

# Northern CVP Water Temperature Report

## August - 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	CCR <sup>2</sup>	BSF	BND	RDB	IGO	LWS	DGC <sup>3</sup>	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB	
Jul	49.9	48.5	51.8	50.3	51.0	51.9	54.1	56.3	58.6	56.2	53.6	-	66.7	9721	501	10648	86.0	81.0	80.6	
08/01	49.8	48.6	52.8	50.5	51.0	51.8	53.5	55.2	57.1	55.9	53.6	#	67.1	9696	519	10851	82.5	76.1	76.6	
08/02	49.6	48.3	52.9	50.5	51.2	52.0	53.8	55.5	? 57.4	55.9	53.6	#	66.8	9542	498	10781	80.0	74.7	73.5	
08/03	49.7	48.4	52.9	50.3	50.9	51.7	53.8	55.7	57.8	56.2	53.7	#	66.5	9663	504	10567	78.5	73.4	72.0	
08/04	49.7	48.4	53.0	50.4	51.1	51.9	53.8	55.7	? 57.8	56.3	54.0	#	66.7	9749	500	10603	83.5	77.3	75.8	
08/05	49.7	48.3	53.2	50.5	51.2	52.0	54.0	56.0	? 58.1	56.8	54.1	#	67.4	9717	492	10588	87.0	82.3	84.8	
08/06	49.3	? 48.2	53.3	50.4	51.0	52.0	54.2	56.3	58.5	57.0	54.1	#	67.6	8780	515	10530	92.5	85.2	87.5	
08/07	49.6	48.5	53.3	50.2	50.8	51.8	54.0	56.1	? 58.5	56.9	54.1	#	67.6	9626	491	10509	95.0	86.3	86.9	
08/08	50.1	48.8	53.6	50.3	50.9	51.7	53.6	55.5	57.8	56.8	53.7	#	67.7	9556	489	10450	84.5	78.2	78.1	
08/09	50.2	48.9	53.6	50.6	51.1	51.8	53.6	55.4	57.5	56.5	? 53.3	!	61.5	67.3	9736	501	10492	79.5	73.8	74.5
08/10	49.7	48.6	53.6	50.8	51.4	52.1	? 54.0	55.7	57.6	56.5	52.8	!	61.3	67.0	9267	627	10284	81.5	75.8	76.4
08/11	50.0	48.6	53.8	50.6	? 51.3	52.1	54.2	56.0	? 57.9	56.7	52.5	!	61.3	67.5	9465	495	10242	80.5	75.4	75.0
08/12	#	? 48.7	53.9	50.9	51.5	52.2	54.0	55.9	58.1	57.2	52.5	!	61.6	67.7	2342	697	10243	85.5	79.0	78.0
08/13	#	48.7	54.2	50.9	51.6	52.5	54.5	56.5	58.5	57.5	52.4	!	61.9	68.4	9477	494	10241	↑ 91.5	83.4	83.9
08/14	50.3	48.9	54.6	50.9	51.5	52.4	54.6	56.6	58.7	57.9	52.5	!	61.9	68.4	9243	501	10240	90.0	81.6	82.8
08/15	50.4	? 49.1	54.8	51.2	51.8	52.6	54.5	56.4	? 58.5	58.0	53.1	!	62.6	69.1	9055	525	10236	93.0	87.6	88.1
08/16	50.5	? 49.2	54.7	51.3	52.0	52.8	54.9	56.9	59.0	57.9	53.0	!	62.1	68.6	9168	513	10054	↑ 94.5	90.0	89.0
08/17	50.4	? 49.1	54.7	51.3	51.9	52.7	54.7	56.9	59.2	57.5	53.1	!	60.4	67.0	8829	708	10012	94.5	89.9	89.3
08/18	49.5	48.4	55.3	51.1	51.7	52.6	54.8	56.7	? 58.9	58.2	52.4	!	60.6	65.9	8423	564	9944	86.5	80.0	79.8
08/19	49.5	? 48.4	55.4	50.8	51.5	52.5	54.7	56.7	? 58.9	58.1	52.5	!	58.4	64.8	8248	627	9563	87.0	80.7	79.7
08/20	49.5	48.4	55.5	50.4	50.8	51.5	53.4	55.5	57.6	56.6	52.3	!	56.3	61.7	8937	479	9644	83.5	78.9	79.1
08/21	49.7	48.7	55.8	49.8	50.0	50.6	52.4	54.1	55.8	56.4	? 51.2	!	53.2	56.5	8914	544	9613	75.5	71.1	72.3
08/22	49.8	? 48.7	55.8	50.1	50.5	51.2	52.8	54.1	55.4	57.5	49.5	!	52.9	55.4	8408	570	9253	77.0	73.2	73.2
08/23	49.6	48.6	56.3	50.7	51.3	52.1	53.9	55.6	57.2	58.2	48.8	!	53.6	57.1	8093	496	9111	82.0	76.7	77.4
08/24	49.6	? 48.9	56.3	50.7	51.3	52.2	54.3	56.3	? 58.1	58.2	49.1	!	54.4	59.8	7726	524	9104	83.5	77.3	79.0
08/25	49.8	48.9	56.5	50.6	51.2	52.0	54.2	56.3	58.3	58.1	49.8	!	55.1	60.3	8013	499	9109	82.0	75.5	75.5
08/26	49.9	49.0	56.6	50.7	51.3	52.0	53.9	55.8	57.7	57.7	50.4	!	56.3	61.2	8243	508	9110	79.5	72.7	75.0
08/27	50.0	49.0	56.9	50.8	51.3	52.0	53.9	55.6	57.4	57.6	50.7	!	57.3	62.4	7754	438	9102	79.5	73.0	75.2
08/28	50.1	? 49.1	57.0	50.7	51.2	51.9	53.8	55.6	57.3	57.6	50.9	!	57.6	62.8	8353	493	9107	80.0	74.1	76.4
08/29	50.2	49.2	57.4	50.8	51.2	51.9	53.6	55.3	57.1	57.9	50.8	!	57.4	62.1	8191	492	9109	78.5	73.9	78.3
08/30	50.2	? 49.4	57.4	50.9	51.5	52.4	54.1	55.7	57.2	59.2	50.9	!	56.7	61.8	8291	553	8898	87.5	81.7	83.4
08/31	49.5	48.8	57.7	51.1	51.5	52.1	54.1	55.8	57.5	58.8	51.0	!	56.1	60.8	7683	498	8637	78.0	73.1	74.1
Aug	49.9	48.7	54.8	50.7	51.2	52.0	54.0	55.9	57.8	57.3	52.2	58.4	64.7	8684	529	9920	84.5	78.6	79.2	
														Total CFS	268188	16354	306227			
														Total AF	531940	32437	607389			

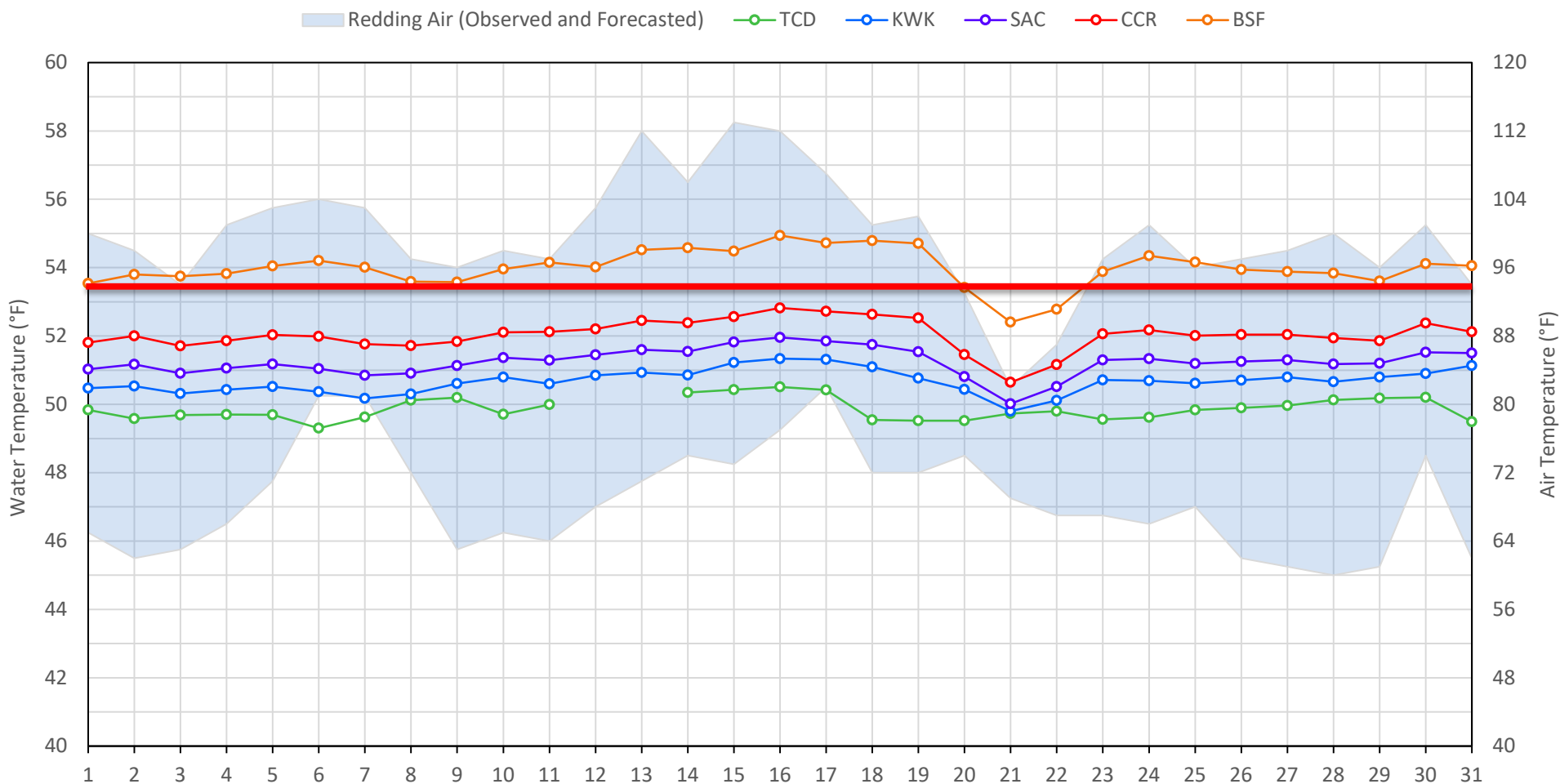
**Legend**

- ? = 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 4 for more details)
- <sup>3</sup> DGC reporting incorrect water temperatures from 7/23 - 8/9 due to probe being buried in fine sediment

### Sacramento River Mean Daily Temperatures



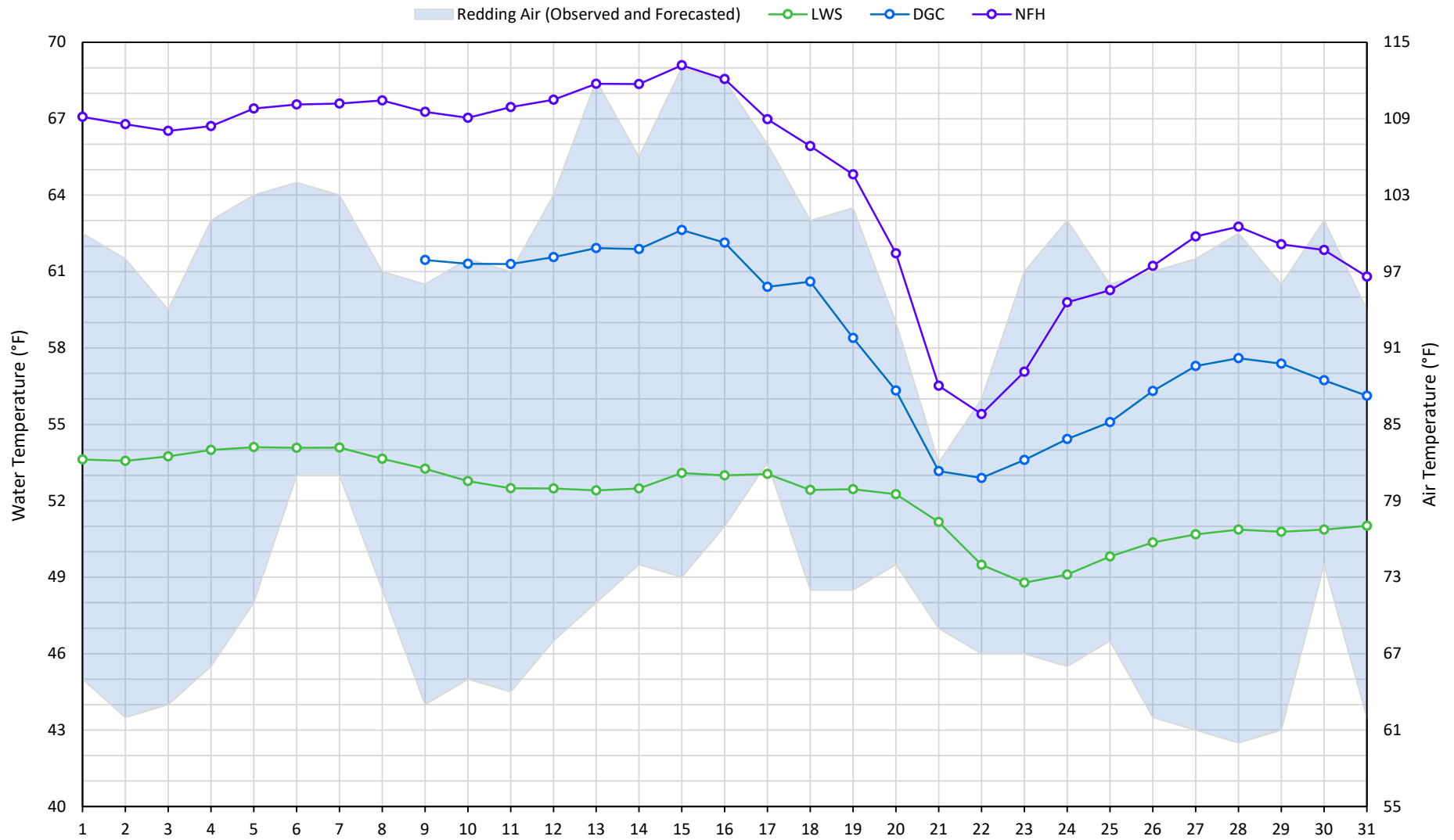
Station Details			
Code	Body of Water	Location <sup>1</sup>	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	<a href="#">Click Here</a>
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	<a href="#">Click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



