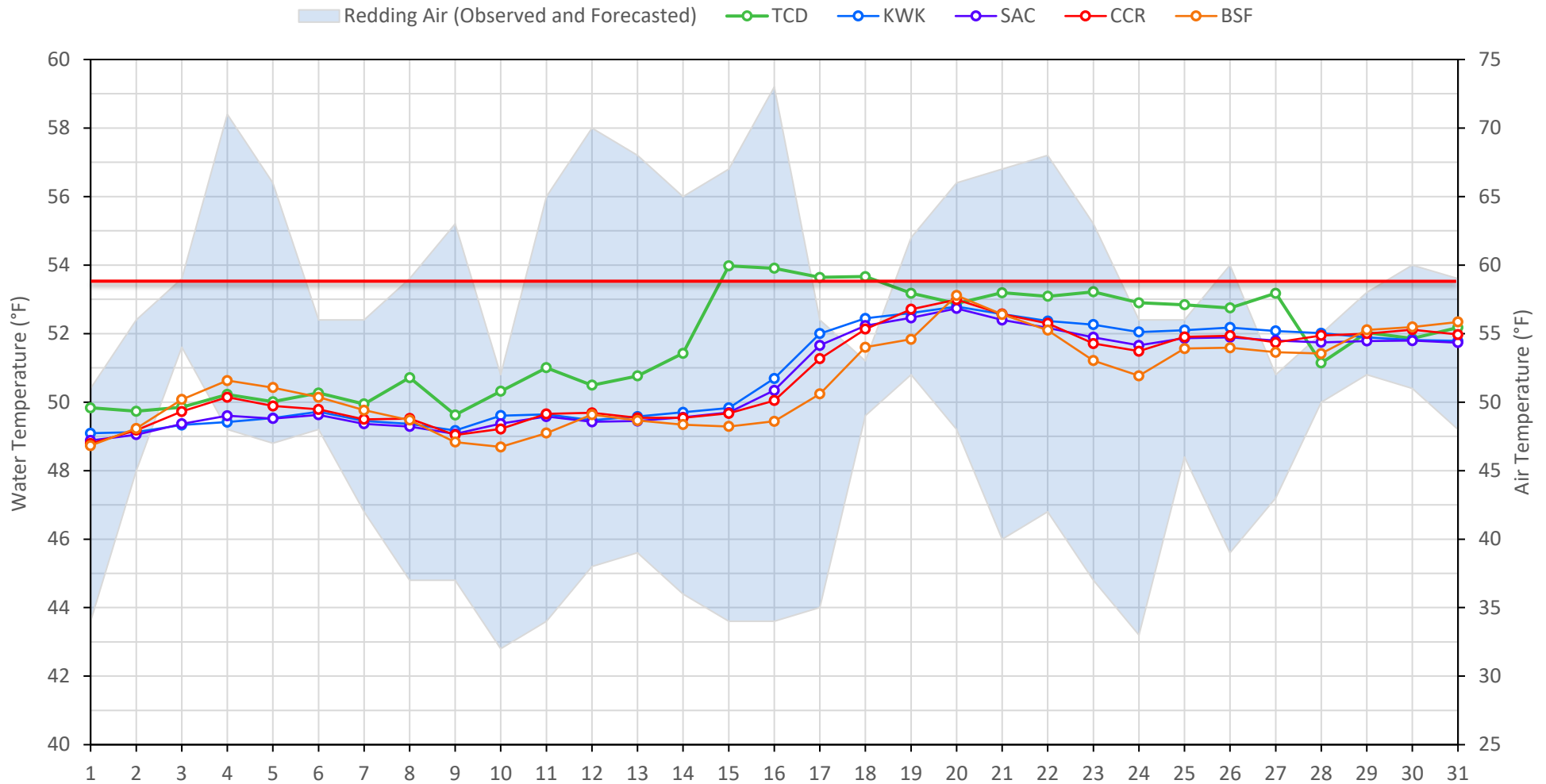
Legend

- ? = 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 Clear Creek River control point (see page 3 for more details)

### 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>

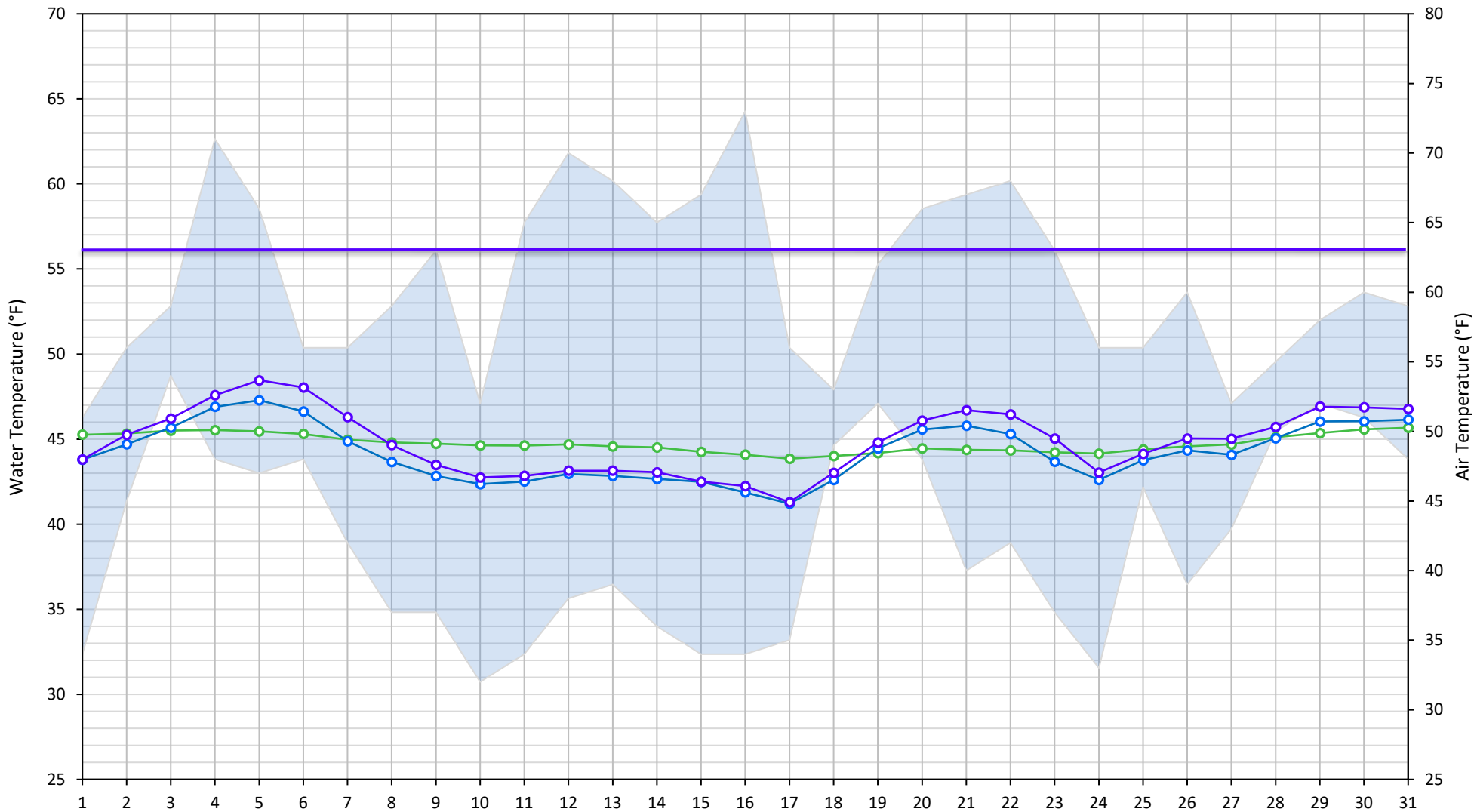
Water Right Temperature Control Points				
River	Point	Temp. (°F)	Begin Date	End Date
Sacramento	SAC	54.5	06/07/2022	5/14/2023
Sacramento	CCR	53.5	05/14/2023	TBD

#### Notes

<sup>1</sup> Distances are approximate

### Trinity River Mean Daily Temperatures

Redding Air (Observed and Forecasted) LWS DGC NFH



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

#### Notes

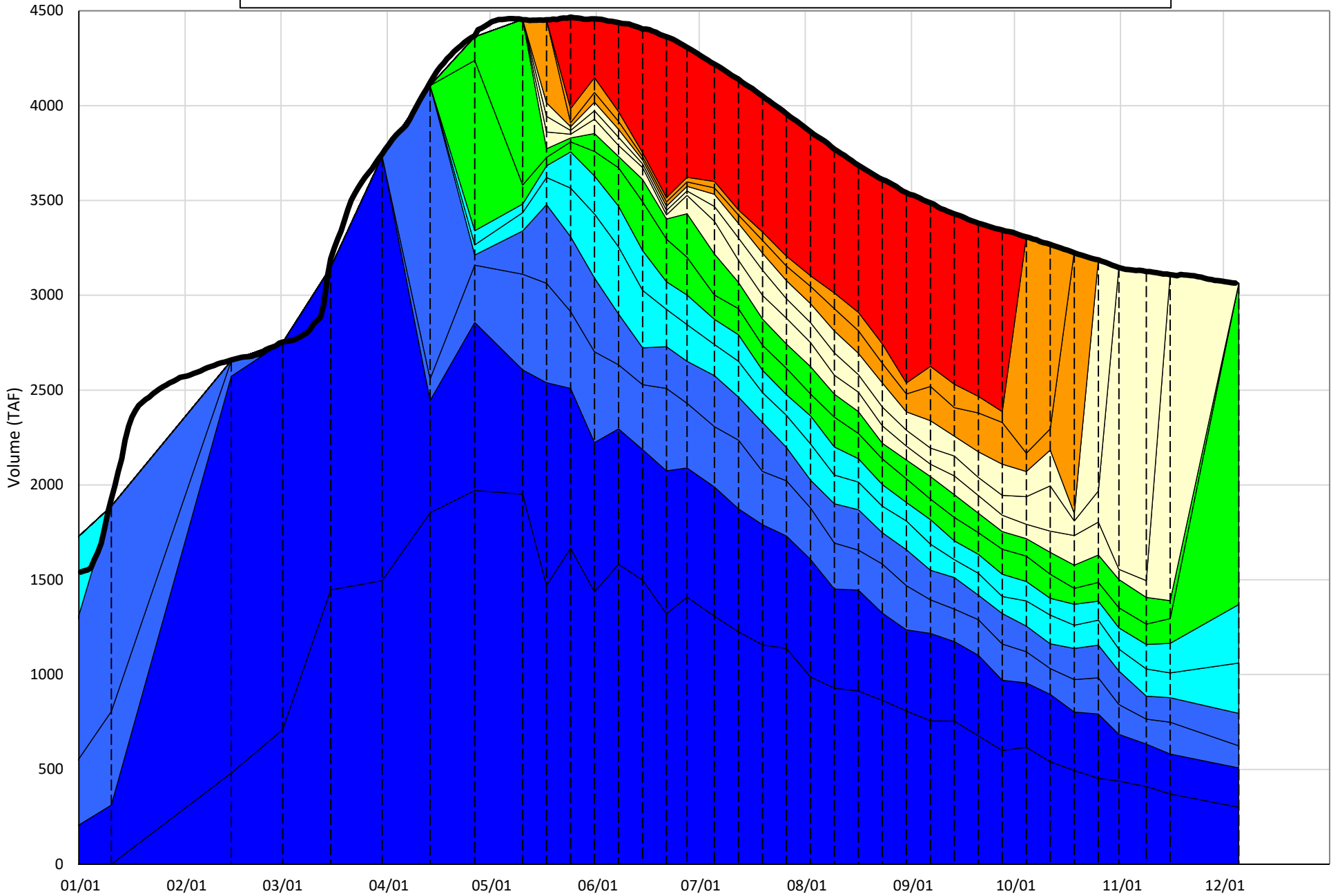
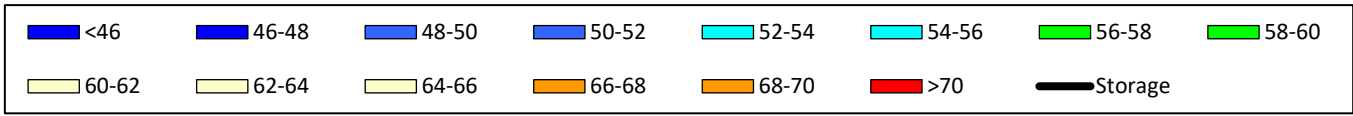
<sup>1</sup> Distances are approximate

