

Northern CVP Water Temperature Report

February - 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 ²	CCR	BSF	BND	RDB	IGO	LWS	DGC	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB		
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		
02/01	48.2	47.3	47.1	47.2	47.0	47.0	46.8	#	-	45.0	44.9	43.1	39.4	39.9	2493	538	3340	42.0	39.0	41.5	
02/02	47.9	47.4	46.8	47.1	46.8	46.8	46.7	#	-	? 45.2	44.9	43.0	39.7	40.4	2432	815	3336	42.0	39.3	42.1	
02/03	48.1	47.3	46.7	47.2	47.0	47.0	46.9	#	-	? 45.7	45.5	43.2	41.0	41.9	2250	366	3321	43.5	42.3	45.6	
02/04	48.2	47.6	46.6	47.2	47.2	47.5	47.4	#	-	? 46.8	46.1	43.2	42.2	43.5	2476	334	3317	49.0	47.2	48.5	
02/05	48.3	47.6	47.1	47.2	47.3	47.9	48.0	#	-	? 47.9	46.1	43.2	42.7	44.1	2742	37	3322	46.5	48.3	48.9	
02/06	48.3	47.5	46.9	47.4	47.3	47.6	47.8	#	-	? 47.9	45.3	43.1	42.0	43.1	2604	37	3323	48.5	44.4	47.3	
02/07	48.3	47.5	46.9	47.5	47.4	47.7	47.8	#	-	47.2	45.5	43.0	42.0	43.1	2569	37	3268	47.0	42.4	45.0	
02/08	48.3	47.6	47.1	47.6	47.6	48.0	47.8	#	-	47.3	45.7	43.1	41.9	43.1	2517	37	3254	52.0	45.7	48.1	
02/09	48.0	47.5	47.2	47.6	47.7	48.3	48.4	#	-	? 48.1	46.0	43.1	42.0	43.0	2546	37	3297	50.5	46.3	49.3	
02/10	48.0	47.5	47.3	47.7	47.6	47.9	48.6	#	-	48.5	46.0	43.1	41.7	42.6	2513	37	3297	47.5	44.4	46.5	
02/11	48.3	? 47.4	47.3	47.8	47.8	48.3	48.6	#	-	? 48.3	46.2	43.2	41.7	43.0	2572	37	3294	52.0	49.0	49.0	
02/12	48.5	? 47.5	47.3	47.9	48.0	48.7	49.1	#	-	? 49.1	46.5	43.3	42.4	43.6	2816	37	3294	63.5	56.8	55.0	
02/13	48.2	? 47.5	47.4	47.8	47.9	48.6	49.4	#	-	? 49.5	46.4	43.4	42.6	43.7	2769	37	3297	54.0	48.8	51.8	
02/14	48.5	47.7	47.4	47.6	47.5	47.7	48.6	#	-	? 48.6	45.2	43.6	41.3	42.1	2650	37	3297	43.5	42.6	44.9	
02/15	48.4	? 47.6	47.3	47.5	47.5	47.7	47.8	#	-	? 47.3	45.0	43.9	40.4	40.9	2415	37	3295	46.5	43.2	44.5	
02/16	48.2	47.5	47.2	47.3	47.2	47.3	47.8	#	-	46.7	44.9	44.0	40.6	40.4	2688	37	3296	40.0	38.4	40.6	
02/17	48.1	? 47.3	47.1	47.3	47.3	47.6	47.7	#	-	46.7	45.5	44.1	41.3	41.6	2709	37	3295	↓	47.5	43.6	47.2
02/18	47.8	47.4	47.1	47.3	47.2	47.5	47.8	#	-	? 47.0	45.6	44.0	41.2	41.5	2876	37	3300	45.0	42.1	45.7	
02/19	48.2	47.6	47.1	47.4	47.6	48.1	48.1	#	-	47.5	46.1	44.2	41.6	42.2	2937	37	3295	53.5	51.3	55.5	
02/20	48.3	47.5	47.1	47.7	47.9	48.9	49.2	#	-	49.2	46.8	44.2	42.9	43.5	2587	40	3292	↑	63.0	56.3	55.5
02/21	48.4	47.5	46.7	47.7	47.8	48.5	49.8	#	-	50.3	46.3	44.1	43.5	44.6	2488	258	3299	51.5	50.1	49.4	
02/22	47.7	47.1	46.6	47.5	47.3	47.2	48.4	#	-	48.9	44.9	44.2	42.2	42.6	2444	423	3321	40.0	39.5	41.5	
02/23	47.8	46.7	46.9	47.3	46.9	46.5	47.2	#	-	46.5	44.3	44.3	41.5	? 41.5	2812	42	3326	38.0	38.6	39.0	
02/24	47.2	46.5	46.1	? 46.9	46.4	? 45.9	45.6	#	-	43.8	? 43.3	44.2	41.5	? 41.1	2207	378	3324	↓	38.0	35.4	35.5
02/25	47.4	? 46.8	46.1	46.5	46.6	46.8	45.9	#	-	43.7	45.1	44.2	42.3	43.0	2242	317	3326	↓	36.0	37.5	39.6
02/26	47.1	? 46.5	46.0	46.3	46.0	46.4	45.7	#	-	? 45.5	45.0	43.9	42.9	43.8	2891	329	3321	↓	42.5	42.4	42.8
02/27	46.8	46.4	45.8	46.3	45.8	46.1	44.7	#	-	? 44.3	? 44.1	? 43.5	? 41.6	? 41.1	2687	323	3327	42.5	41.2	42.5	
02/28	46.9	46.2	45.8	46.4	45.7	46.0	44.5	#	-	? 43.9	? 43.8	? 43.1	? 40.1	? 39.4	2448	314	3328	42.5	41.0	42.3	
-																					
-																					
-																					
Feb	48.0	47.3	46.9	47.3	47.2	47.5	47.6	-	47.0	45.4	43.6	41.7	42.3	2585	180	3307	46.7	44.2	45.9		
														Total CFS	72380	5032	92602				
														Total AF	143563	9981	183672				

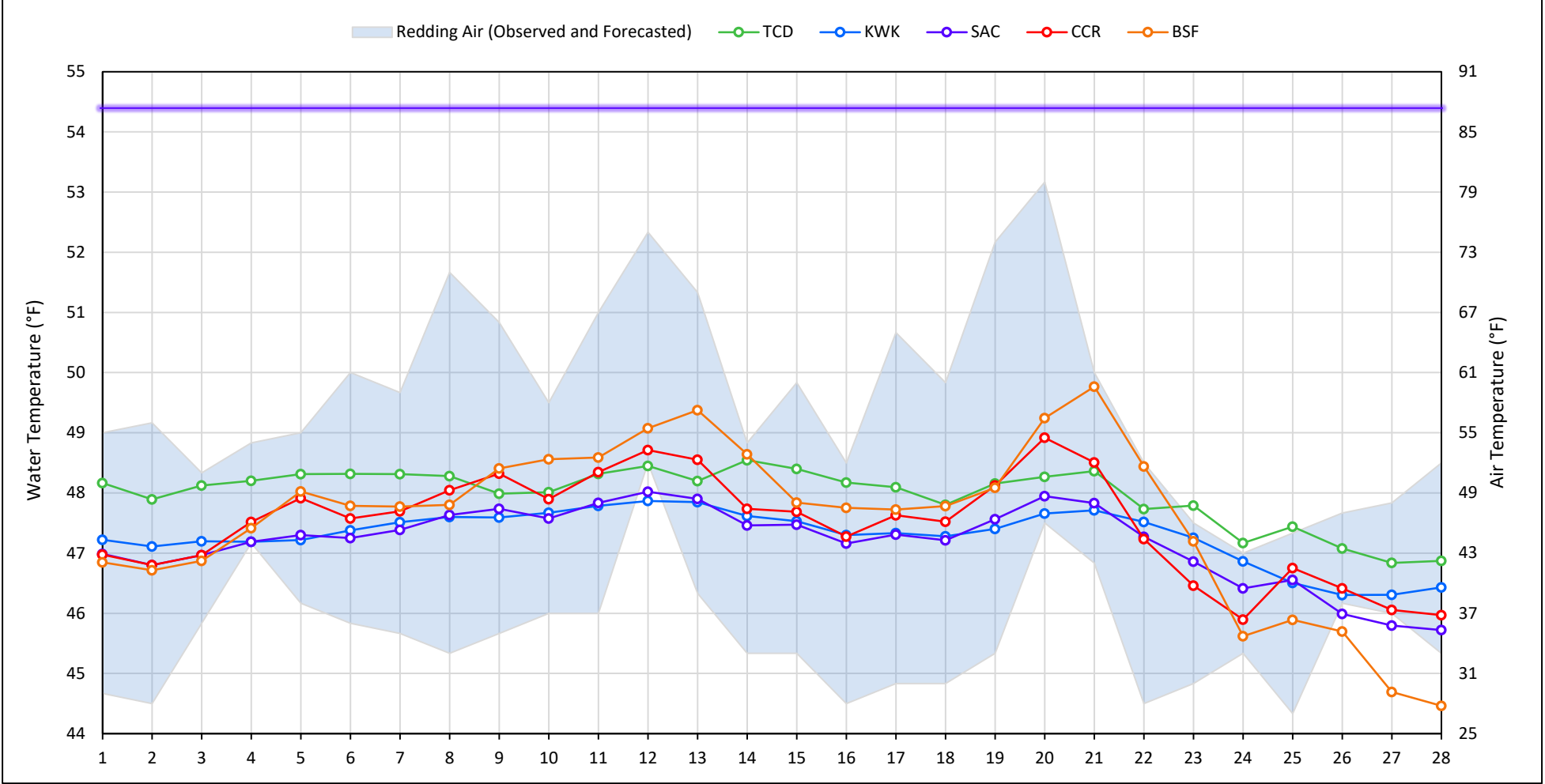
Legend

- ? = 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



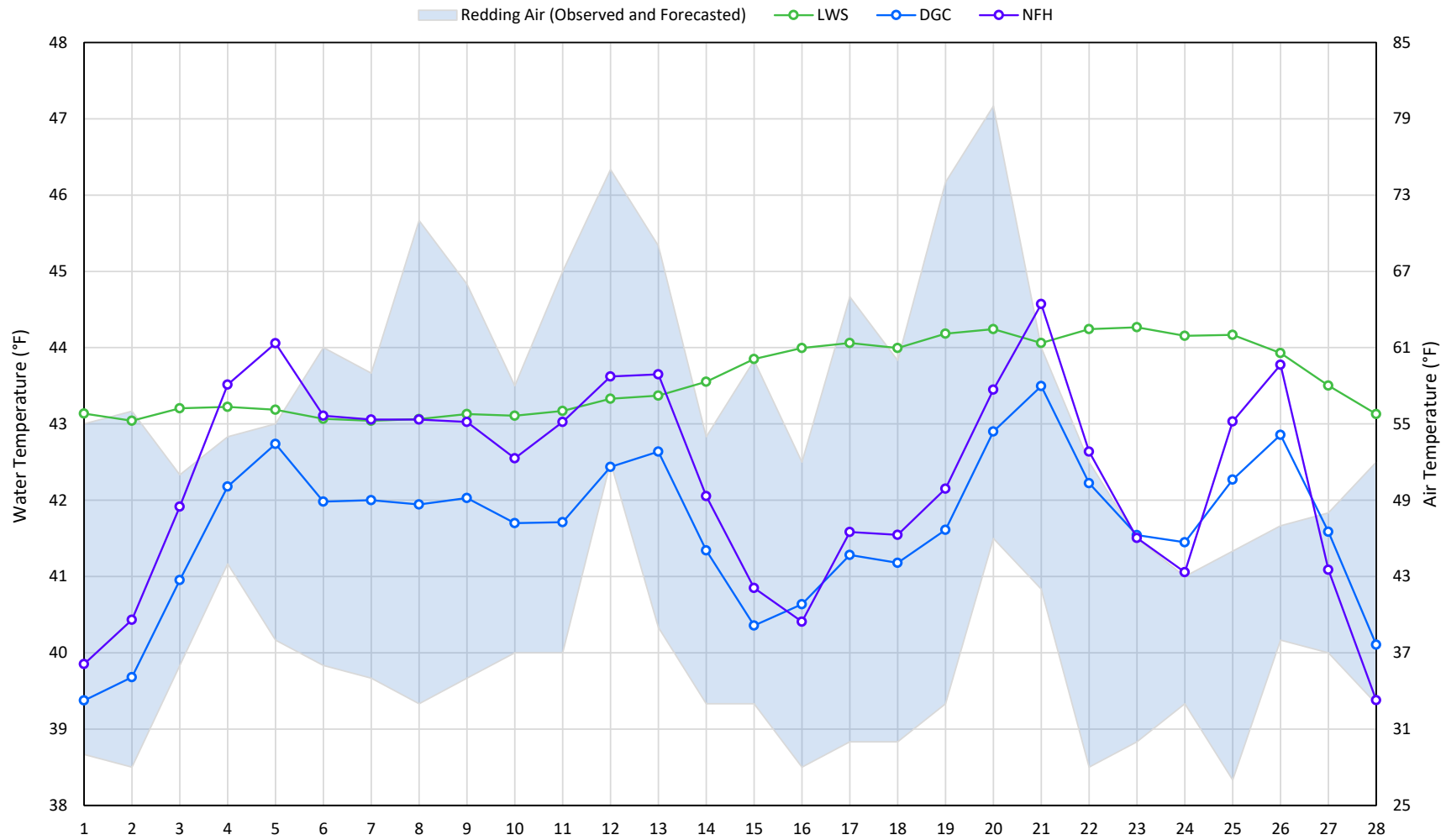
Station Details			
Code	Body of Water	Location ¹	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles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

