

Northern CVP Water Temperature Report

January - 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 ²	CCR	BSF	BND	RDB	IGO	LWS	DGC	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB	
Dec	52.9	52.0	51.9	51.6	51.1	50.8	49.8	48.6	48.6	49.5	44.7	42.1	42.5	2631	57	3295	45.3	42.4	44.2	
01/01	50.9 ?	51.5	49.6	50.3	49.9	49.7	49.2 ?	48.6 ?	48.7	47.7	45.8	43.4	44.3	2611	37	3335	51.5	48.7	51.2	
01/02	50.8 !	-	49.7	50.3	49.6	49.1	48.1 #	-	47.1 ?	46.7	45.6	42.0	42.7	2866	37	3338	41.5	37.5	39.3	
01/03	50.5 !	-	49.4	50.0	49.6	49.3	47.6 #	-	46.1 ?	47.1	45.5	41.8	42.3	2792	37	3342	41.5	40.1	40.4	
01/04	50.2 !	-	49.1	49.8	49.5	49.5	48.2 !	-	46.9 ?	47.7	45.6	43.1	43.5	1819	460	3330	50.0	46.2	47.2	
01/05	49.6 !	-	49.1	49.8	49.7	50.0	49.5	49.0	48.7	49.2	45.6	43.9	44.8	1051	791	3335	51.5	52.7	52.3	
01/06	49.6 !	-	49.1	49.7	49.4	49.6	49.4	49.1	49.0	48.6	45.3	43.5	44.7	1468	1839	3341	48.0	47.5	50.2	
01/07	49.7 !	-	48.9	49.5	49.3	49.4	49.3	49.0	48.8	48.9	45.1	43.8	44.9	950	1698	3349	49.0	48.4	49.7	
01/08	49.7 !	-	48.9	49.5	49.4	49.6	49.1	48.7	48.6	49.6	45.4	43.8	45.1	165	1833	3791	52.5	51.7	52.2	
01/09	49.0 ?	49.2	48.9	49.7	50.1	50.3	50.7	50.5	50.3	50.6	45.1	44.6	46.2	359	1920	4342	53.0	52.8	53.3	
01/10	? 49.0 ?	49.3	48.8	49.9	49.7	49.8	49.8	49.6	49.9	49.7	45.1	44.1	45.6	25	1982	4353	49.0	48.9	49.1	
01/11	49.0	49.6	48.7	49.8	49.6	49.7	49.5	49.1	48.8	49.3	45.0	43.9	45.2	921	1946	4321	48.0	47.8	48.4	
01/12	49.3	49.2	48.6	49.9	50.1	50.4	49.7	49.6	49.3	49.7	45.1	44.2	46.0	95	1944	4311	53.0	52.5	53.5	
01/13	49.2	48.9	48.6	50.0	50.2	50.3	50.8 ?	50.8	50.7	49.6	45.1	45.3	47.1	1078	1927	4305	52.0	50.8	51.3	
01/14	49.2 !	49.7	48.6	50.1	50.5	50.6	50.7 #	-	50.5	49.6	45.2	45.1	46.6	174	1859	4304	51.5	52.3	52.9	
01/15	48.9	49.5	48.6	50.1	50.0	50.1	50.1 #	-	49.8	49.0	45.0	44.8	46.1	591	1894	4363	47.5	47.4	48.0	
01/16	48.8 ?	48.7	48.5	49.9	49.7	49.9	49.5 #	-	48.9	48.8	45.0	44.4	45.7	1353	1882	4254	46.0	45.1	45.9	
01/17	48.8	48.5	48.4	49.5	49.3	49.4	48.6 #	-	48.0 ?	48.3	45.0	43.7	44.5	1459	1894	4122	45.0	41.4	43.2	
01/18	49.3	48.4	48.4	49.2	48.8	48.6	48.1 !	-	47.0	47.4 ?	44.9 ?	43.1	43.5	1994	1903	4099	38.5	38.3	40.5	
01/19	49.5 ?	49.0	48.3	48.8	48.4	48.5	47.0	46.2	46.2 ?	46.5	44.7	42.2	42.9	1029	1731	4005	42.5	41.2	43.5	
01/20	49.5 ?	49.0	48.2	48.3	48.0	48.1 ?	47.2	46.0	45.9	46.1	44.6	42.3	43.0	1493	1705	3906	47.0	43.7	44.8	
01/21	49.5 ?	48.9	48.0	47.9	47.6	47.7 ?	47.1	45.5	45.6	46.0	44.5	42.0	42.5	1619	1726	3775	42.0	38.4	40.9	
01/22	49.5	48.6	47.9	47.8	47.5	47.5	47.0	45.5	45.5	46.0	44.4	41.8	42.6	1062	1813	3677	43.5	43.3	44.5	
01/23	49.3 ?	48.5	47.9	47.9	47.6	47.7	46.9	45.7	45.6	46.1	44.2	41.5	42.0	1043	1803	3575	55.0	52.6	52.8	
01/24	49.3	48.7	47.8	47.9	47.8	48.1	47.7	46.6	46.4	46.5	44.1	41.1	41.8	1305	1819	3474	58.0	53.2	55.0	
01/25	49.0 ?	48.4	47.7	48.0	47.9	48.3	48.2	47.6	47.6	46.5	44.1	41.3	42.1	1192	1816	3398	↑ 59.5	56.0	55.9	
01/26	49.2 ?	48.4	47.7 ?	48.0	48.0	48.5	48.7	47.6	48.1	46.9	44.0	41.2	42.1	1022	1924	3310	58.0	52.5	53.0	
01/27	48.9	48.5	47.7	47.9	47.7	47.9	48.6	46.8	48.0	46.4	43.9	41.2	42.0	1151	1891	3311	46.5	42.3	44.8	
01/28	48.9	48.5	47.5	47.9	47.7	47.9	48.1	45.6	47.3	45.9	43.8	41.1	42.2	1182	1934	3317	51.5	45.8	48.0	
01/29	48.9	48.4	47.5	47.7	47.4	47.3	47.9	45.3	46.9	45.3	43.7	40.4	41.4	1365	1316	3321	44.5	43.3	44.1	
01/30	48.9	48.2	47.2	47.4	47.0	46.2	45.7	41.9	44.6	44.2	43.3	38.9	39.5	1569	1308	3335	45.5	41.9	42.5	
01/31	48.6	48.0	47.3	47.3	47.1	47.0	46.2	40.1	43.8	44.7	43.3	38.5	38.9	2009	639	3325	48.0	41.4	43.8	
Jan	49.4	48.9	48.4	49.0	48.8	48.9	48.5	47.2	47.7	47.6	44.7	42.6	43.6	1252	1526	3731	48.7	46.6	47.8	
														Total CFS	38812	47308	115664			
														Total AF	76982	93833	229415			

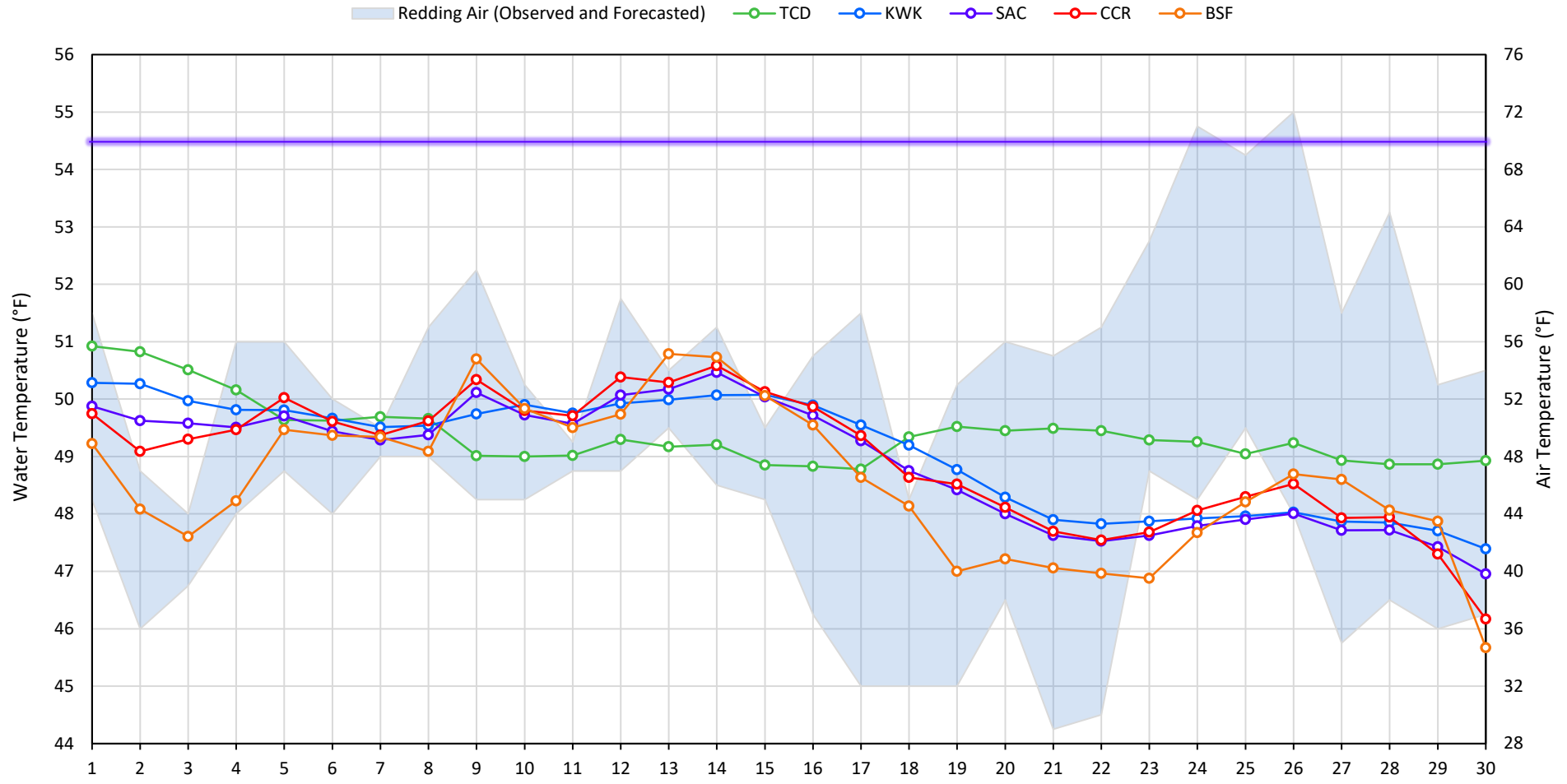
Legend

- ? = 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 Sacramento River control point (see page 4 for more details)