# Shasta Lake Isothermobaths & Cold Water Pool Statistics

## 2023

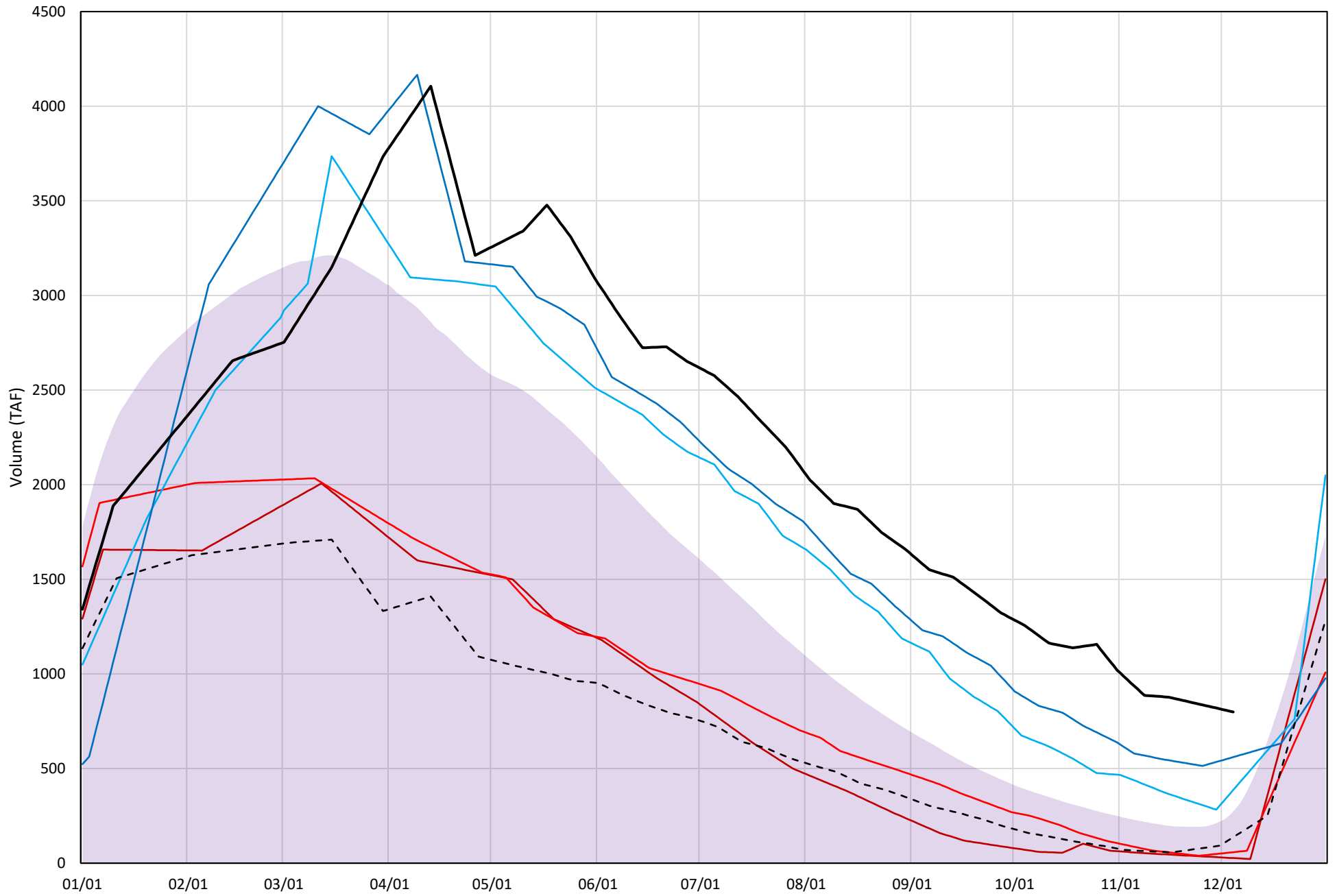
Page	Description
6	- Shasta Lake Isothermobaths Plot
7	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
8	- Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
9	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
10	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$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



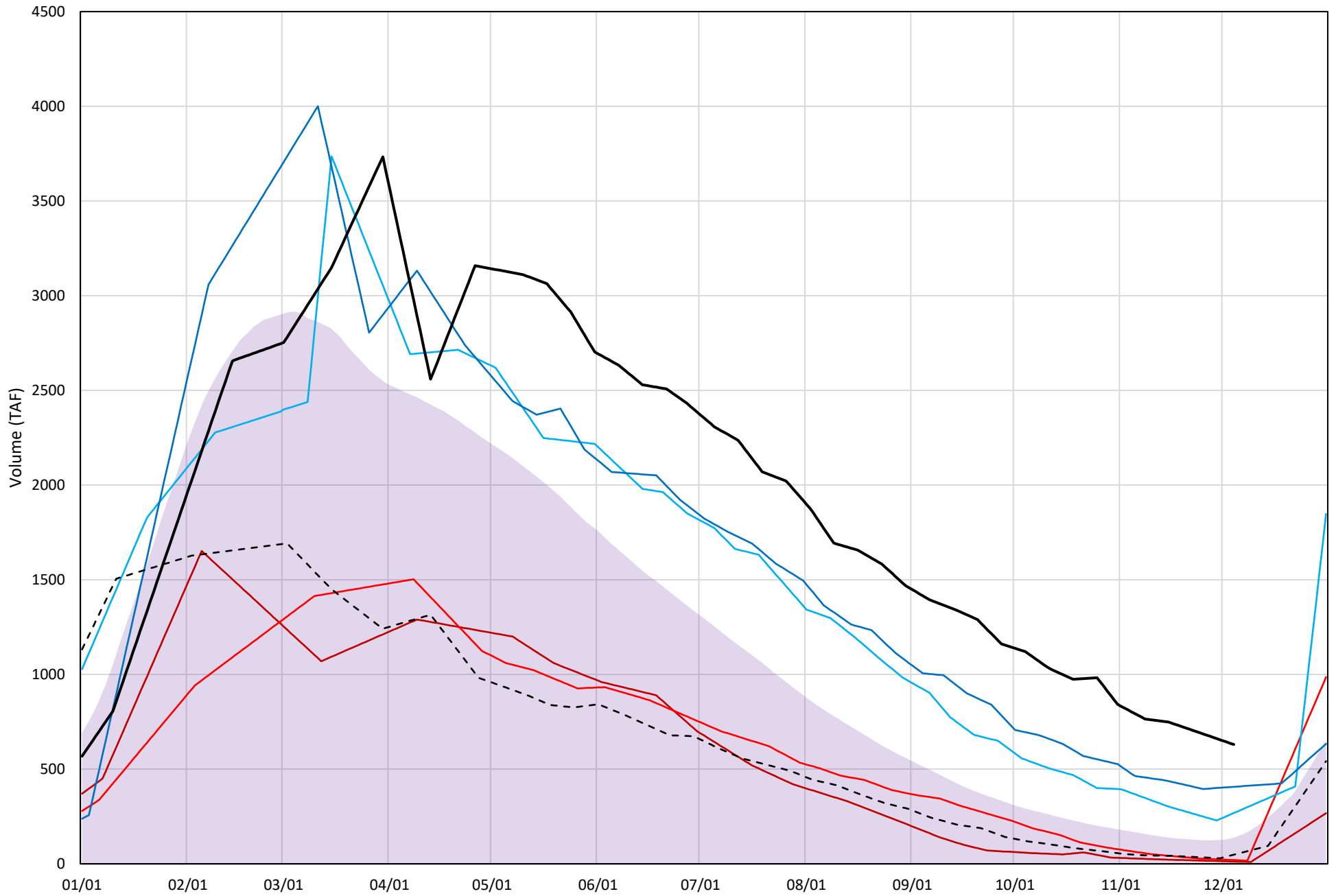
# Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



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

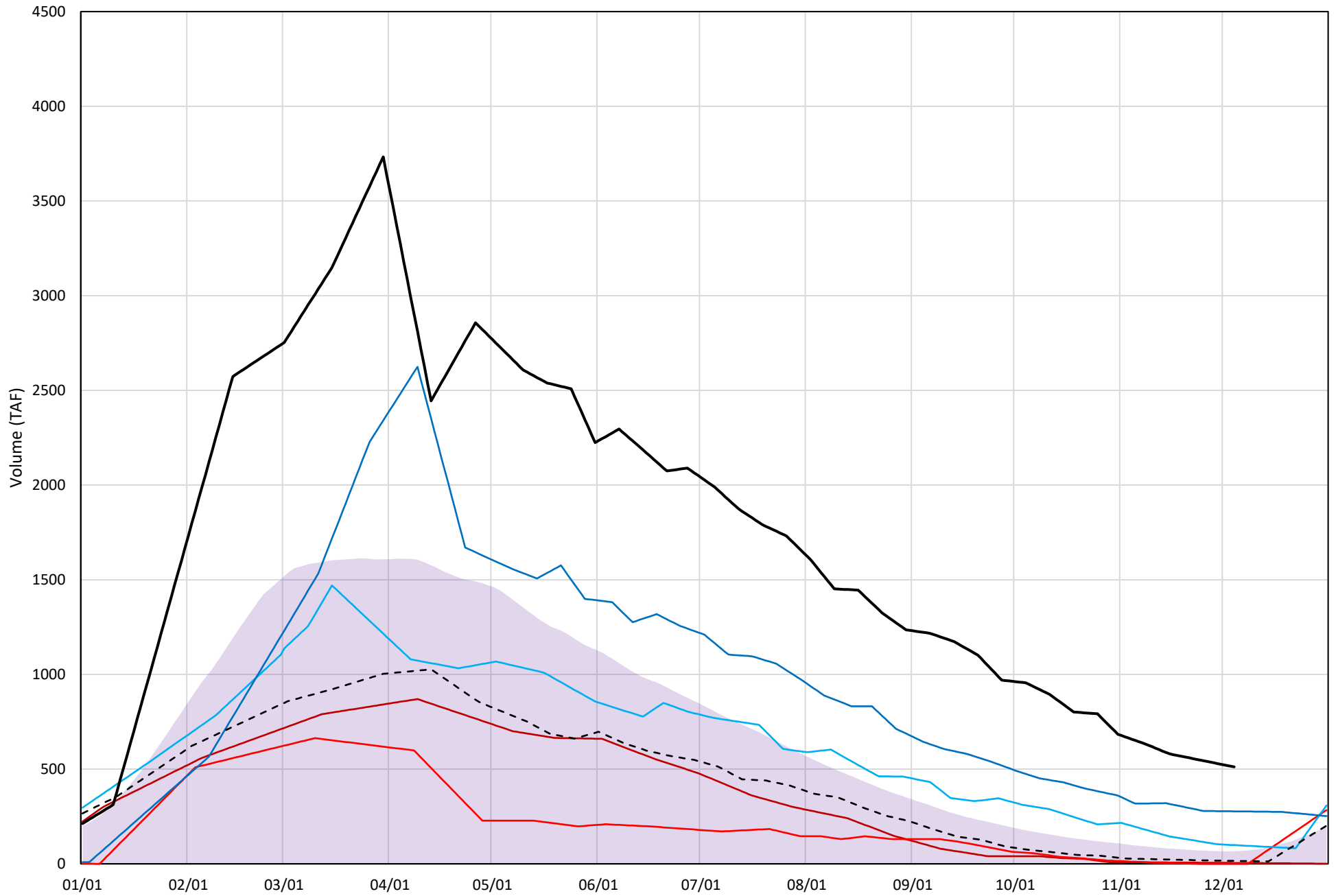
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