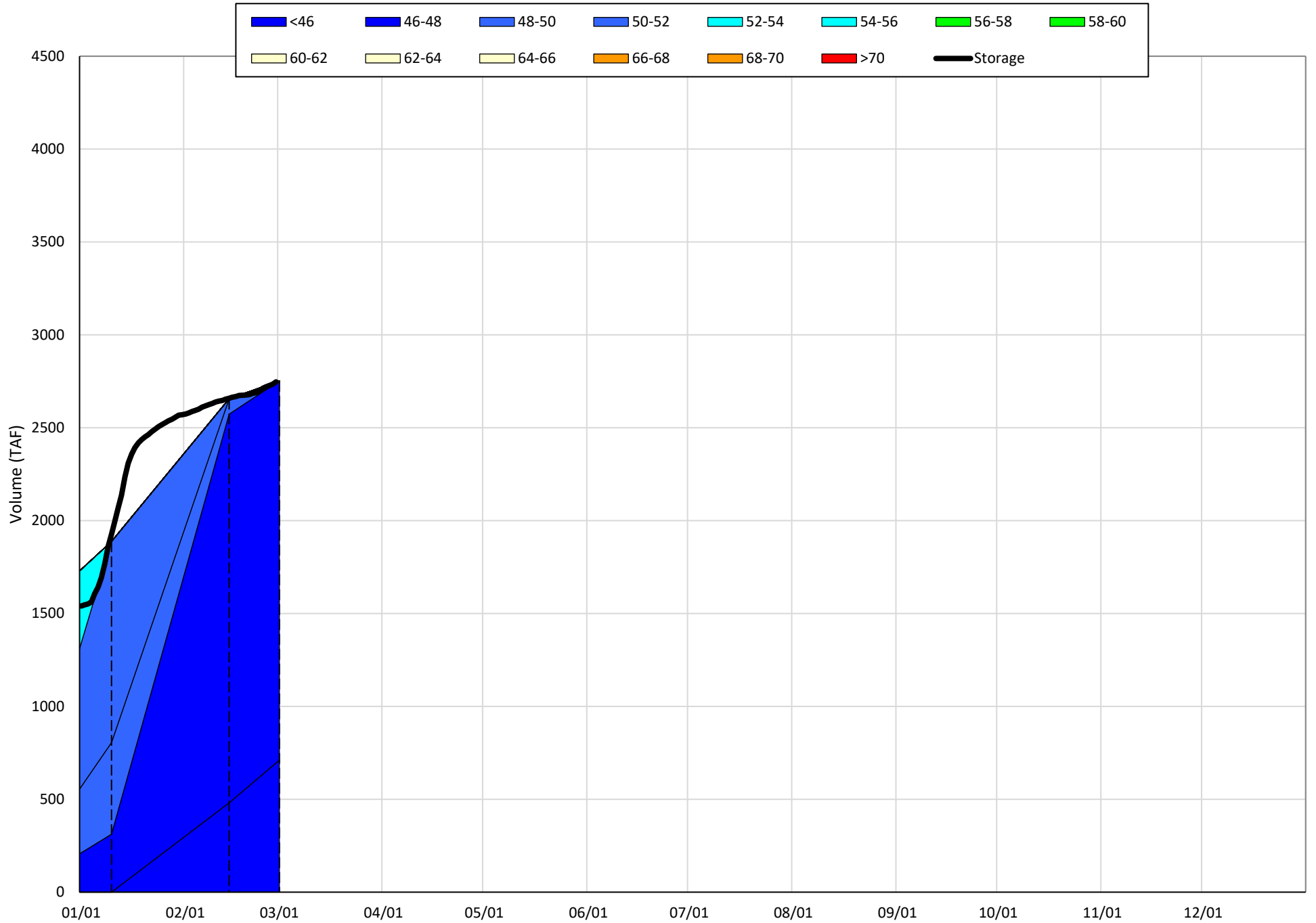
¹ Distances are approximate

Shasta Lake Isothermobaths & Cold Water Pool Statistics

2023

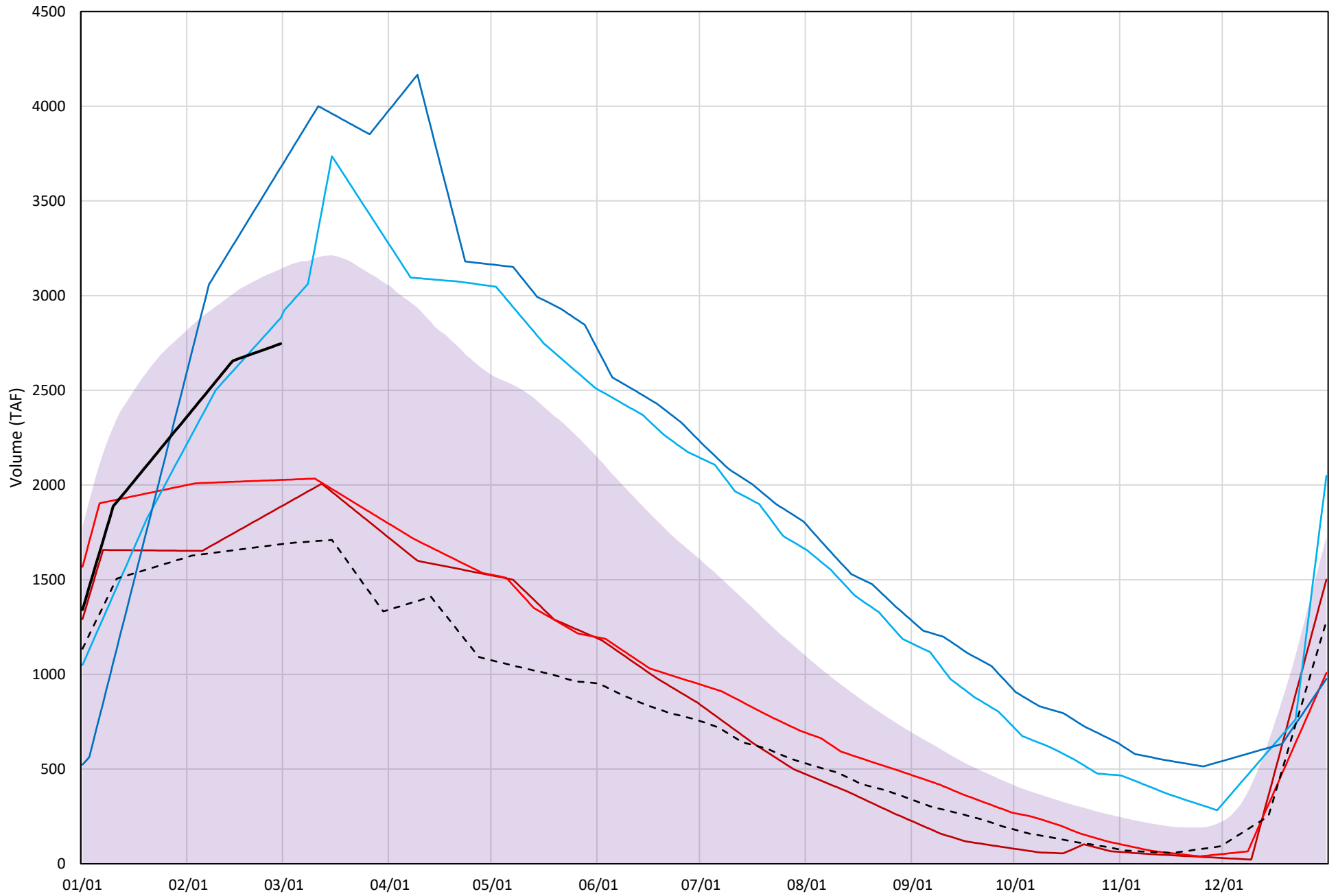
Page	Description
6	- Shasta Lake Isothermobaths Plot
7	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
8	- Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
9	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
10	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$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



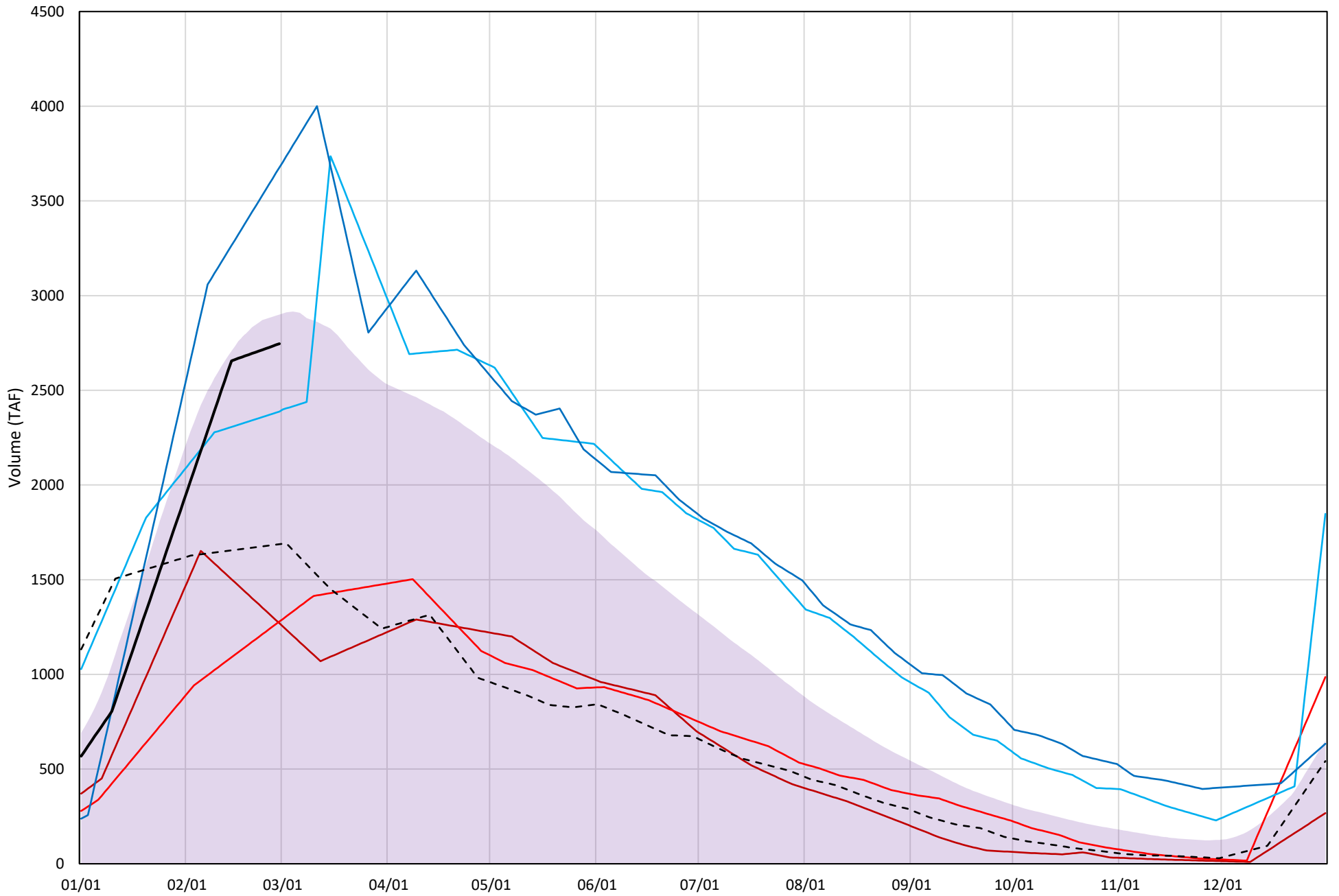
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