### 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

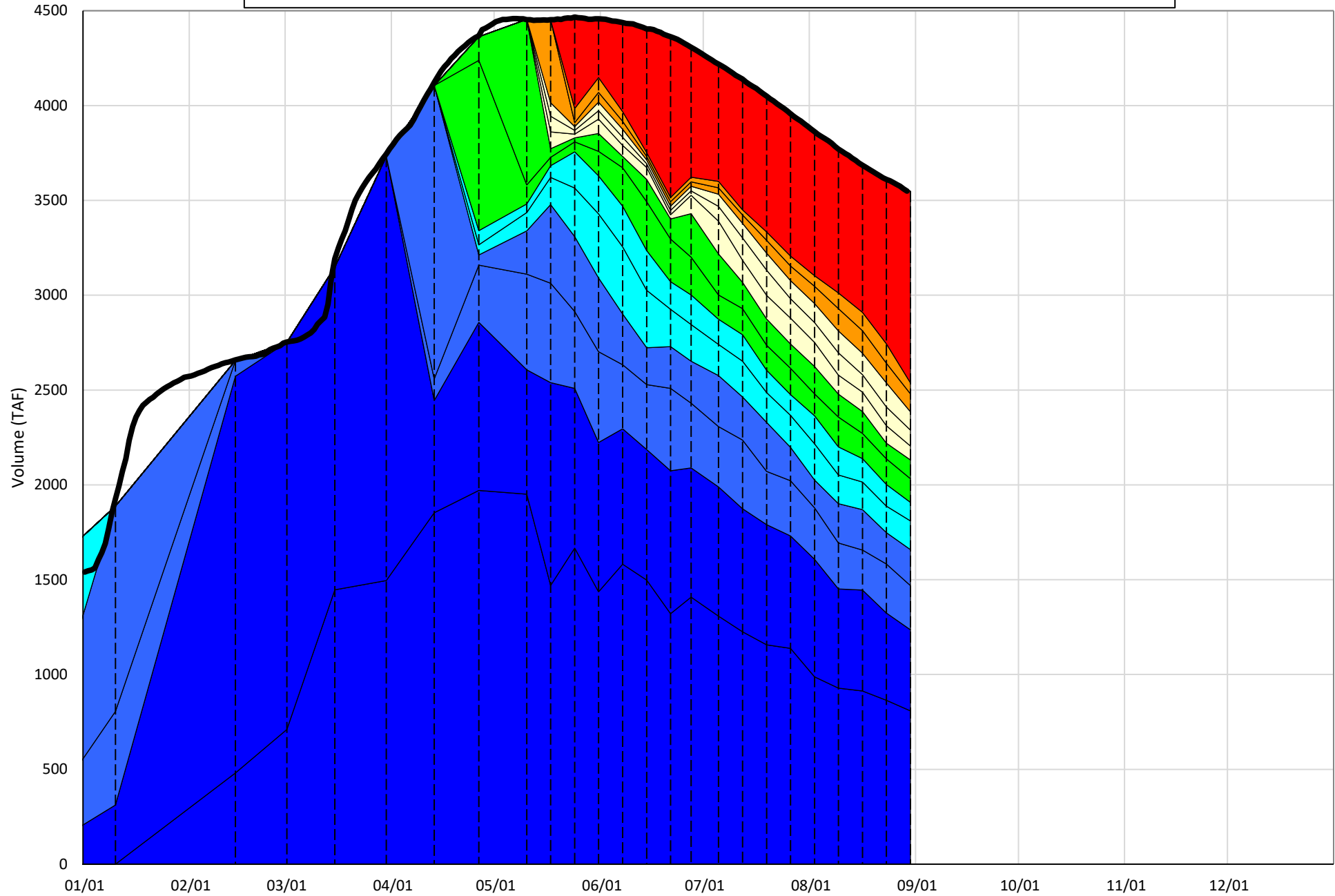
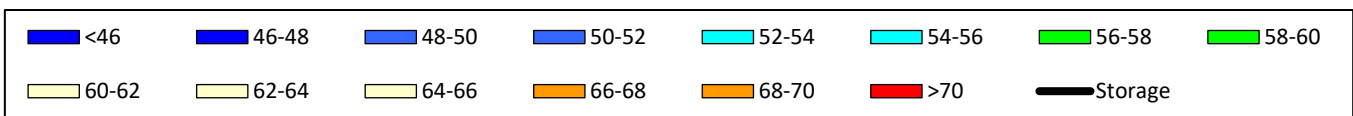
<sup>2</sup> DGC reporting incorrect water temperatures from and 7/23 - 8/9 due to probe being buried in fine sediment

# Shasta Lake Isothermobaths & Cold Water Pool Statistics

## 2023

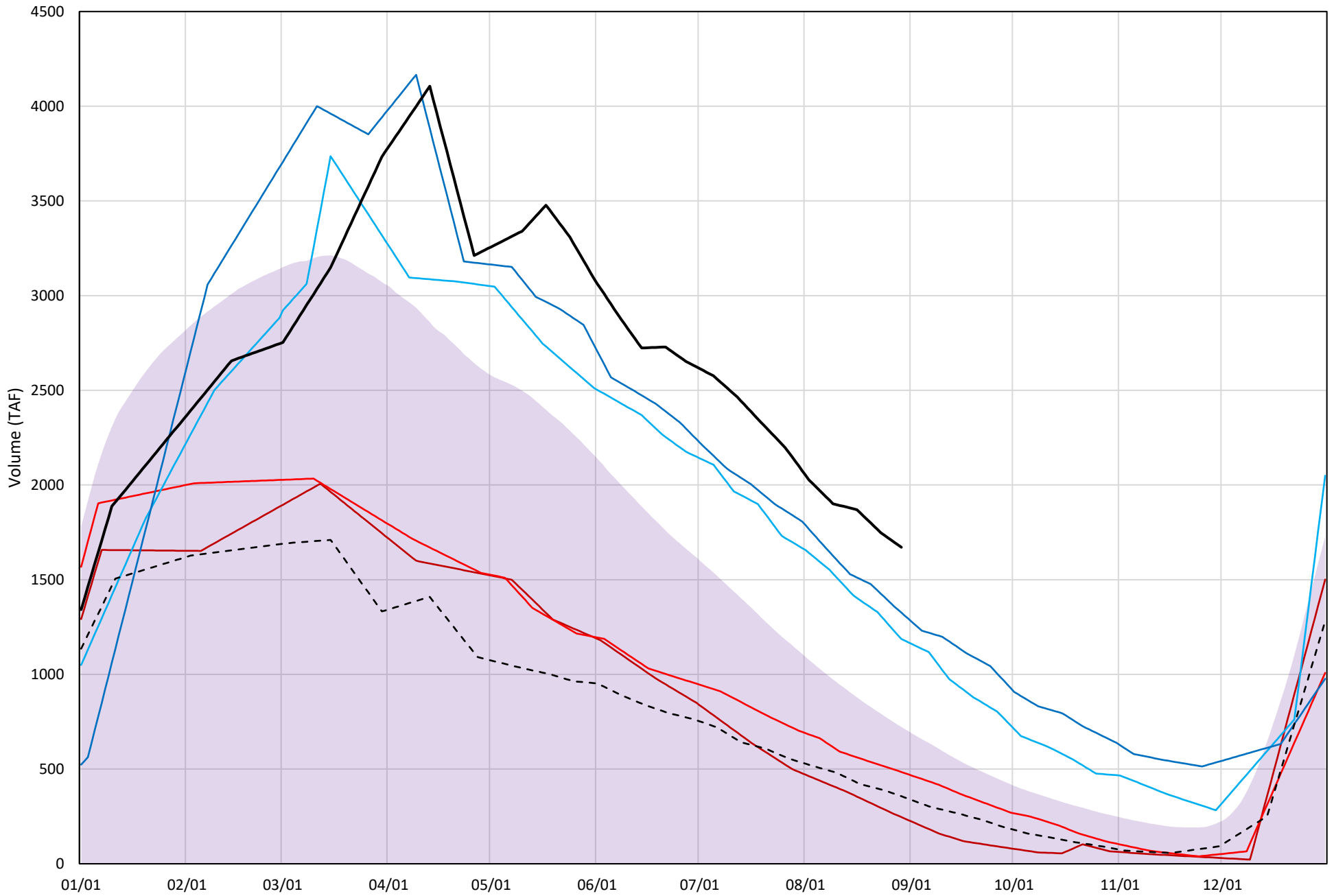
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10	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances
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12	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances
13	- Shasta Lake Cold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

Shasta Lake Isothermobaths Plot - 2023



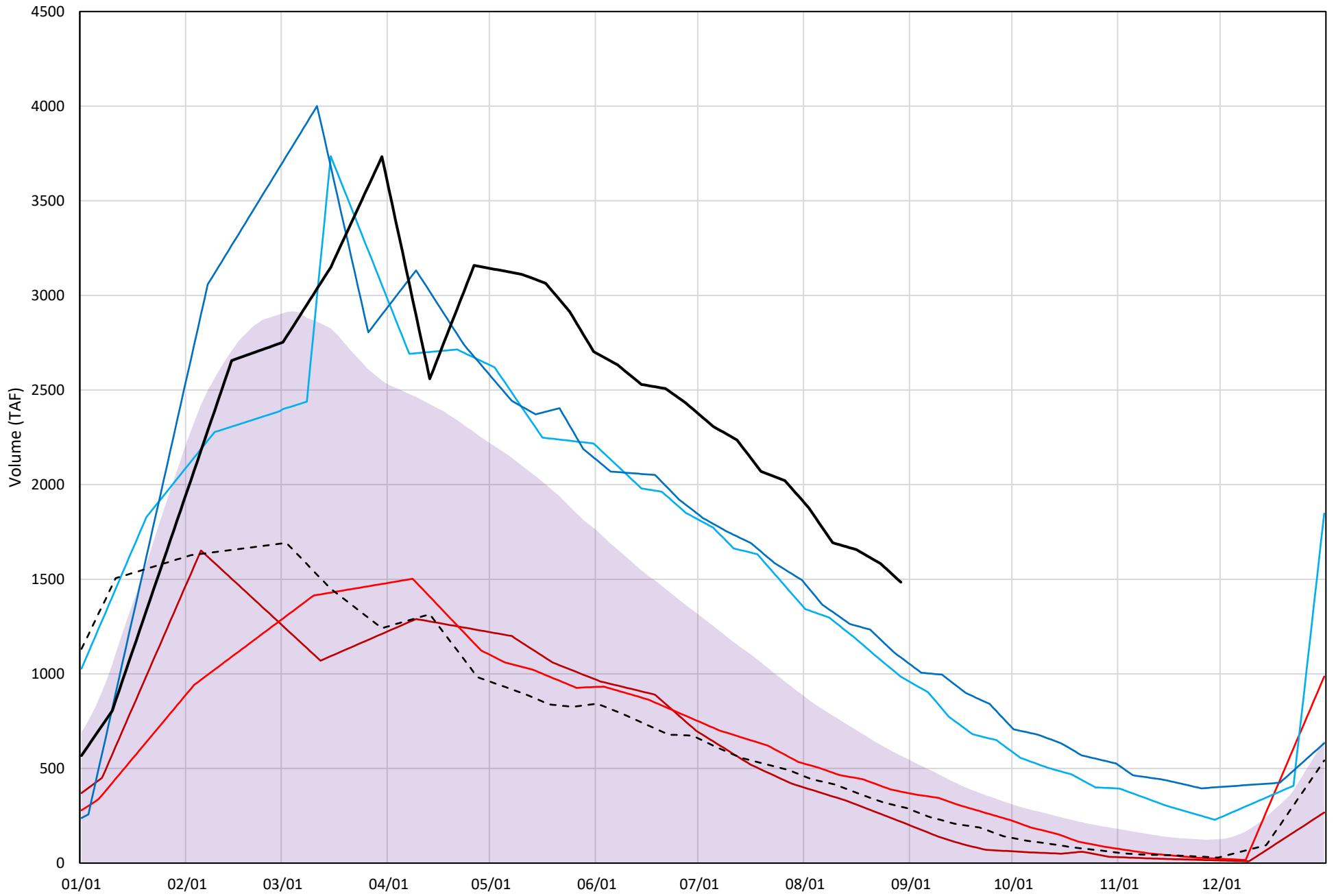
# Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



