

Northern CVP Water Temperature Report

September - 2022

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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
Aug	51.0	49.8	58.2	52.6	54.0	55.4	58.7	61.5	63.6	59.5	56.8	62.5	67.9	3687	353	4565	85.7	80.5	80.2
09/01	52.2 ?	51.1	57.4	53.1	54.3	55.5	58.5	60.9	63.1	59.5	55.8	58.1	61.9	3958	88	4391	85.5	78.5	81.2
09/02	52.3 ?	50.7	57.9	53.1	54.6	55.8	58.8	61.2	62.9	59.7	55.5	58.2	62.0	4141	76	4391	87.0	80.8	83.1
09/03	52.7	50.8	57.8	52.8	54.1	55.5	58.7	61.3	63.3	59.5	55.7	58.0	62.0	3647	87	4393	83.5	80.9	80.9
09/04	53.0	51.2	58.0	52.7	54.0	55.2	58.1	60.5	62.6	59.7	56.0	58.2	61.9	3706	86	4393	86.0	78.5	81.5
09/05	53.2 ?	51.0	58.0	52.9	54.2	55.4	58.3	60.7	62.4	60.1	56.2	58.5	62.2	3939	82	4297	90.5	83.5	85.8
09/06	53.2 ?	51.0	58.0	53.0	54.2	55.4	58.7	61.3	63.0	59.8	56.6	59.0	62.6	4030	75	4278	↑ 94.5	85.8	87.9
09/07	53.3 ?	51.3	58.1	53.0	54.3	55.4	58.5	61.1	63.1	60.0	56.3	58.1	61.9	2913	75	4291	91.0	83.8	85.1
09/08	53.6 ?	51.3	58.1	53.3	54.6	56.0	58.9	61.3	63.3	60.5	55.7	58.5	61.6	3373	74	4289	93.0	85.5	88.4
09/09	53.5 ?	51.7	58.0	53.6	54.9	56.2	59.3	61.7	63.5	60.1	55.1	58.0	62.3	3873	74	4268	96.0	86.0	89.3
09/10	54.0 ?	51.8	58.0	53.4	54.5	55.7	58.9	61.2	63.1	59.5	55.7	57.5	61.2	3651	74	4223	85.5	79.0	79.8
09/11	53.9 ?	52.1	58.2	53.3	54.0	55.0	57.7	59.7	61.6	59.4	55.8	56.8	59.9	4187	74	4209	79.5	74.8	74.3
09/12	53.7	51.7	58.1	53.4	54.6	55.8	58.1	59.7 ?	60.9	60.1	55.5	57.8	60.5	3582	80	4110	82.0	76.5	76.4
09/13	54.3	52.3	58.3	53.3	54.4	55.6	58.6	60.6 ?	62.0	59.5	55.4	57.3	60.8	3084	74	4106	74.0	70.1	71.3
09/14	54.4 ?	52.8	58.3	53.6	54.6	55.7	58.3	60.1	61.8	58.9	55.5	57.1	60.2	3512	74	4106	69.5	66.1	66.4
09/15	54.2	52.3	58.3	53.8	54.8	55.7	58.1	59.6 ?	61.4	56.6	55.6	57.1	60.1	3697	75	4106	70.0	65.4	66.5
09/16	54.4	52.5	58.3	53.8	54.8	55.9	58.1	59.5 ?	62.2	56.4	55.4	57.0	60.1	3797	74	4103	72.0	66.8	71.3
09/17	54.3	52.6	58.4	53.8	54.5	55.3	57.8	59.1	60.7	55.9	55.5	56.1	59.1	3863	74	4106	69.0	65.5	65.7
09/18	54.5	52.7	58.6	53.9	54.4	55.0	57.1	58.2	59.5	55.4	55.4	55.4	57.3	3749	74	4106	64.0	61.7	62.0
09/19	54.6	52.9	59.0	53.7	54.6	55.4	57.1	58.2 ?	59.3	56.5	55.2	55.8	57.7	3651	51	4103	66.5	63.2	64.9
09/20	54.0	53.4	59.3	53.6	54.6	55.7	57.5	59.6 ?	60.4	56.6	54.8	55.9	58.8	3481	40	4108	69.0	64.6	65.5
09/21	53.7	53.4	59.6	53.9	54.4	55.2	57.3	59.0 ?	60.5	55.7	55.1	55.5	57.9	3760	39	4105	68.0	62.5	64.2
09/22	53.8	53.5	59.5	54.3	55.1	55.9	57.3	58.6	59.9	56.2	55.1	56.5	58.7	3530	39	4108	70.5	64.4	66.8
09/23	54.2	53.7	59.8	54.4	55.3	56.2	58.3	59.6	60.6	56.6	54.9	57.6	60.8	3414	39	4106	78.5	68.4	72.0
09/24	54.4	54.0	59.8	54.6	55.6	56.4	58.5	60.0	61.4	56.5	55.5	57.5	61.2	3264	40	4105	77.5	70.6	72.3
09/25	54.2	54.1	59.9	55.0	55.9	56.7	58.8	60.3 ?	61.7	56.6	55.2	57.6	61.0	3377	39	4106	78.5	72.1	74.8
09/26	54.2	54.1	60.0	55.2	56.2	57.1	59.3	60.8	62.2	56.8	54.1	57.8	61.5	4216	40	4105	79.0	73.1	74.9
09/27	54.5	54.5	60.2	55.2	56.1	57.0	59.3	60.9	62.4	56.6	53.3	57.2	61.7	3830	39	4105	76.5	69.9	70.8
09/28	54.7	54.6	60.2	55.2	56.0	56.7	58.8	60.1 ?	61.8	56.4	53.2	56.4	60.8	3760	39	4107	71.5	66.6	67.8
09/29	54.9	55.0	60.2	55.4	56.2	57.0	58.8	59.9	61.3	56.4	53.0	55.9	59.9	3703	39	4104	73.5	67.9	71.1
09/30	55.0	54.9	60.3	55.7	56.5	57.2	58.9	60.1 ?	61.3	56.1	52.9	55.3	59.3	3841	38	4105	83.0	72.5	74.5
-																			
Sep	53.9	52.6	58.8	53.9	54.9	55.9	58.3	60.2	61.8	57.9	55.2	57.2	60.6	3684	62	4181	78.8	72.8	74.6