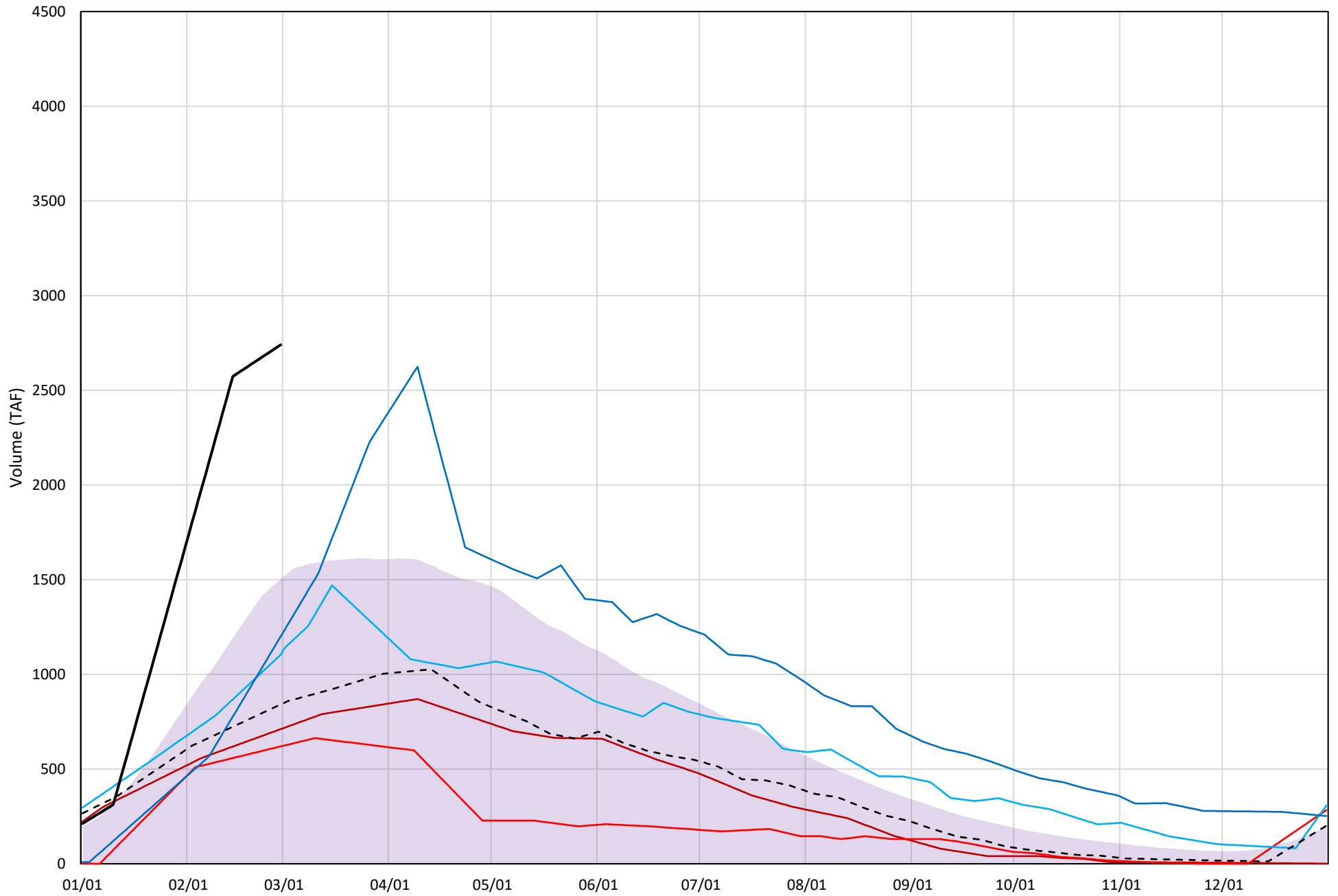
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

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

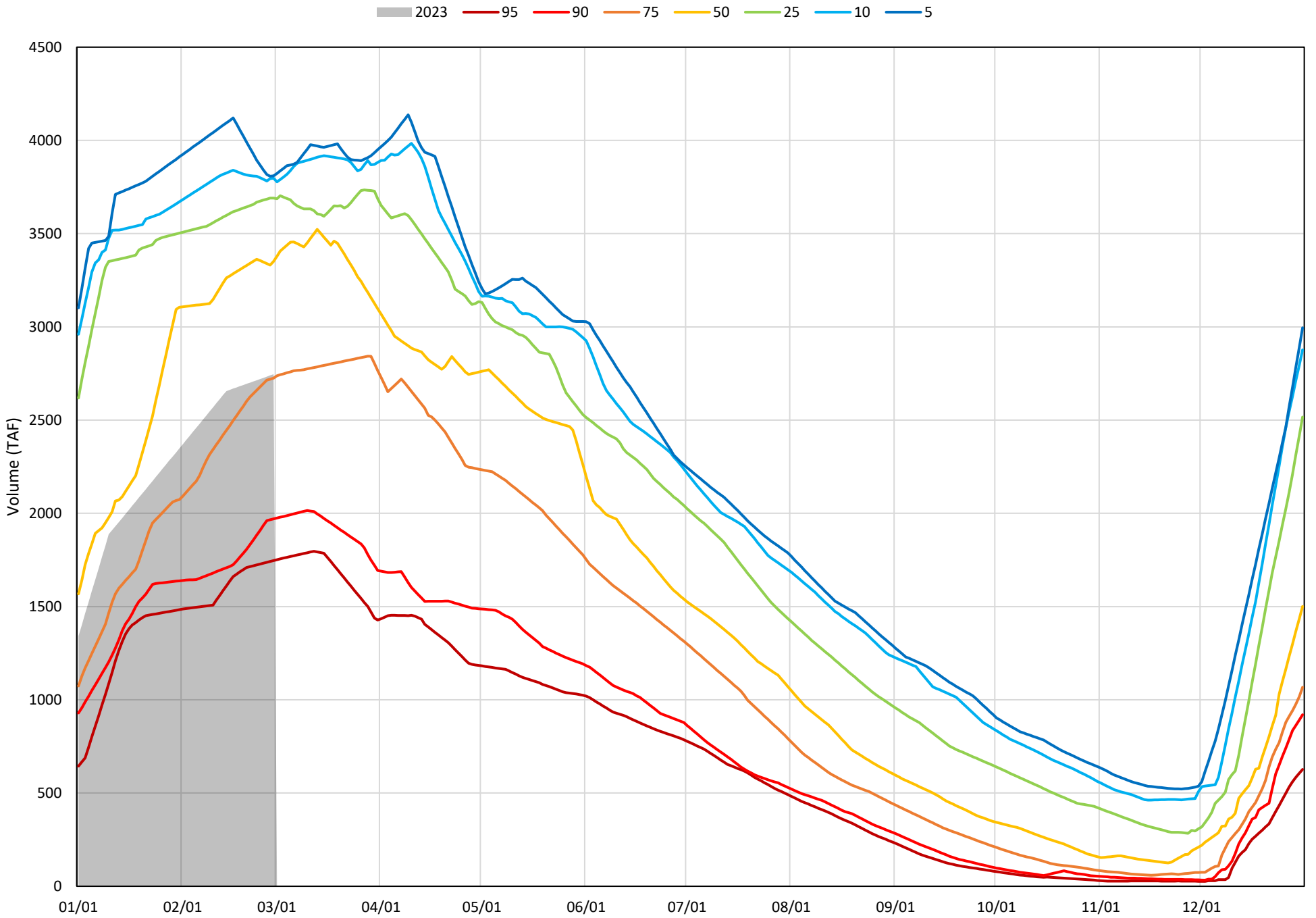


Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

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

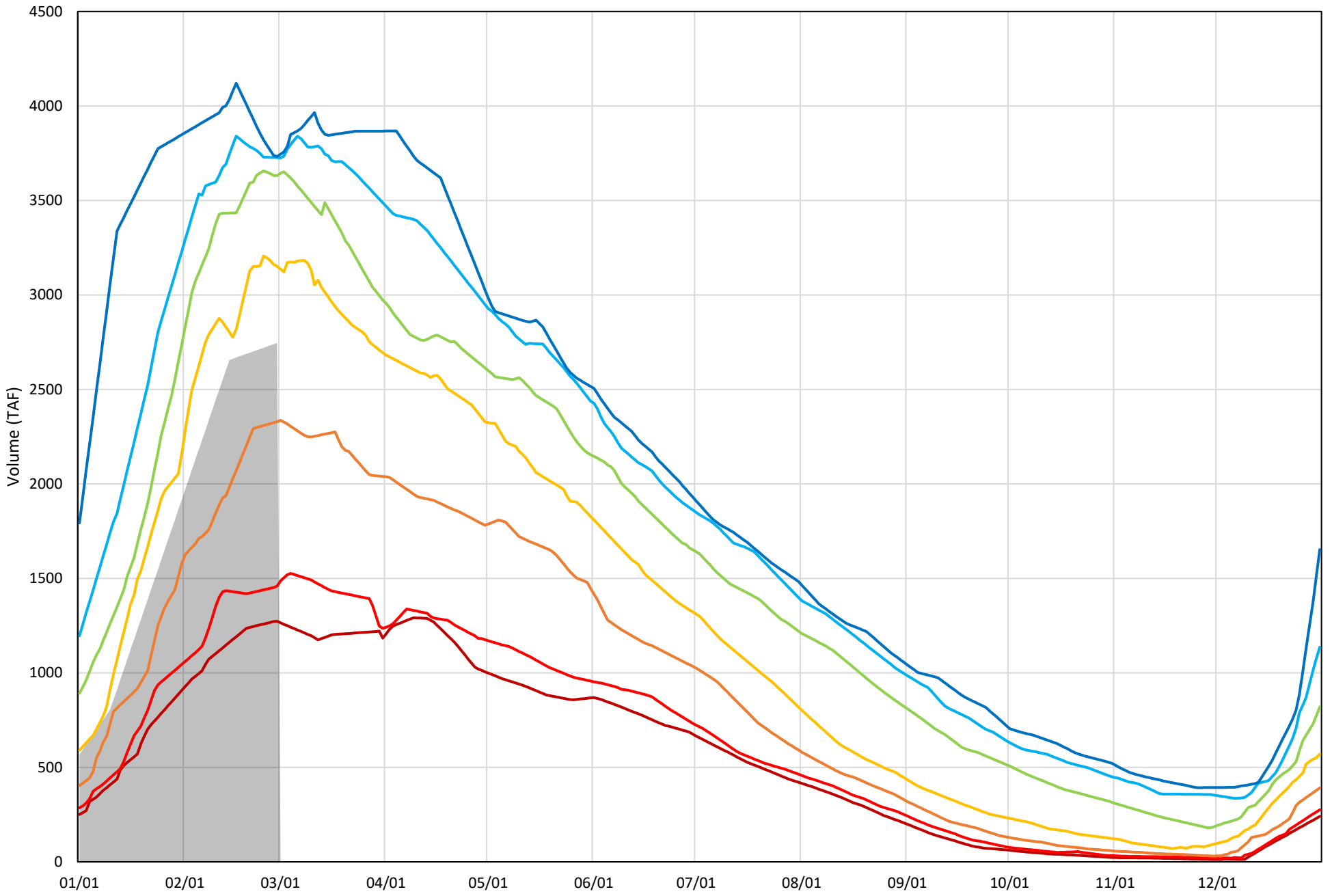


Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2022)