Sacramento River Mean Daily Temperatures



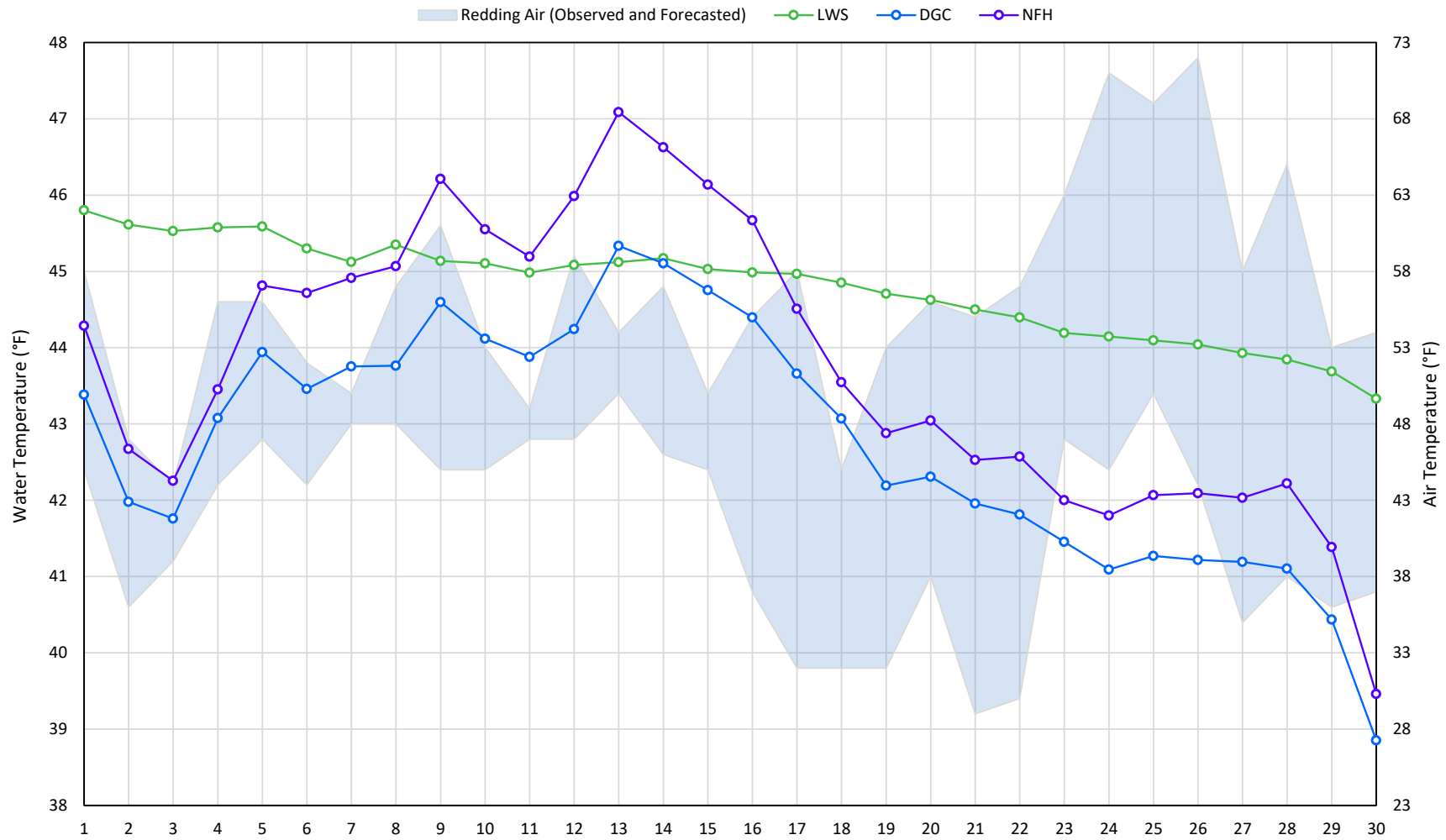
Station Details			
Code	Body of Water	Location ¹	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles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

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

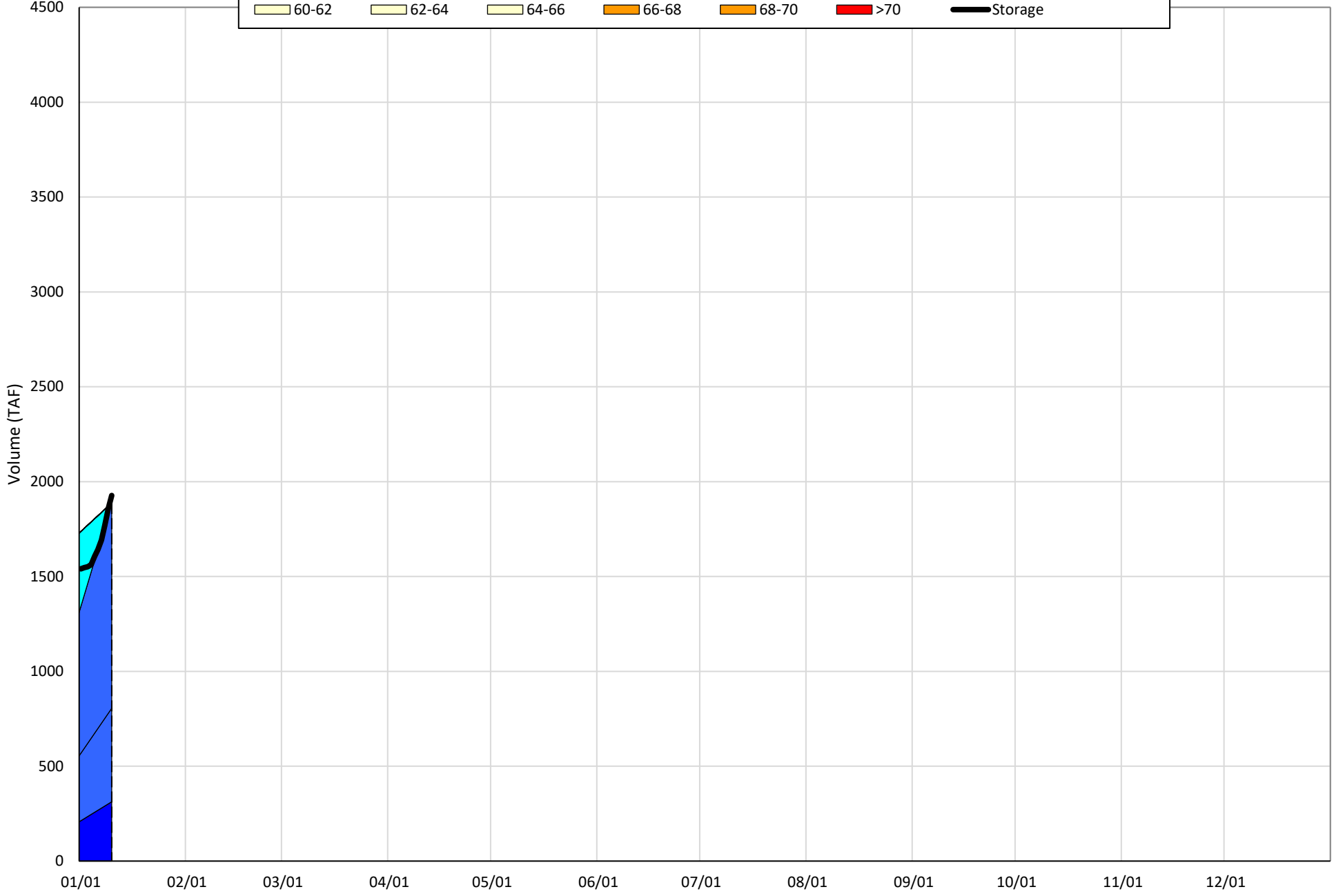
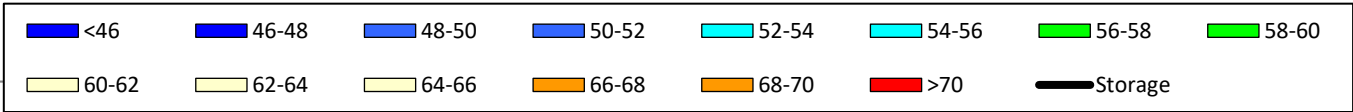
¹ Distances are approximate