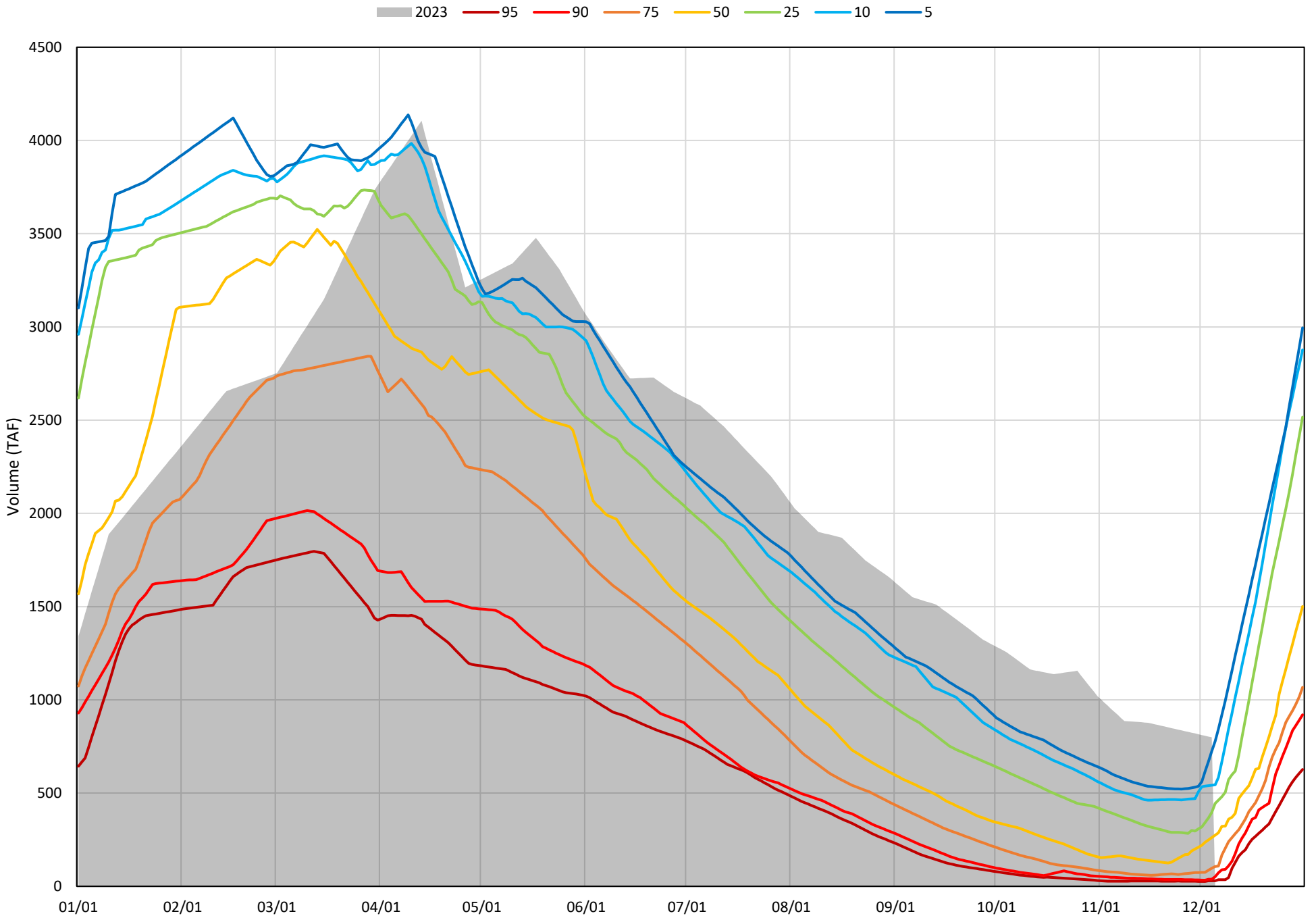


# Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

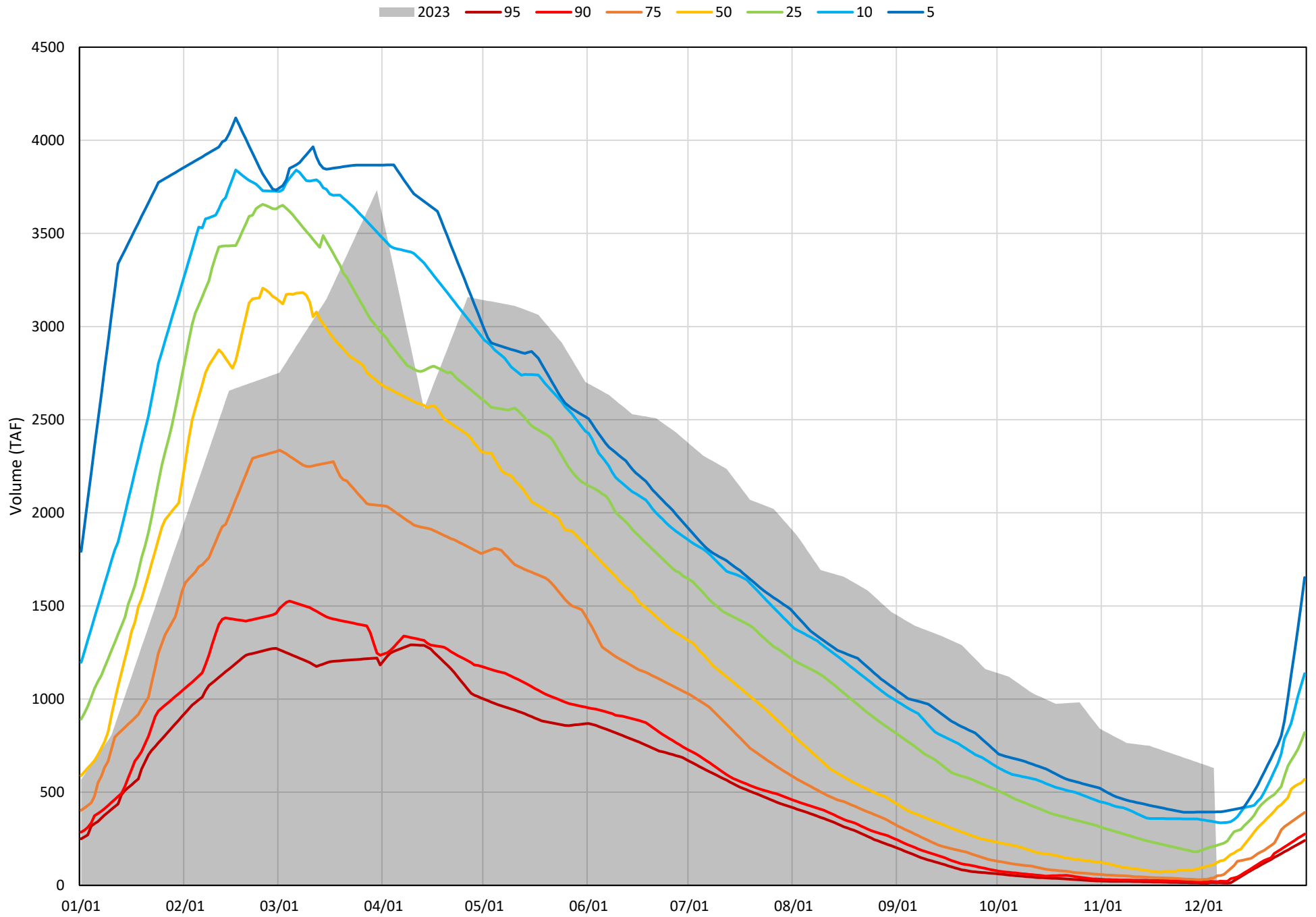
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



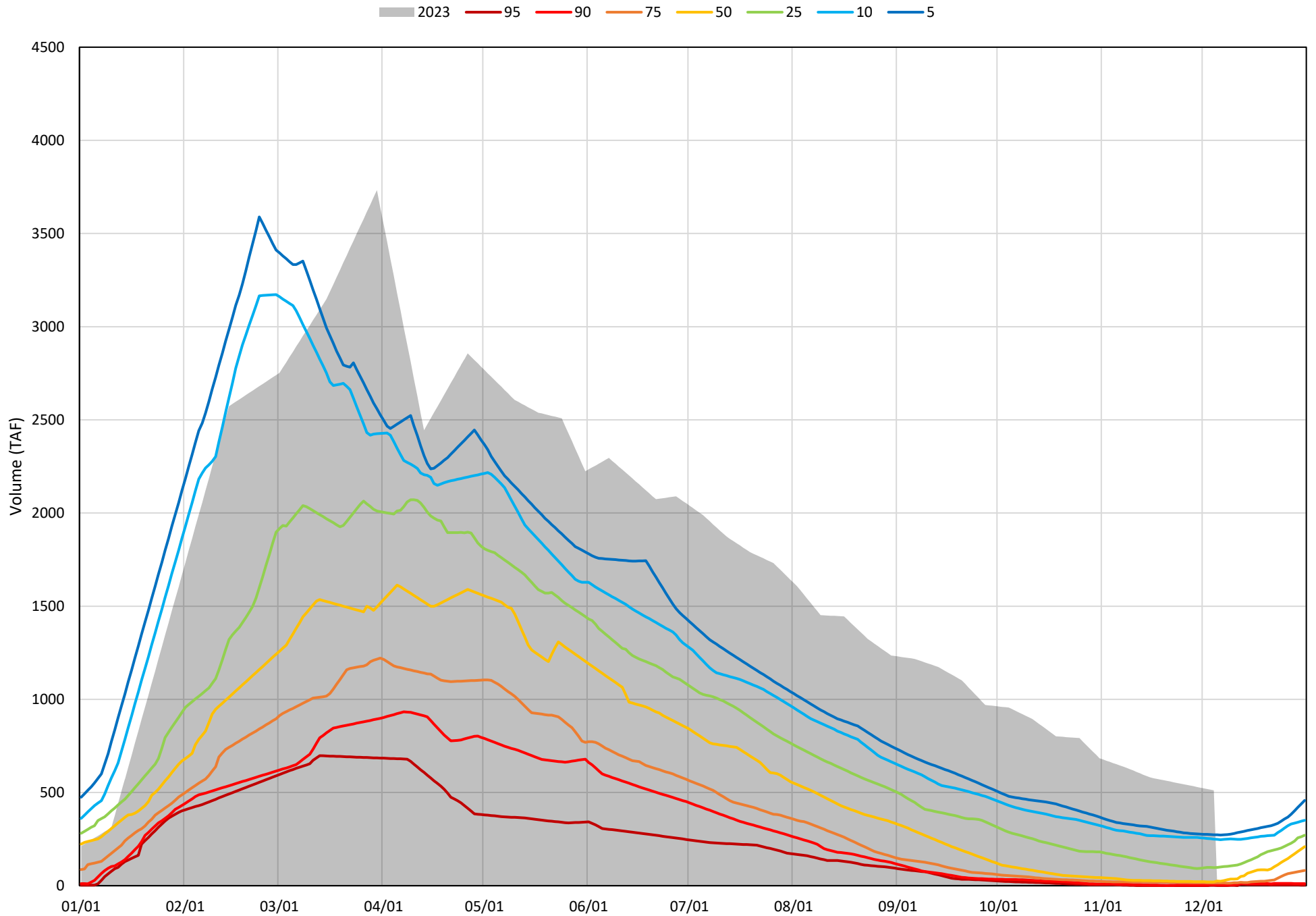
Shasta Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (1998-2022)