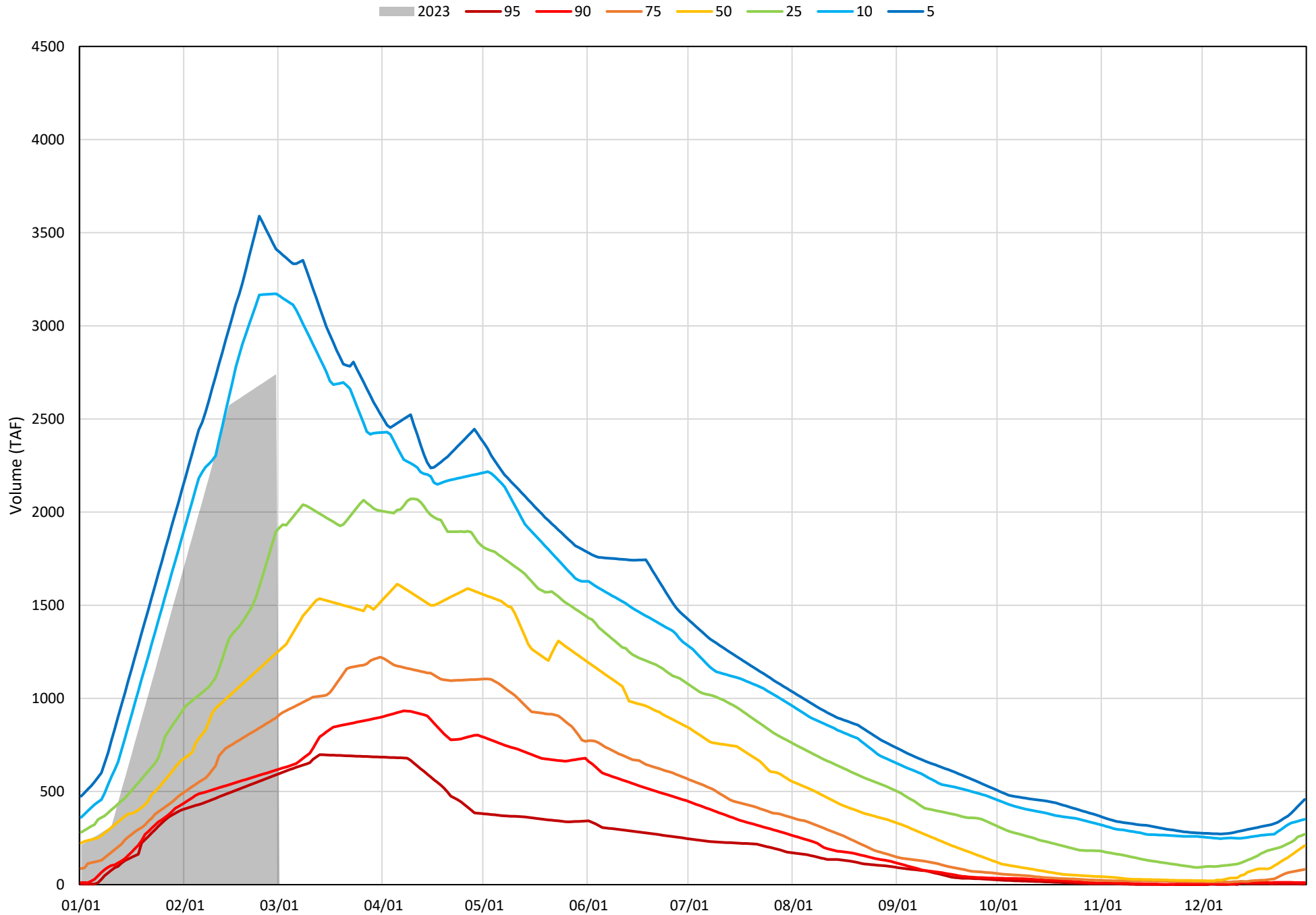


Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2022)

2023 95 90 75 50 25 10 5



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)

Mar-01 2023	Δ TAF				% Δ			
	$\leq 52^\circ$	$\leq 50^\circ$	$\leq 48^\circ$	Abs. Avg.	$\leq 52^\circ$	$\leq 50^\circ$	$\leq 48^\circ$	Abs. Avg.
1998	251	244	-2158	884	9	9	-79	32
1999	913	854	773	846	33	31	28	31
2000	1046	827	-1720	1198	38	30	-63	44
2001	578	520	429	509	21	19	16	19
2002	1059	978	-1154	1064	39	36	-42	39
2003	764	319	-1329	804	28	12	-49	29
2004	984	984	-1692	1220	36	36	-62	44
2005	84	-316	-1498	633	3	-12	-55	23
2006	918	918	-956	931	33	33	-35	34
2007	988	988	-1426	1134	36	36	-52	41
2008	-127	-127	-776	343	-5	-5	-28	13
2009	-650	-650	-795	698	-24	-24	-29	25
2010	605	605	-891	701	22	22	-33	26
2011	1065	793	-234	697	39	29	-9	25
2012	418	418	-1683	840	15	15	-61	31
2013	867	406	-1210	828	32	15	-44	30
2014	-861	-1476	-2029	1455	-31	-54	-74	53
2015	-719	-1467	-2121	1436	-26	-53	-77	52
2016	136	-359	-1637	710	5	-13	-60	26
2017	959	959	435	784	35	35	16	29
2018	431	192	-2132	918	16	7	-78	33
2019	931	931	-1540	1134	34	34	-56	41
2020	775	-1166	-1790	1244	28	-42	-65	45
2021	-476	-476	-1925	959	-17	-17	-70	35
2022	-1058	-1058	-1899	1338	-39	-39	-69	49
2023	0	0	0	0	0	0	0	0

}

Historic - Current

}

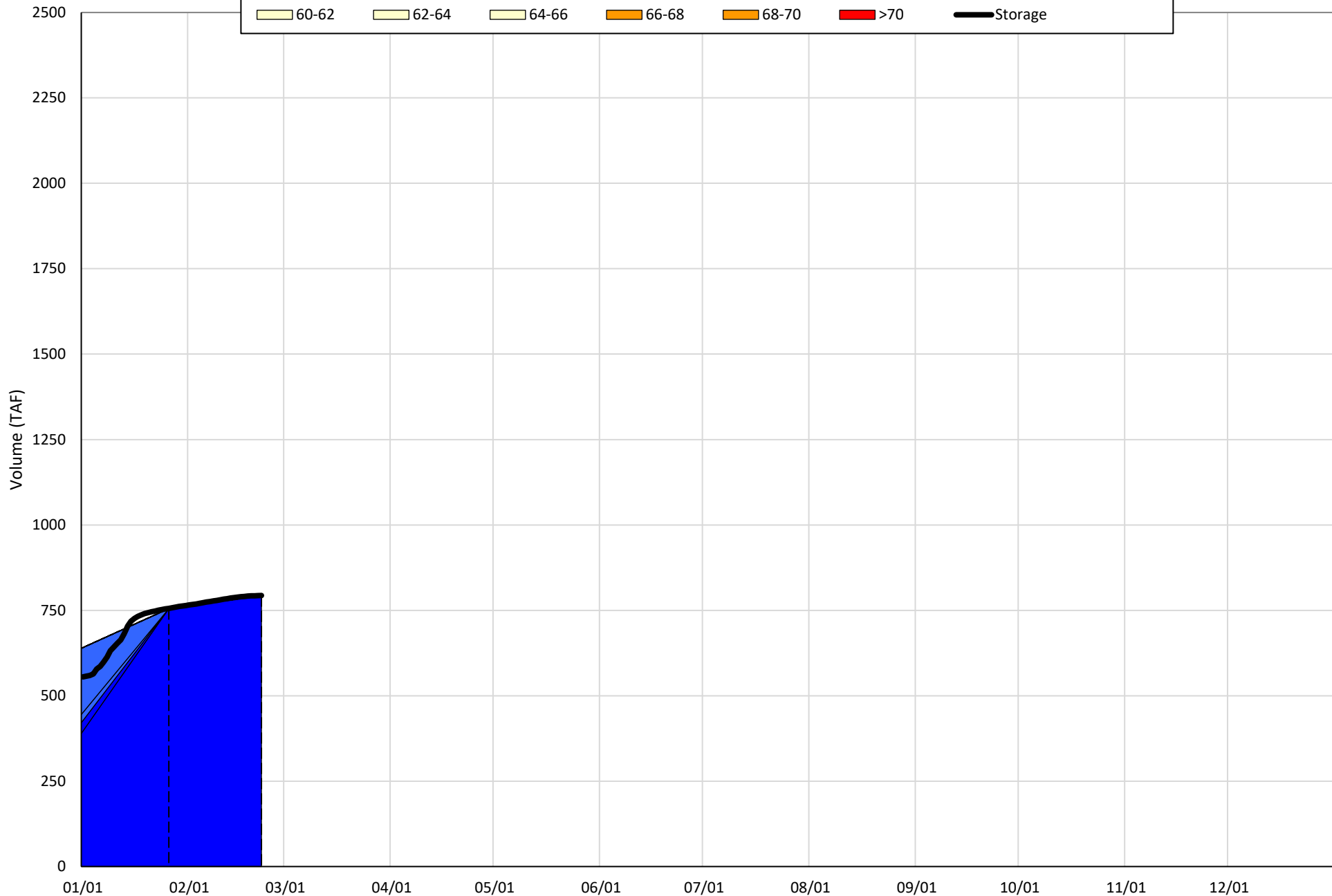
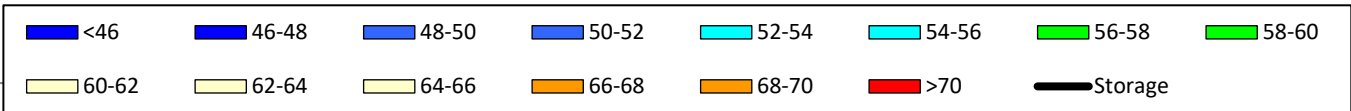
(Historic - Current) / Current

Trinity Lake Isothermobaths & Cold Water Pool Statistics

2023

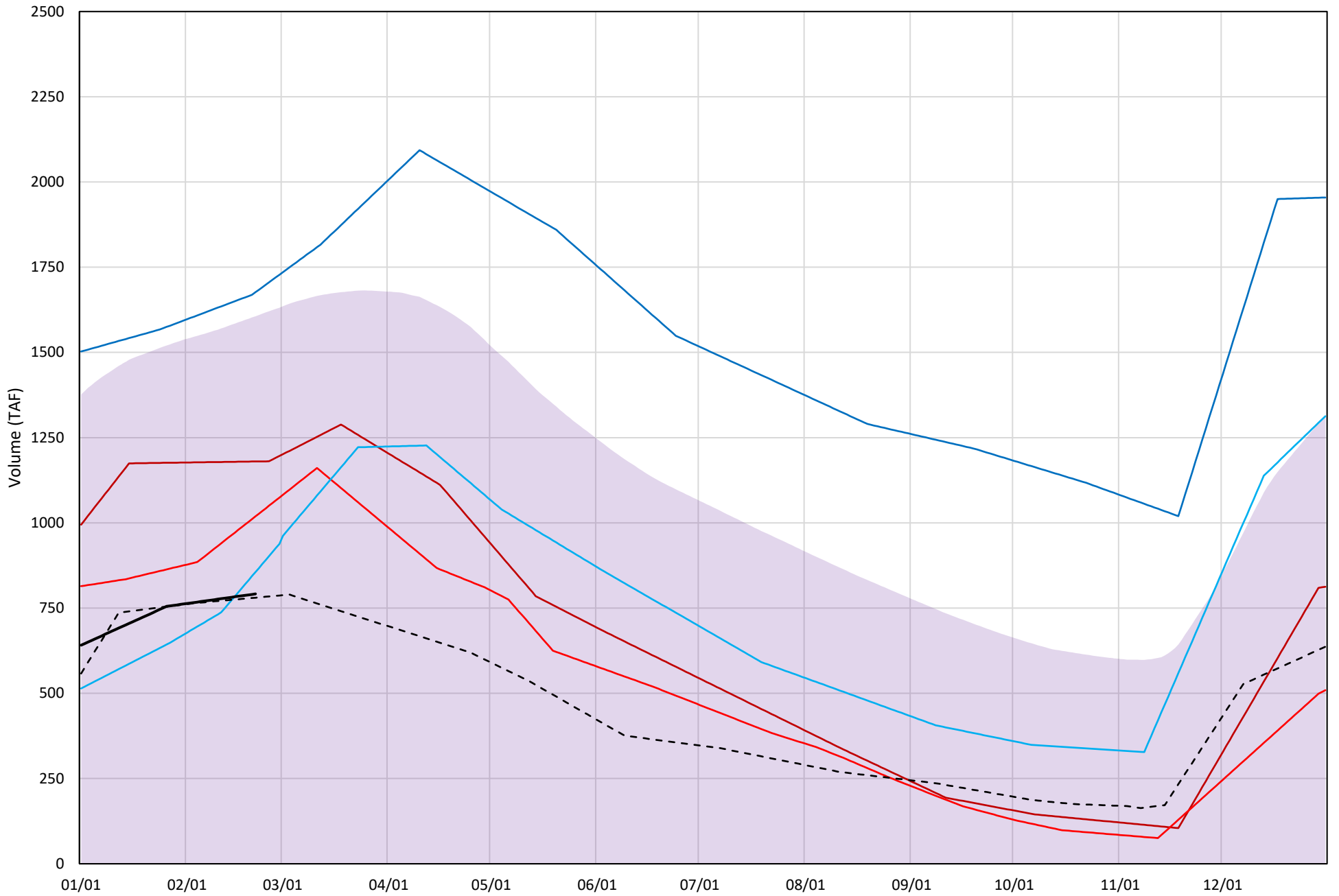
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq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