Shasta Lake Isothermobaths & Cold Water Pool Statistics

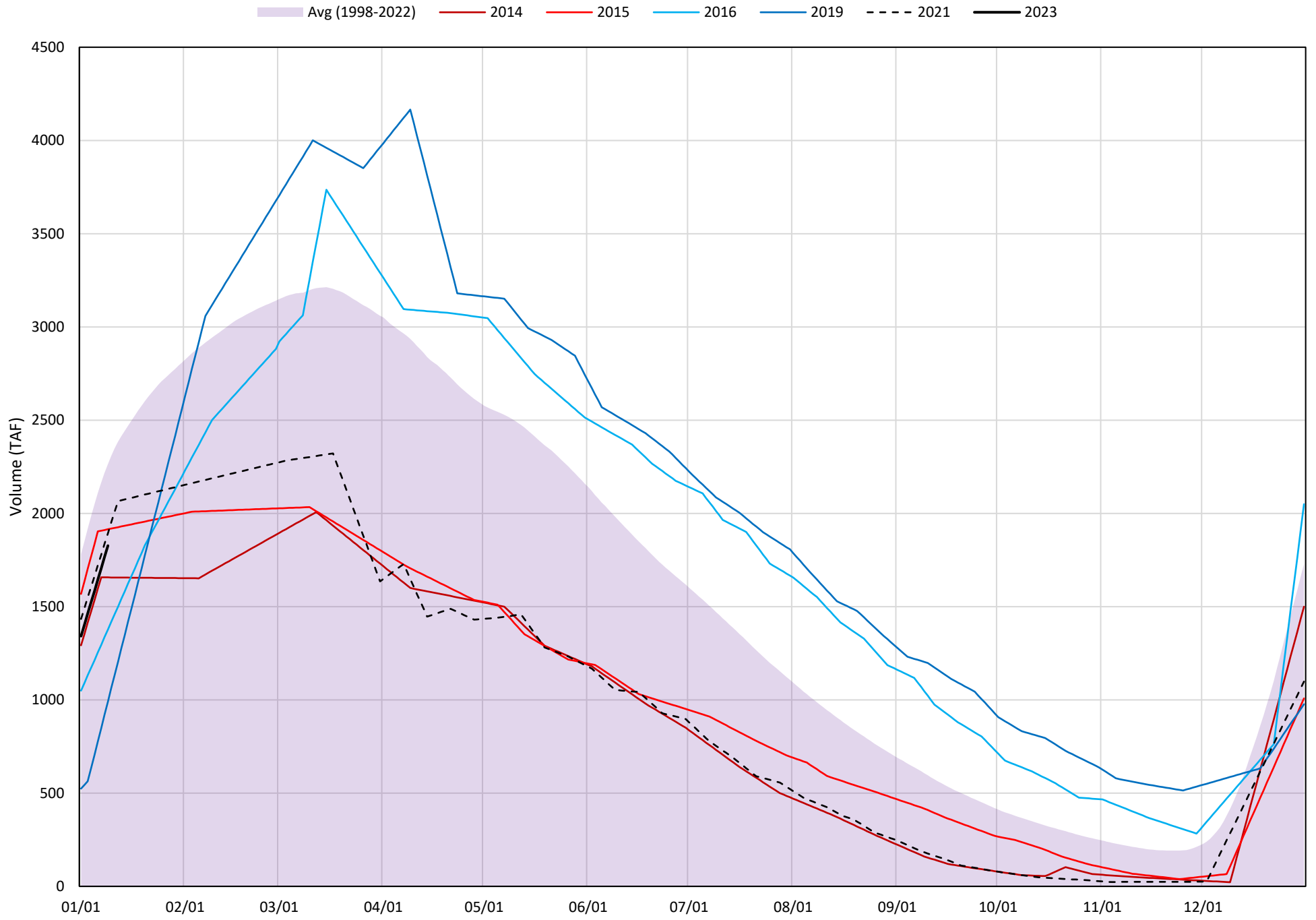
2023

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

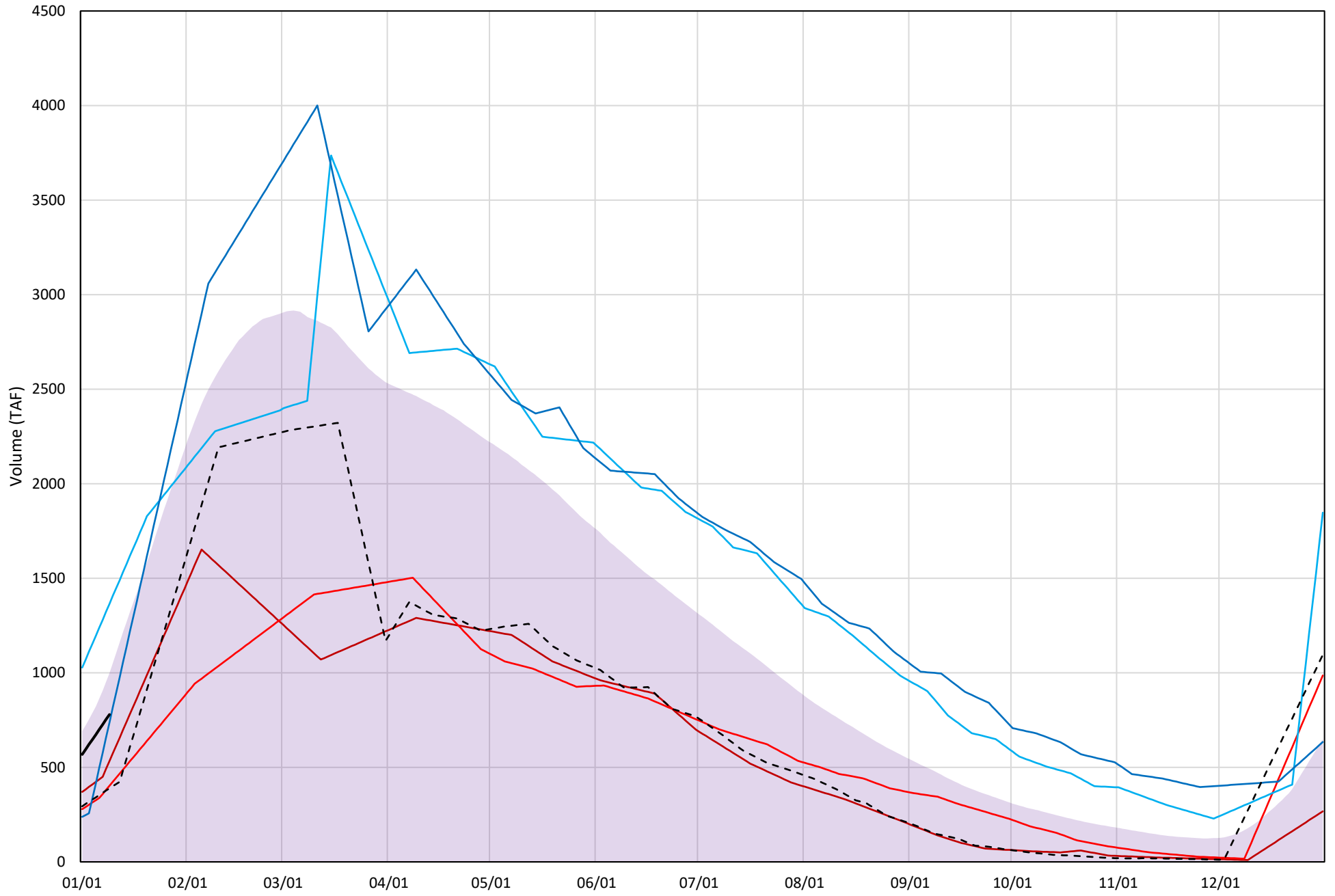


Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$



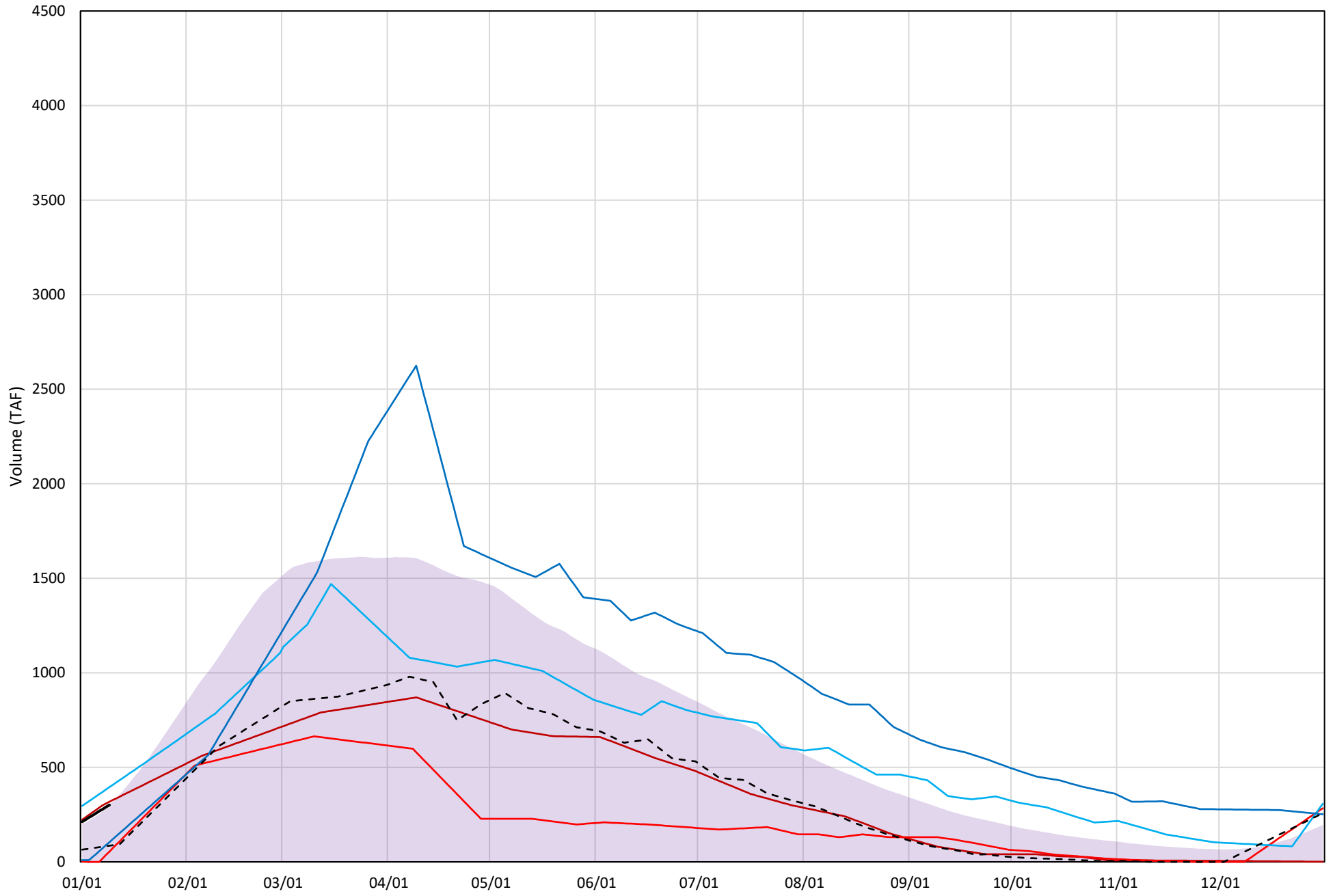
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

Avg (1998-2022) 2014 2015 2016 2019 2021 2023



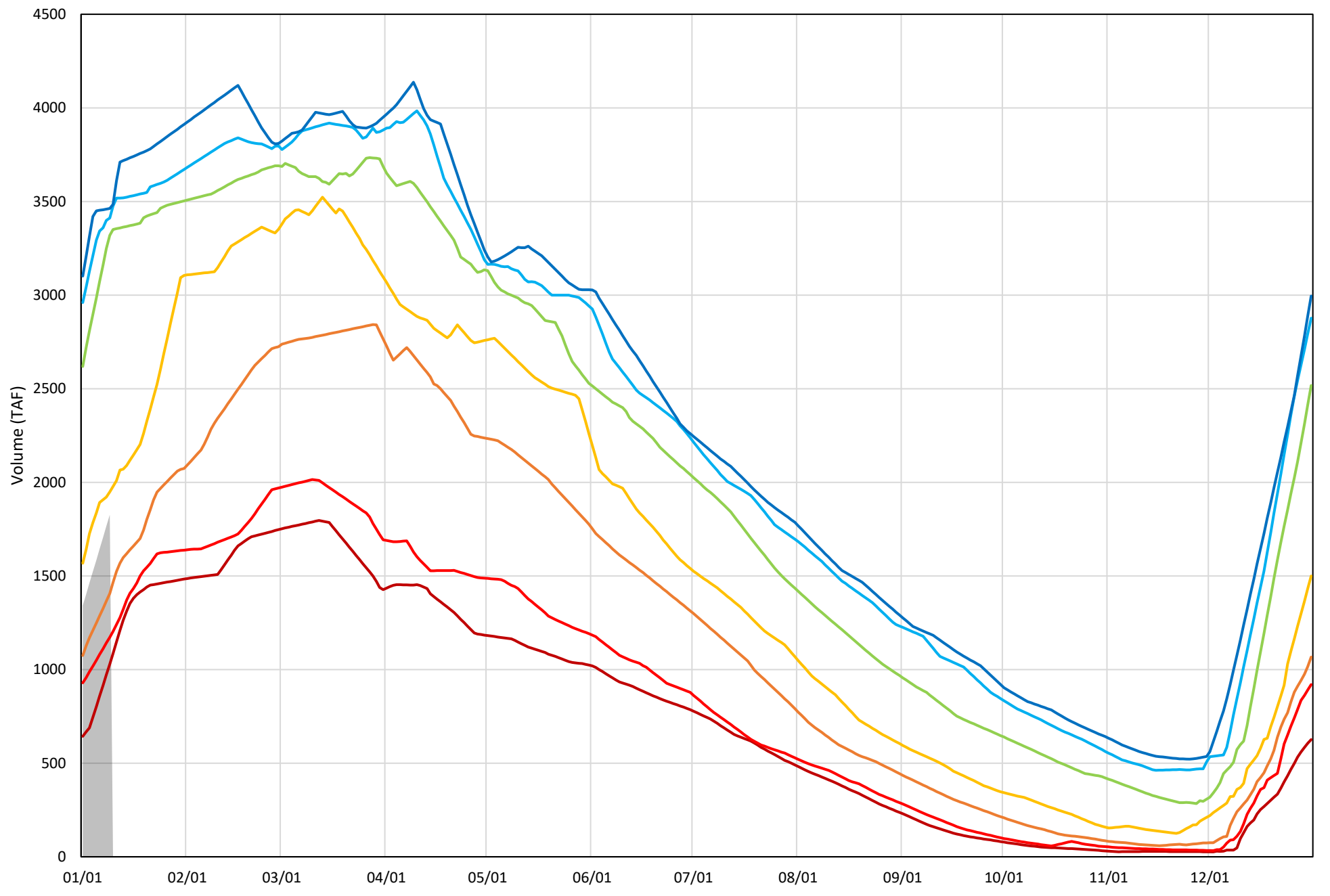
Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

Avg (1998-2022) 2014 2015 2016 2019 2021 2023



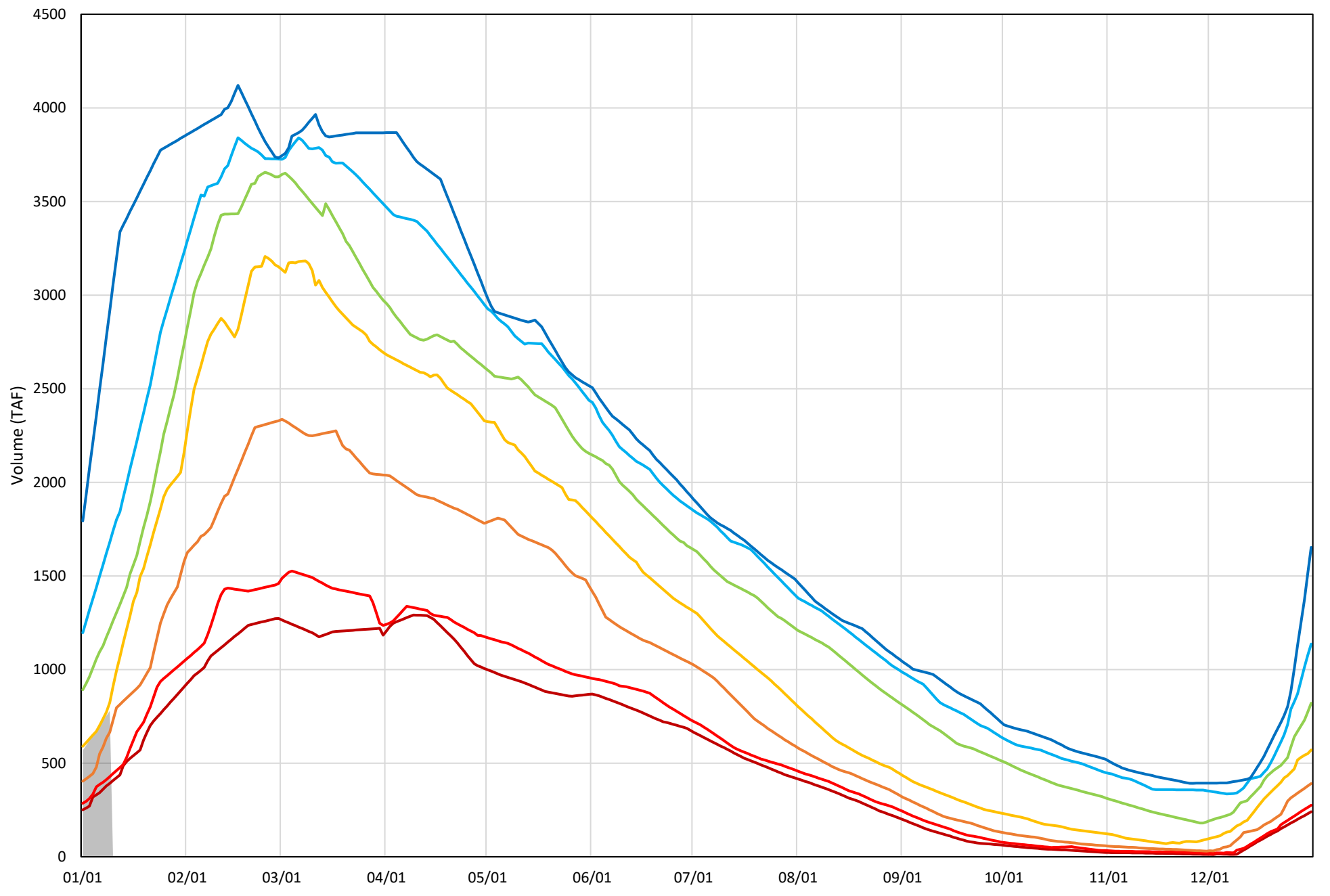
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2022)