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)

Dec-05 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	-394	-491	-507	464	-49	-78	-99	75
1999	-482	-395	-342	406	-60	-63	-67	63
2000	-493	-518	-492	501	-62	-82	-96	80
2001	-538	-484	-485	502	-67	-77	-95	80
2002	-4	-387	-403	265	-1	-61	-79	47
2003	-424	-528	-493	482	-53	-84	-96	78
2004	-565	-536	-497	533	-71	-85	-97	84
2005	-719	-598	-491	603	-90	-95	-96	94
2006	-353	-447	-417	406	-44	-71	-82	66
2007	-759	-610	-496	622	-95	-97	-97	96
2008	-764	-605	-497	622	-96	-96	-97	96
2009	-625	-560	-468	551	-78	-89	-91	86
2010	-447	-486	-471	468	-56	-77	-92	75
2011	-270	-265	-247	261	-34	-42	-48	41
2012	-489	-449	-417	452	-61	-71	-81	71
2013	-549	-505	-472	509	-69	-80	-92	80
2014	-772	-618	-507	632	-97	-98	-99	98
2015	-741	-610	-512	621	-93	-97	-100	97
2016	-412	-362	-413	396	-52	-57	-81	63
2017	-352	-304	-271	309	-44	-48	-53	48
2018	-685	-578	-498	587	-86	-92	-97	92
2019	-239	-223	-234	232	-30	-35	-46	37
2020	-703	-602	-506	604	-88	-96	-99	94
2021	-700	-544	-494	579	-88	-86	-97	90
2022	-662	-582	-496	580	-83	-92	-97	91
2023	0	0	0	0	0	0	0	0

}

Historical - Current

}

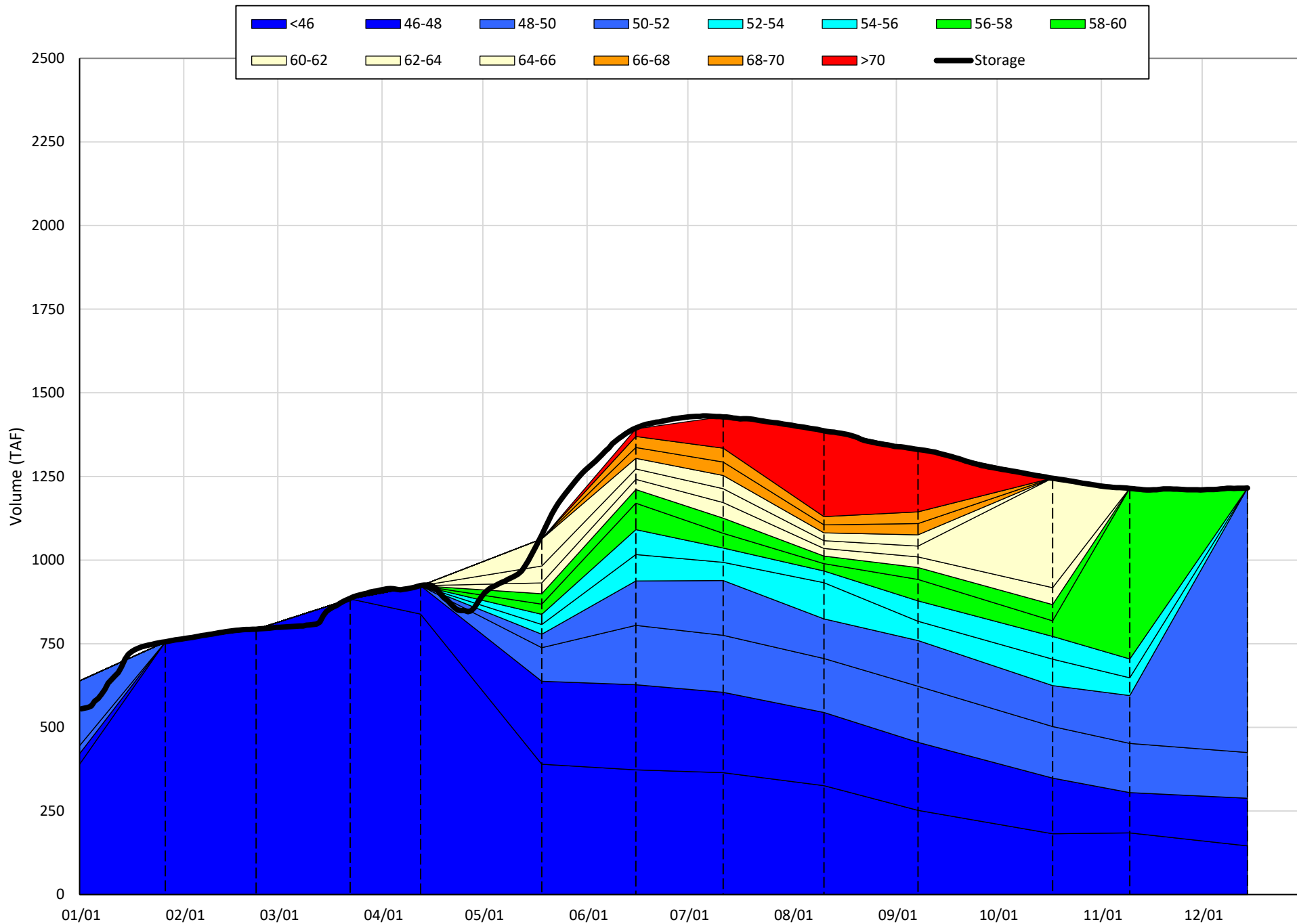
(Historical - Current) / Current

# Trinity Lake Isothermobaths & Cold Water Pool Statistics

## 2023

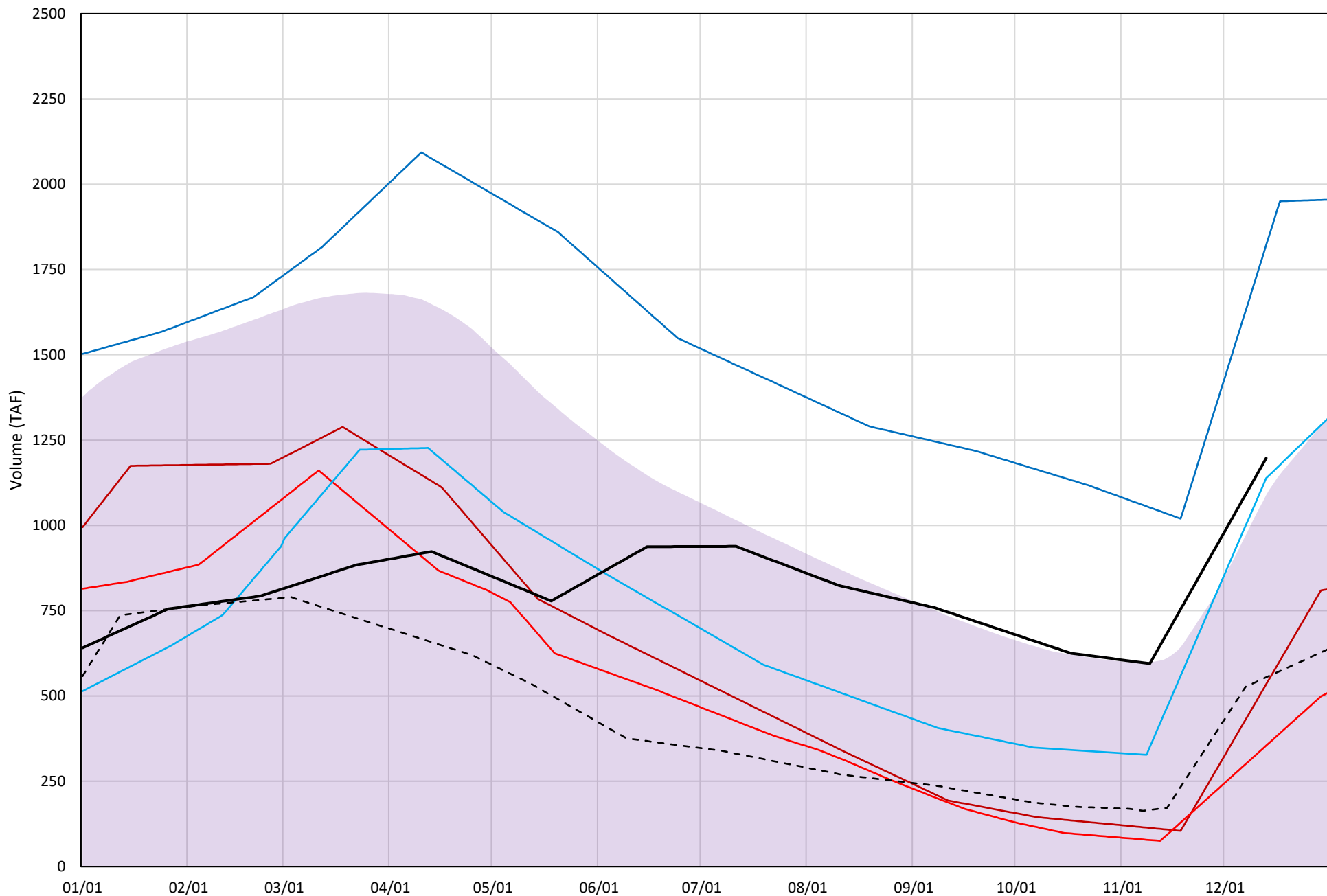
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq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

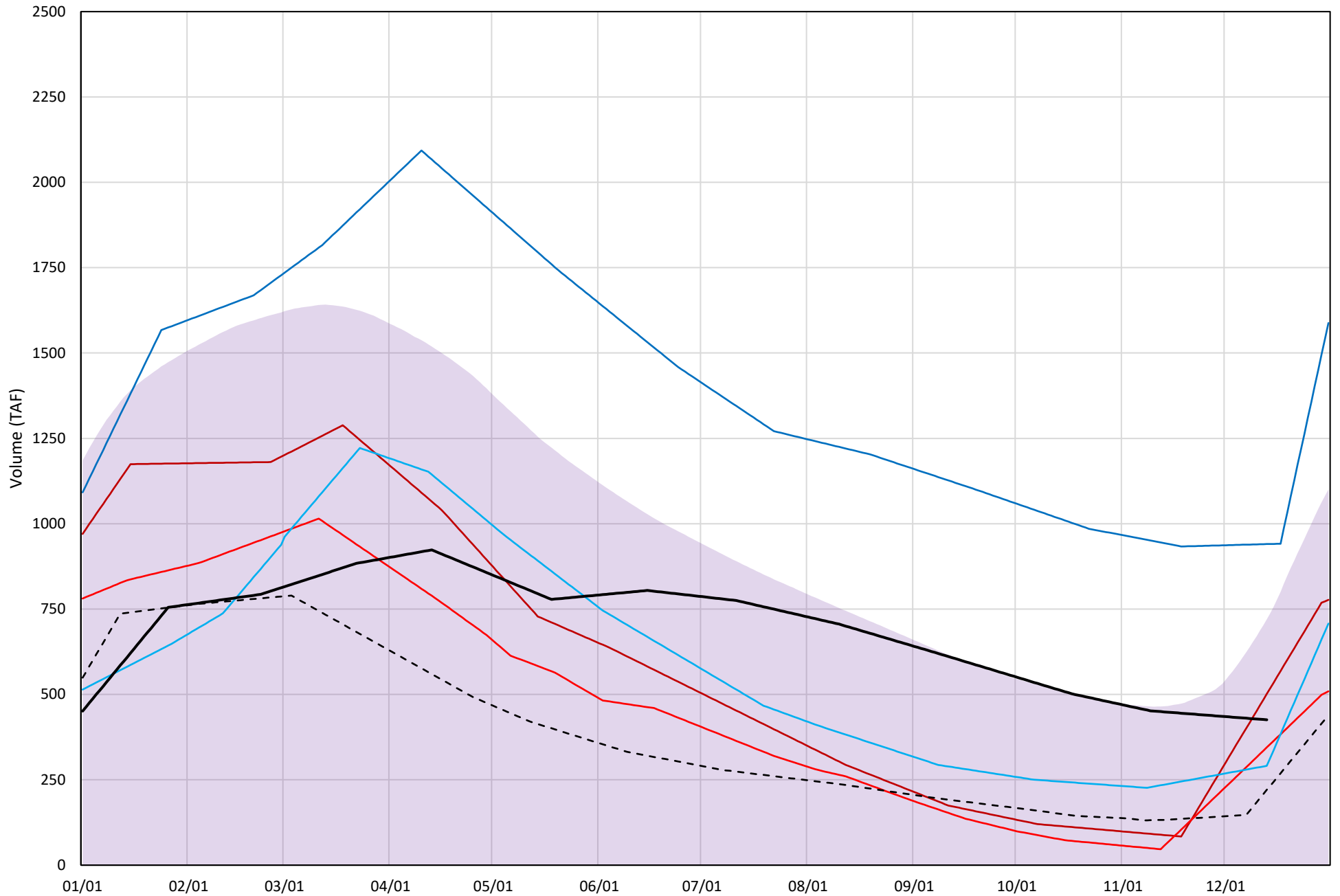
Avg (2000-2022) 2014 2015 2016 2019 2022 2023