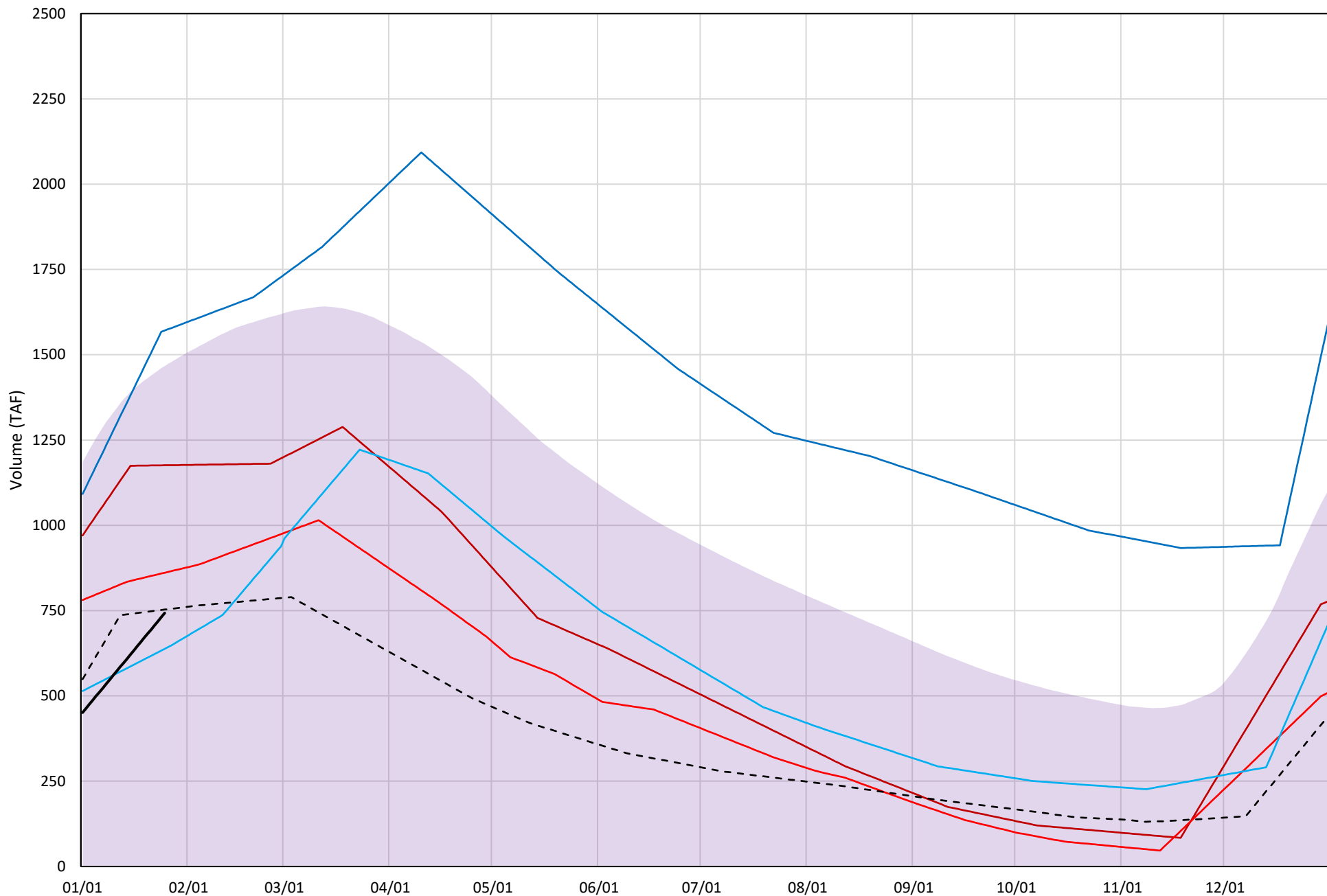
Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



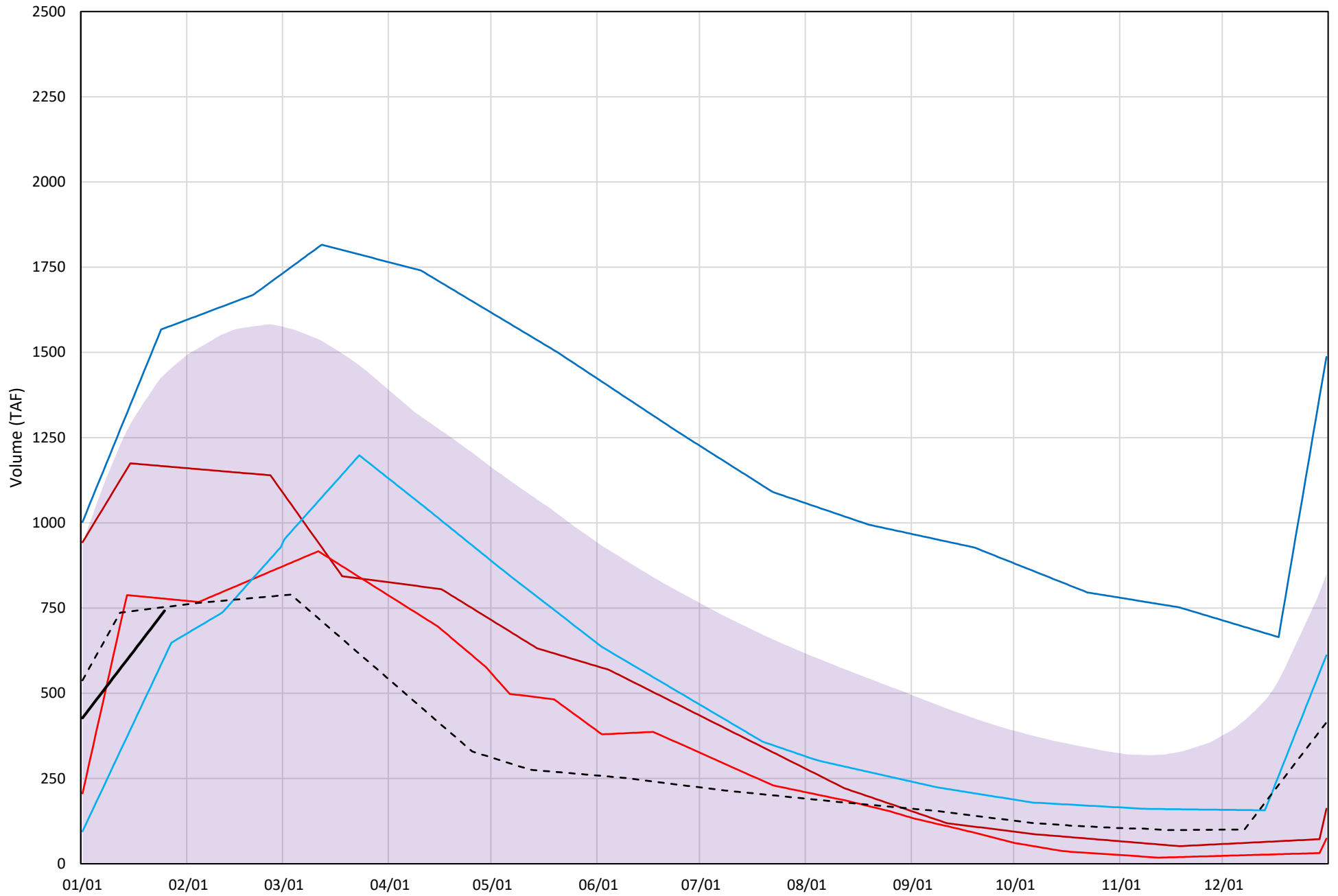
Trinity Lake Cold Water Pool Volume ≤50°F

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



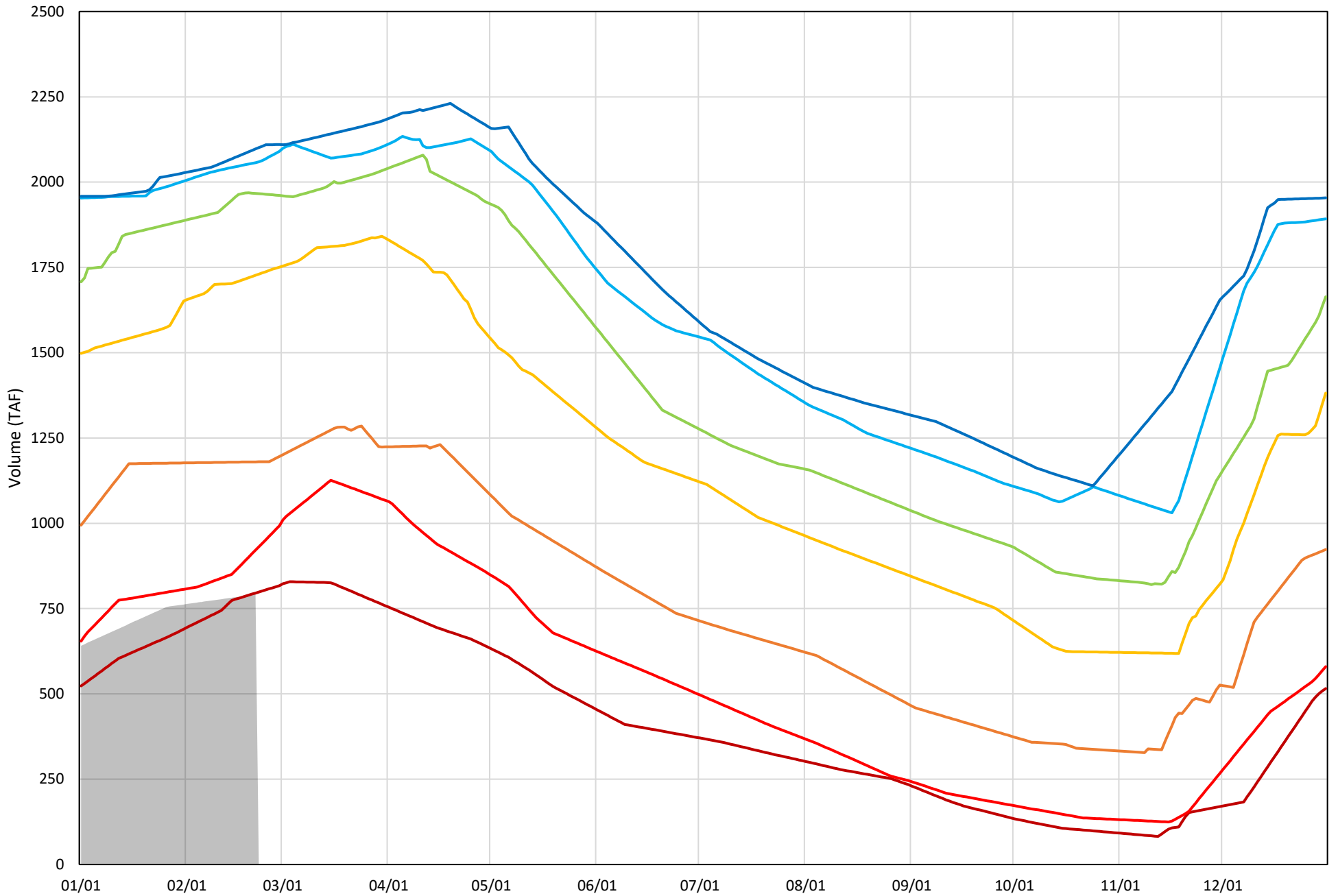
Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