2023 95 90 75 50 25 10 5



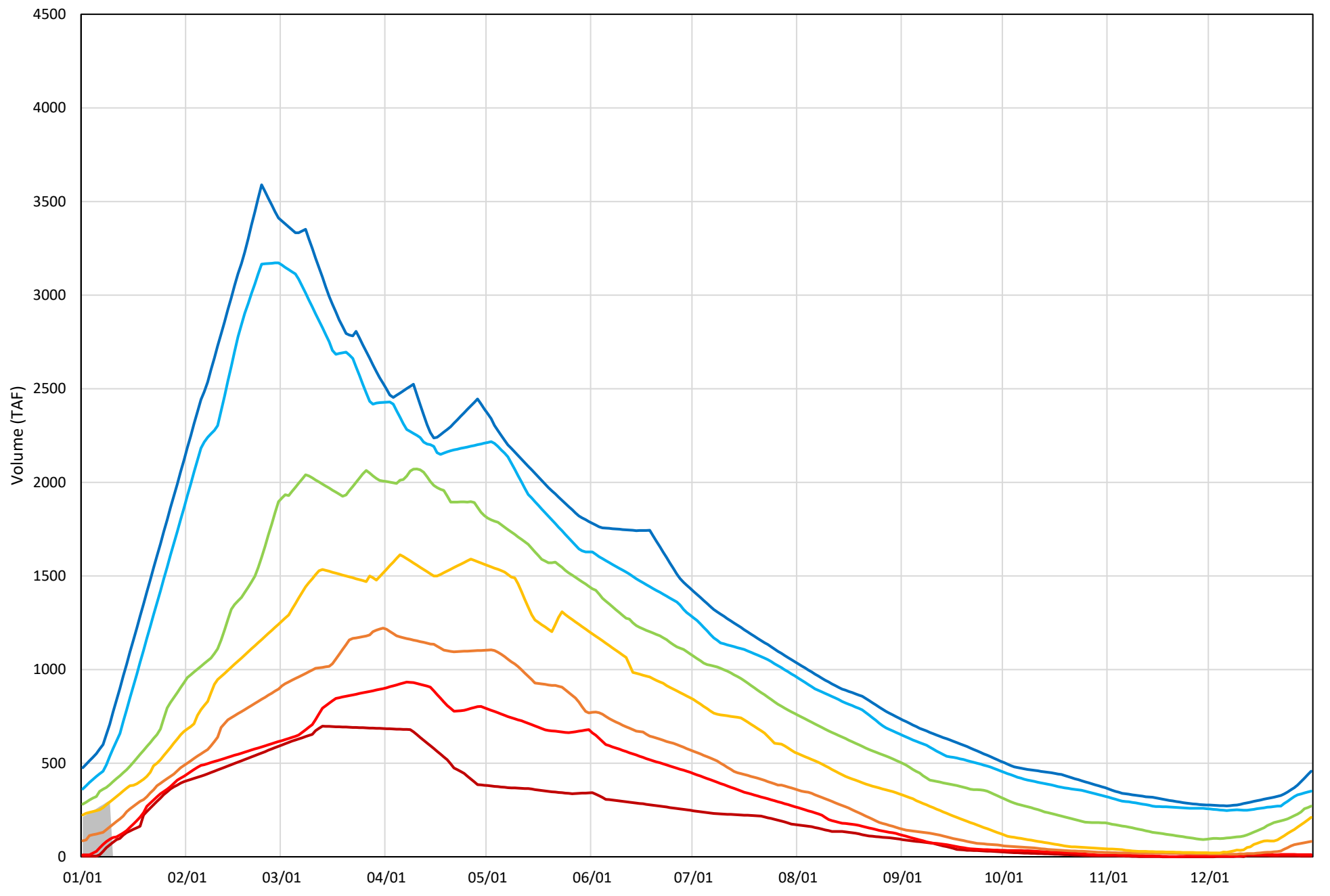
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2022)

2023 95 90 75 50 25 10 5



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)

Jan-10 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
1998	-618	390	-60	356	-34	50	-20	35
1999	1503	431	478	804	82	55	159	99
2000	755	-29	-40	275	41	-4	-13	19
2001	392	-333	-192	306	21	-43	-64	43
2002	330	1275	75	560	18	164	25	69
2003	1482	122	38	547	81	16	12	36
2004	1617	45	-203	622	89	6	-67	54
2005	-211	547	-9	255	-12	70	-3	28
2006	1563	167	-84	605	86	21	-28	45
2007	1457	-74	-36	522	80	-9	-12	34
2008	53	-77	242	124	3	-10	80	31
2009	-604	443	-132	393	-33	57	-44	45
2010	123	67	25	72	7	9	8	8
2011	1644	29	-151	608	90	4	-50	48
2012	1238	-149	149	512	68	-19	49	45
2013	1553	137	121	603	85	18	40	48
2014	-170	-246	17	144	-9	-32	6	15
2015	88	-377	-247	237	5	-48	-82	45
2016	-450	586	94	376	-25	75	31	44
2017	1509	2506	232	1416	83	322	77	160
2018	-709	-171	59	313	-39	-22	19	27
2019	-836	-42	-197	358	-46	-5	-65	39
2020	-447	-5	-19	157	-24	-1	-6	11
2021	67	-390	-216	224	4	-50	-72	42
2022	-395	652	36	361	-22	84	12	39
2023	0	0	0	0	0	0	0	0