Total CFS	110529	1872	125433
Total AF	219230	3713	248791

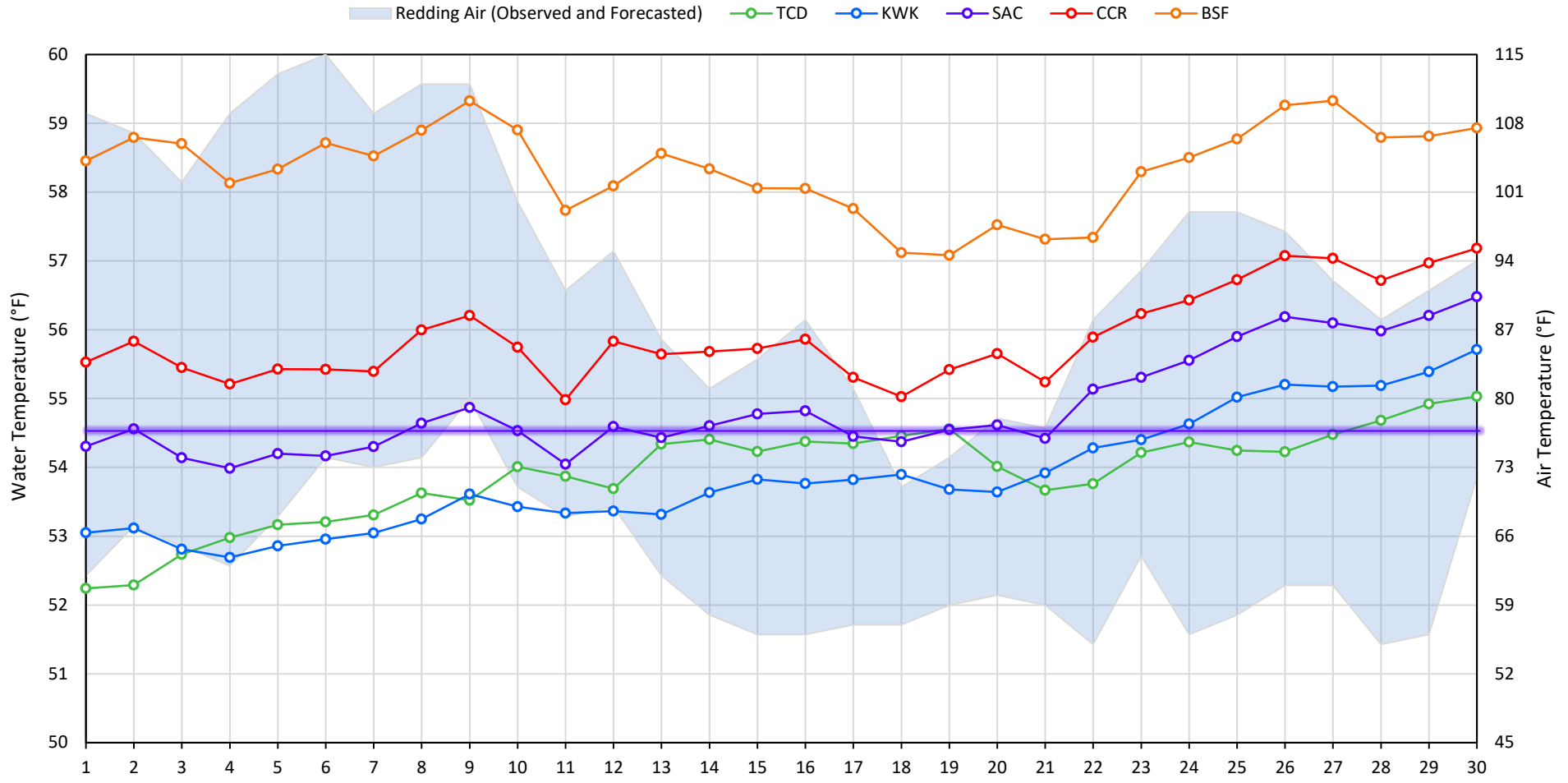
Legend

- ? = 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



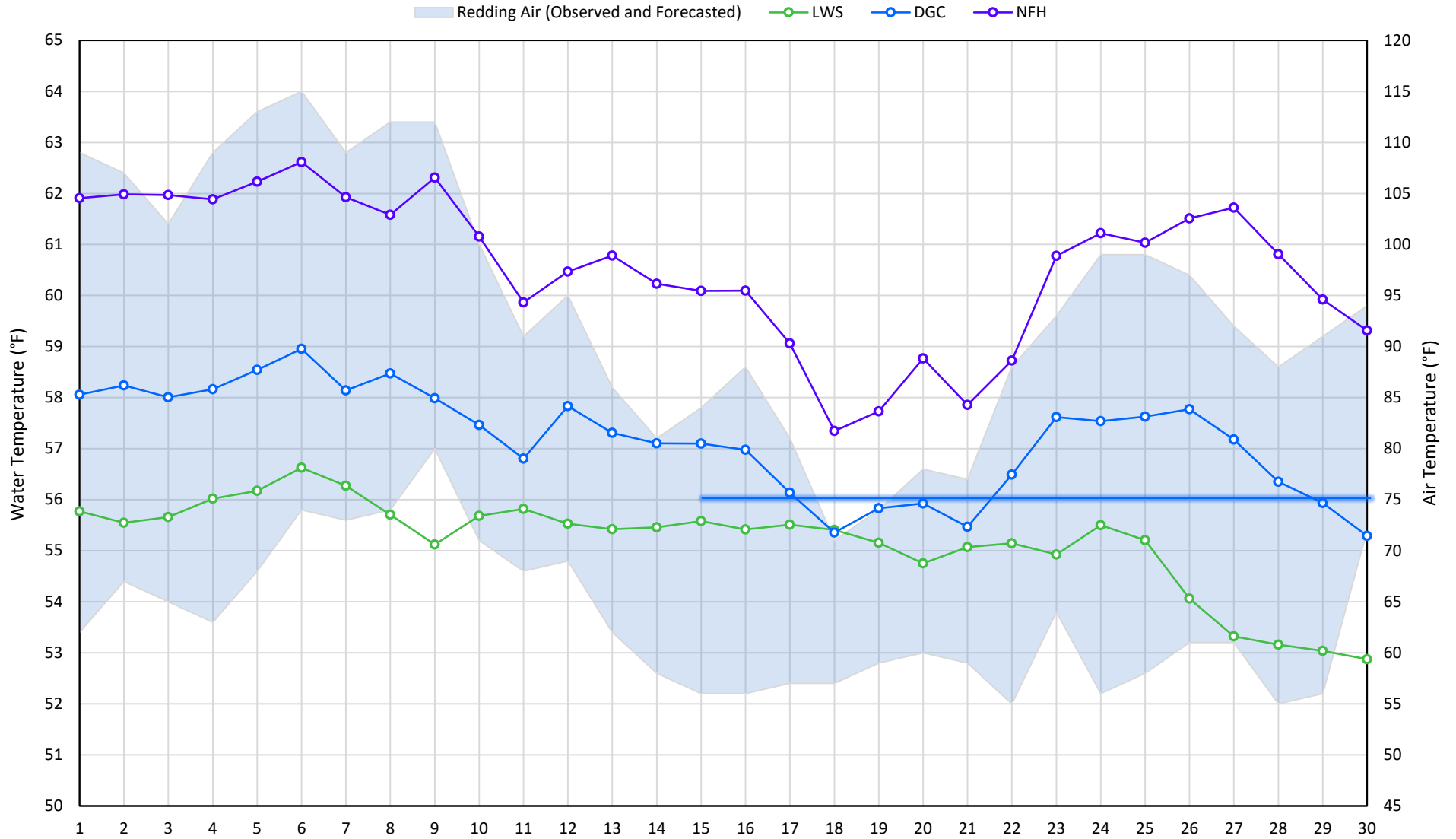
Station Details			
Code	Body of Water	Location ¹	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles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