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



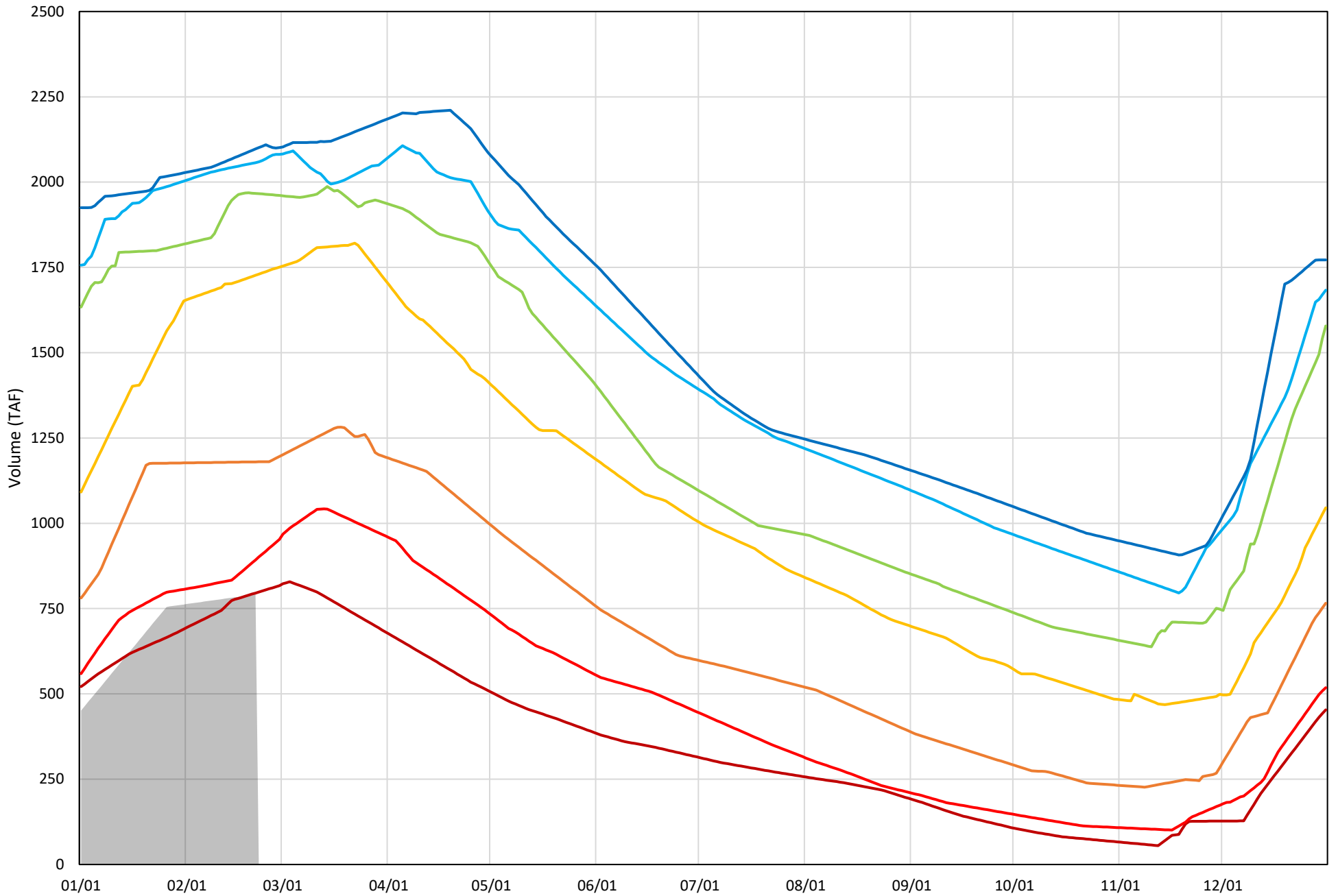
Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5

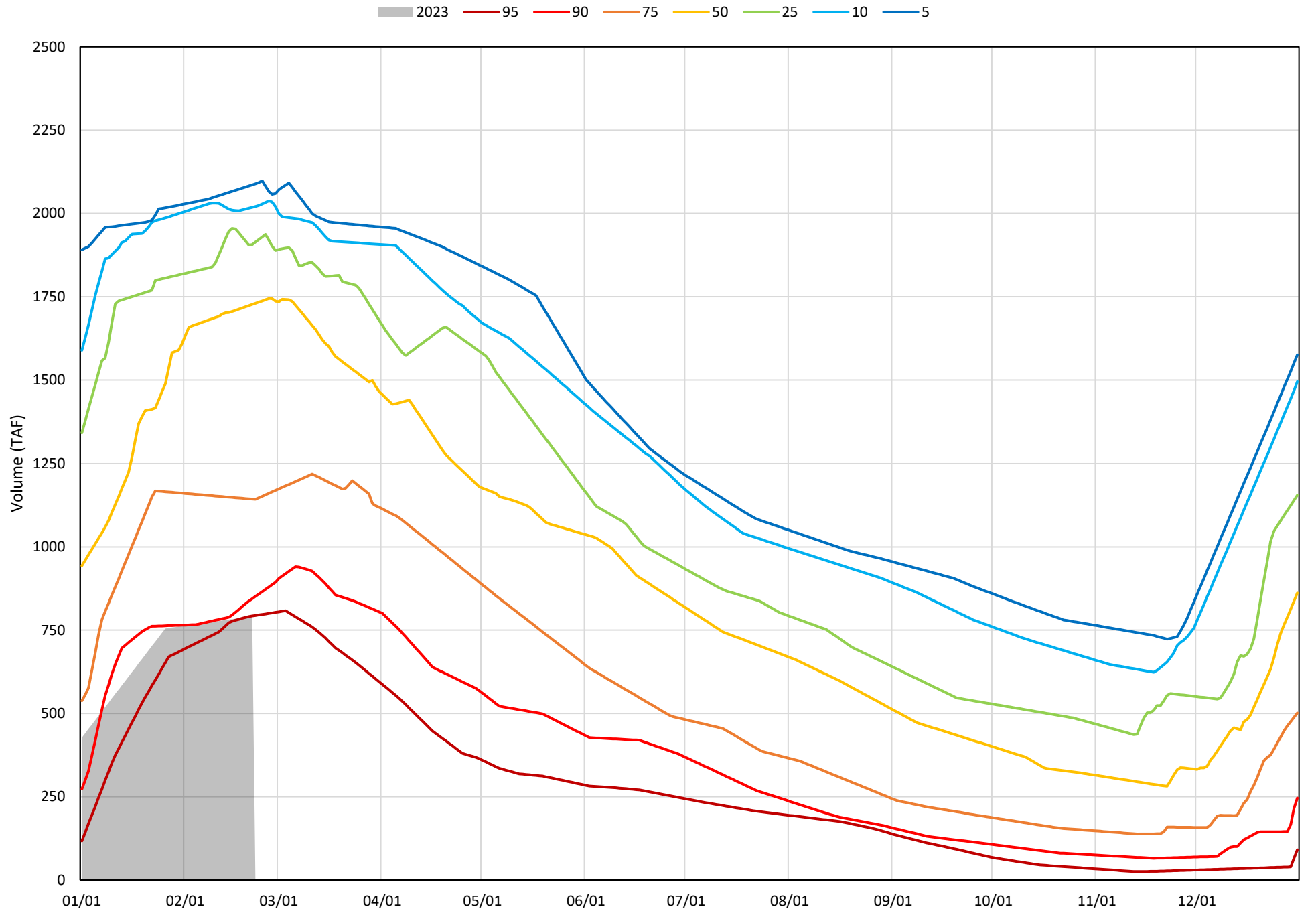


Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

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)

Feb-22 2023	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	1309	1309	1309	1309	165	165	165	165
2001	913	913	913	913	115	115	115	115
2002	935	935	935	935	118	118	118	118
2003	1118	1118	1114	1117	141	141	141	141
2004	1216	1216	1216	1216	154	154	154	154
2005	866	770	720	785	109	97	91	99
2006	1291	1291	1234	1272	163	163	156	161
2007	1082	1082	1008	1058	137	137	127	134
2008	676	676	676	676	85	85	85	85
2009	276	276	276	276	35	35	35	35
2010	346	346	346	346	44	44	44	44
2011	1075	1075	1075	1075	136	136	136	136
2012	1175	1175	1175	1175	148	148	148	148
2013	1182	1182	1182	1182	149	149	149	149
2014	388	388	351	376	49	49	44	47
2015	227	156	49	144	29	20	6	18
2016	64	64	58	62	8	8	7	8
2017	1013	1013	987	1004	128	128	125	127
2018	1001	1001	1001	1001	126	126	126	126
2019	885	885	885	885	112	112	112	112
2020	1227	1227	1101	1185	155	155	139	150
2021	477	477	477	477	60	60	60	60
2022	-11	-11	-11	11	-1	-1	-1	1
2023	0	0	0	0	0	0	0	0