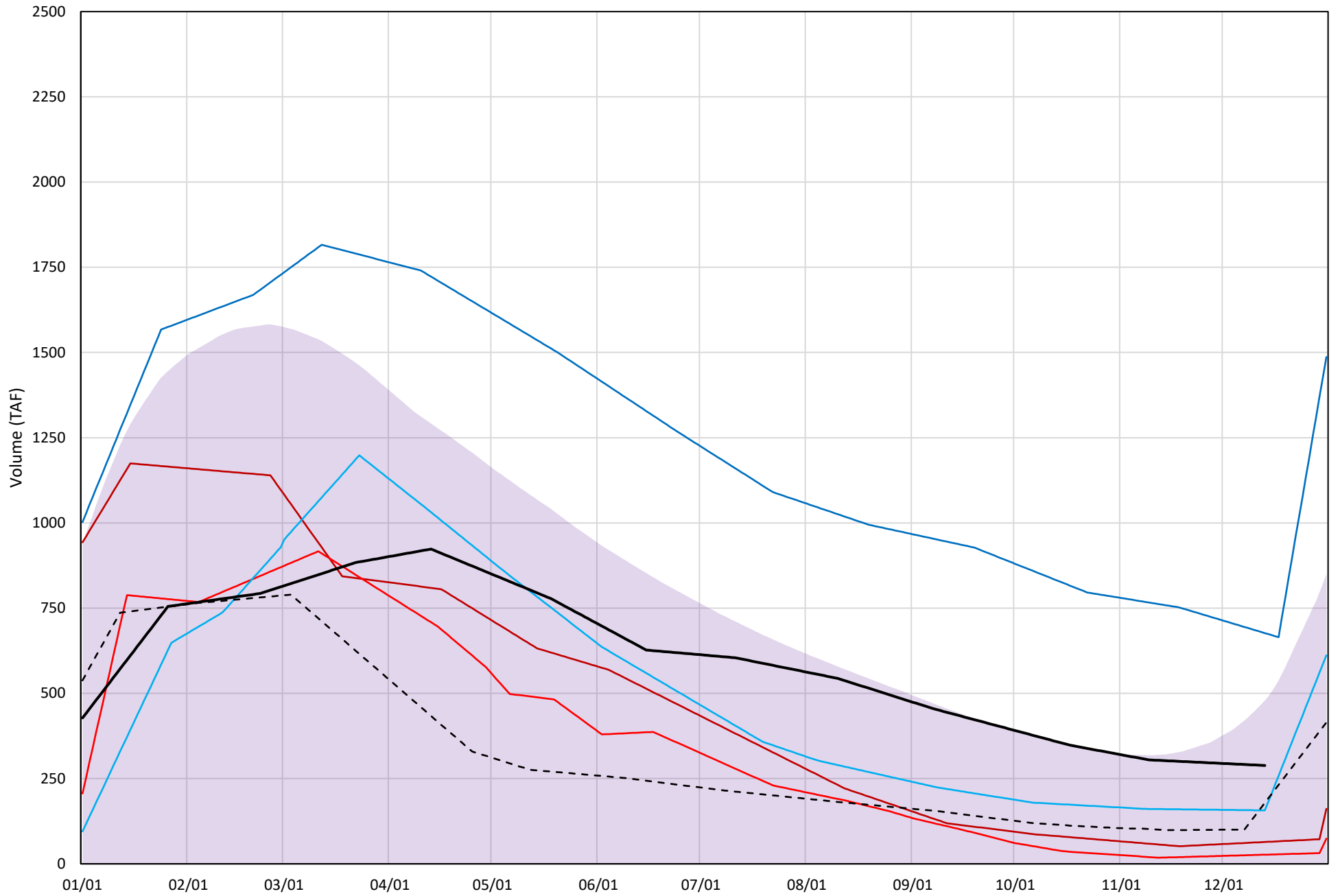
# Trinity Lake Cold Water Pool Volume ≤50°F

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

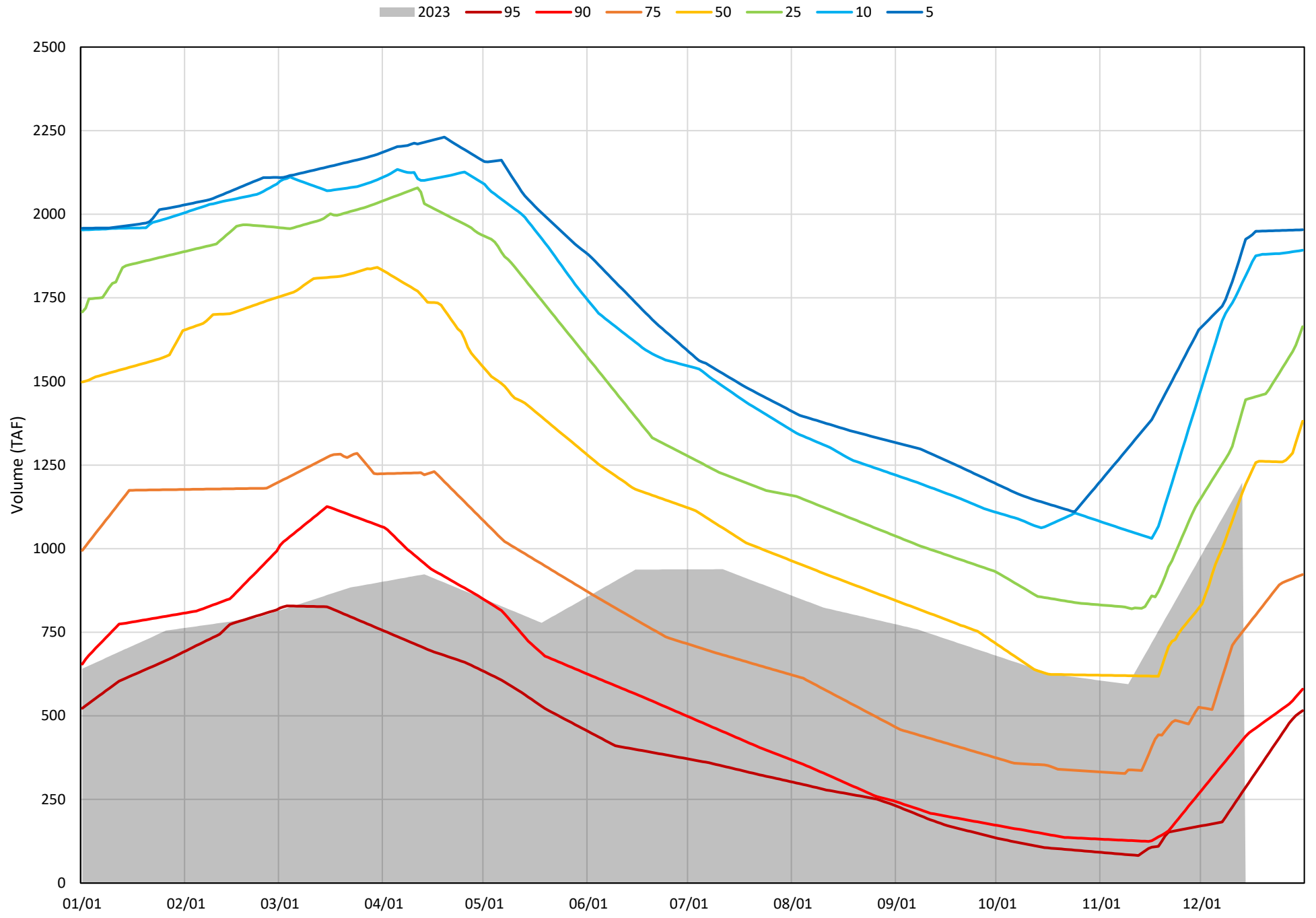


# Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

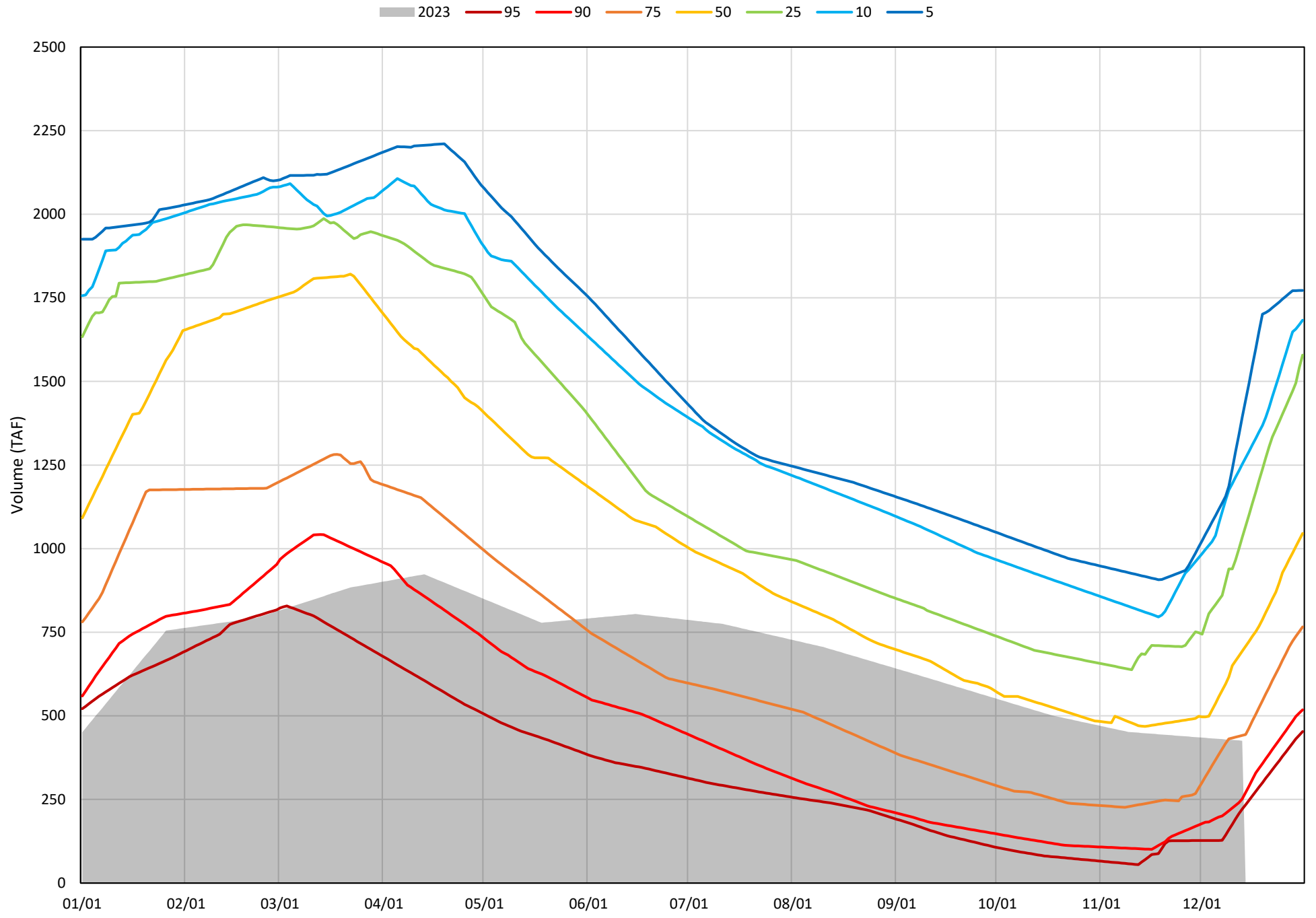
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