Historic - Current

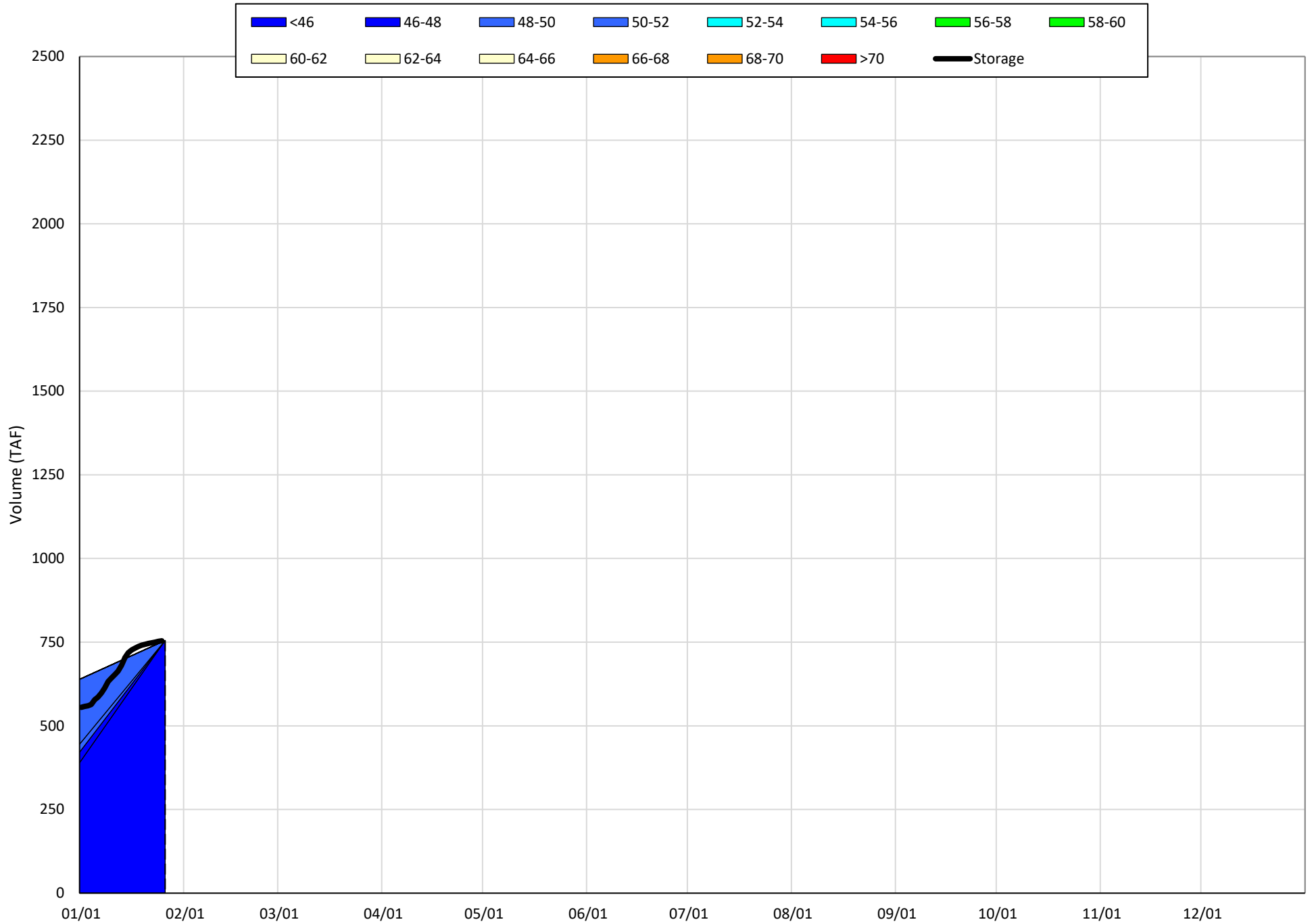
(Historic - Current) / Current

Trinity Lake Isothermobaths & Cold Water Pool Statistics

2023

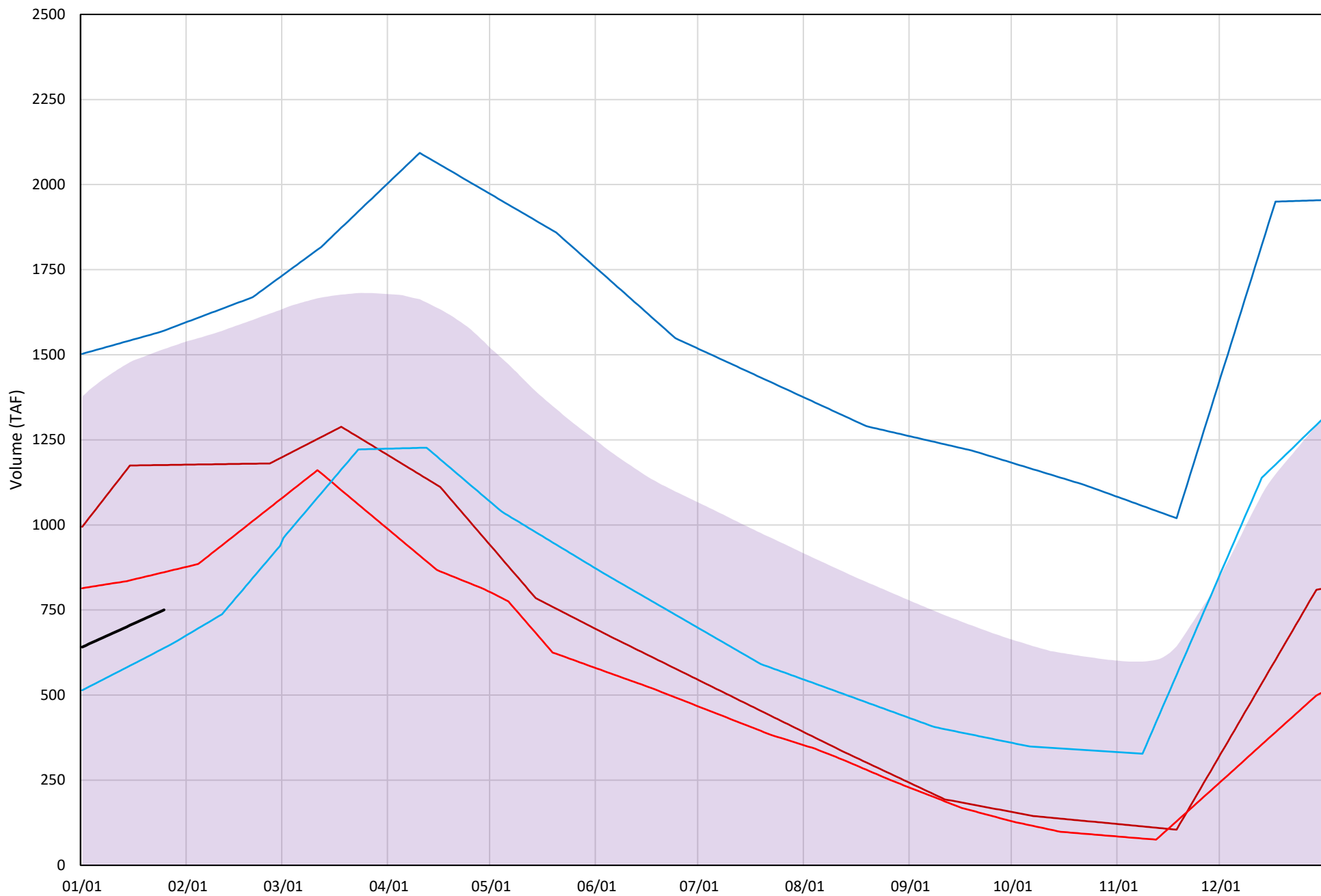
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq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



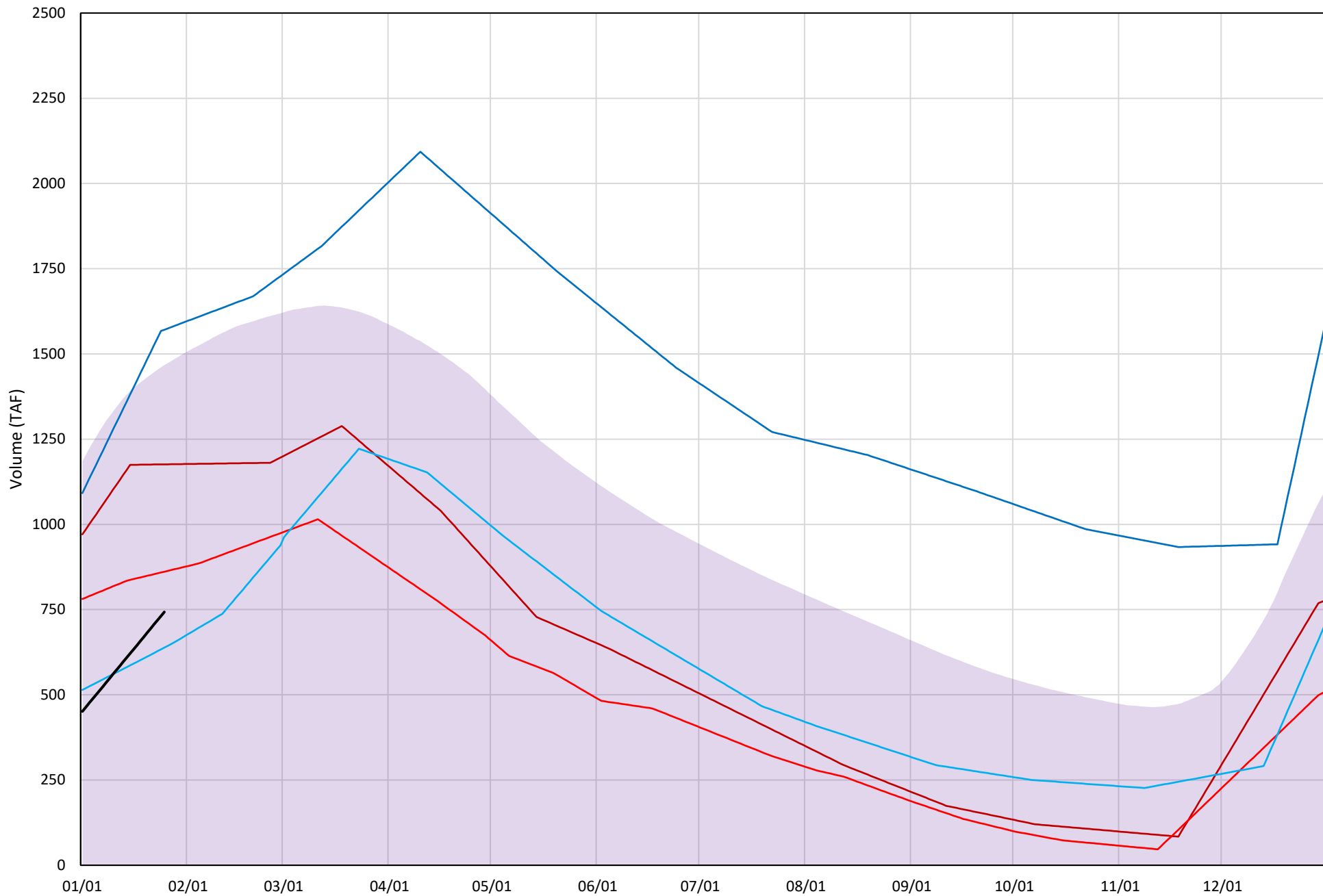
Trinity Lake Cold Water Pool Volume ≤52°F

Avg (2000-2022) 2014 2015 2016 2019 2023



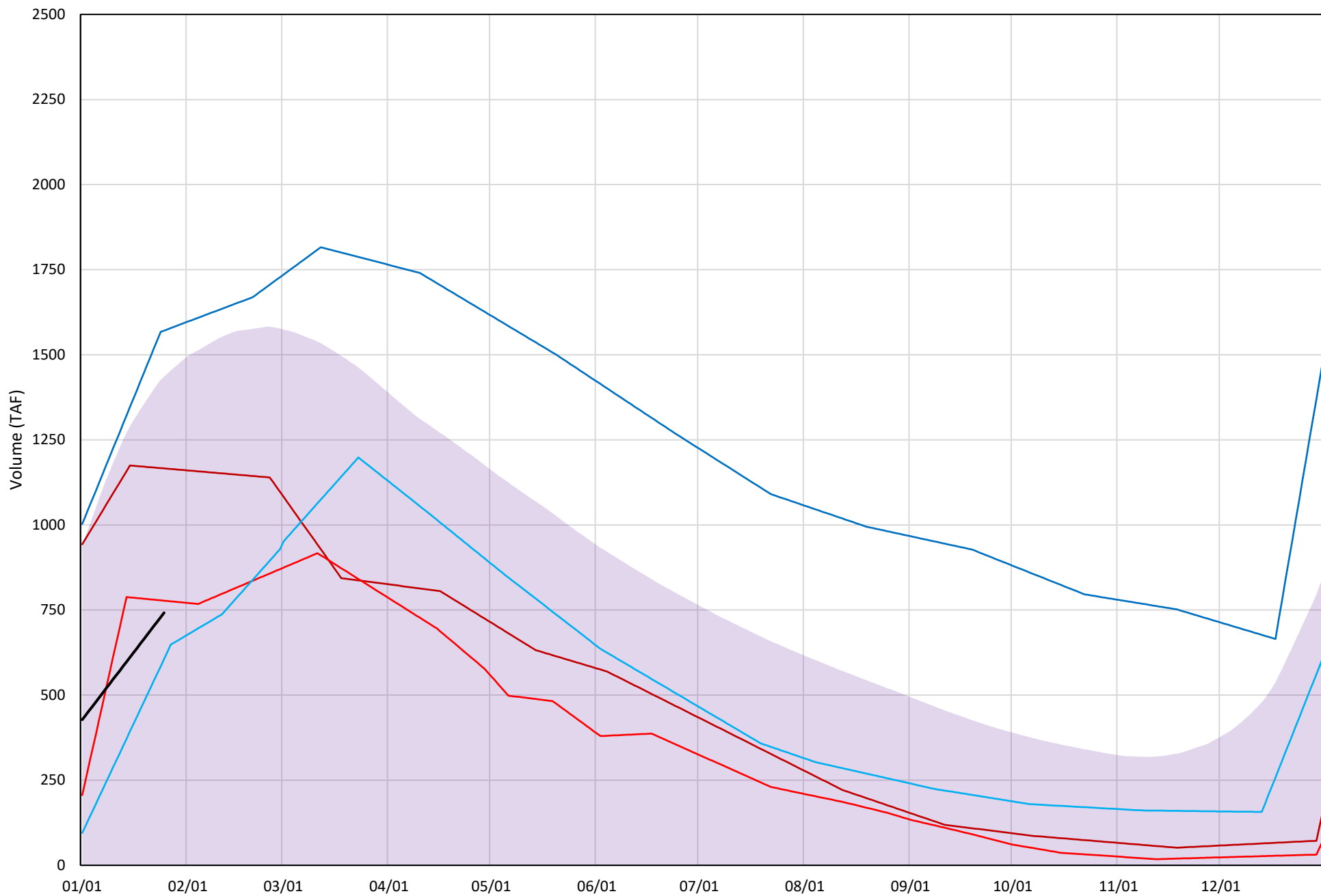
Trinity Lake Cold Water Pool Volume ≤50°F