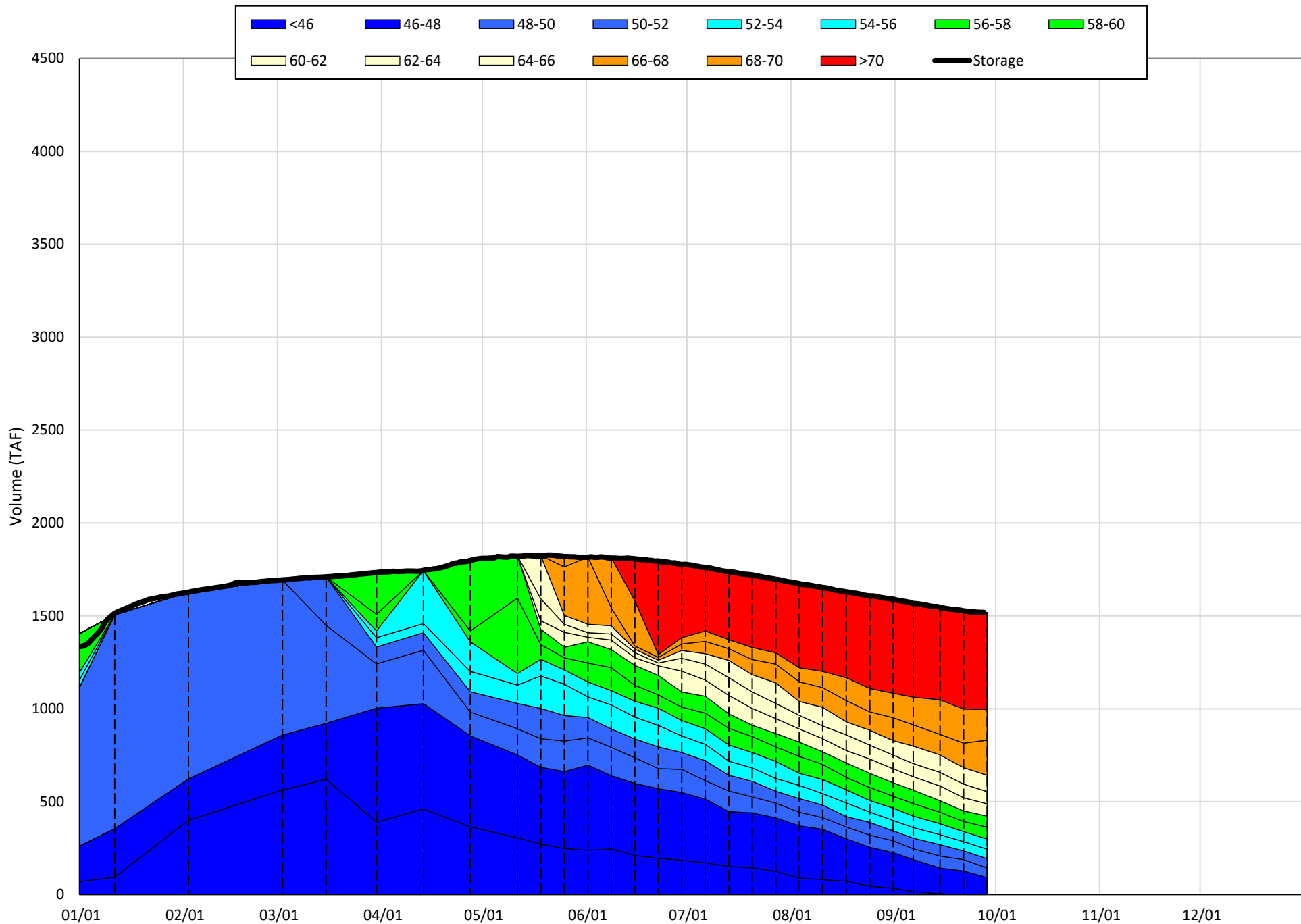
¹ Distances are approximate

Shasta Lake Isothermobaths & Cold Water Pool Statistics

2022

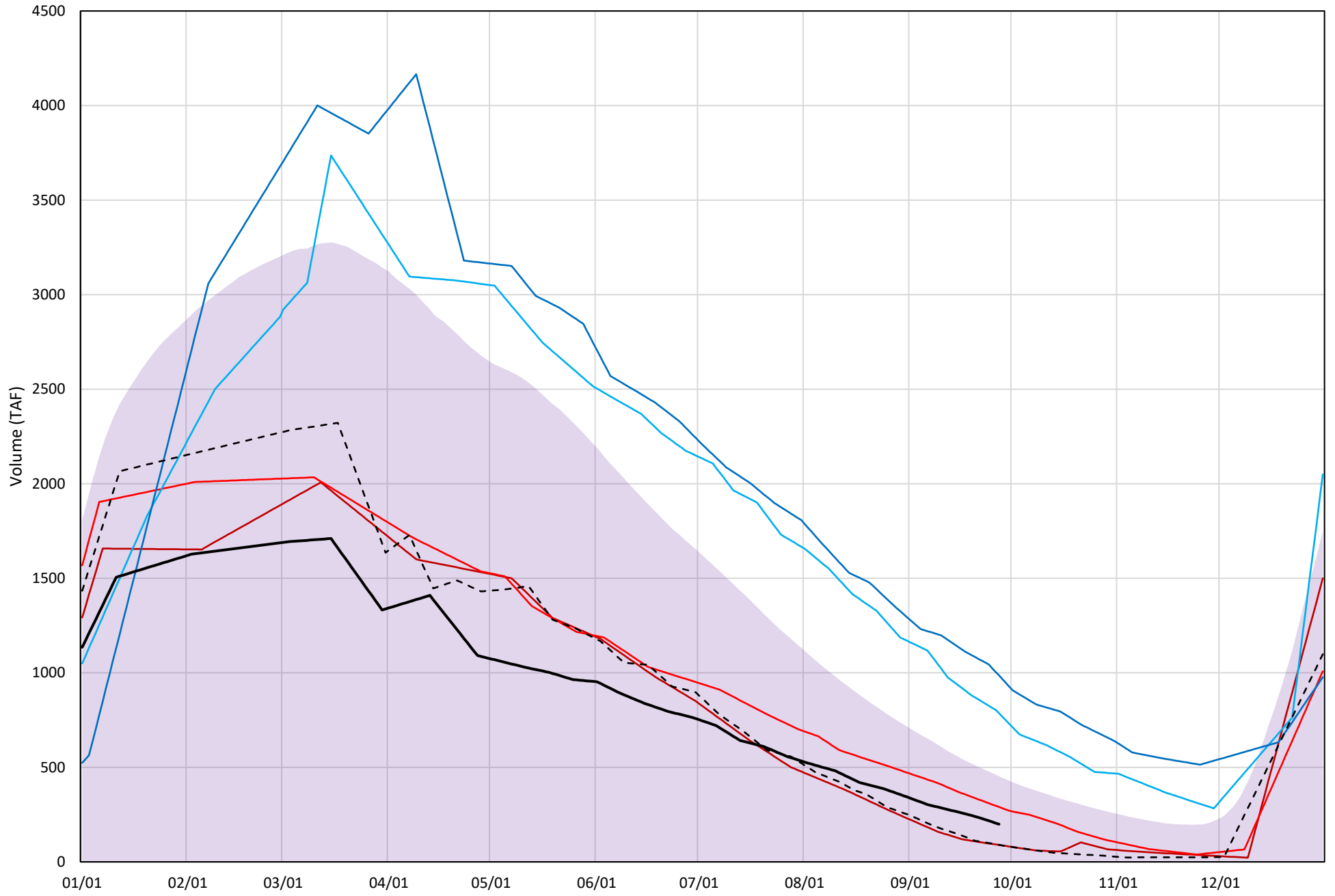
Page	Description
6	- Shasta Lake Isothermobaths Plot
7	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
8	- Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
9	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
10	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - 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 - 2022