Historic - Current

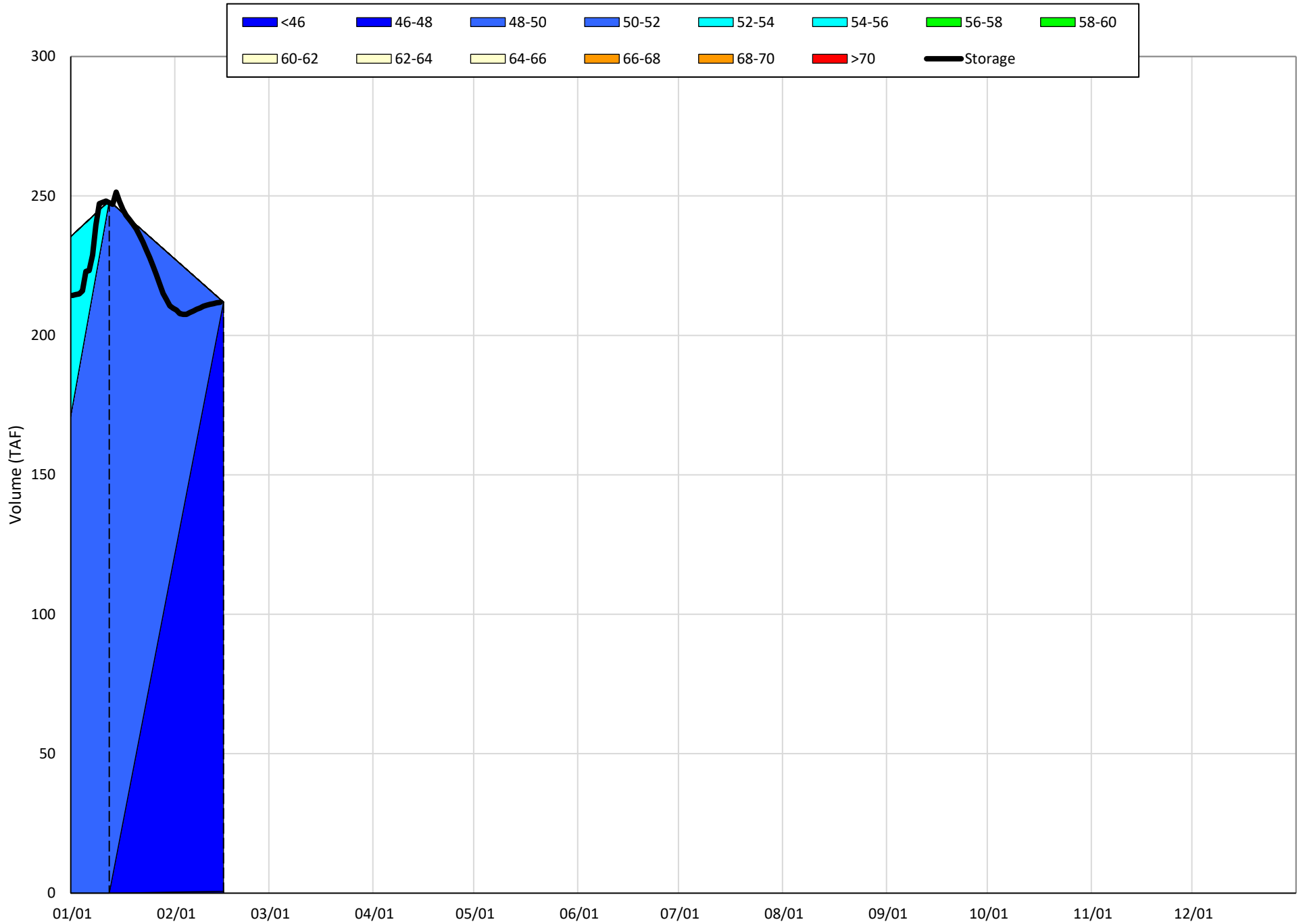
(Historic - Current) / Current

Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

2023

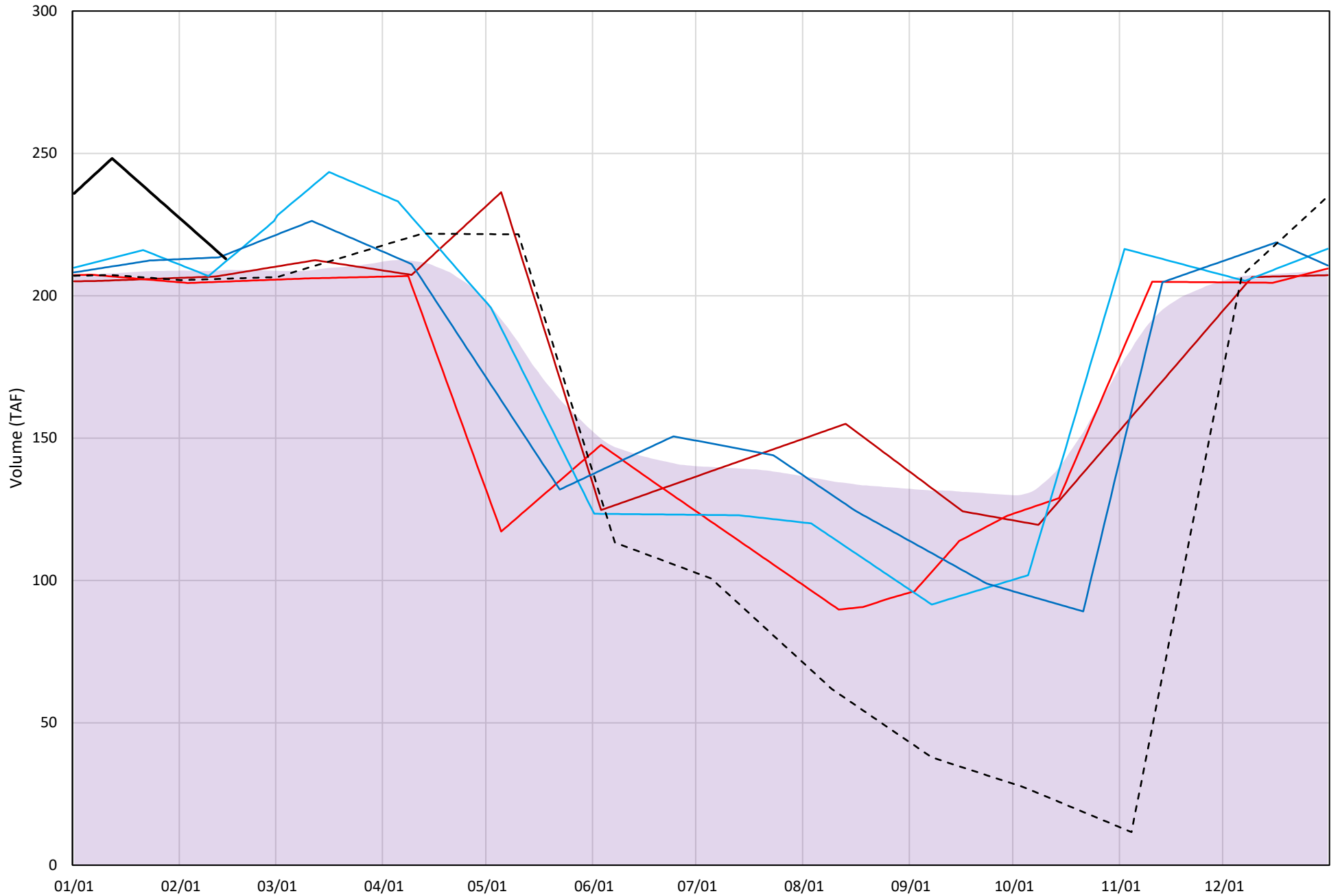
Page	Description
24	- Whiskeytown Lake Isothermobaths Plot
25	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$
26	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$
27	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$
28	- Whiskeytown Lake Cold Water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



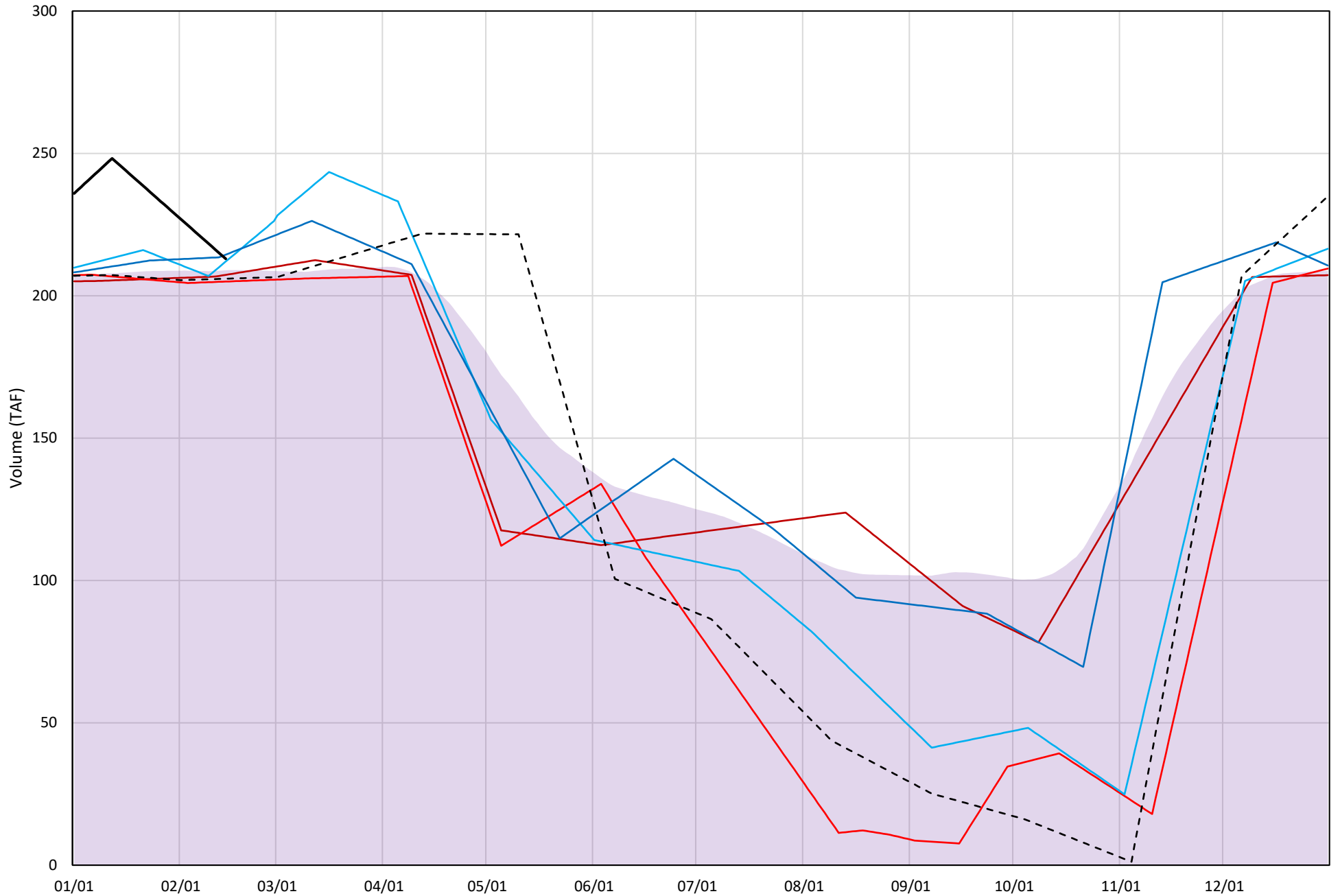
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

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



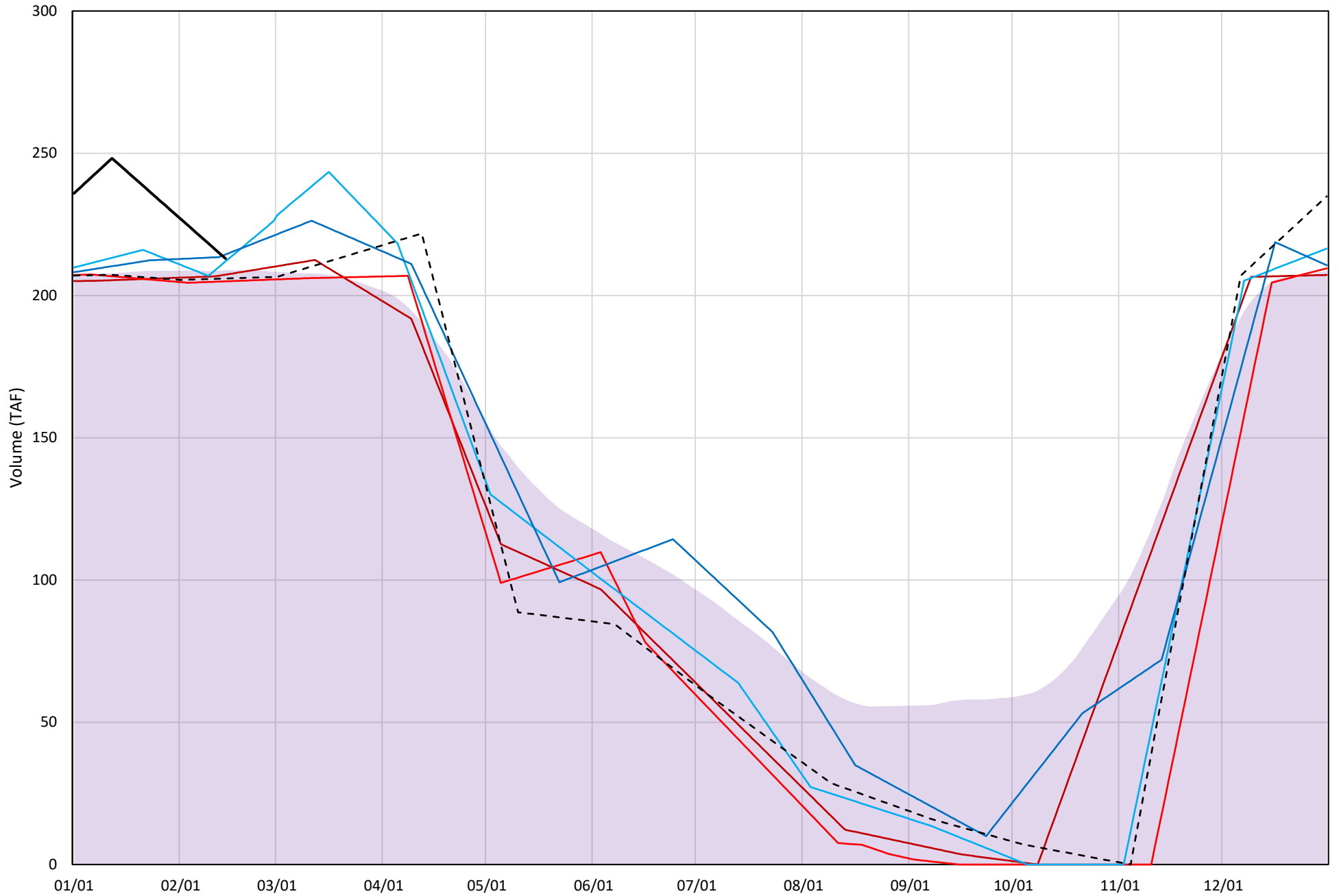
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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