Avg (2000-2022) 2014 2015 2016 2019 2023

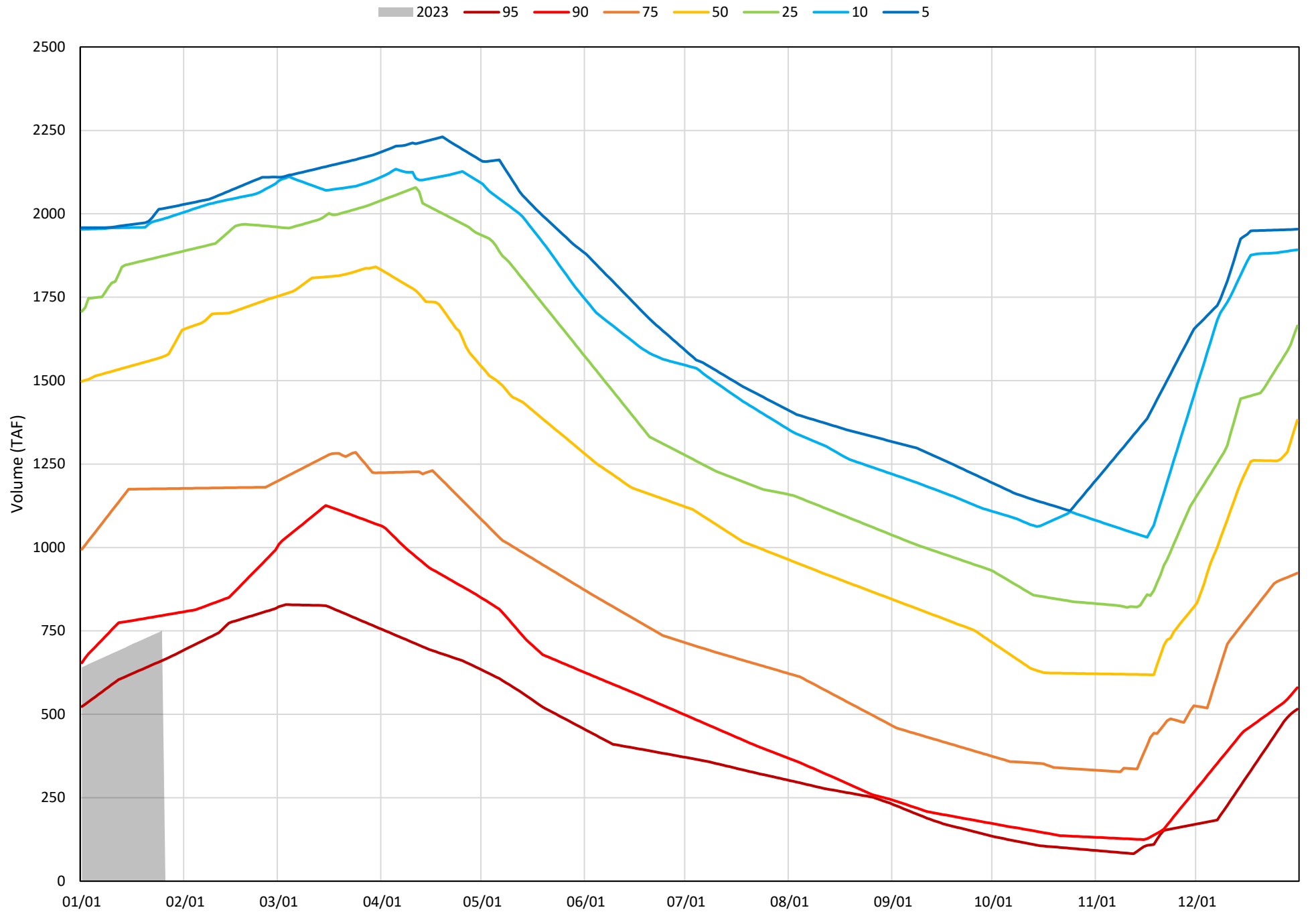


Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

Avg (2000-2022) 2014 2015 2016 2019 2023

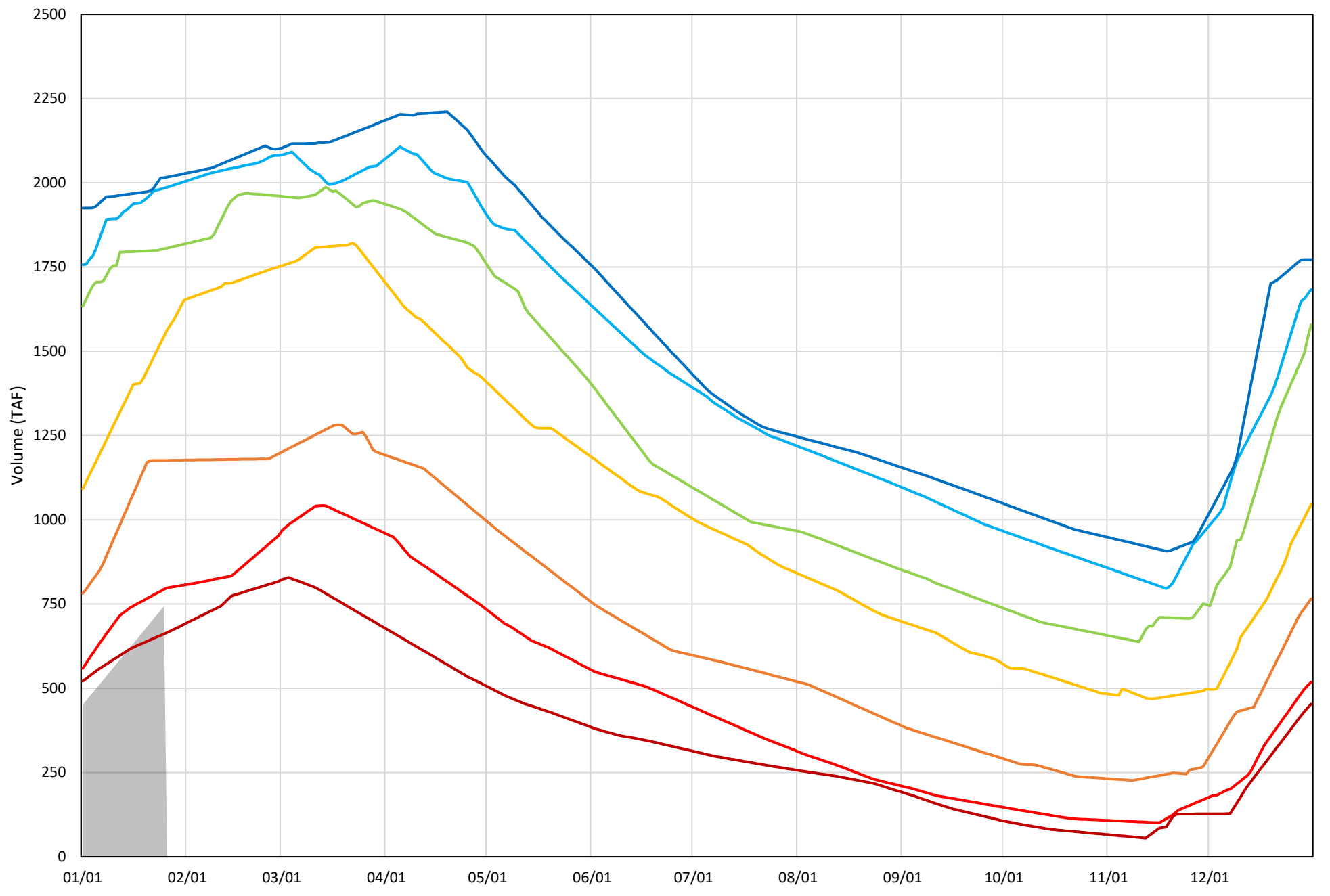


Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

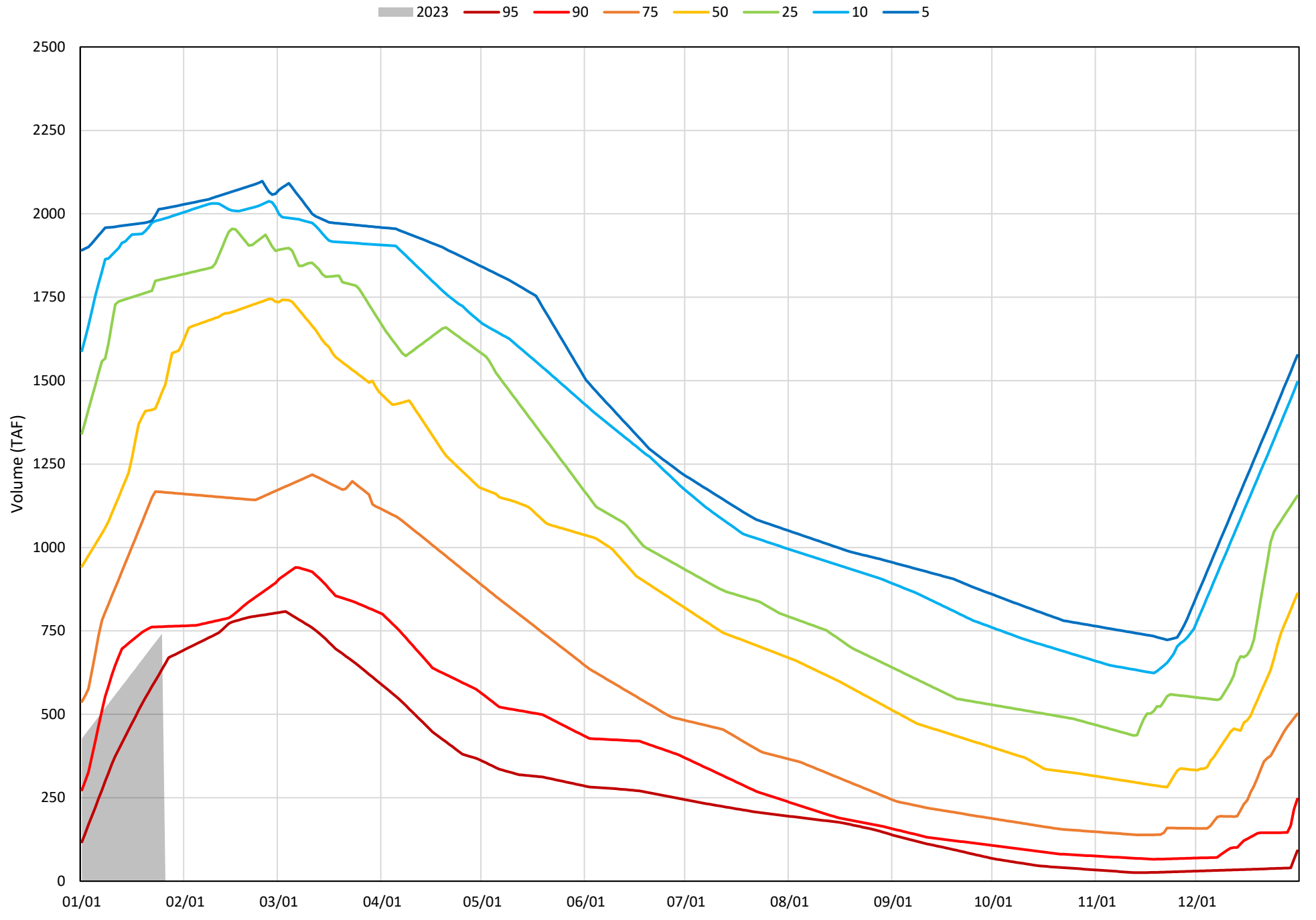


Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5



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)

Jan-26 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	1231	1238	1239	1236	164	167	167	166
2001	944	952	953	950	126	128	128	127
2002	793	792	780	788	106	107	105	106
2003	977	984	956	972	130	132	129	130
2004	1122	1130	1131	1128	150	152	152	151
2005	818	549	481	616	109	74	65	83
2006	1272	1280	1281	1278	170	172	173	171
2007	1053	1061	1062	1059	140	143	143	142
2008	667	675	676	673	89	91	91	90
2009	251	259	259	256	33	35	35	34
2010	275	111	82	156	37	15	11	21
2011	1029	1036	1037	1034	137	140	140	139
2012	1212	800	723	912	161	108	97	122
2013	1172	1180	1180	1177	156	159	159	158
2014	426	433	424	428	57	58	57	57
2015	111	118	36	88	15	16	5	12
2016	-112	-105	-136	118	-15	-14	-18	16
2017	804	543	501	616	107	73	68	83
2018	1019	1026	696	914	136	138	94	123
2019	820	828	829	826	109	111	112	111
2020	1235	1242	1243	1240	165	167	168	166
2021	504	512	513	509	67	69	69	68
2022	2	10	11	8	0	1	1	1
2023	0	0	0	0	0	0	0	0