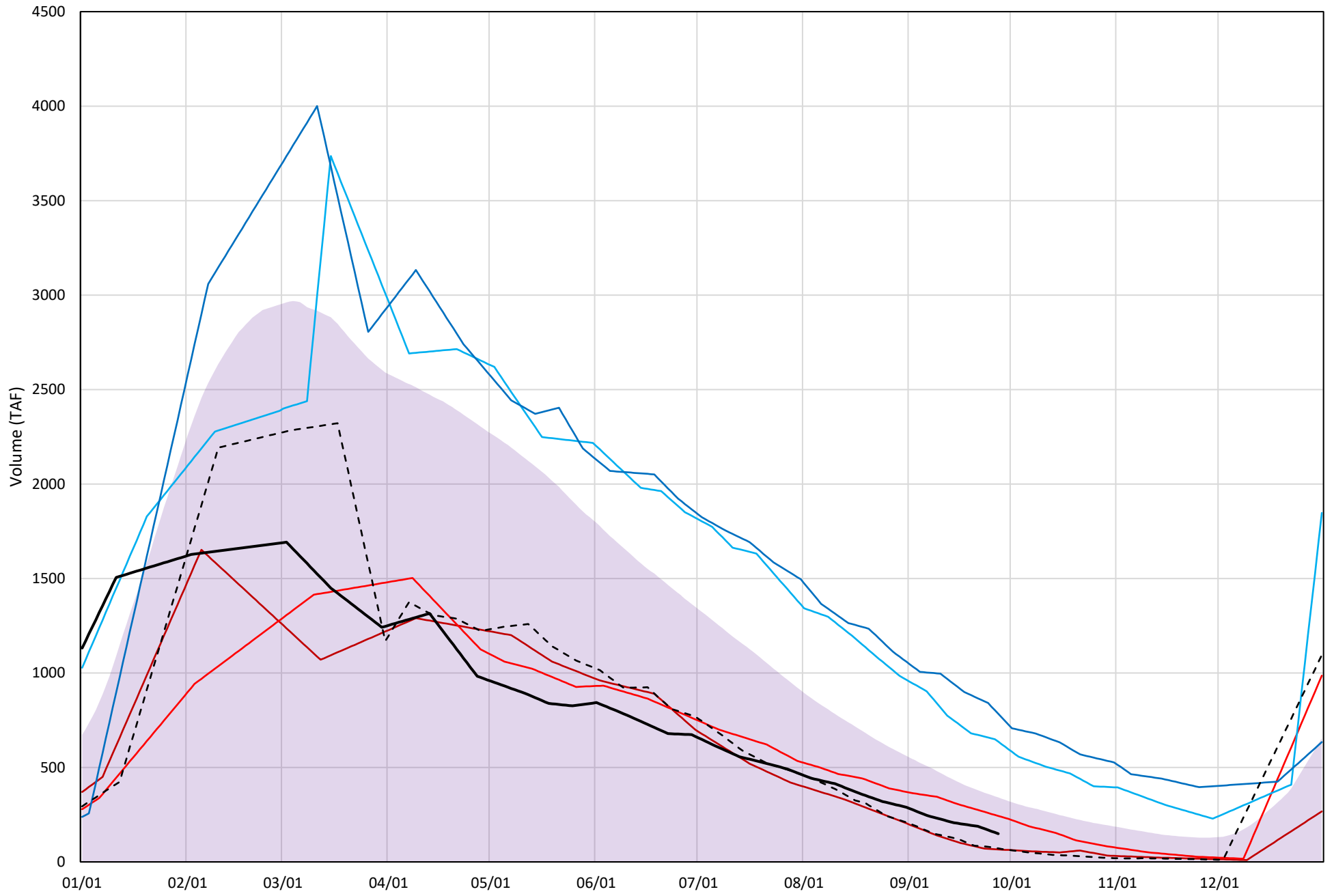
Shasta Lake Cold Water Pool Volume ≤52°F

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



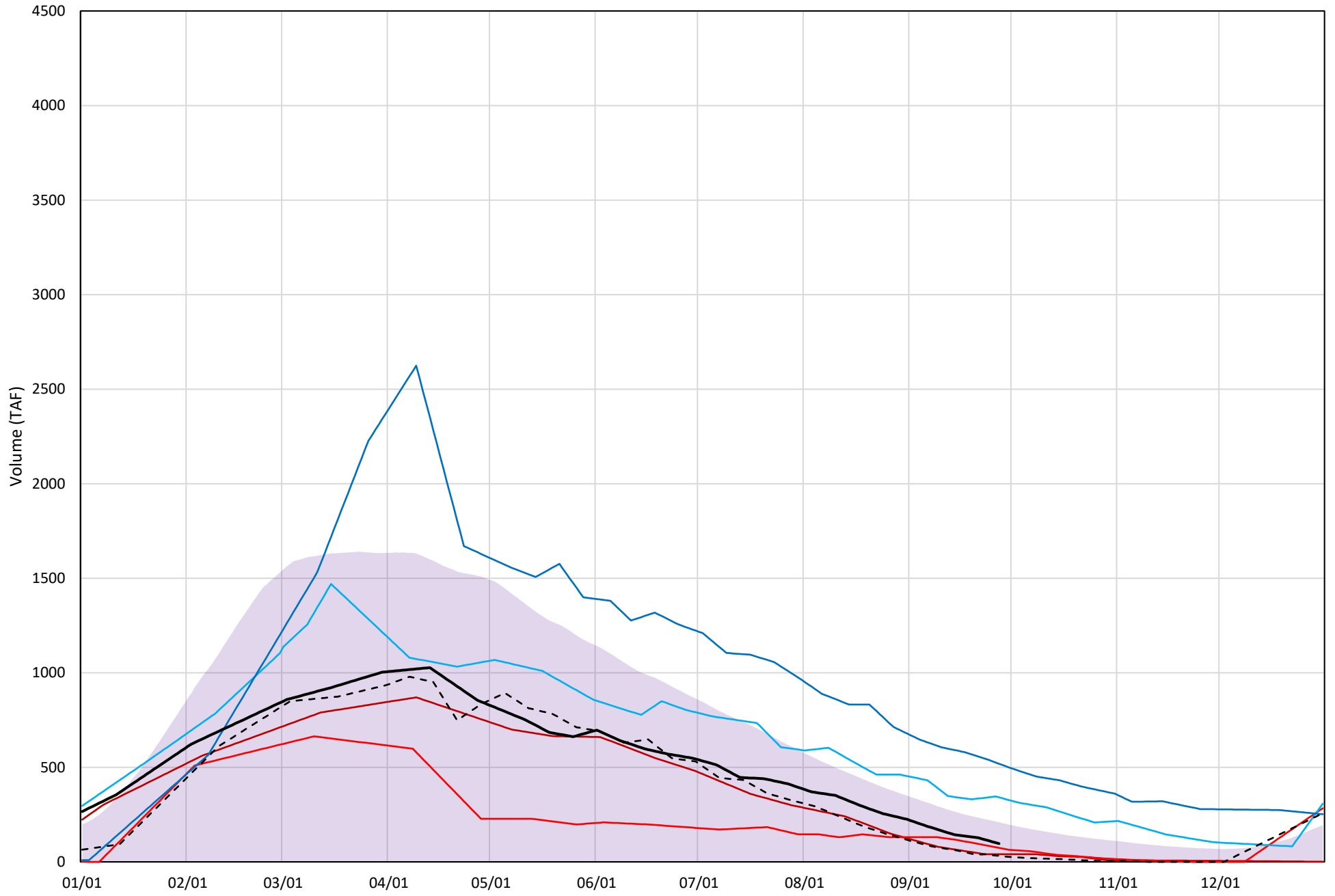
Shasta Lake Cold Water Pool Volume ≤50°F