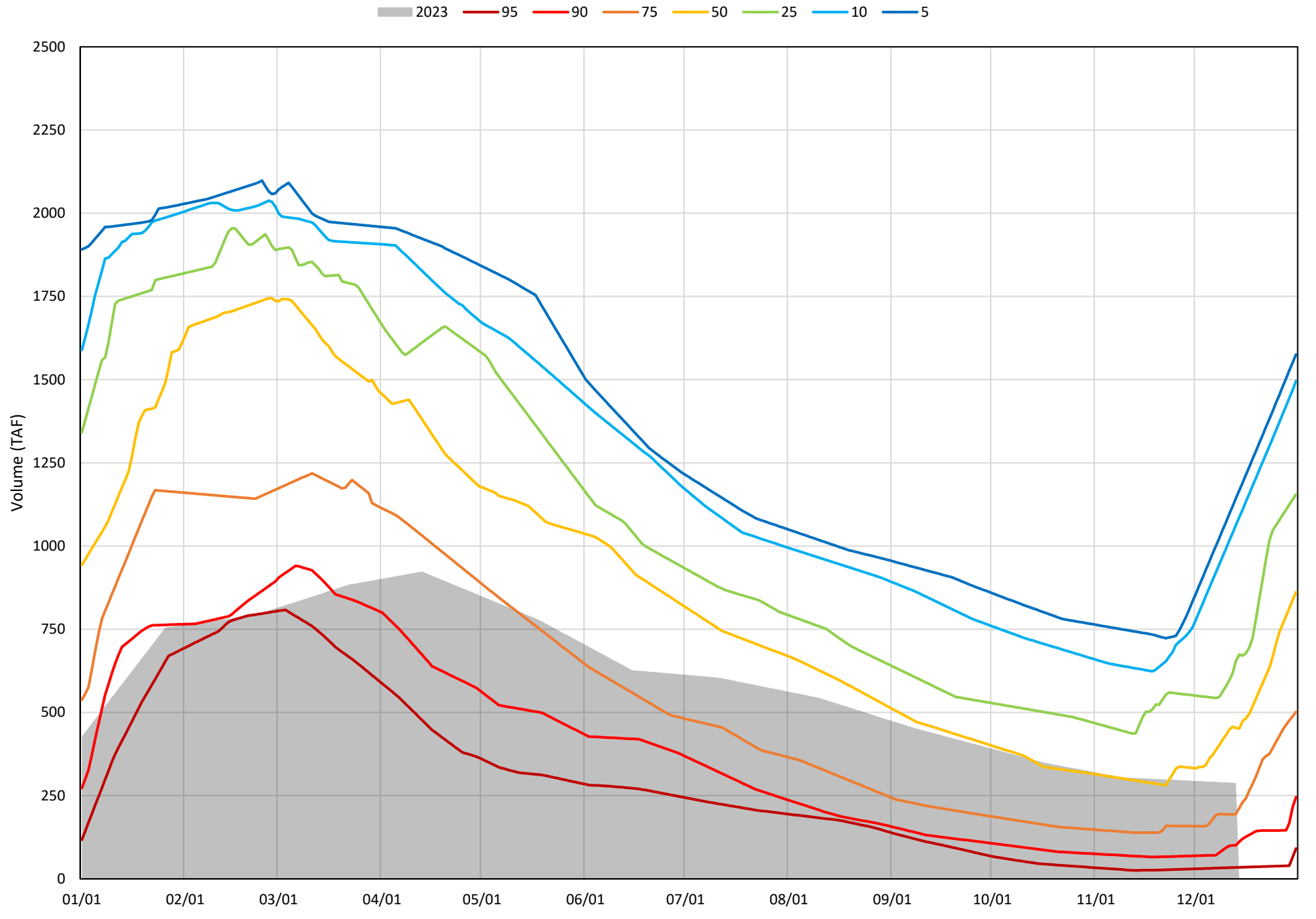
Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (2000-2022)



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)

Dec-14 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	21	677	-24	241	2	159	-8	56
2001	-432	268	297	332	-36	63	103	67
2002	-391	327	366	361	-33	77	127	79
2003	465	89	-56	203	39	21	-19	26
2004	213	16	-95	108	18	4	-33	18
2005	151	821	785	586	13	193	272	159
2006	558	1001	196	585	47	235	68	117
2007	-215	515	589	440	-18	121	204	114
2008	-640	87	190	306	-53	20	66	47
2009	-348	-71	-19	146	-29	-17	-7	17
2010	125	831	872	609	10	195	302	169
2011	713	265	166	381	60	62	57	60
2012	-26	703	759	496	-2	165	263	143
2013	-447	268	340	352	-37	63	118	73
2014	-663	76	-224	321	-55	18	-78	50
2015	-843	-81	-262	395	-70	-19	-91	60
2016	-59	-135	-132	108	-5	-32	-46	27
2017	-31	608	76	238	-3	143	26	57
2018	252	274	248	258	21	64	86	57
2019	624	515	388	509	52	121	135	103
2020	66	111	116	98	5	26	40	24
2021	-947	-201	-94	414	-79	-47	-32	53
2022	-643	-205	-109	319	-54	-48	-38	47
2023	0	0	0	0	0	0	0	0