Historic - Current

(Historic - Current) / Current

Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

2023

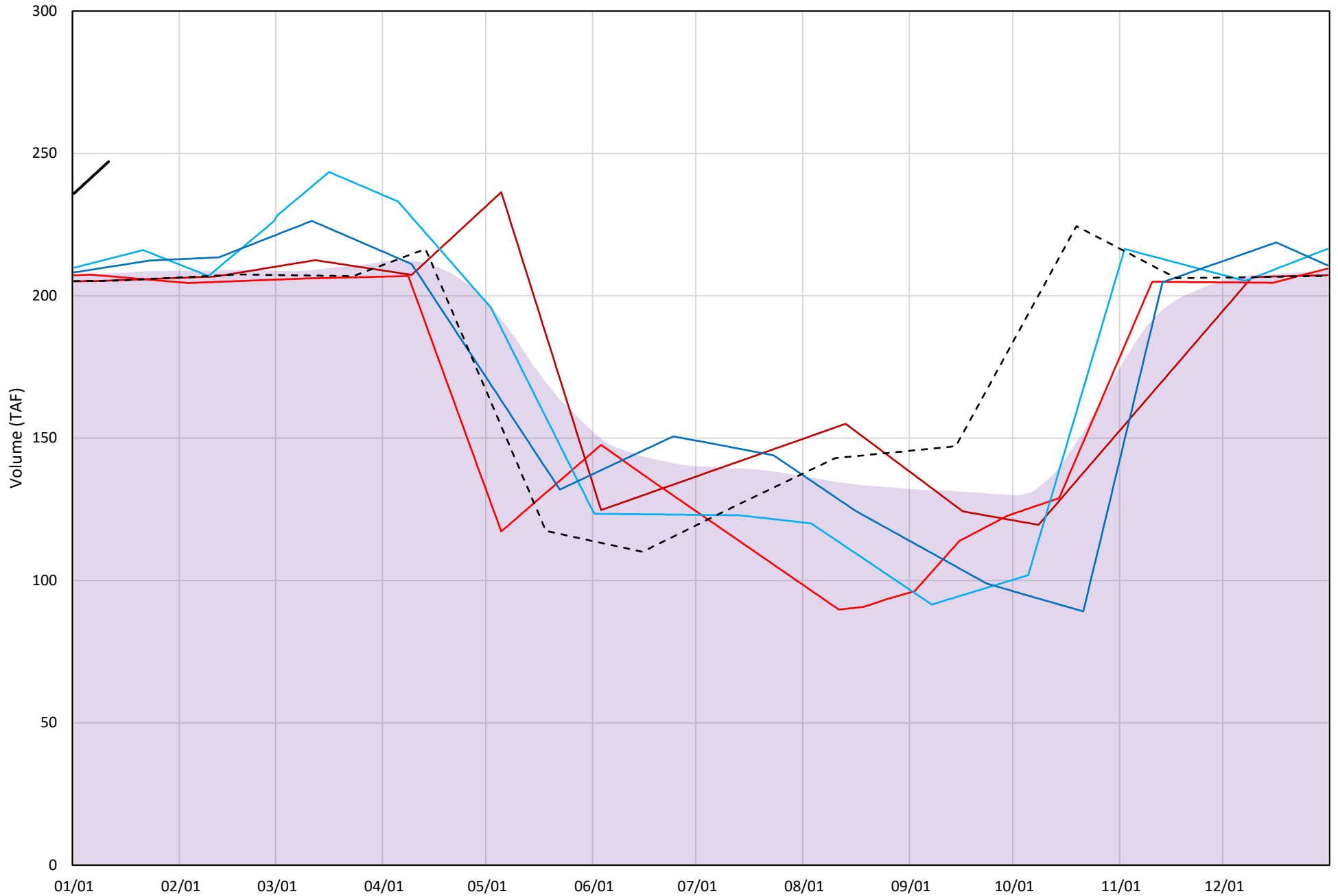
Page	Description
24	- Whiskeytown Lake Isothermobaths Plot
25	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$
26	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$
27	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$
28	- Whiskeytown Lake Cold Water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



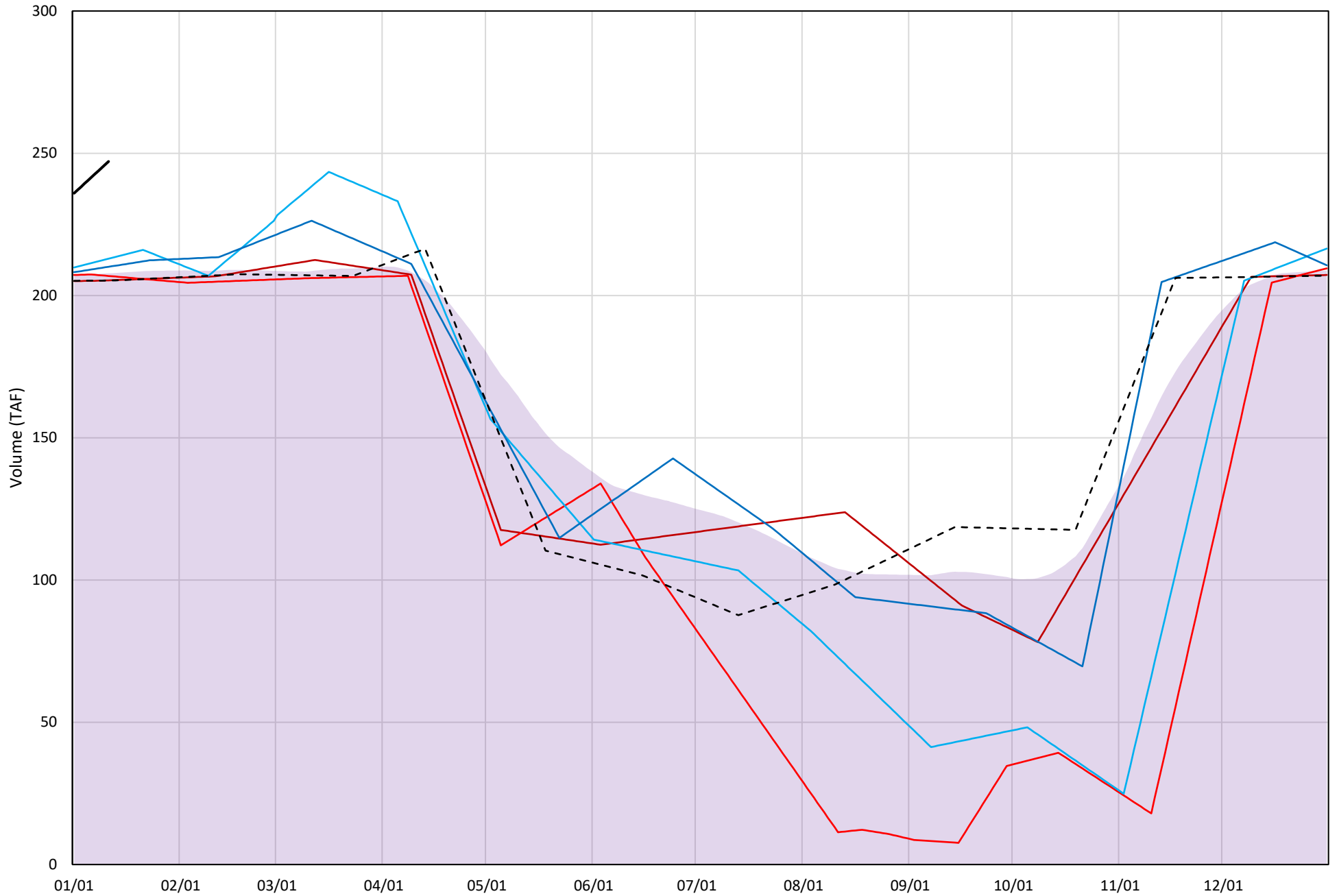
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

Avg (2000-2022) 2014 2015 2016 2019 2021 2023



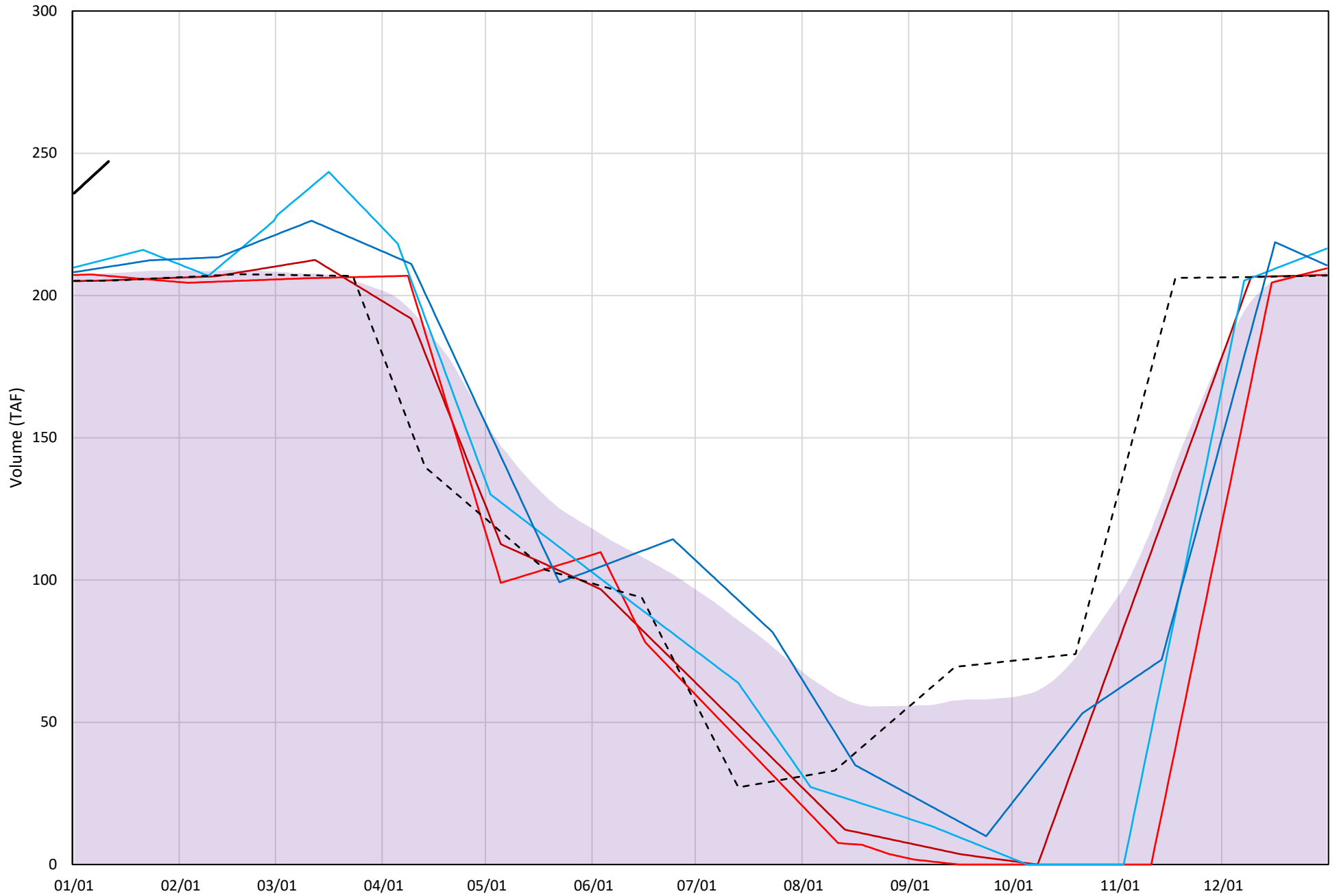
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