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

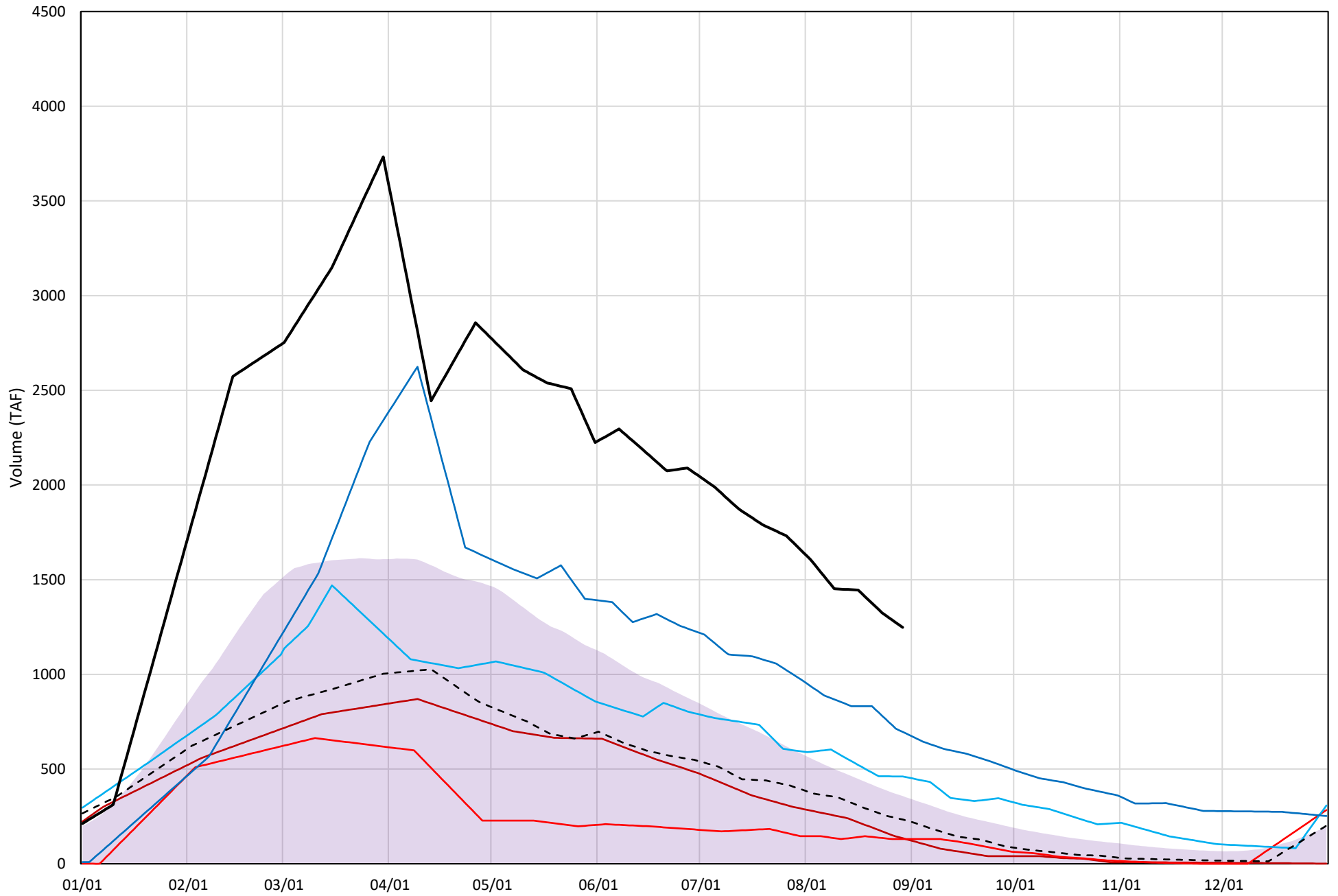
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



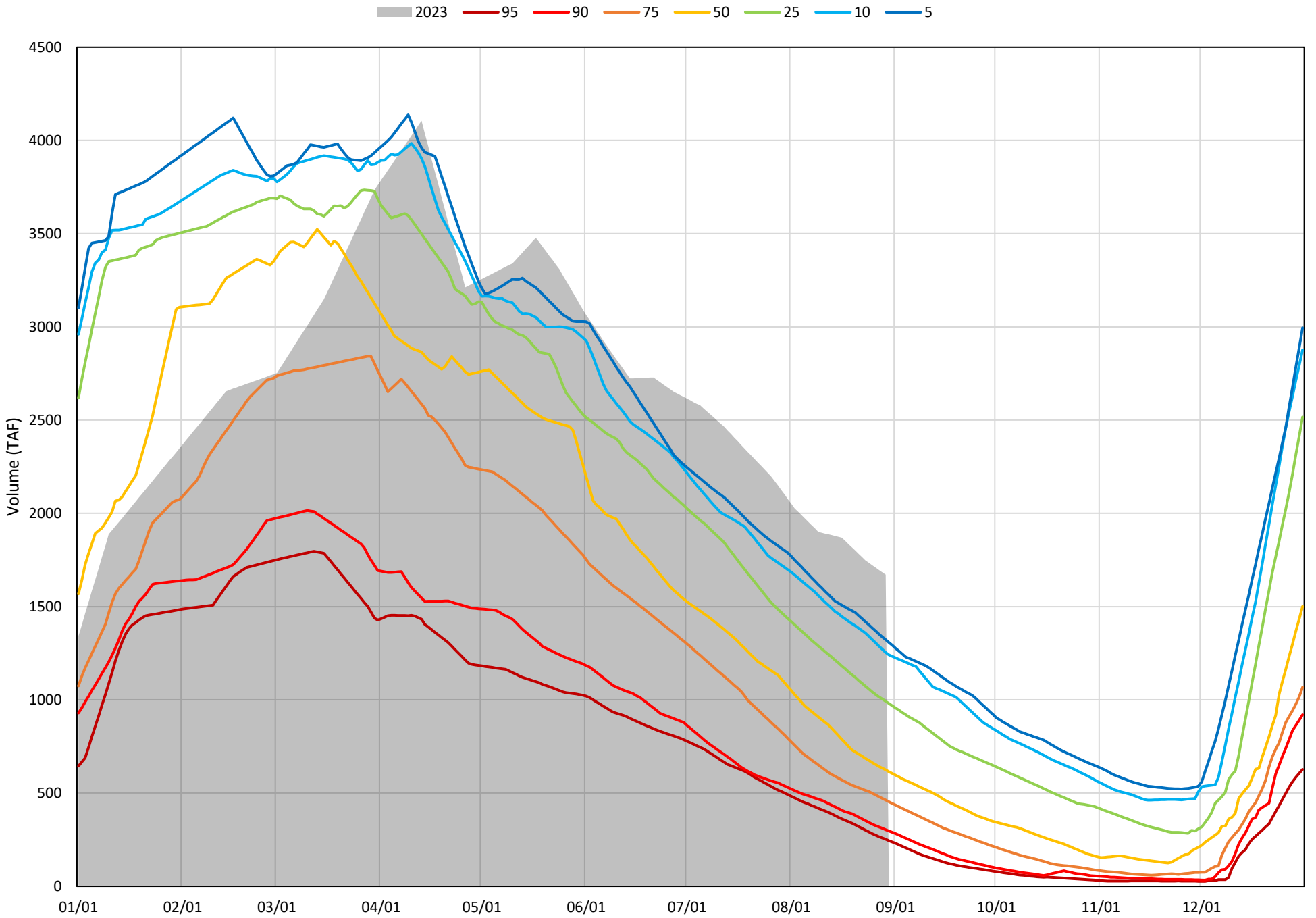


# Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

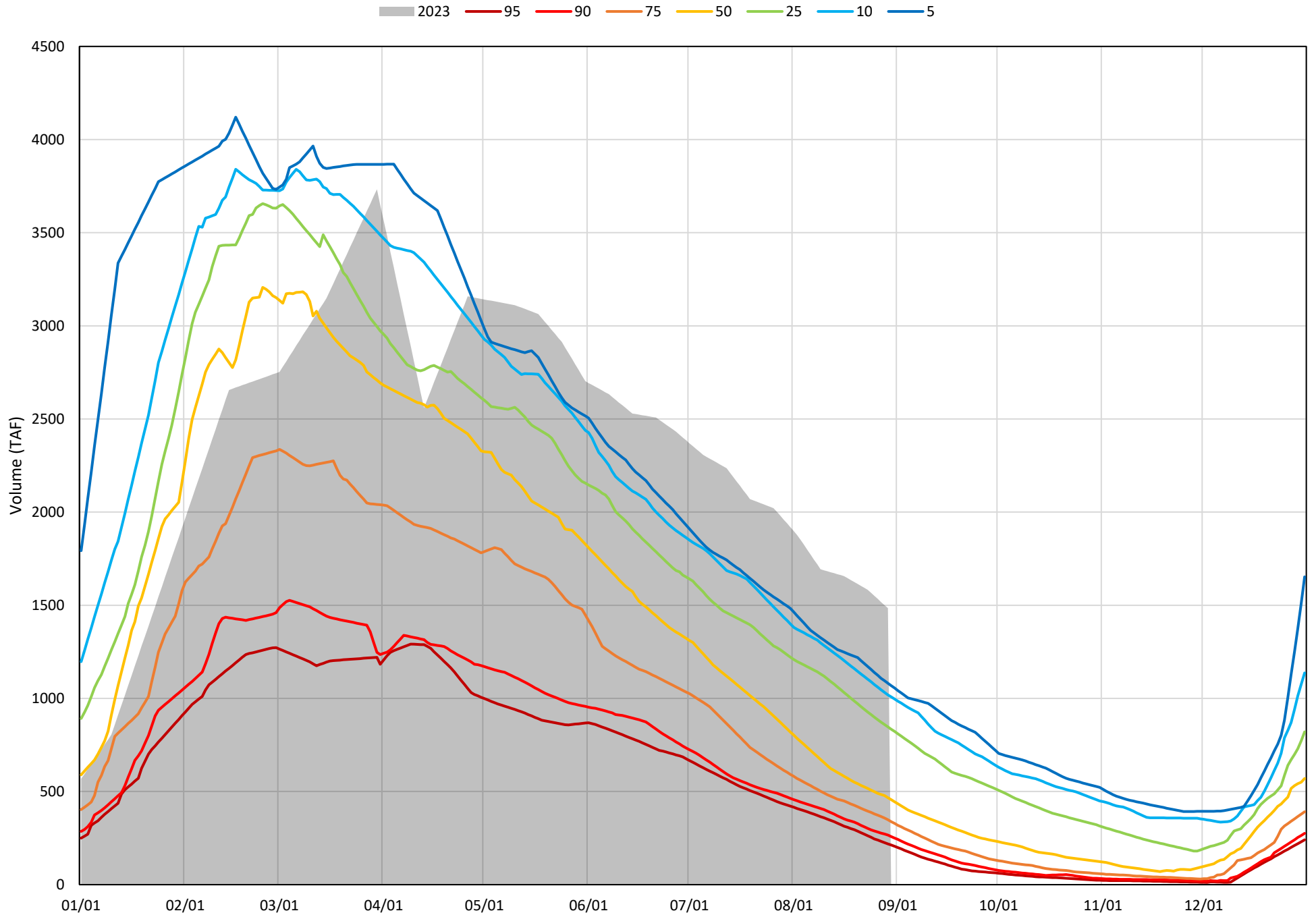
Avg (1998-2022) 2014 2015 2016 2019 2022 2023