}

Historical - Current

}

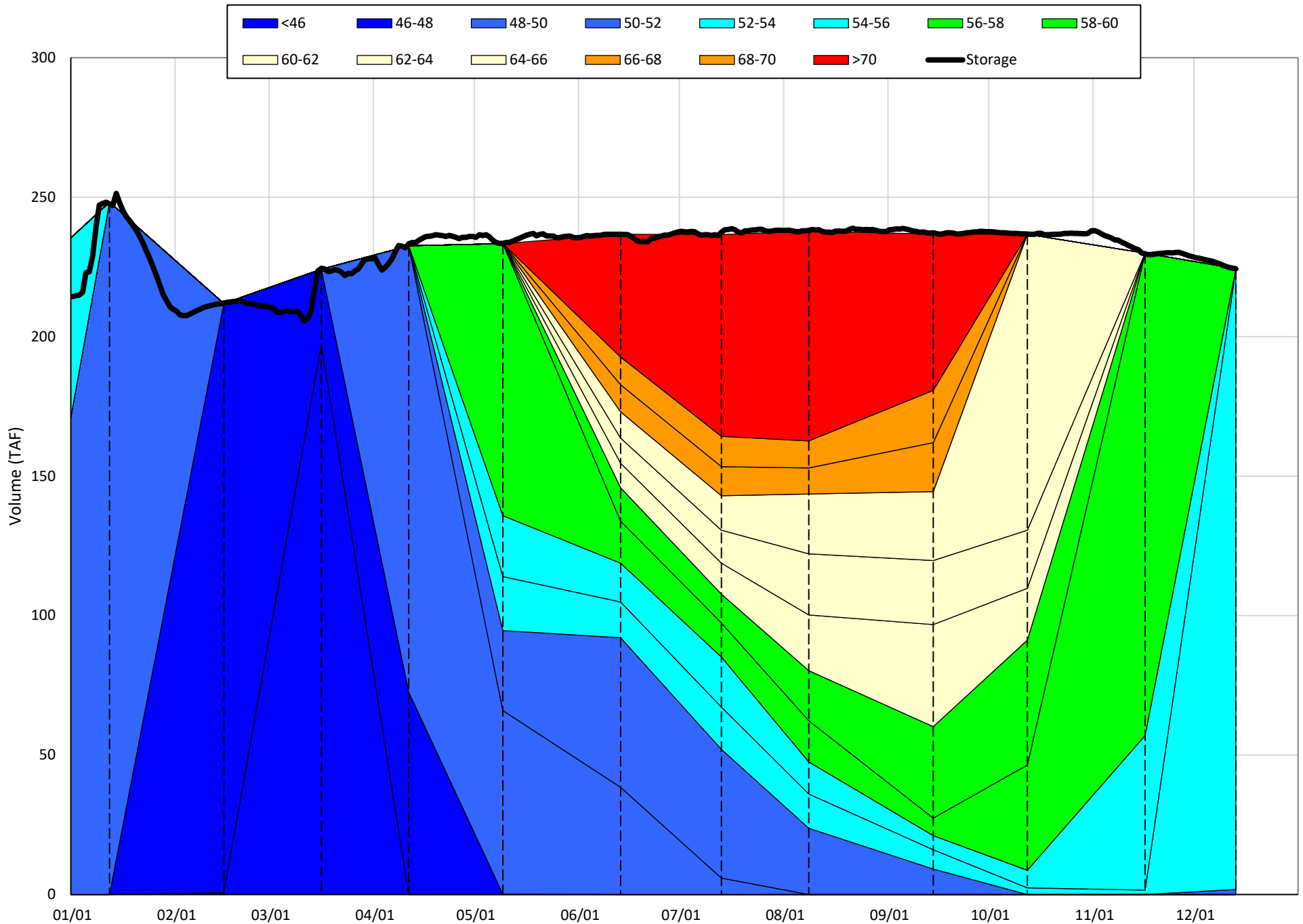
(Historical - Current) / Current

# 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

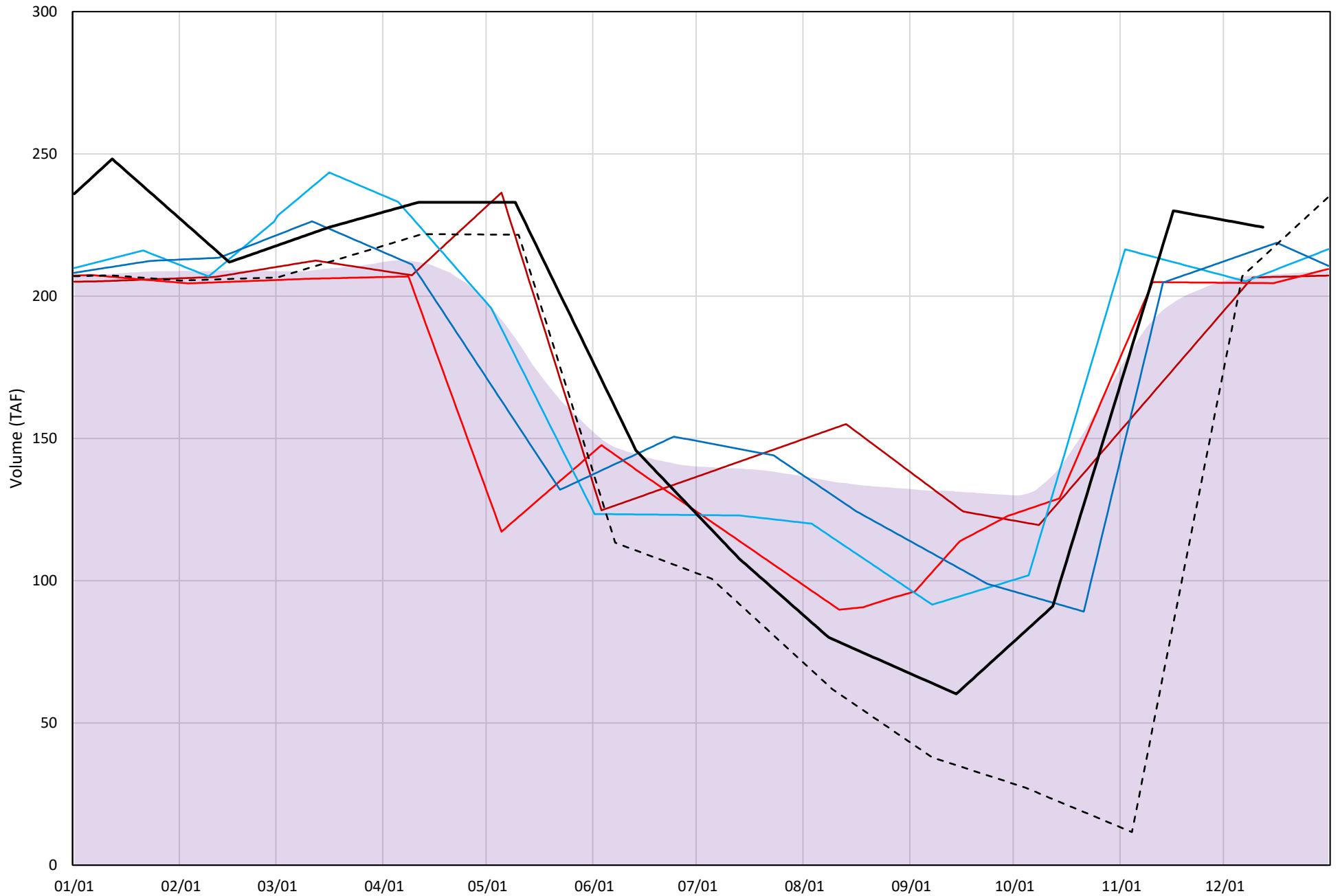
Whiskeytown Lake Isothermobaths Plot - 2023





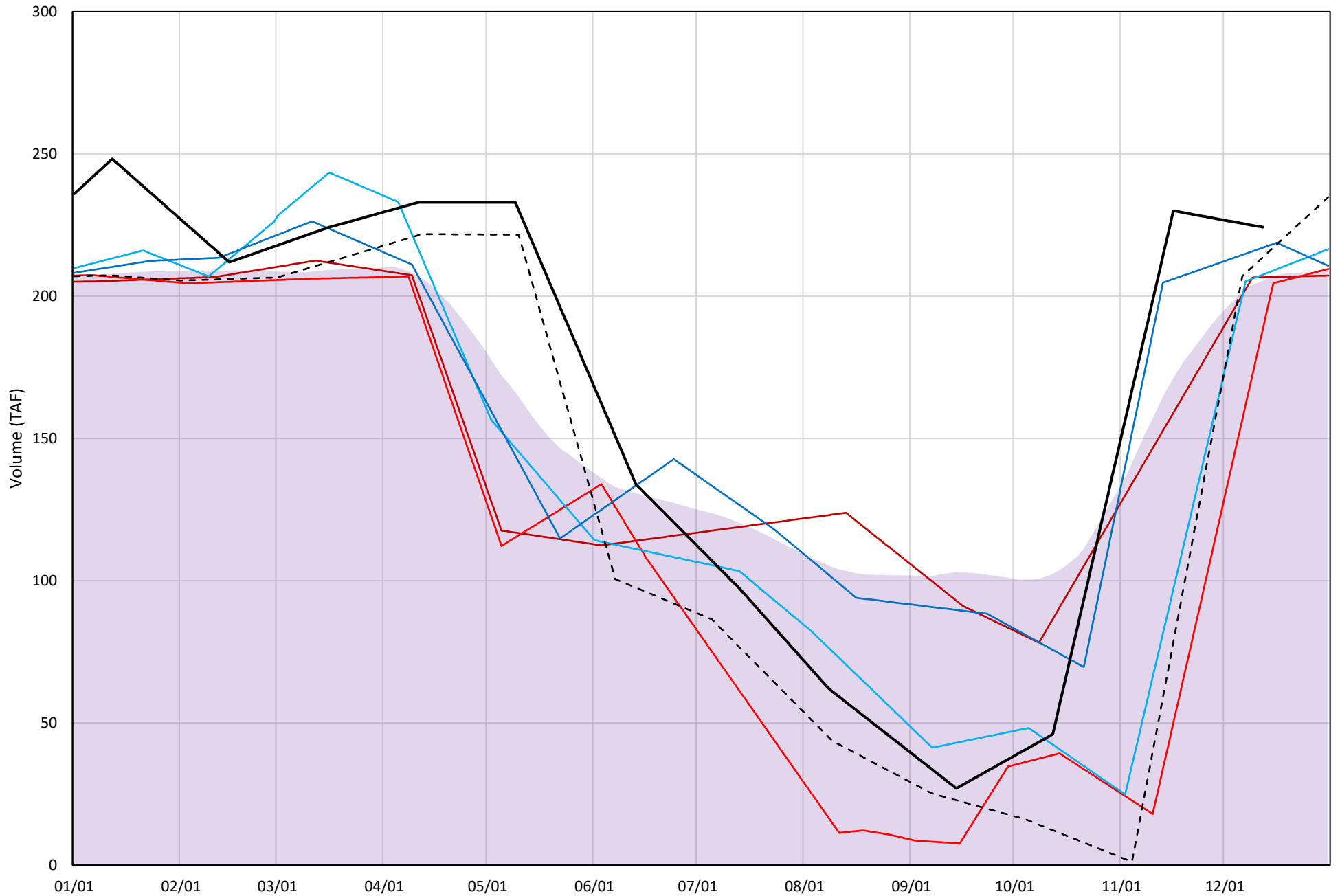
# Whiskeytown Lake Cold Water Pool Volume ≤60°F

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



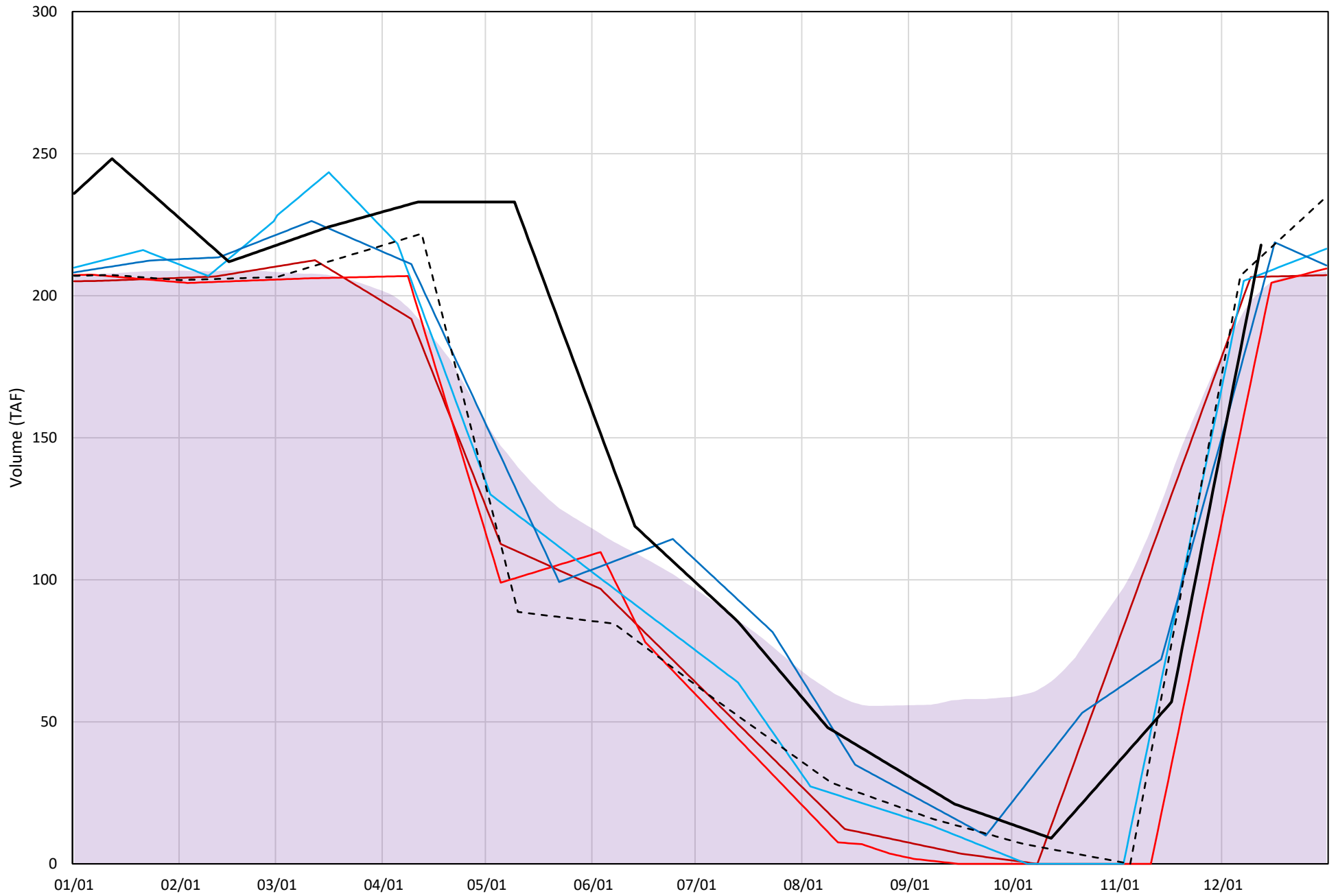
# Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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