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



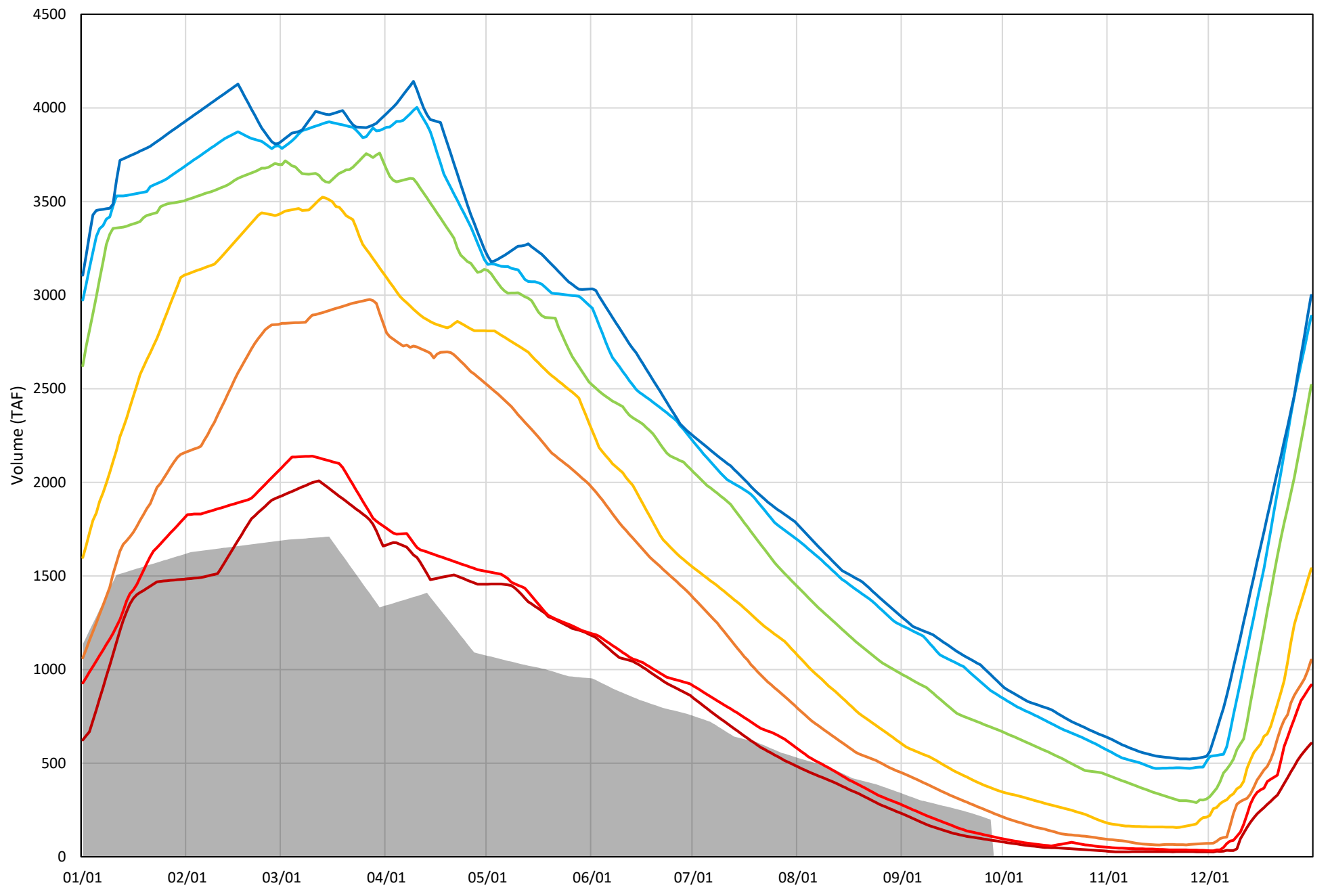
Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

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



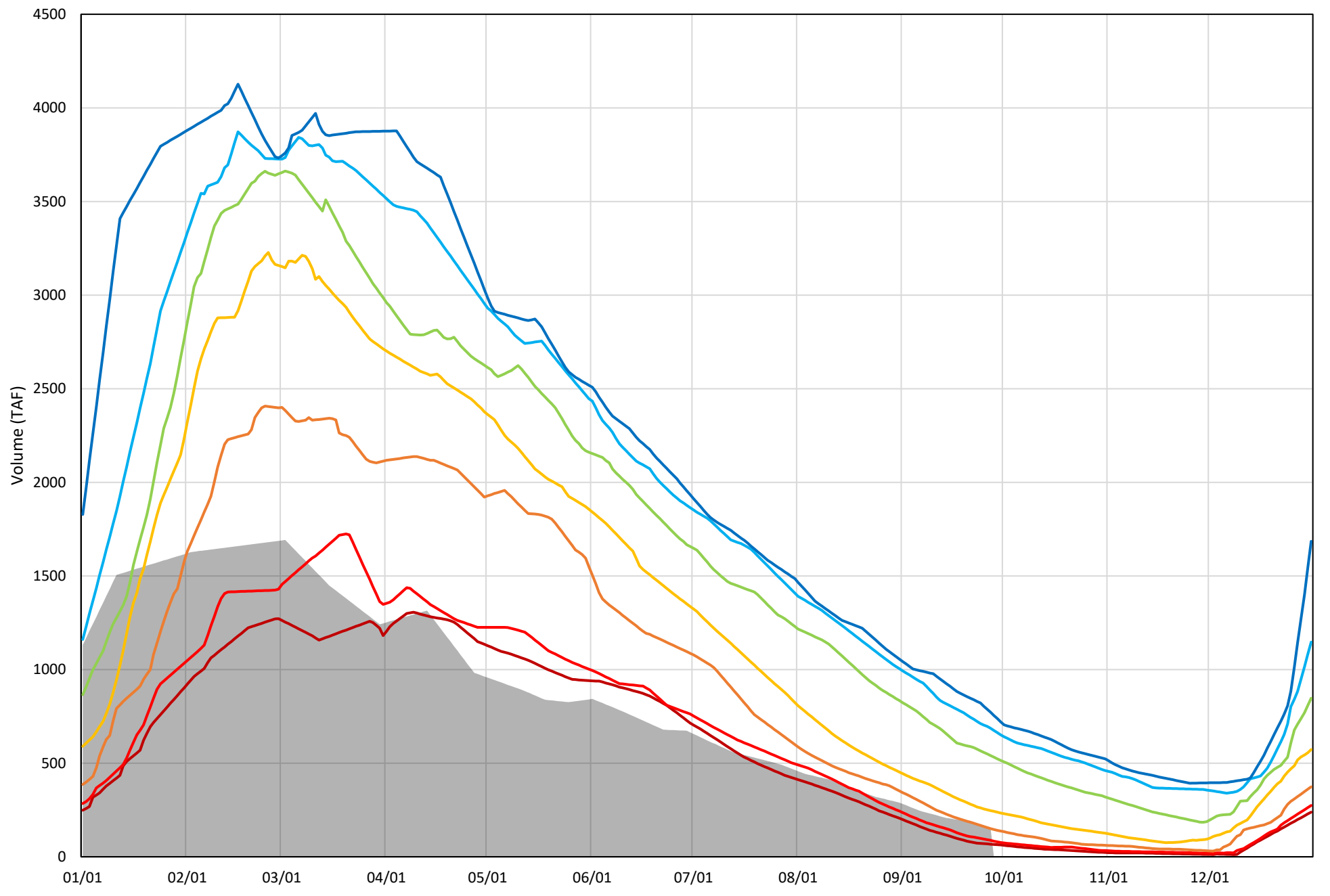
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