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

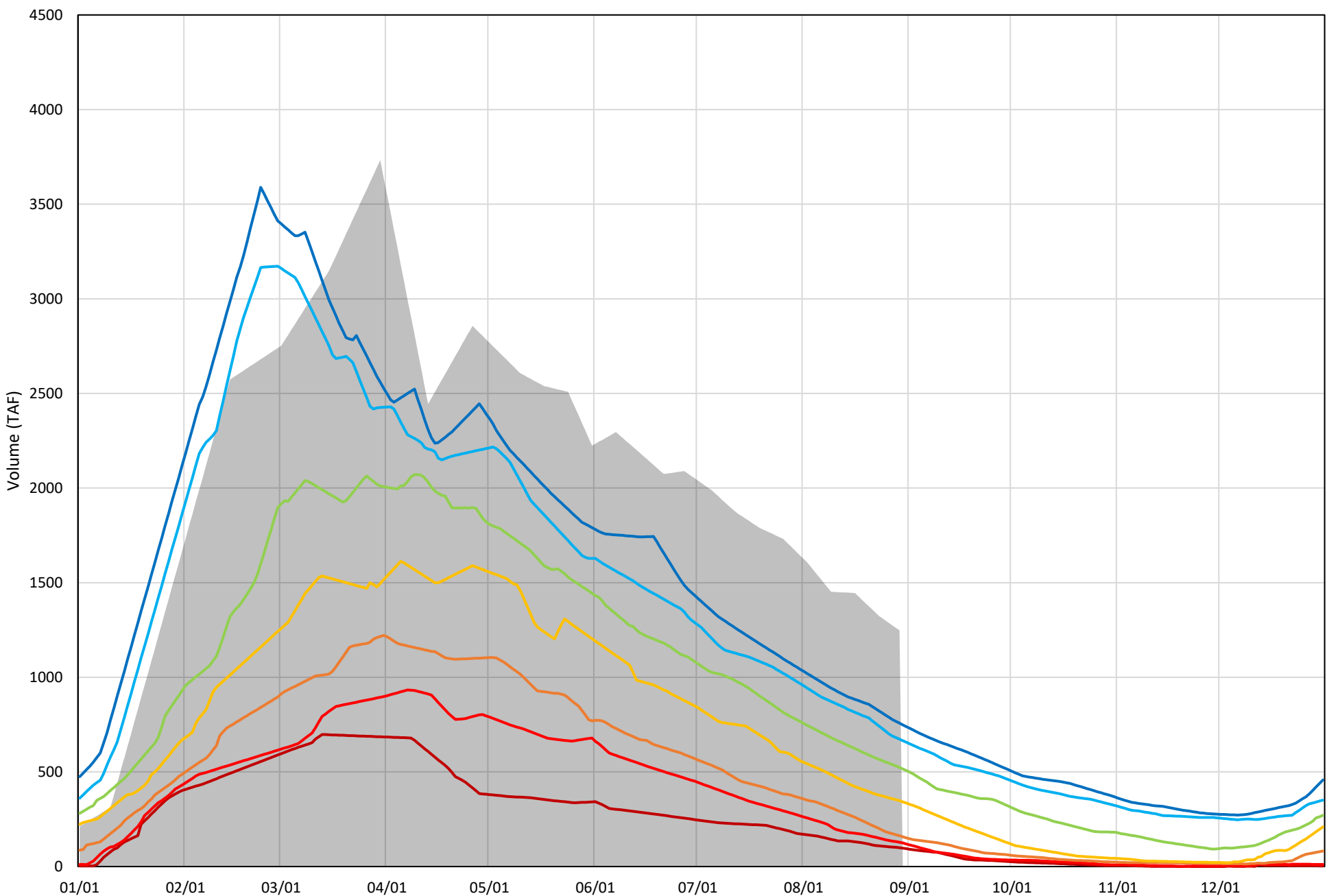


Shasta Lake Cold Water Pool Volume  $\leq 50^{\circ}\text{F}$  - Percent Exceedances (1998-2022)



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

2023 95 90 75 50 25 10 5



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

Aug-30 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
1998	-1019	-1116	-1117	1084	-61	-75	-89	75
1999	-656	-620	-591	623	-39	-42	-47	43
2000	-1094	-1091	-1104	1097	-65	-74	-88	76
2001	-1145	-1042	-900	1029	-69	-70	-72	70
2002	-846	-816	-757	806	-51	-55	-61	55
2003	-937	-1110	-1160	1069	-56	-75	-93	75
2004	-1282	-1172	-1047	1167	-77	-79	-84	80
2005	-1209	-1157	-1068	1145	-72	-78	-86	79
2006	-813	-835	-811	820	-49	-56	-65	57
2007	-1139	-1017	-881	1013	-68	-69	-71	69
2008	-1341	-1188	-992	1174	-80	-80	-79	80
2009	-1208	-1089	-935	1077	-72	-73	-75	73
2010	-458	-561	-670	563	-27	-38	-54	40
2011	-357	-415	-464	412	-21	-28	-37	29
2012	-701	-655	-693	683	-42	-44	-56	47
2013	-1055	-952	-839	949	-63	-64	-67	65
2014	-1425	-1266	-1113	1268	-85	-85	-89	87
2015	-1187	-1107	-1118	1137	-71	-75	-90	78
2016	-484	-500	-787	591	-29	-34	-63	42
2017	-466	-532	-632	543	-28	-36	-51	38
2018	-796	-819	-900	838	-48	-55	-72	58
2019	-345	-398	-552	432	-21	-27	-44	31
2020	-1047	-1013	-1006	1022	-63	-68	-81	70
2021	-1406	-1264	-1122	1264	-84	-85	-90	86
2022	-1315	-1187	-1015	1172	-79	-80	-81	80
2023	0	0	0	0	0	0	0	0

Historic - Current

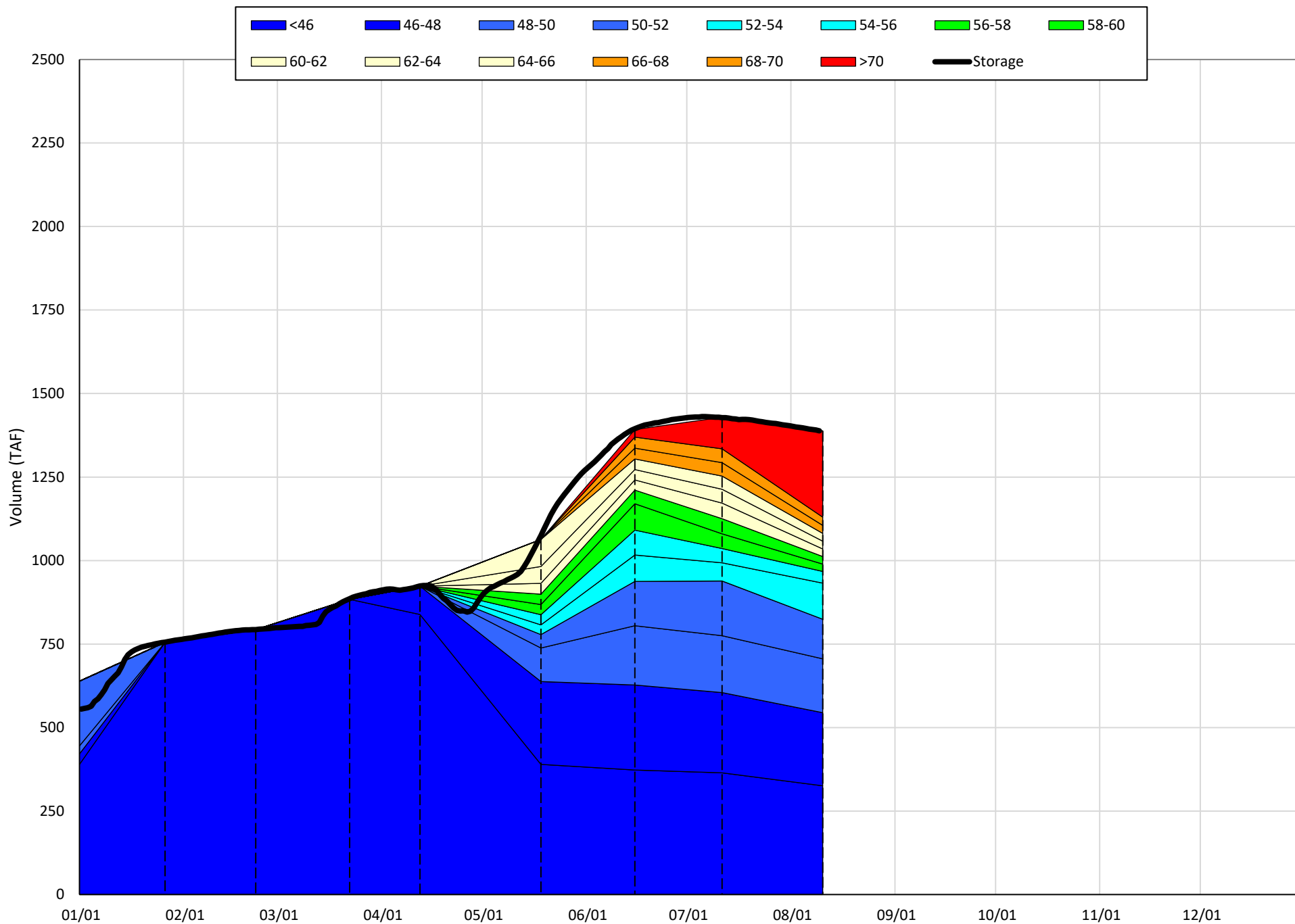
(Historic - Current) / Current

# Trinity Lake Isothermobaths & Cold Water Pool Statistics

## 2023

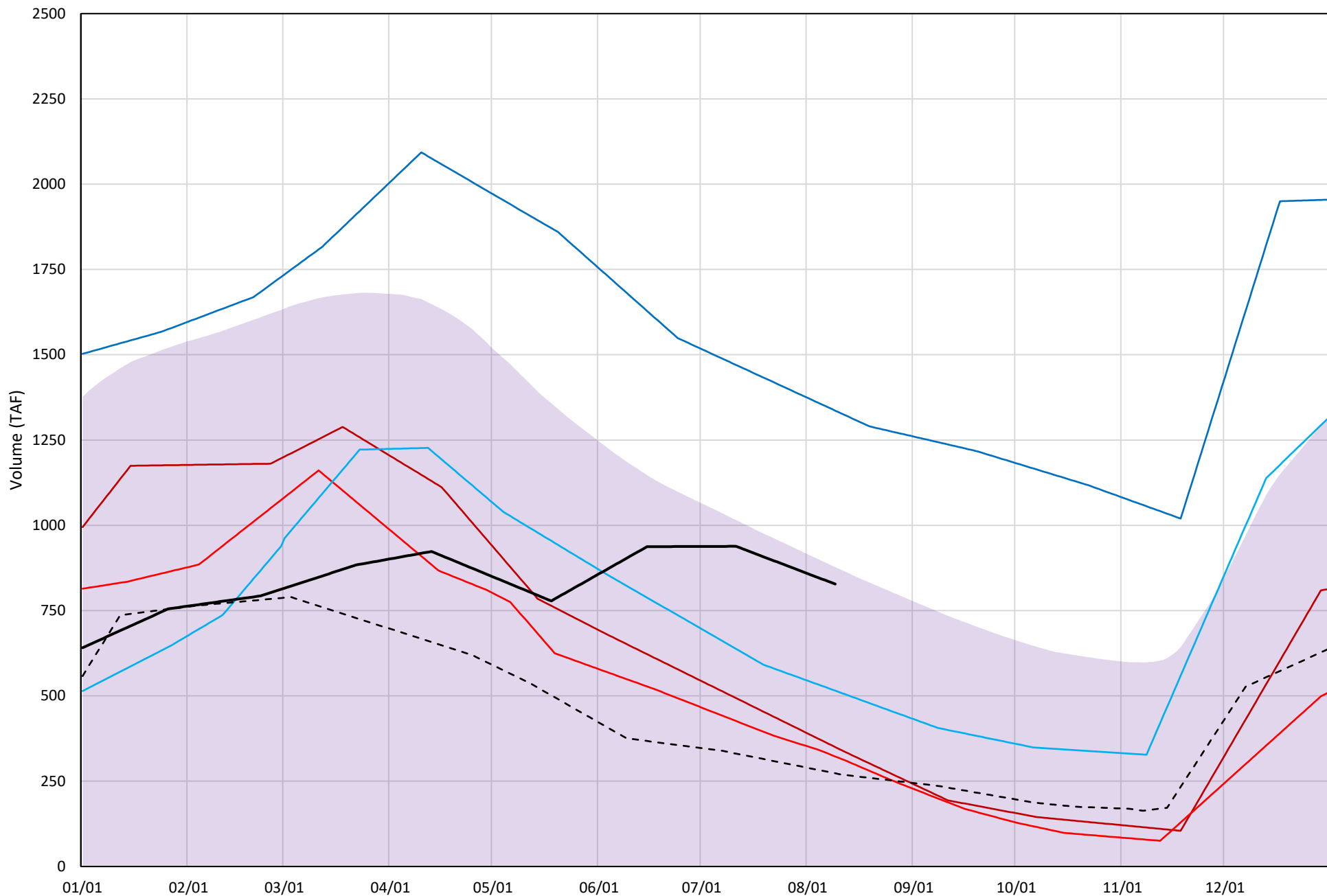
Page	Description
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18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances
20	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent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