Avg (2000-2022) 2014 2015 2016 2019 2021 2023



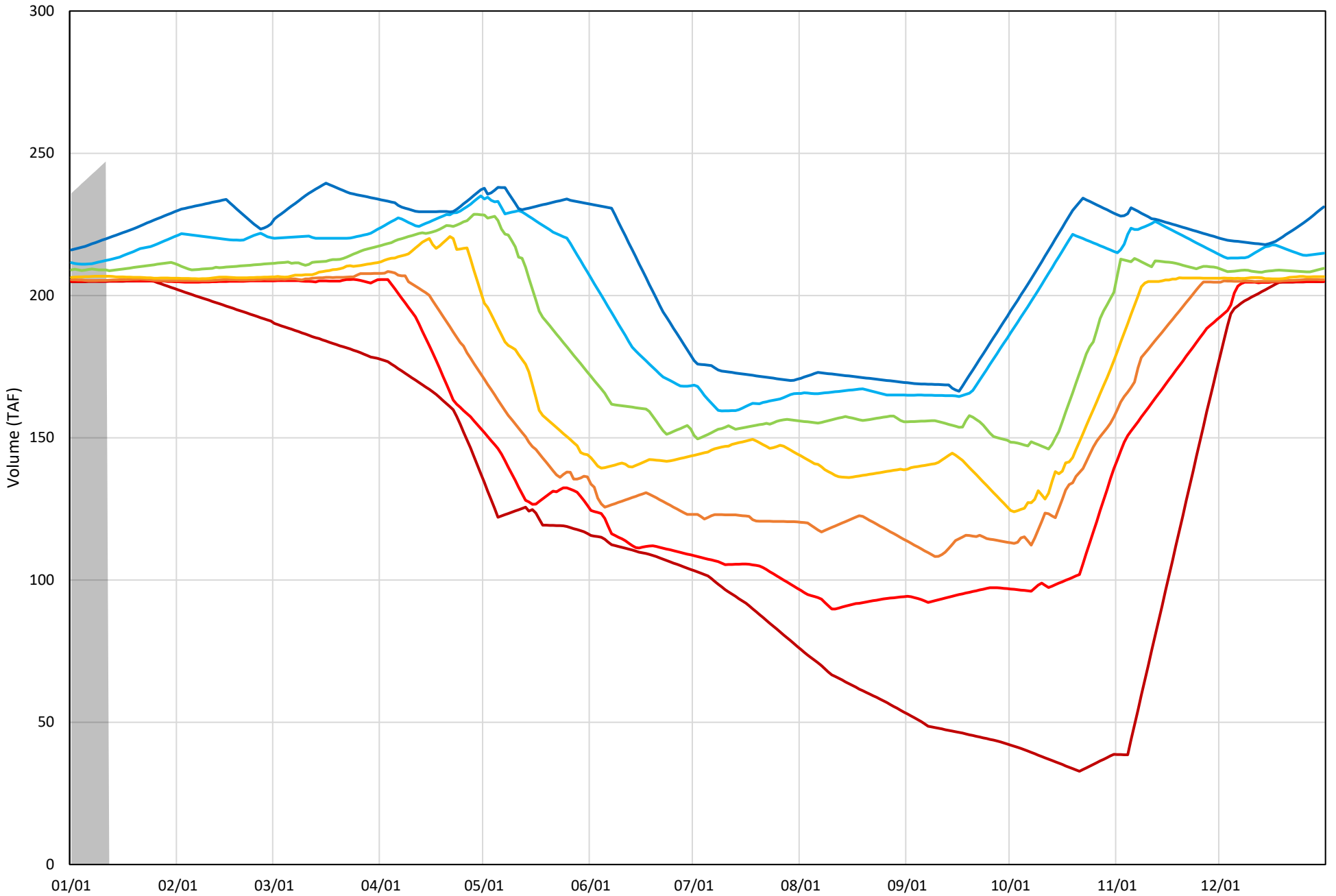
Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

Avg (2000-2022) 2014 2015 2016 2019 2021 2023



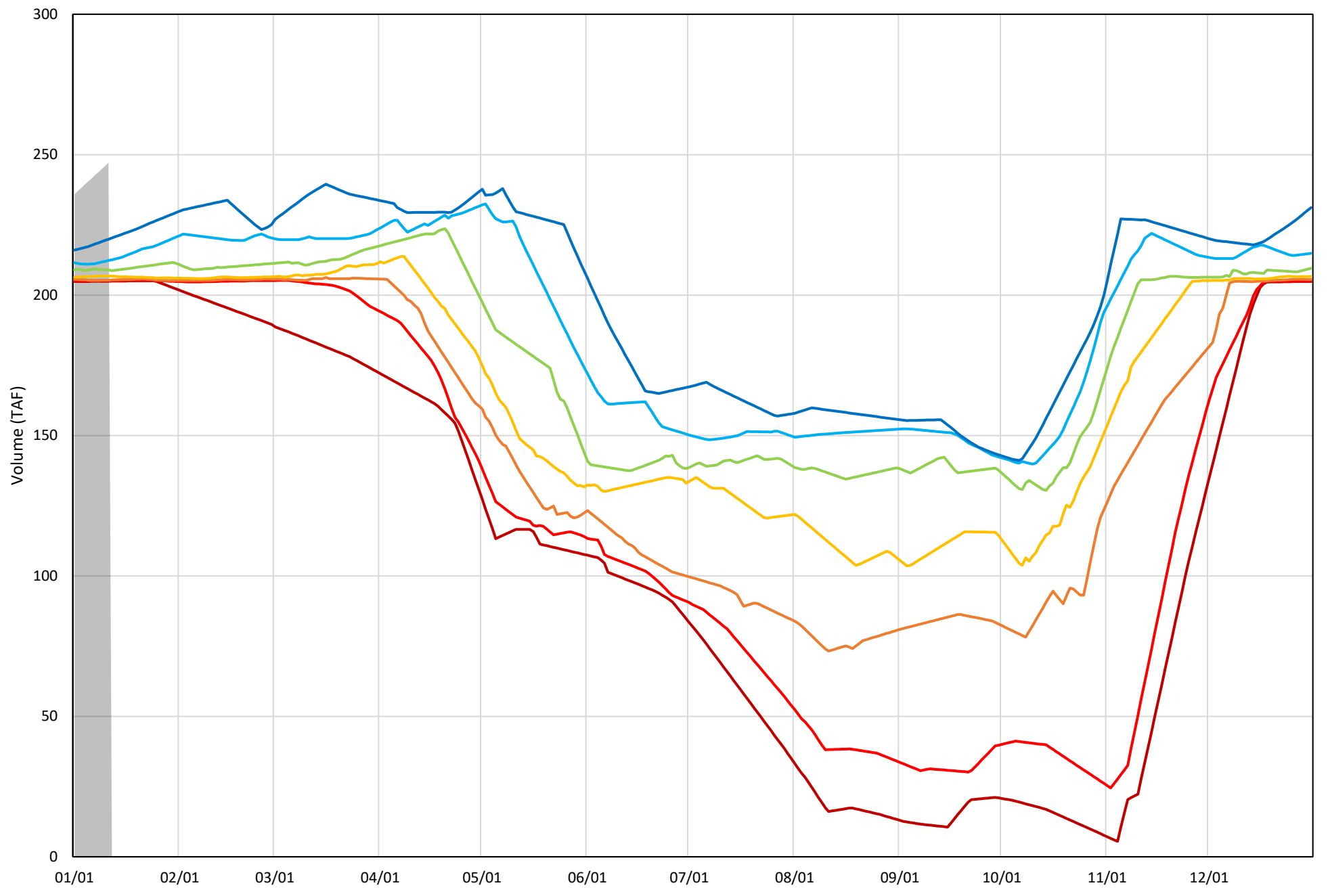
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5



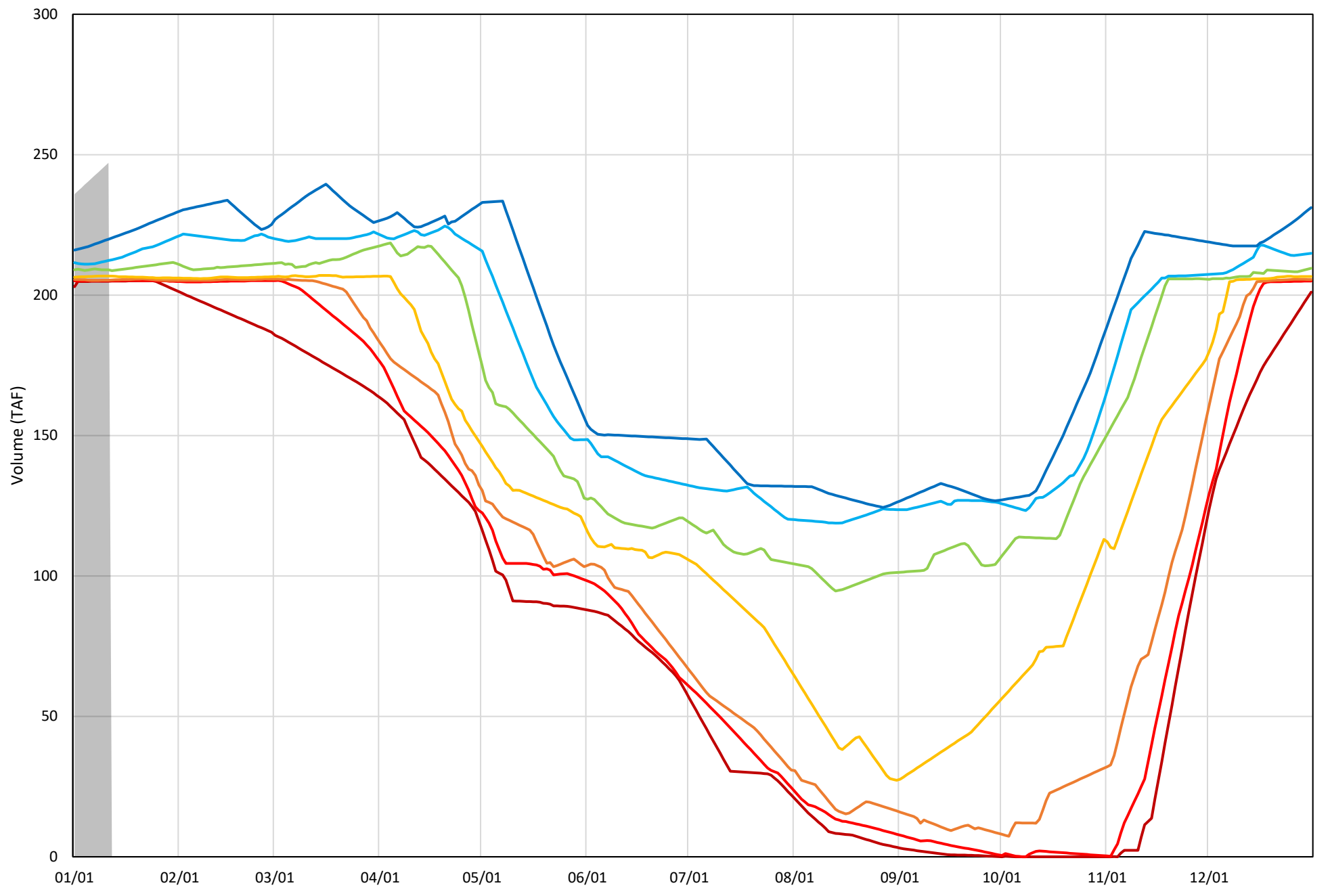
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

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)

Jan-12 2023	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	-41.3	-41.3	-41.3	41.3	-16.7	-16.7	-16.7	16.7
2001	-35.7	-35.7	-35.7	35.7	-14.5	-14.5	-14.5	14.5
2002	-38.5	-38.5	-38.5	38.5	-15.6	-15.6	-15.6	15.6
2003	-40.5	-40.5	-40.5	40.5	-16.4	-16.4	-16.4	16.4
2004	-40.5	-40.5	-40.5	40.5	-16.4	-16.4	-16.4	16.4
2005	-38.1	-38.1	-38.1	38.1	-15.4	-15.4	-15.4	15.4
2006	-41.4	-41.4	-41.4	41.4	-16.7	-16.7	-16.7	16.7
2007	-41.8	-41.8	-41.8	41.8	-16.9	-16.9	-16.9	16.9
2008	-42.2	-42.2	-42.2	42.2	-17.1	-17.1	-17.1	17.1
2009	-40.3	-40.3	-40.3	40.3	-16.3	-16.3	-16.3	16.3
2010	-37.4	-37.4	-37.4	37.4	-15.1	-15.1	-15.1	15.1
2011	-41.9	-41.9	-41.9	41.9	-17.0	-17.0	-17.0	17.0
2012	-41.6	-41.6	-41.6	41.6	-16.8	-16.8	-16.8	16.8
2013	-40.0	-40.0	-40.0	40.0	-16.2	-16.2	-16.2	16.2
2014	-41.8	-41.8	-41.8	41.8	-16.9	-16.9	-16.9	16.9
2015	-40.2	-40.2	-40.2	40.2	-16.3	-16.3	-16.3	16.3
2016	-34.2	-34.2	-34.2	34.2	-13.8	-13.8	-13.8	13.8
2017	-25.4	-25.4	-25.4	25.4	-10.3	-10.3	-10.3	10.3
2018	-42.0	-42.0	-42.0	42.0	-17.0	-17.0	-17.0	17.0
2019	-37.0	-37.0	-37.0	37.0	-15.0	-15.0	-15.0	15.0
2020	-40.2	-40.2	-40.2	40.2	-16.3	-16.3	-16.3	16.3
2021	-41.8	-41.8	-41.8	41.8	-16.9	-16.9	-16.9	16.9
2022	-39.9	-39.9	-39.9	39.9	-16.1	-16.1	-16.1	16.1
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Historic - Current

(Historic - Current) / Current