2022 95 90 75 50 25 10 5



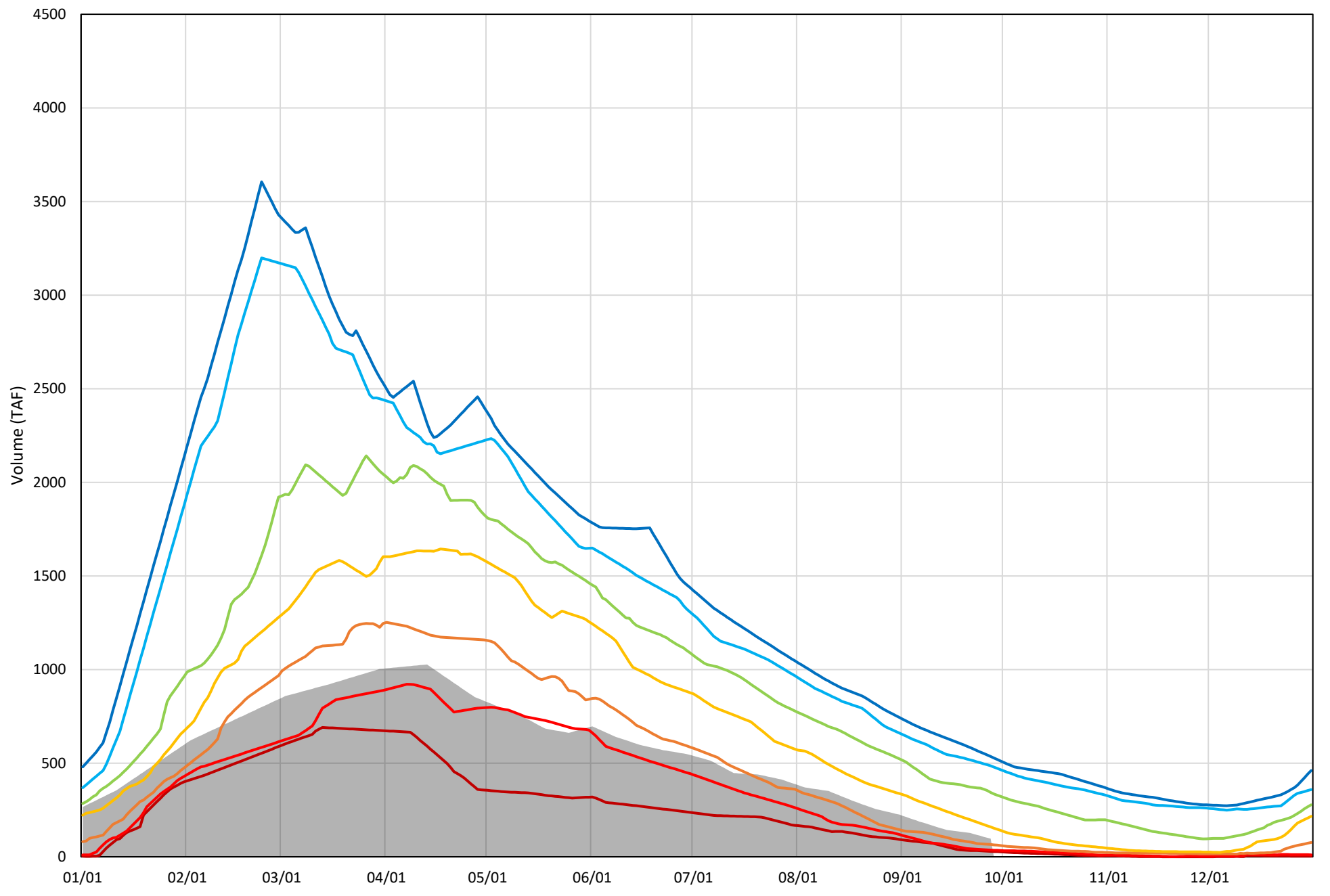
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

2022 95 90 75 50 25 10 5



Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

2022 95 90 75 50 25 10 5



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

Sep-28 2022	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
1998	95	-11	-68	58	48	-7	-71	42
1999	516	425	328	423	259	285	339	294
2000	162	57	-38	86	81	38	-40	53
2001	105	91	79	91	53	61	82	65
2002	284	252	248	261	142	169	257	189
2003	288	96	-42	142	145	64	-43	84
2004	-9	-25	-30	21	-4	-17	-31	17
2005	33	-10	-31	25	17	-7	-33	19
2006	303	245	149	232	152	164	154	157
2007	54	57	47	53	27	38	48	38
2008	-69	-46	-22	46	-35	-31	-23	29
2009	35	34	33	34	18	23	35	25
2010	577	395	207	393	289	265	214	256
2011	736	586	444	589	369	392	460	407
2012	427	382	269	359	214	256	278	249
2013	167	178	162	169	84	119	168	124
2014	-110	-83	-57	83	-55	-56	-59	57
2015	91	94	-23	69	46	63	-23	44
2016	586	487	245	439	294	326	253	291
2017	641	471	357	490	322	316	369	336
2018	325	269	102	232	163	181	106	150
2019	786	634	422	614	394	425	437	419
2020	172	99	-6	92	86	66	-6	53
2021	-109	-78	-65	84	-55	-52	-67	58
2022	0	0	0	0	0	0	0	0