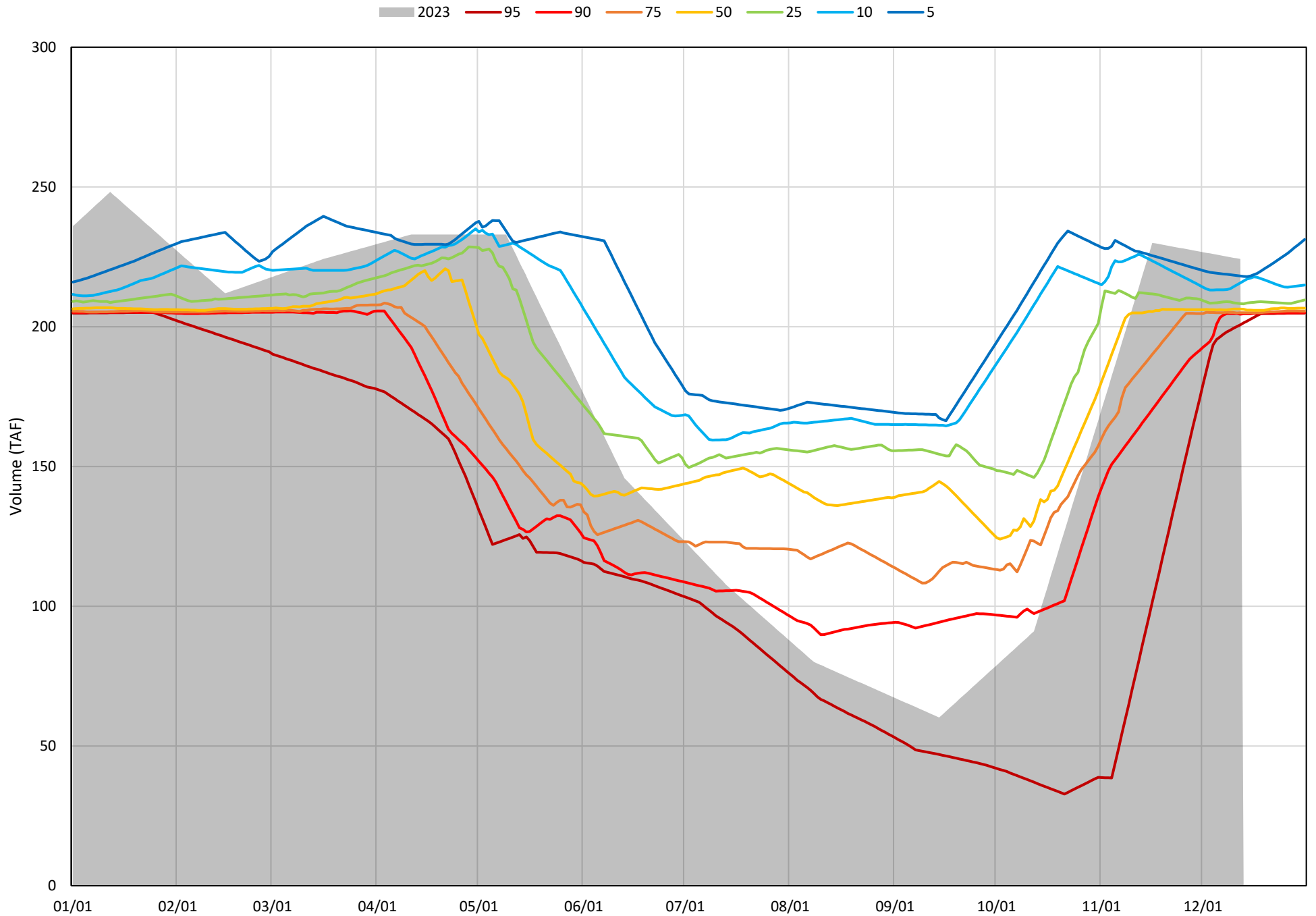


# Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

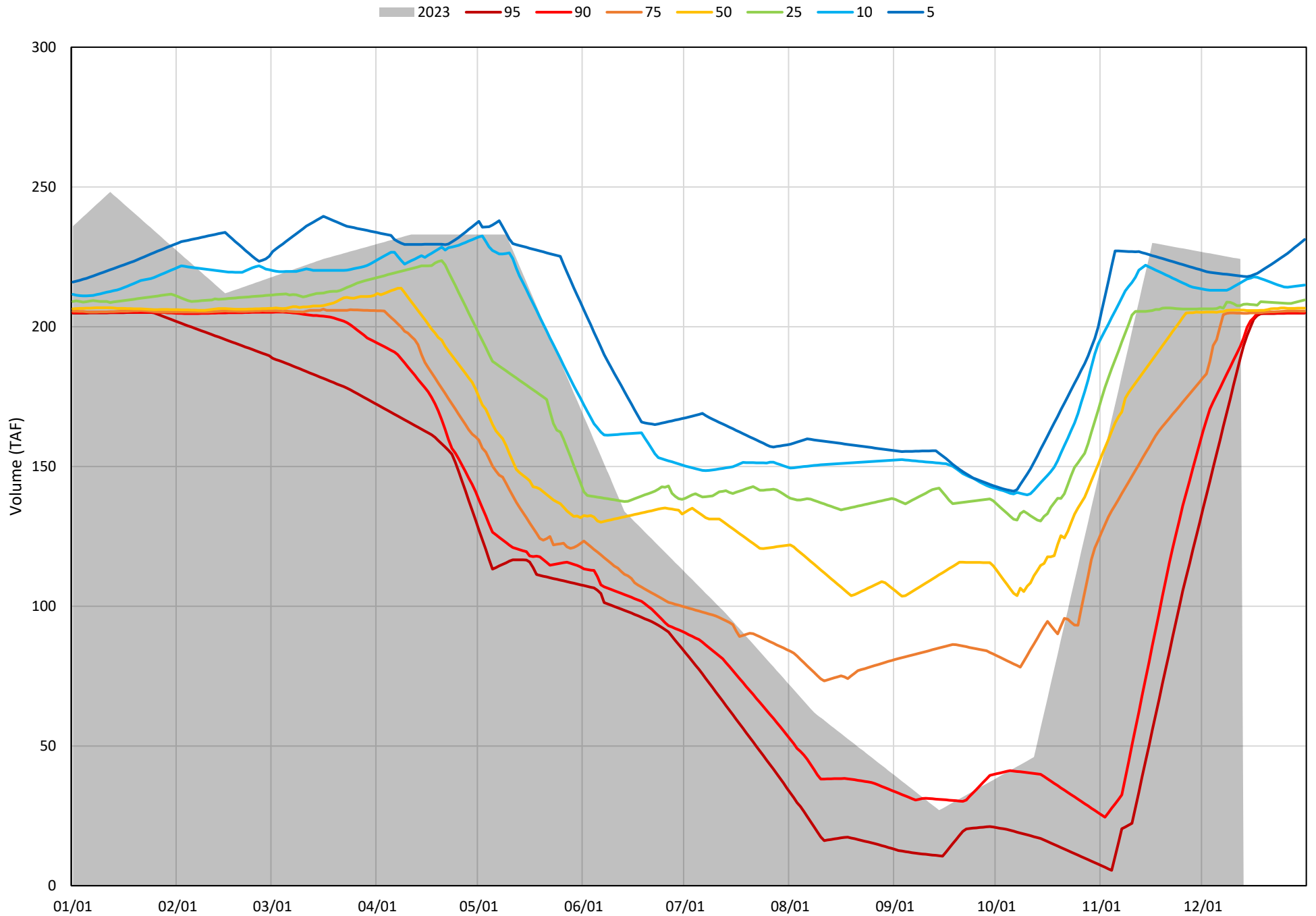
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



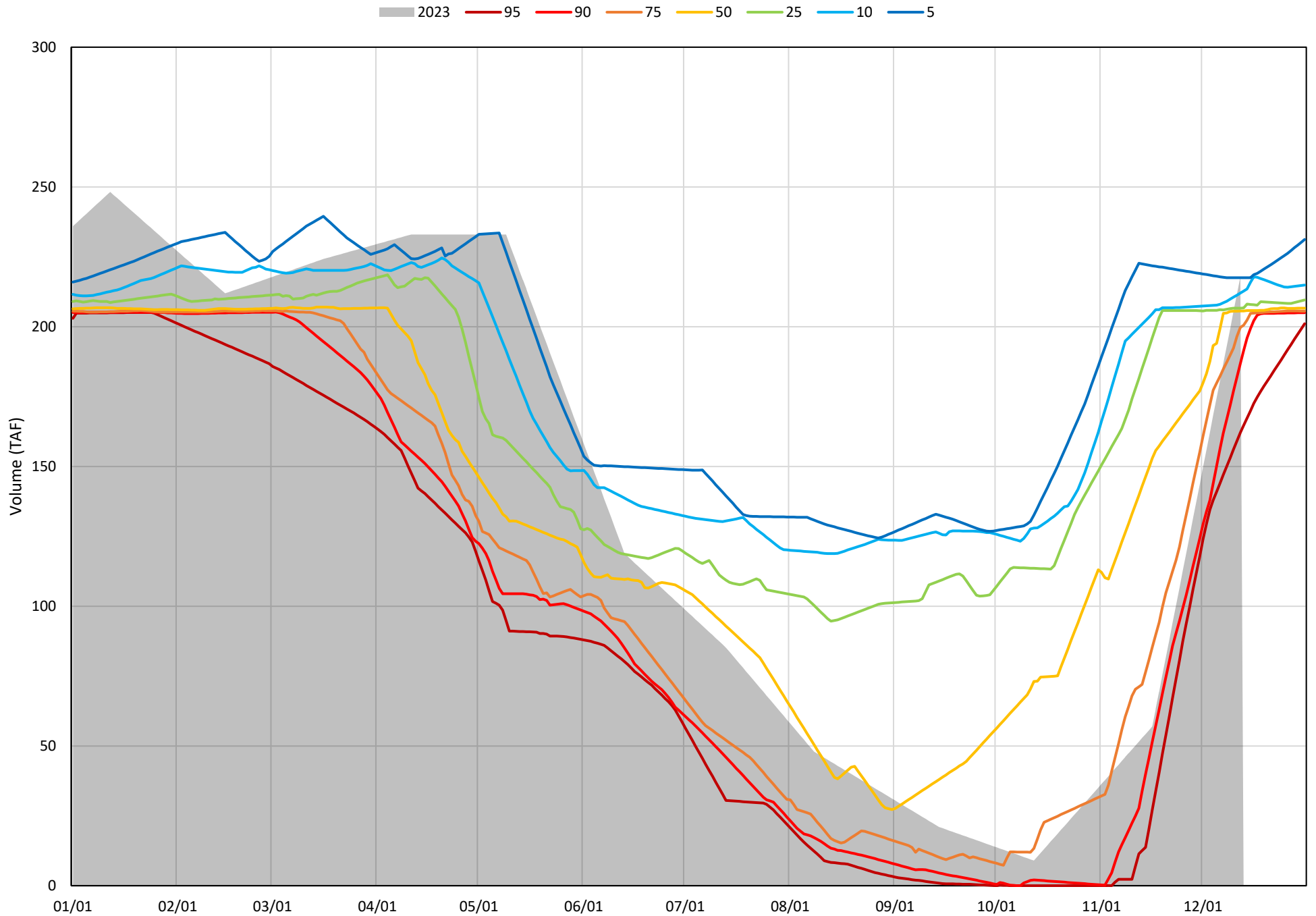
Whiskeytown Lake Cold Water Pool Volume  $\leq 60^{\circ}\text{F}$  - Percent Exceedances (2000-2022)



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)

Dec-13 2023	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	-24.5	-24.5	-18.1	22.3	-10.9	-10.9	-8.3	10.0
2001	-14.8	-14.8	-8.4	12.6	-6.6	-6.6	-3.8	5.7
2002	-18.6	-18.6	-12.2	16.5	-8.3	-8.3	-5.6	7.4
2003	-17.3	-17.3	-20.4	18.4	-7.7	-7.7	-9.4	8.3
2004	-5.8	-5.8	0.6	4.1	-2.6	-2.6	0.3	1.8
2005	-18.3	-18.3	-11.9	16.2	-8.2	-8.2	-5.5	7.3
2006	-19.4	-19.4	-13.0	17.3	-8.6	-8.6	-6.0	7.8
2007	-19.2	-19.2	-61.9	33.4	-8.5	-8.5	-28.4	15.2
2008	-17.9	-17.9	-11.5	15.7	-8.0	-8.0	-5.3	7.1
2009	-18.3	-18.3	-11.9	16.2	-8.2	-8.2	-5.5	7.3
2010	-15.9	-15.9	-9.5	13.8	-7.1	-7.1	-4.4	6.2
2011	-18.4	-18.4	-12.0	16.3	-8.2	-8.2	-5.5	7.3
2012	-16.0	-34.4	-31.1	27.1	-7.1	-15.3	-14.3	12.2
2013	-16.4	-26.5	-21.1	21.3	-7.3	-11.8	-9.7	9.6
2014	-17.6	-17.6	-11.2	15.4	-7.8	-7.8	-5.1	6.9
2015	-19.6	-35.7	-30.8	28.7	-8.8	-15.9	-14.1	12.9
2016	-16.7	-16.7	-10.3	14.5	-7.4	-7.4	-4.7	6.5
2017	-19.4	-19.4	-13.0	17.2	-8.6	-8.6	-6.0	7.7
2018	-19.8	-19.8	-13.4	17.7	-8.8	-8.8	-6.2	7.9
2019	-7.2	-7.2	-16.9	10.4	-3.2	-3.2	-7.8	4.7
2020	-19.3	-19.3	-12.8	17.1	-8.6	-8.6	-5.9	7.7
2021	-17.7	-17.7	-11.2	15.5	-7.9	-7.9	-5.2	7.0
2022	-10.5	-10.5	-4.1	8.4	-4.7	-4.7	-1.9	3.8
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Historical - Current

(Historical - Current) / Current