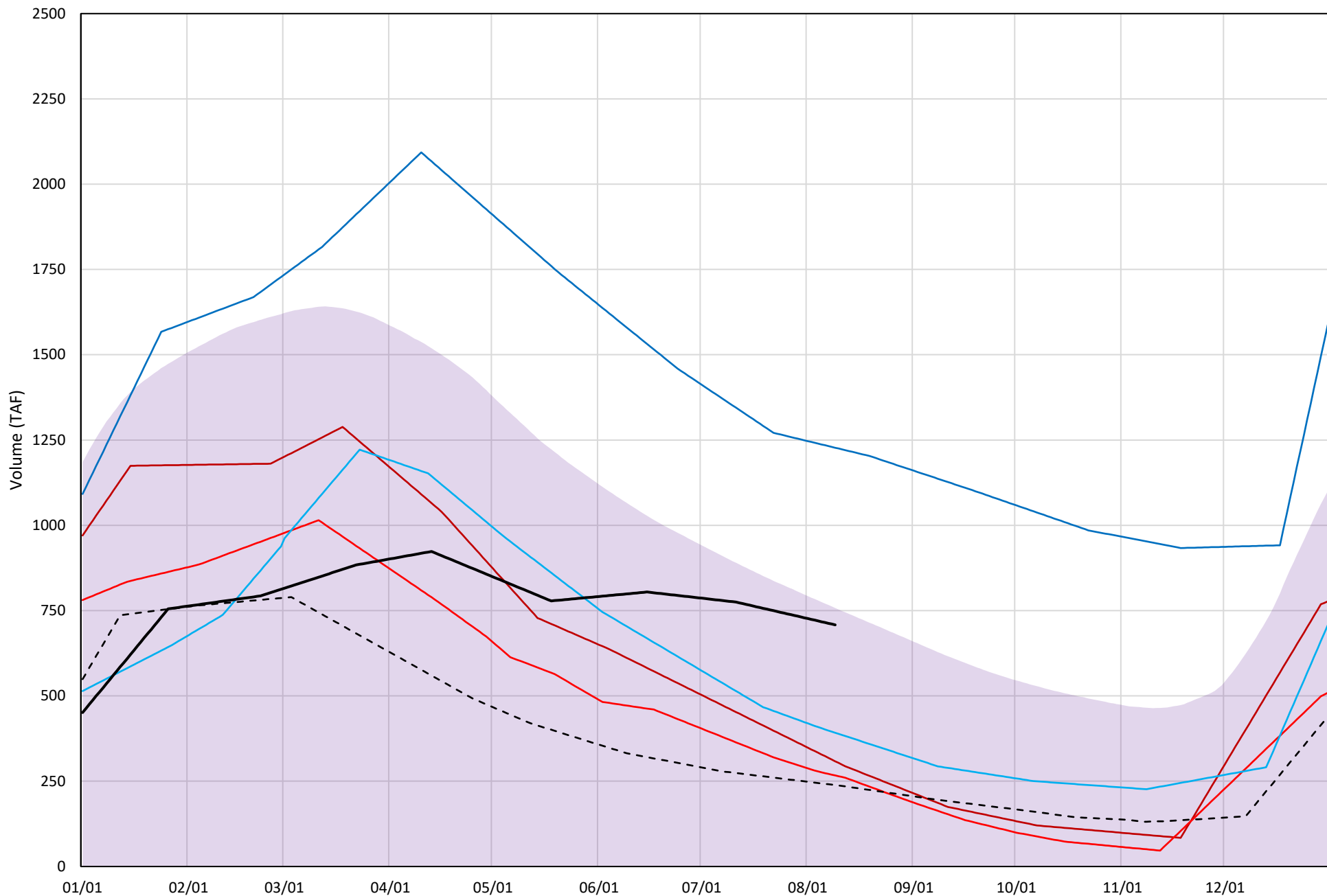
Avg (2000-2022) 2014 2015 2016 2019 2022 2023





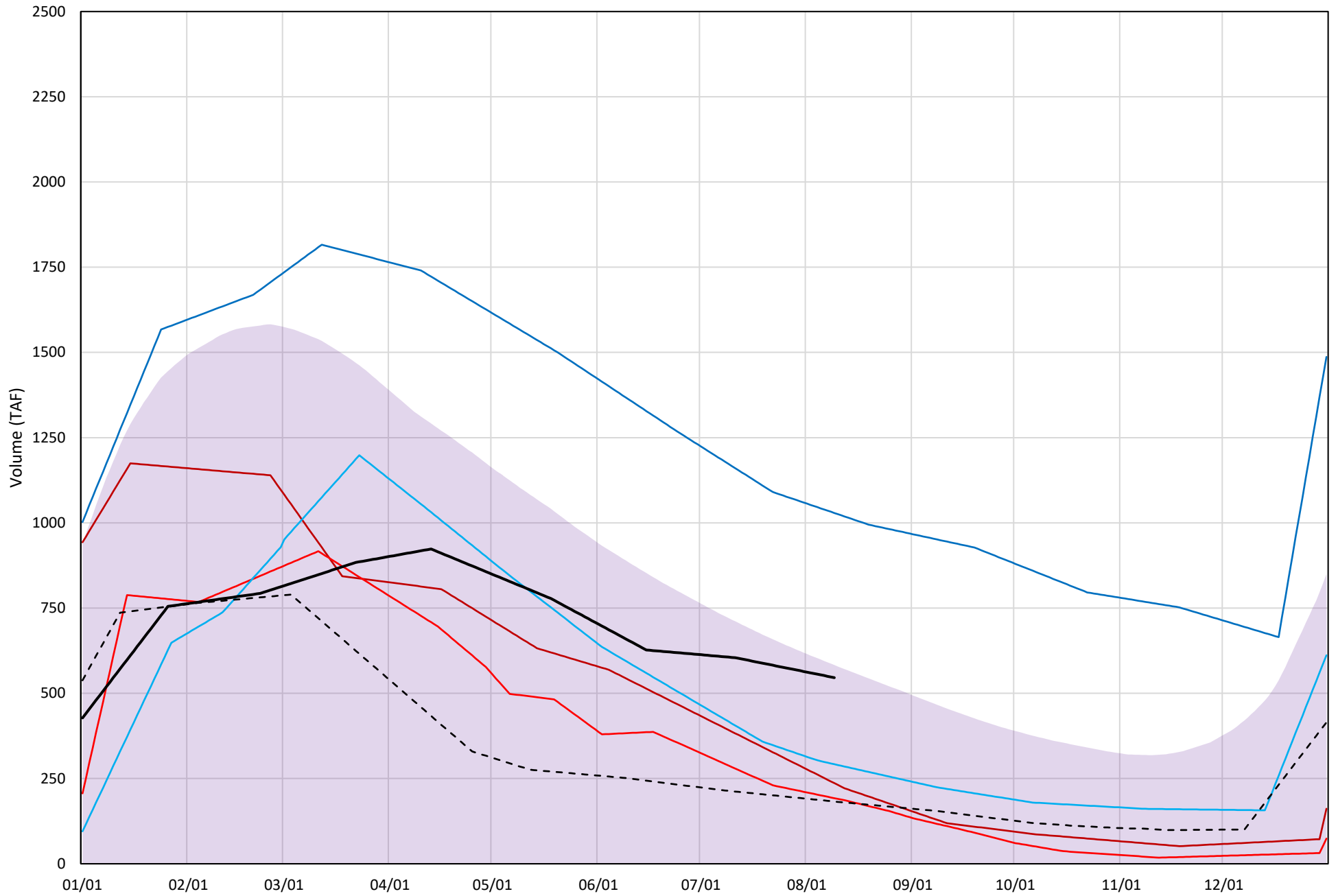
# Trinity Lake Cold Water Pool Volume ≤50°F