}

Historic - Current

}

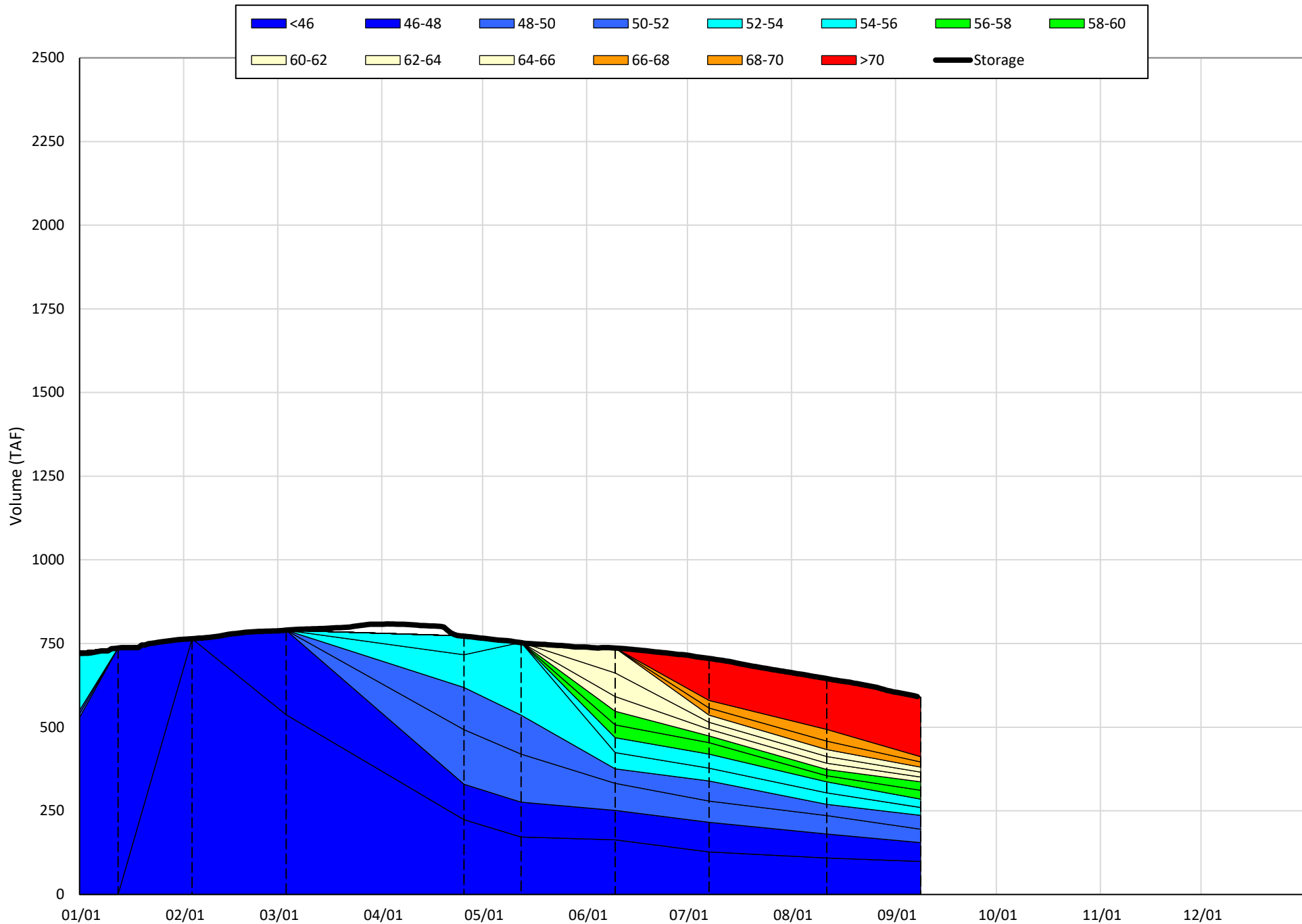
(Historic - Current) / Current

Trinity Lake Isothermobaths & Cold Water Pool Statistics

2022

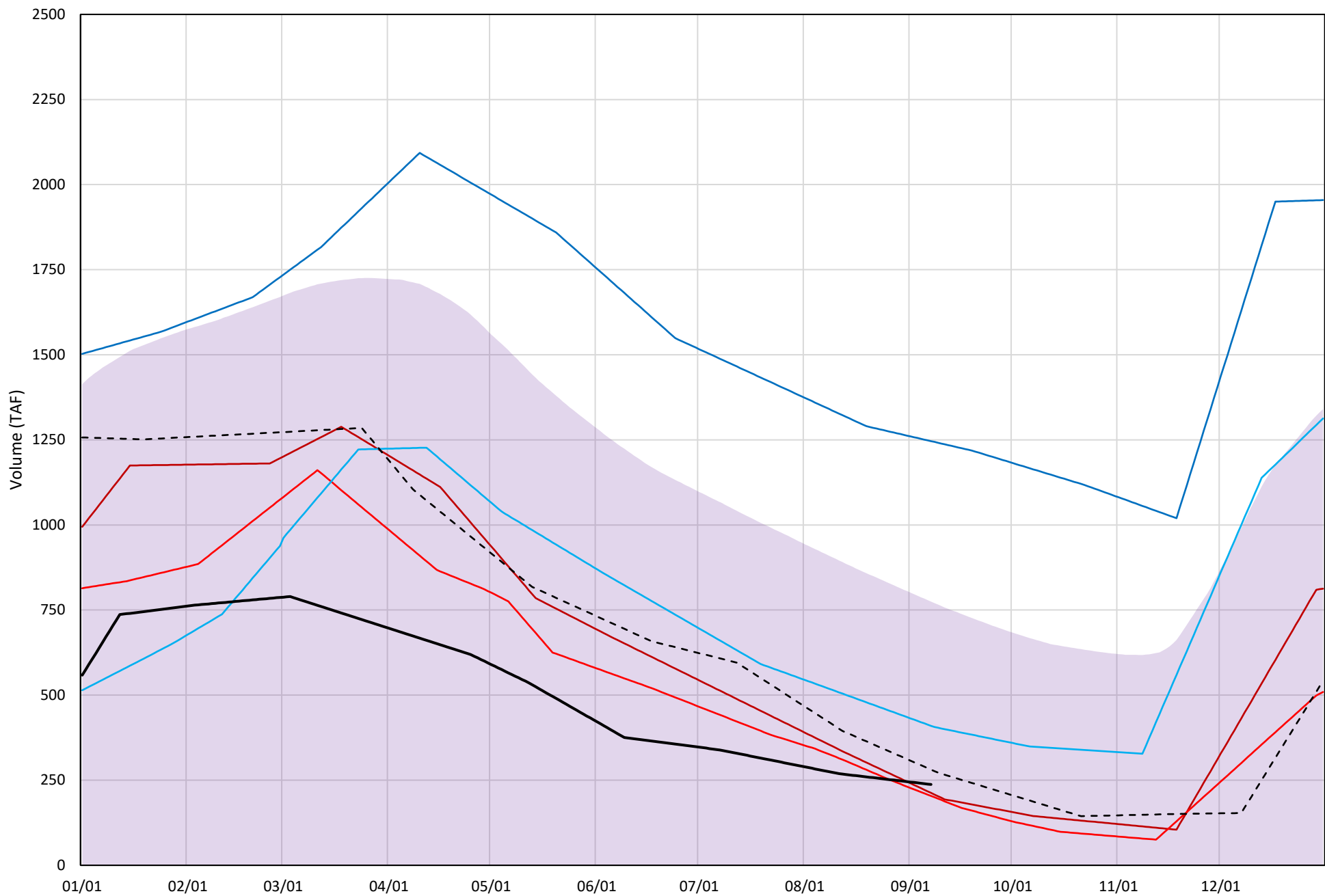
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - 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 - 2022



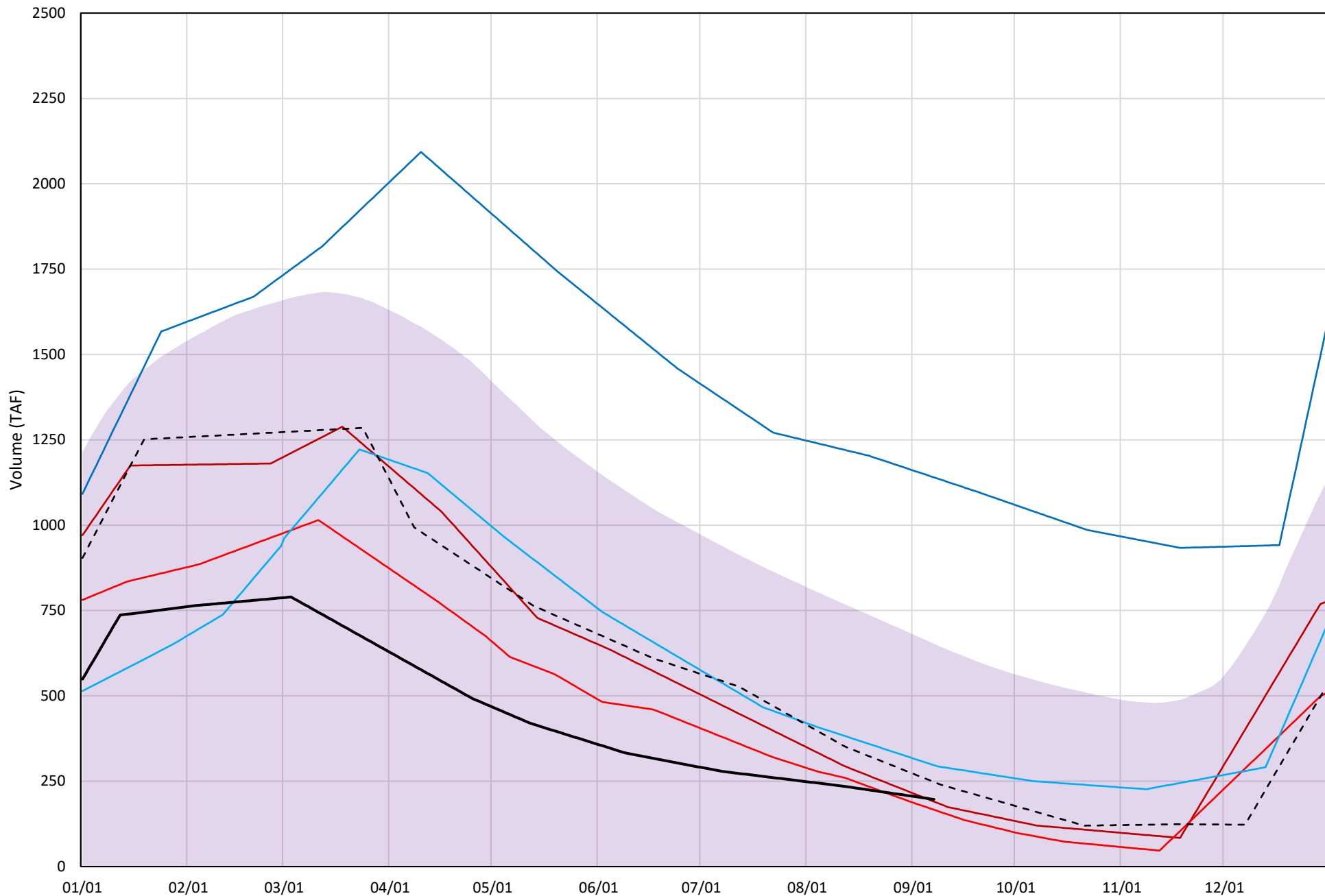
Trinity Lake Cold Water Pool Volume ≤52°F