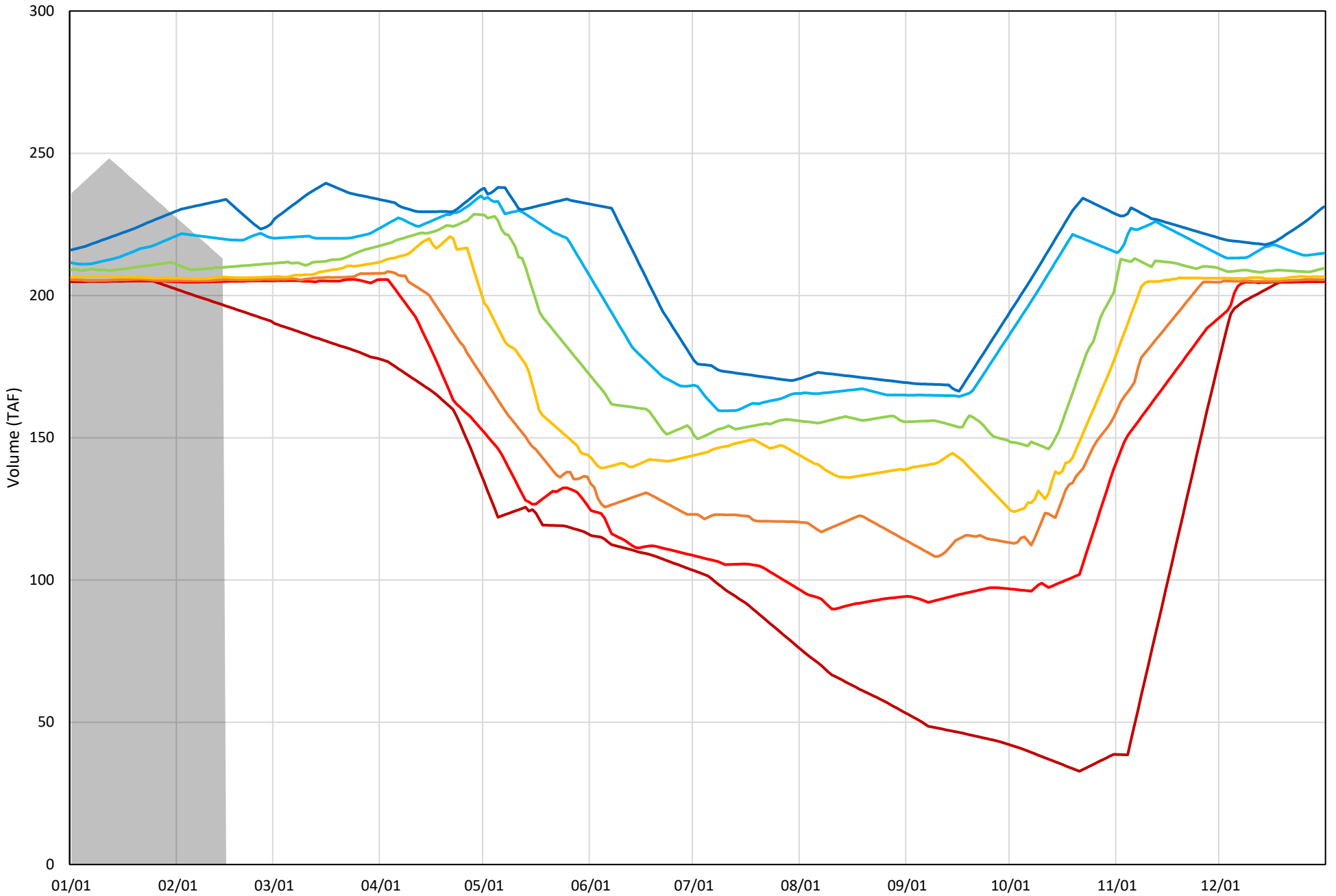
Whiskeytown Lake Cold Water Pool Volume ≤56°F

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



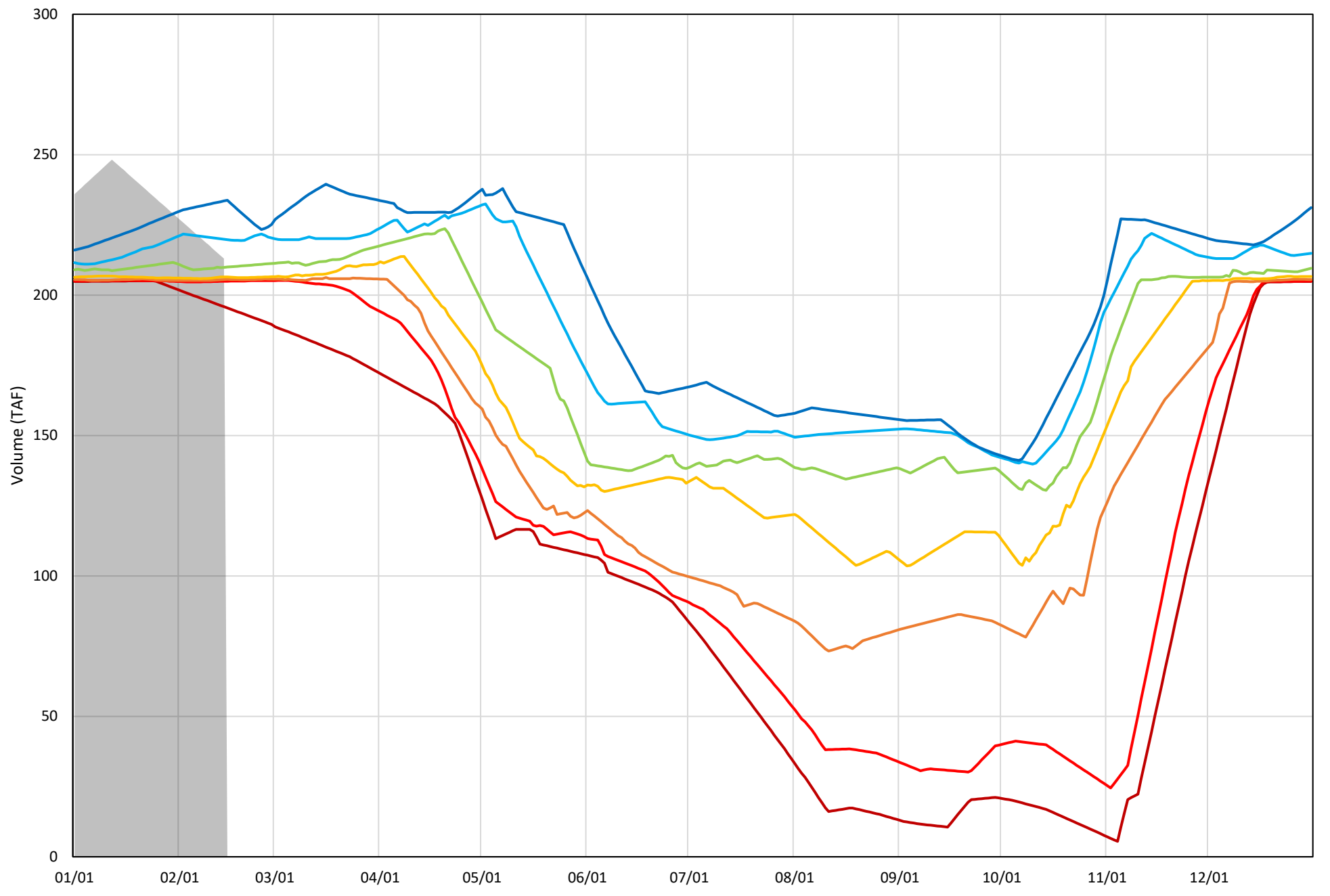
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

2023 95 90 75 50 25 10 5



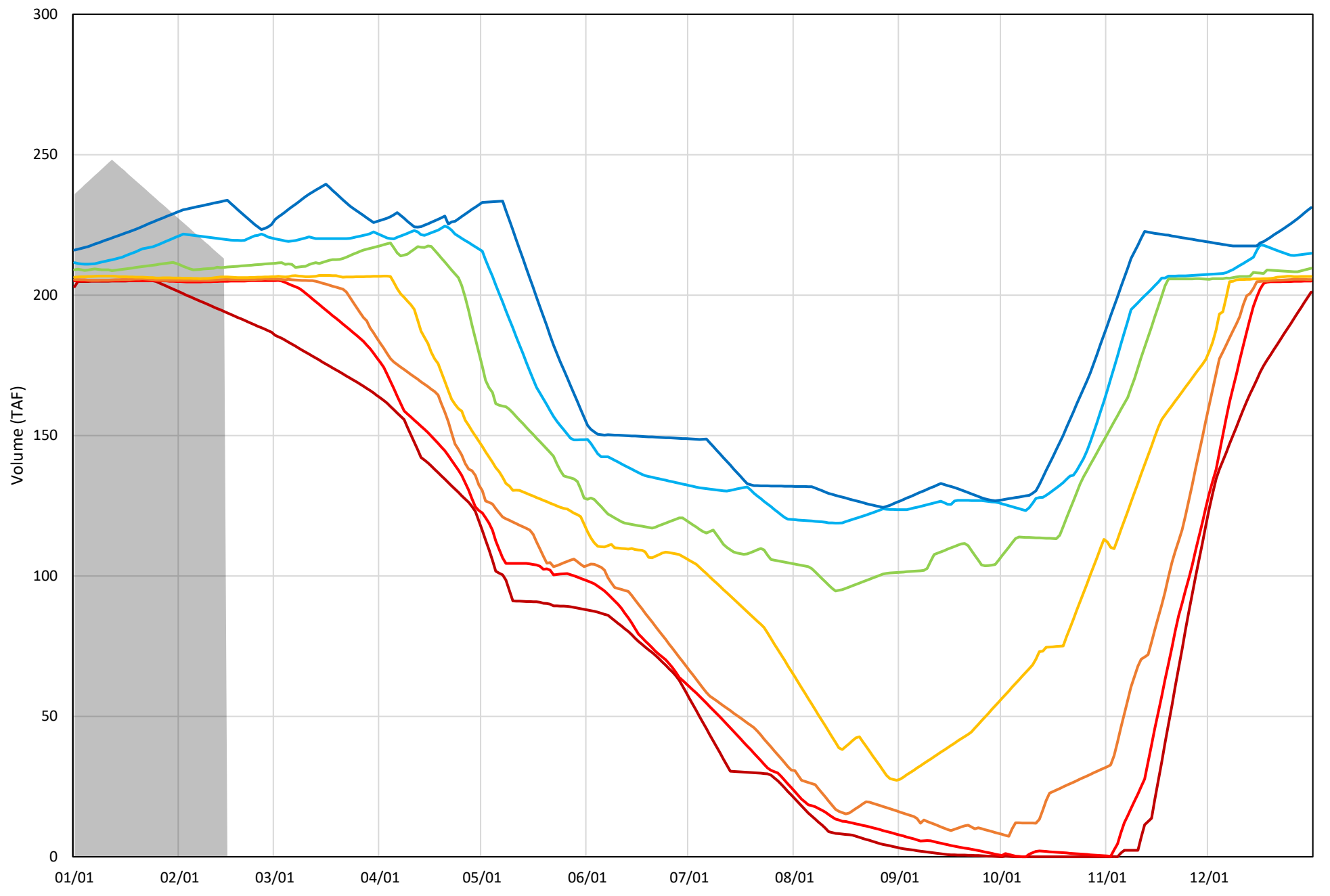
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$ - Percent Exceedances (2000-2022)

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)

Feb-15 2023	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	-5.6	-5.6	-5.6	5.6	-2.6	-2.6	-2.6	2.6
2001	6.1	6.1	6.1	6.1	2.9	2.9	2.9	2.9
2002	-7.4	-7.4	-7.4	7.4	-3.5	-3.5	-3.5	3.5
2003	-7.4	-7.4	-7.4	7.4	-3.5	-3.5	-3.5	3.5
2004	-7.2	-7.2	-7.2	7.2	-3.4	-3.4	-3.4	3.4
2005	-3.4	-3.4	-3.4	3.4	-1.6	-1.6	-1.6	1.6
2006	-7.1	-7.1	-7.1	7.1	-3.3	-3.3	-3.3	3.3
2007	-7.5	-7.5	-7.5	7.5	-3.5	-3.5	-3.5	3.5
2008	-6.4	-6.4	-6.4	6.4	-3.0	-3.0	-3.0	3.0
2009	-3.1	-3.1	-3.1	3.1	-1.5	-1.5	-1.5	1.5
2010	7.4	7.4	7.4	7.4	3.5	3.5	3.5	3.5
2011	-7.7	-7.7	-7.7	7.7	-3.6	-3.6	-3.6	3.6
2012	-18.3	-19.4	-21.5	19.7	-8.6	-9.1	-10.1	9.3
2013	-8.1	-8.1	-8.1	8.1	-3.8	-3.8	-3.8	3.8
2014	-5.7	-5.7	-5.7	5.7	-2.7	-2.7	-2.7	2.7
2015	-8.0	-8.0	-8.0	8.0	-3.8	-3.8	-3.8	3.8
2016	-1.0	-1.0	-1.0	1.0	-0.5	-0.5	-0.5	0.5
2017	23.8	23.8	23.8	23.8	11.2	11.2	11.2	11.2
2018	-7.9	-7.9	-7.9	7.9	-3.7	-3.7	-3.7	3.7
2019	1.4	1.4	1.4	1.4	0.7	0.7	0.7	0.7
2020	-6.5	-6.5	-6.5	6.5	-3.0	-3.0	-3.0	3.0
2021	-5.7	-5.7	-5.7	5.7	-2.7	-2.7	-2.7	2.7
2022	-7.0	-7.0	-7.0	7.0	-3.3	-3.3	-3.3	3.3
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Historic - Current

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(Historic - Current) / Current