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

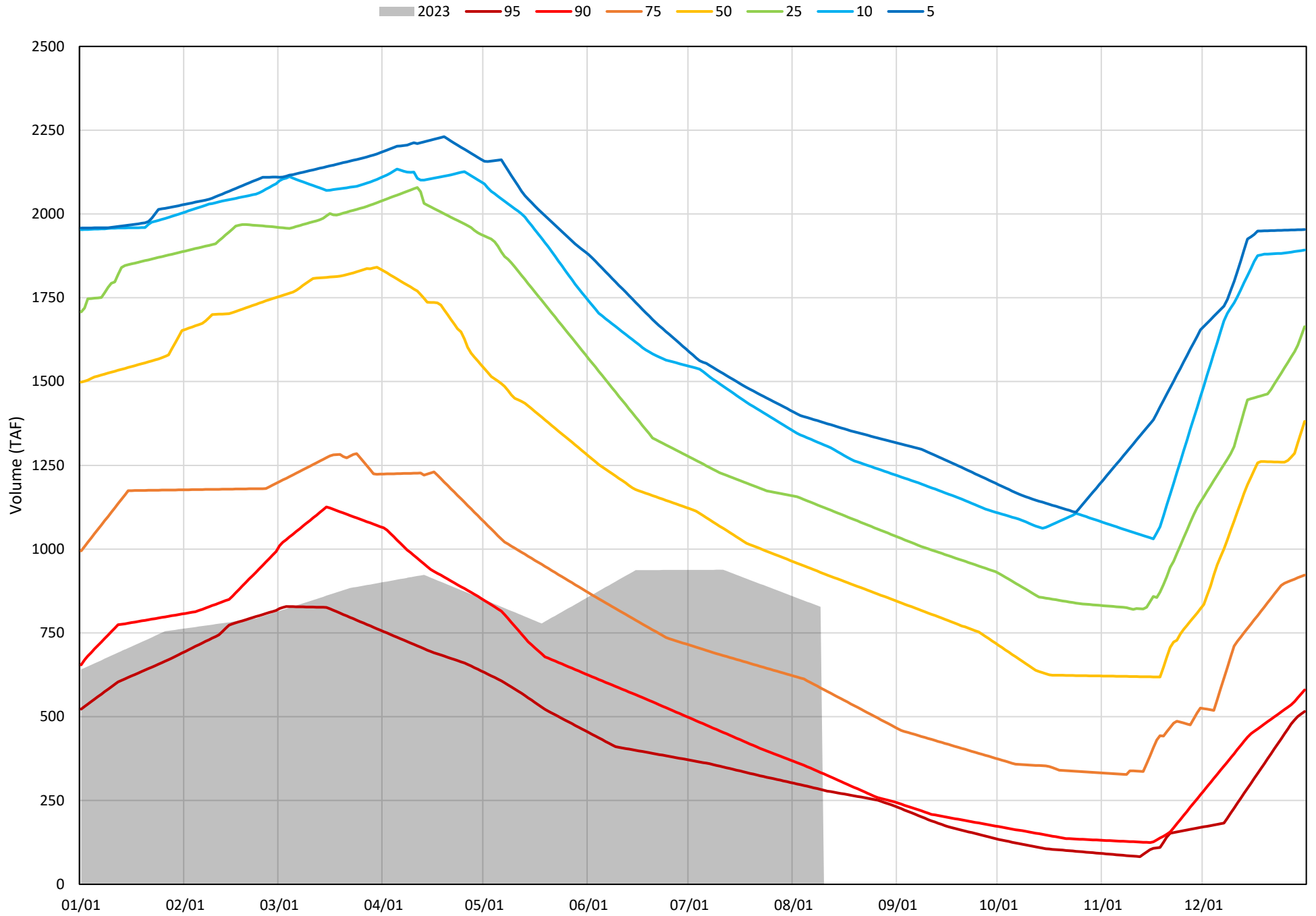


# Trinity Lake Cold Water Pool Volume ≤48°F

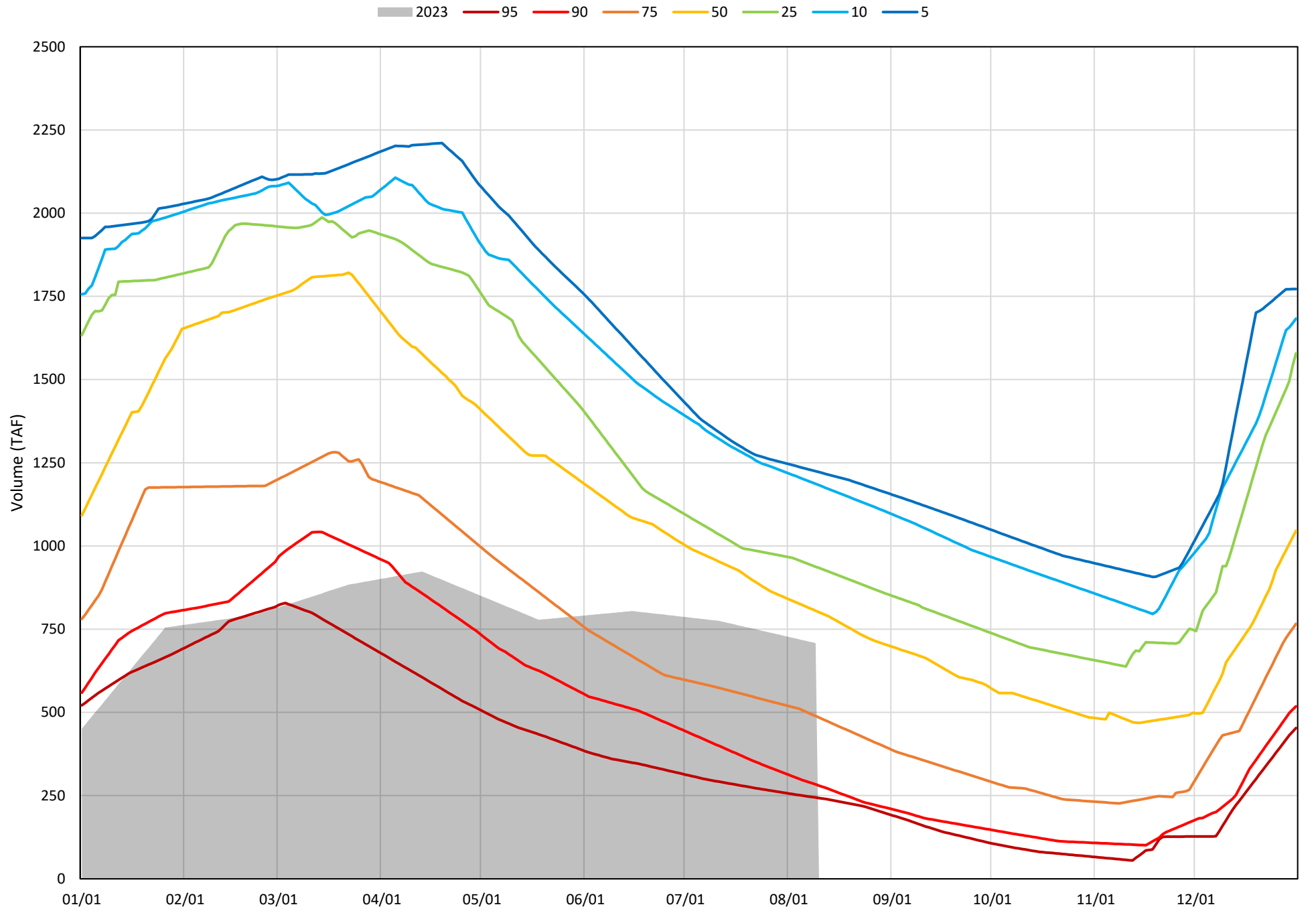
Avg (2000-2022) 2014 2015 2016 2019 2022 2023



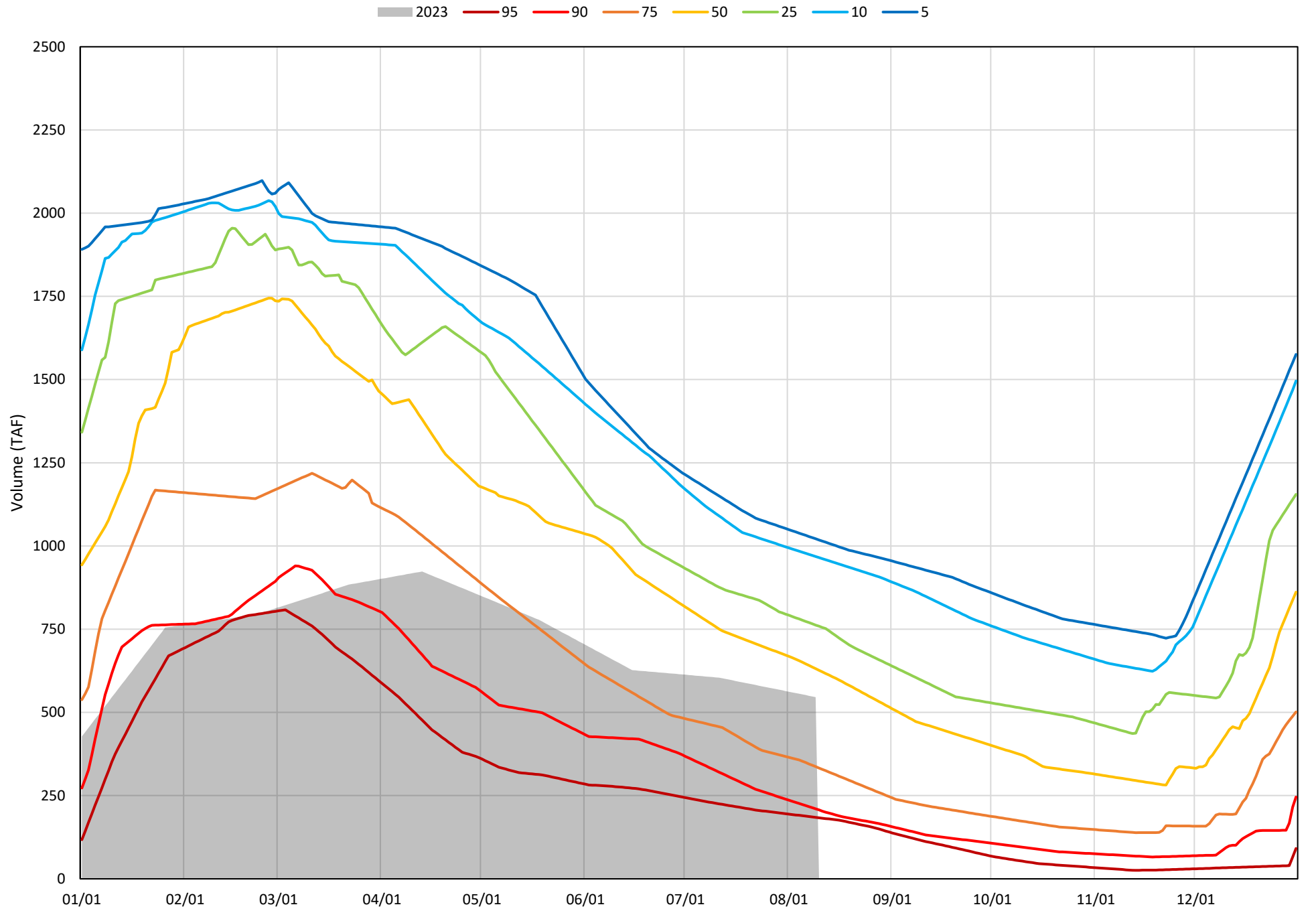
Trinity Lake Cold Water Pool Volume  $\leq 52^{\circ}\text{F}$  - Percent Exceedances (2000-2022)



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)

Aug-10 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	224	151	85	153	27	21	16	21
2001	73	78	90	80	9	11	17	12
2002	86	112	145	115	10	16	27	18
2003	456	319	217	331	55	45	40	47
2004	118	71	5	65	14	10	1	8
2005	300	229	39	189	36	32	7	25
2006	447	395	285	376	54	56	52	54
2007	131	163	201	165	16	23	37	25
2008	-153	-158	-159	157	-19	-22	-29	23
2009	-242	-219	-209	223	-29	-31	-38	33
2010	103	50	-70	74	12	7	-13	11
2011	564	504	387	485	68	71	71	70
2012	396	439	446	427	48	62	82	64
2013	-60	-28	-15	34	-7	-4	-3	5
2014	-478	-400	-310	396	-58	-56	-57	57
2015	-505	-441	-353	433	-61	-62	-65	63
2016	-312	-316	-254	294	-38	-45	-46	43
2017	239	172	124	179	29	24	23	25
2018	179	211	240	210	22	30	44	32
2019	509	519	483	504	61	73	88	74
2020	41	97	91	76	5	14	17	12
2021	-413	-340	-256	336	-50	-48	-47	48
2022	-555	-470	-363	463	-67	-66	-67	67
2023	0	0	0	0	0	0	0	0

}

Historic - Current

}

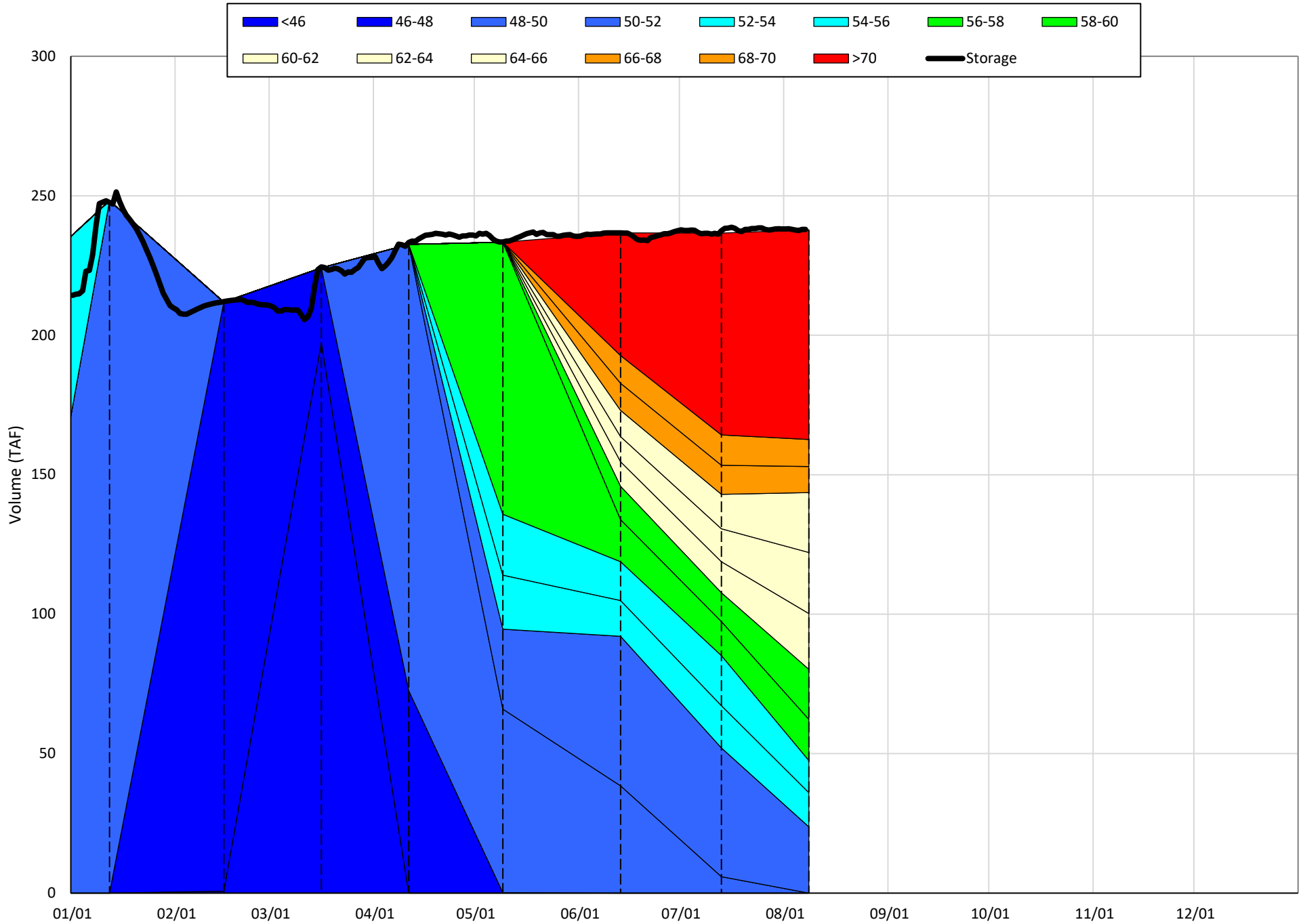
(Historic - Current) / Current

# 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

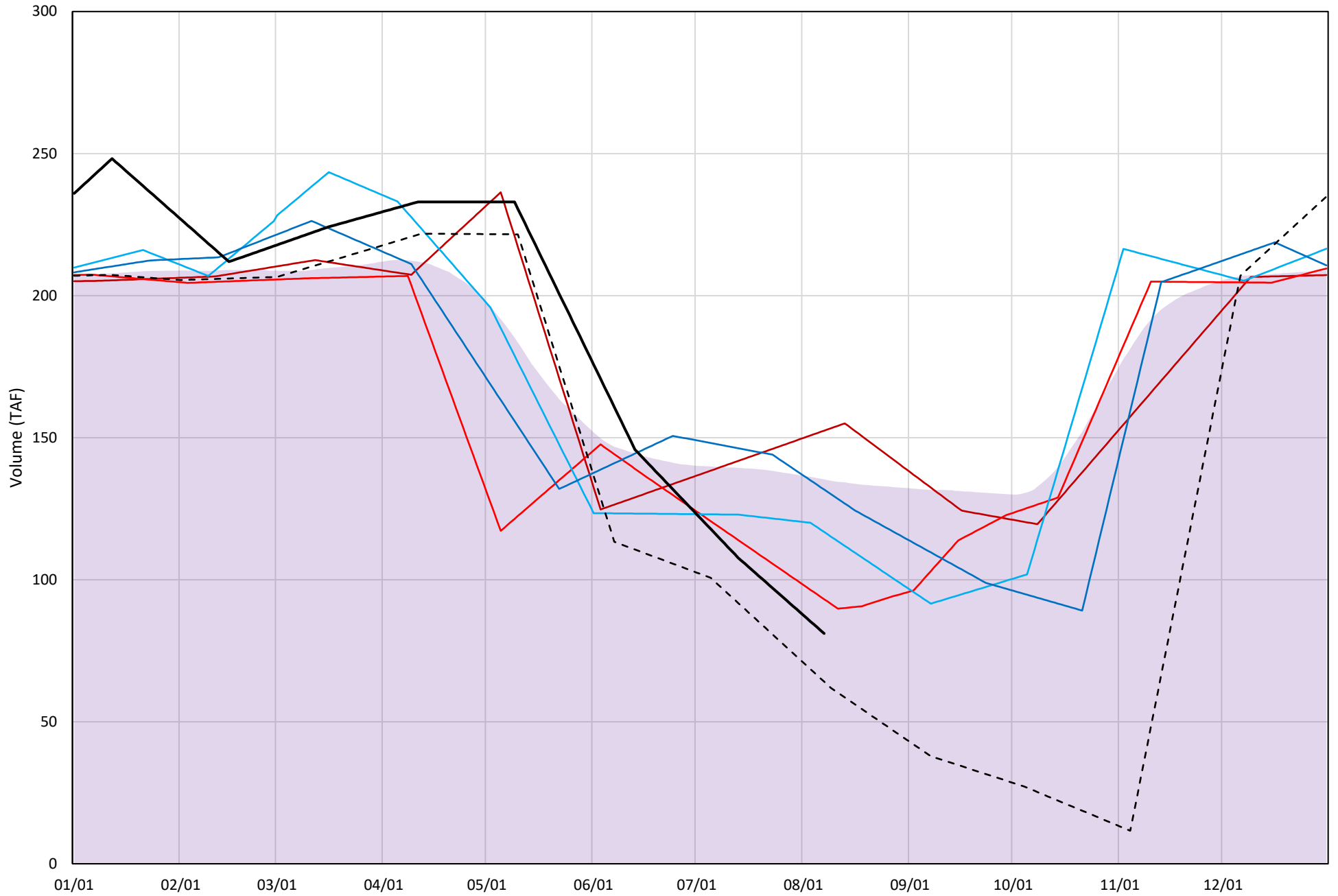
Whiskeytown Lake Isothermobaths Plot - 2023





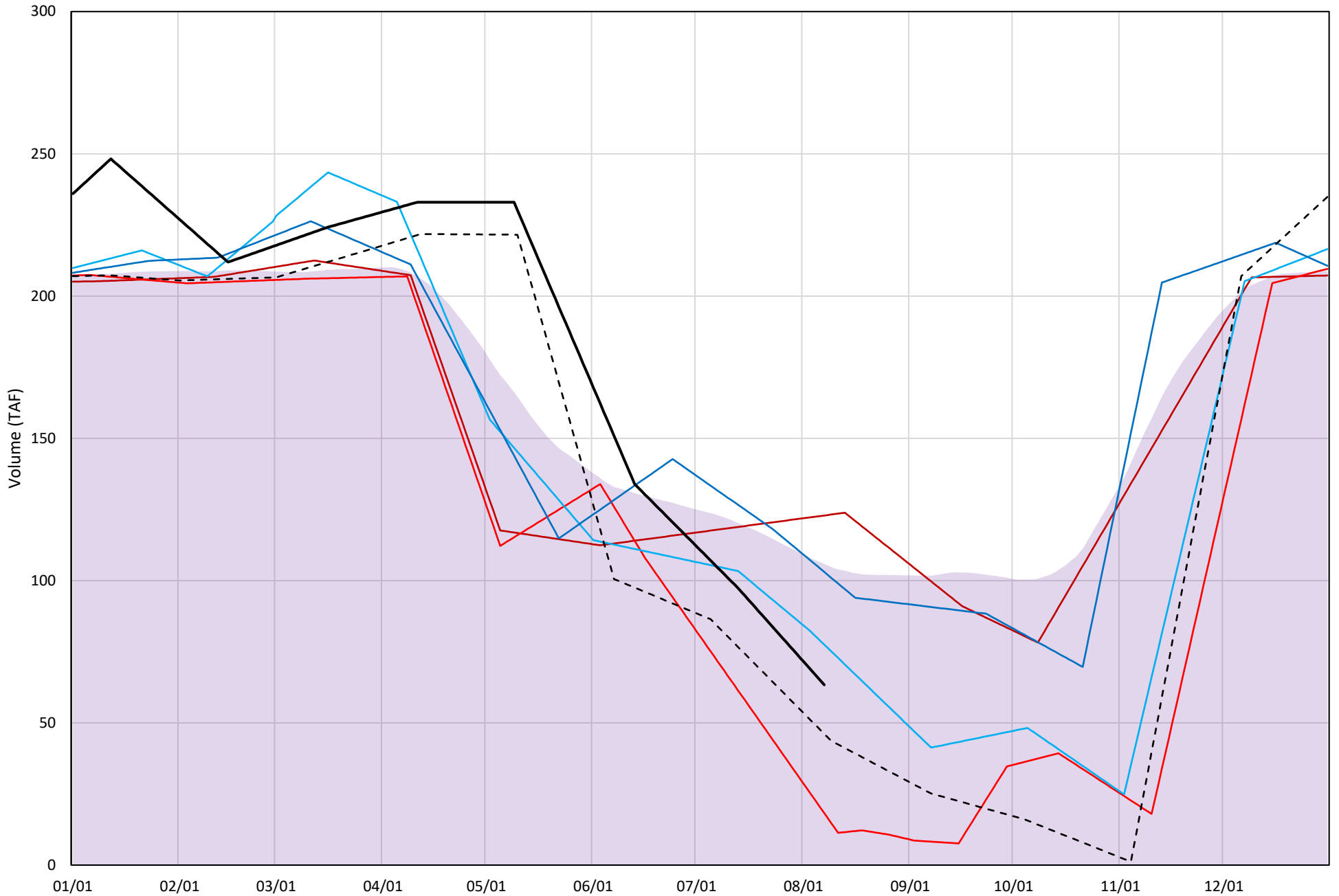
# Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

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



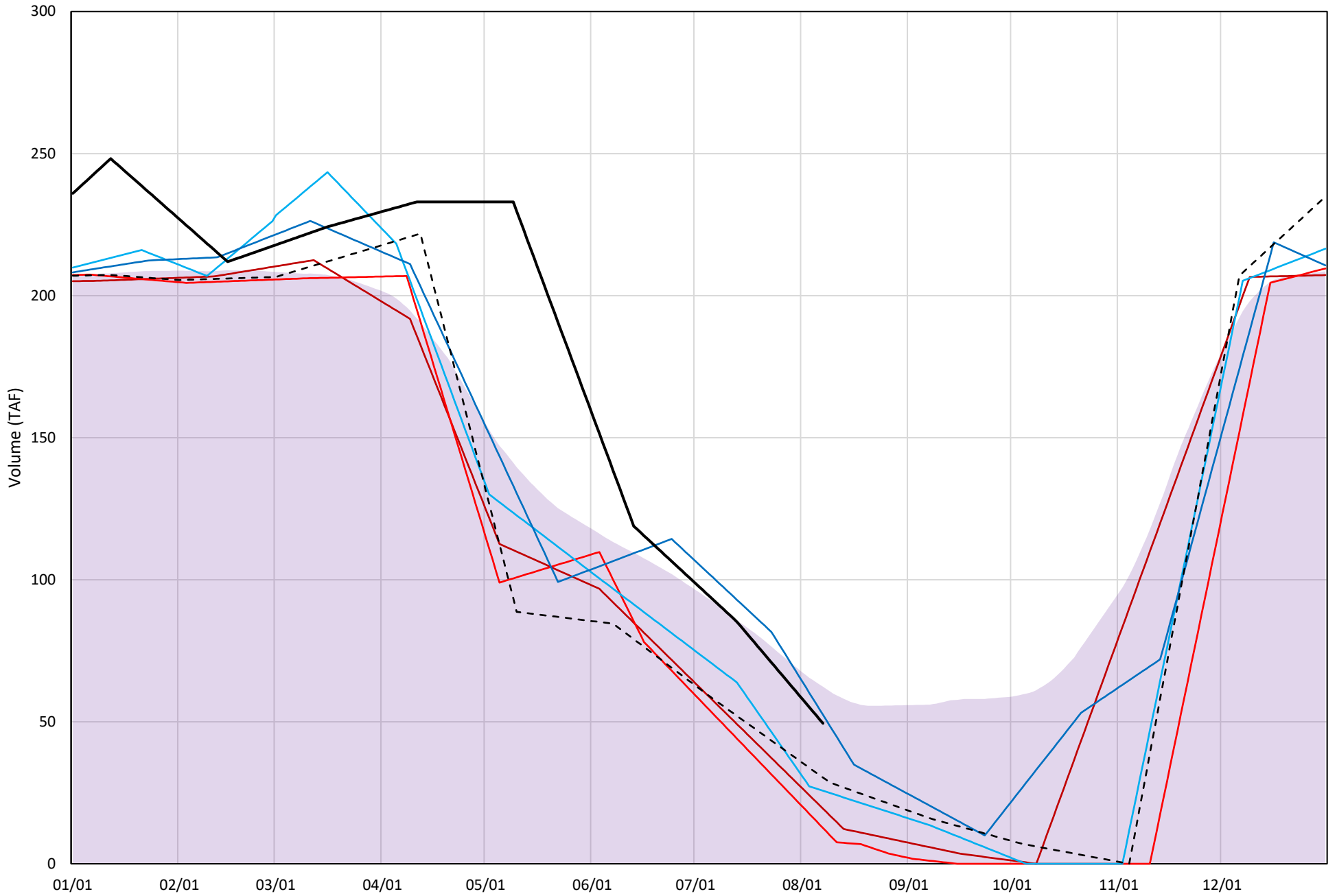
# Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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



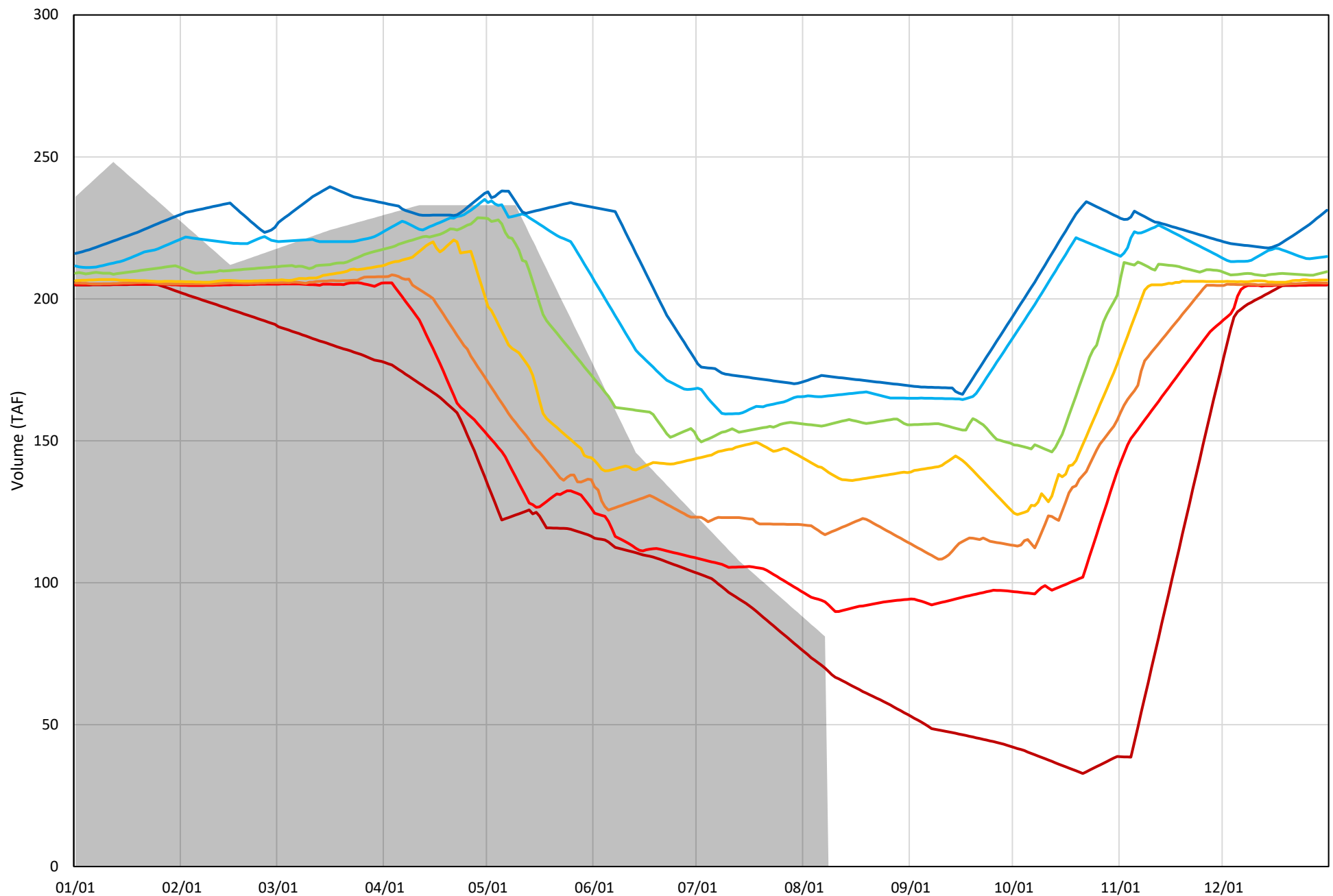
# Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

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



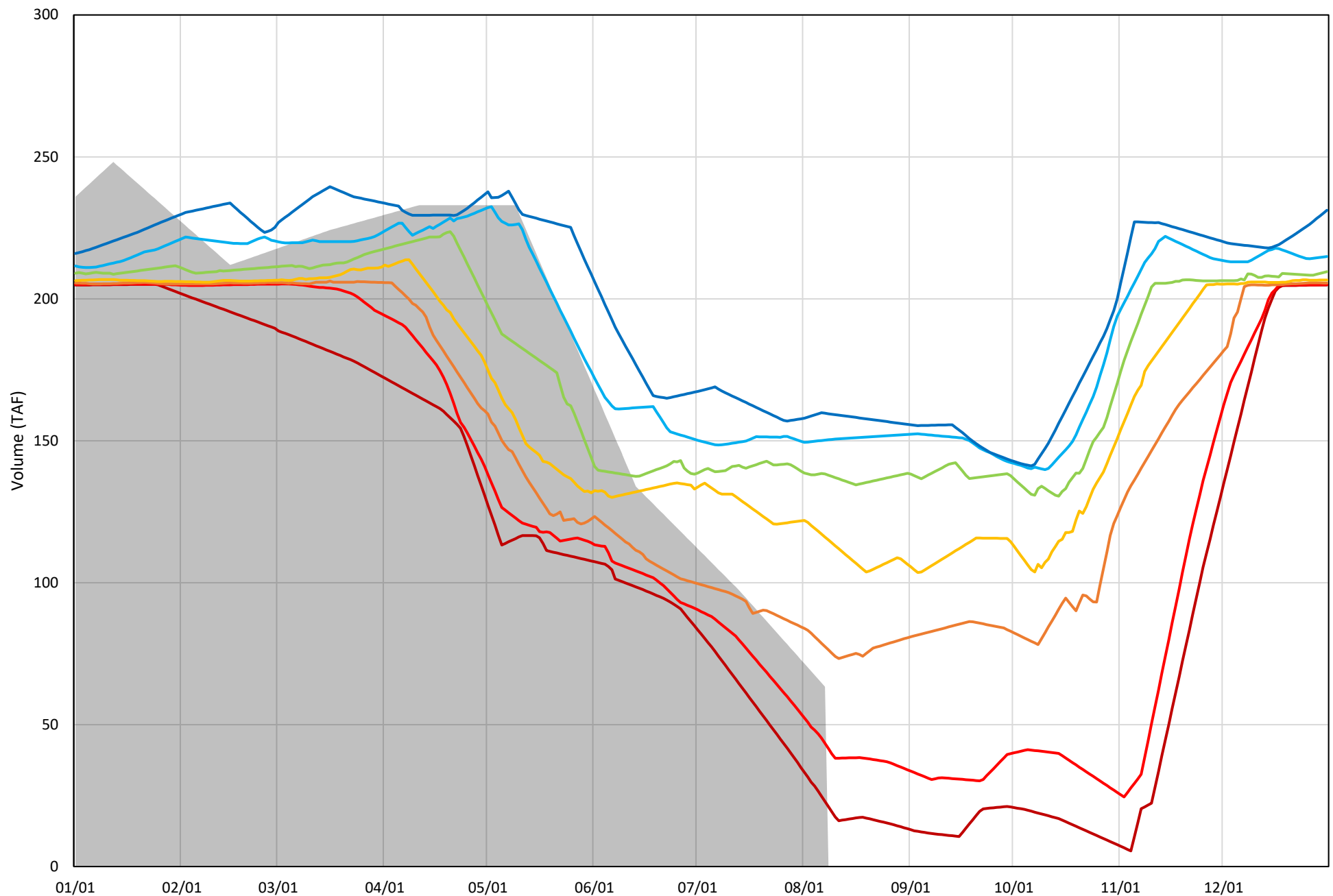
Whiskeytown Lake Cold Water Pool Volume  $\leq 60^{\circ}\text{F}$  - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5



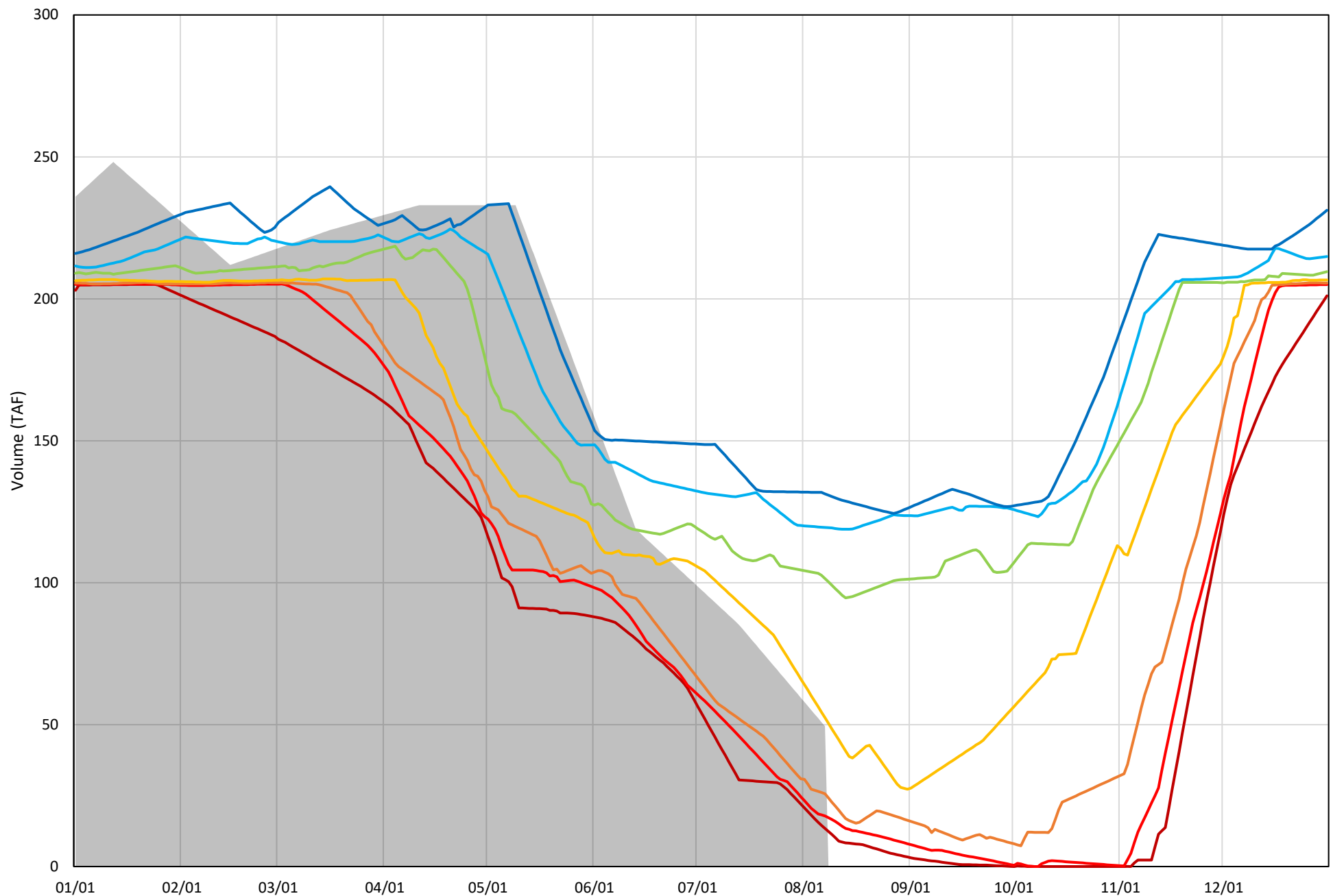
Whiskeytown Lake Cold Water Pool Volume  $\leq 58^{\circ}\text{F}$  - Percent Exceedances (2000-2022)

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)

Aug-08 2023	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	58.7	70.7	71.5	67.0	72.4	111.6	144.6	109.5
2001	77.8	82.9	67.9	76.2	96.0	130.8	137.3	121.4
2002	74.3	75.4	43.8	64.5	91.7	118.9	88.7	99.8
2003	67.3	63.0	22.6	51.0	83.0	99.5	45.8	76.1
2004	73.9	68.2	31.6	57.9	91.2	107.7	64.0	87.6
2005	12.7	-16.3	-30.2	19.7	15.6	-25.7	-61.0	34.1
2006	88.1	89.5	63.4	80.3	108.6	141.2	128.2	126.0
2007	78.4	73.3	45.6	65.8	96.7	115.7	92.2	101.5
2008	79.4	80.0	53.4	70.9	97.9	126.2	108.1	110.8
2009	40.0	8.4	-32.6	27.0	49.3	13.3	-65.9	42.8
2010	12.4	-21.8	-28.5	20.9	15.3	-34.4	-57.7	35.8
2011	58.4	52.7	15.6	42.2	72.1	83.2	31.5	62.3
2012	55.7	32.0	-23.8	37.2	68.7	50.6	-48.1	55.8
2013	92.7	98.0	84.5	91.7	114.3	154.7	170.9	146.7
2014	71.4	59.5	-30.0	53.7	88.1	93.9	-60.8	80.9
2015	12.1	-45.1	-36.9	31.3	14.9	-71.2	-74.6	53.5
2016	35.7	14.1	-23.7	24.5	44.1	22.3	-48.0	38.1
2017	74.1	74.9	52.0	67.0	91.4	118.3	105.2	105.0
2018	55.3	44.2	-6.5	35.3	68.2	69.8	-13.1	50.4
2019	50.7	39.7	3.0	31.1	62.5	62.6	6.0	43.7
2020	35.9	17.1	-10.5	21.1	44.2	26.9	-21.2	30.8
2021	60.2	33.8	-17.1	37.0	74.2	53.4	-34.5	54.1
2022	-17.0	-17.2	-19.1	17.8	-20.9	-27.2	-38.6	28.9
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Historic - Current

(Historic - Current) / Current