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



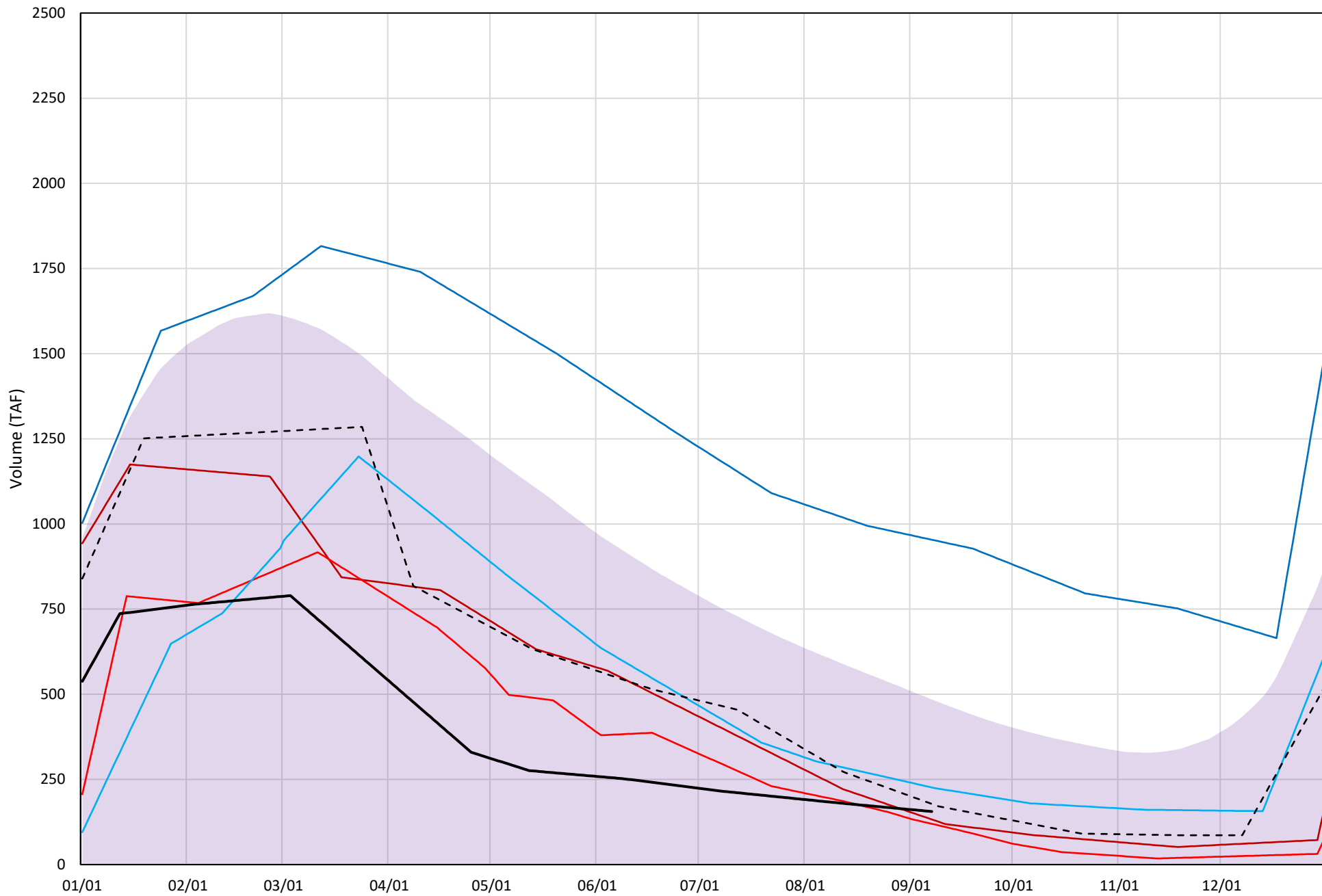
Trinity Lake Cold Water Pool Volume ≤50°F

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

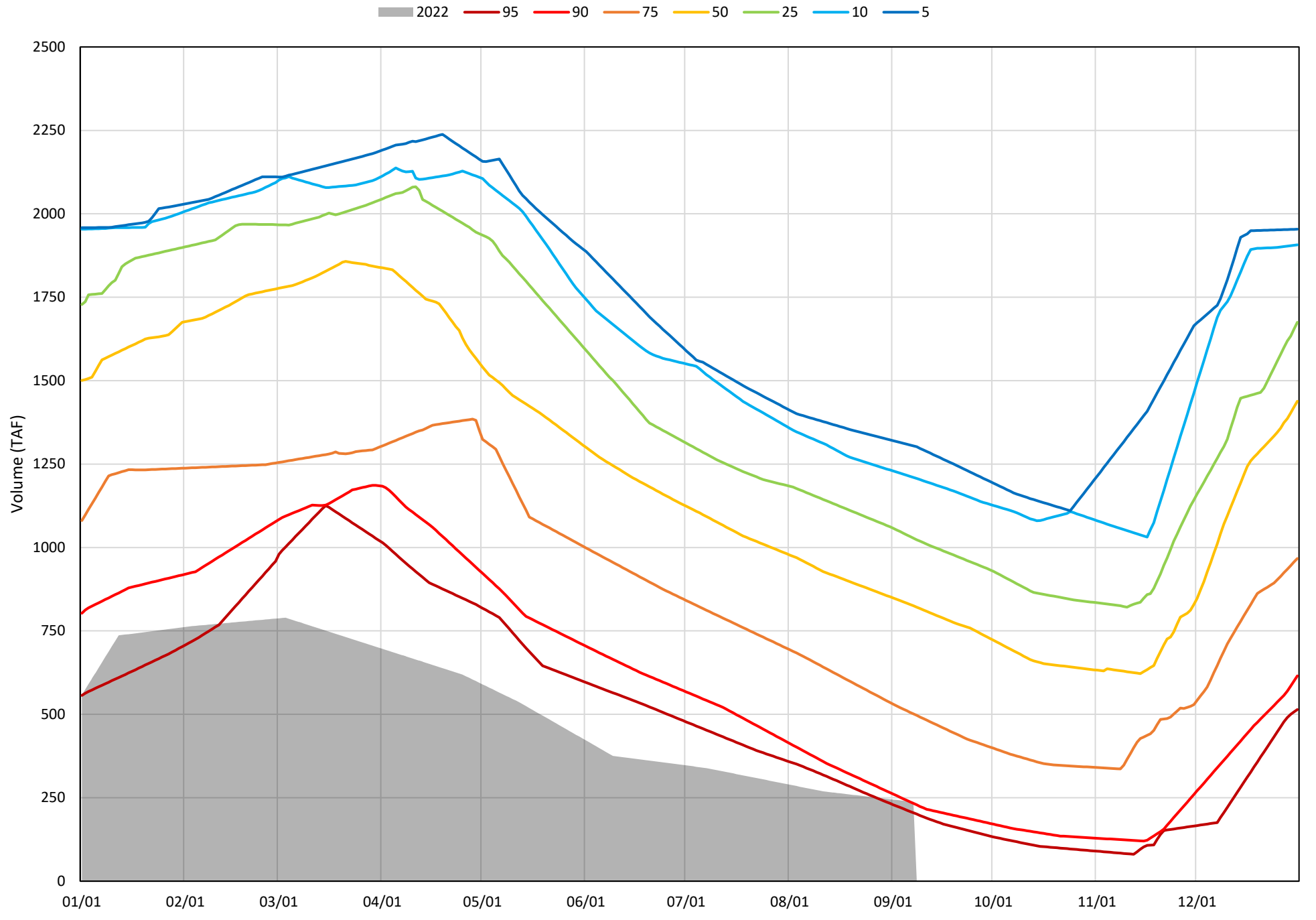


Trinity Lake Cold Water Pool Volume ≤48°F

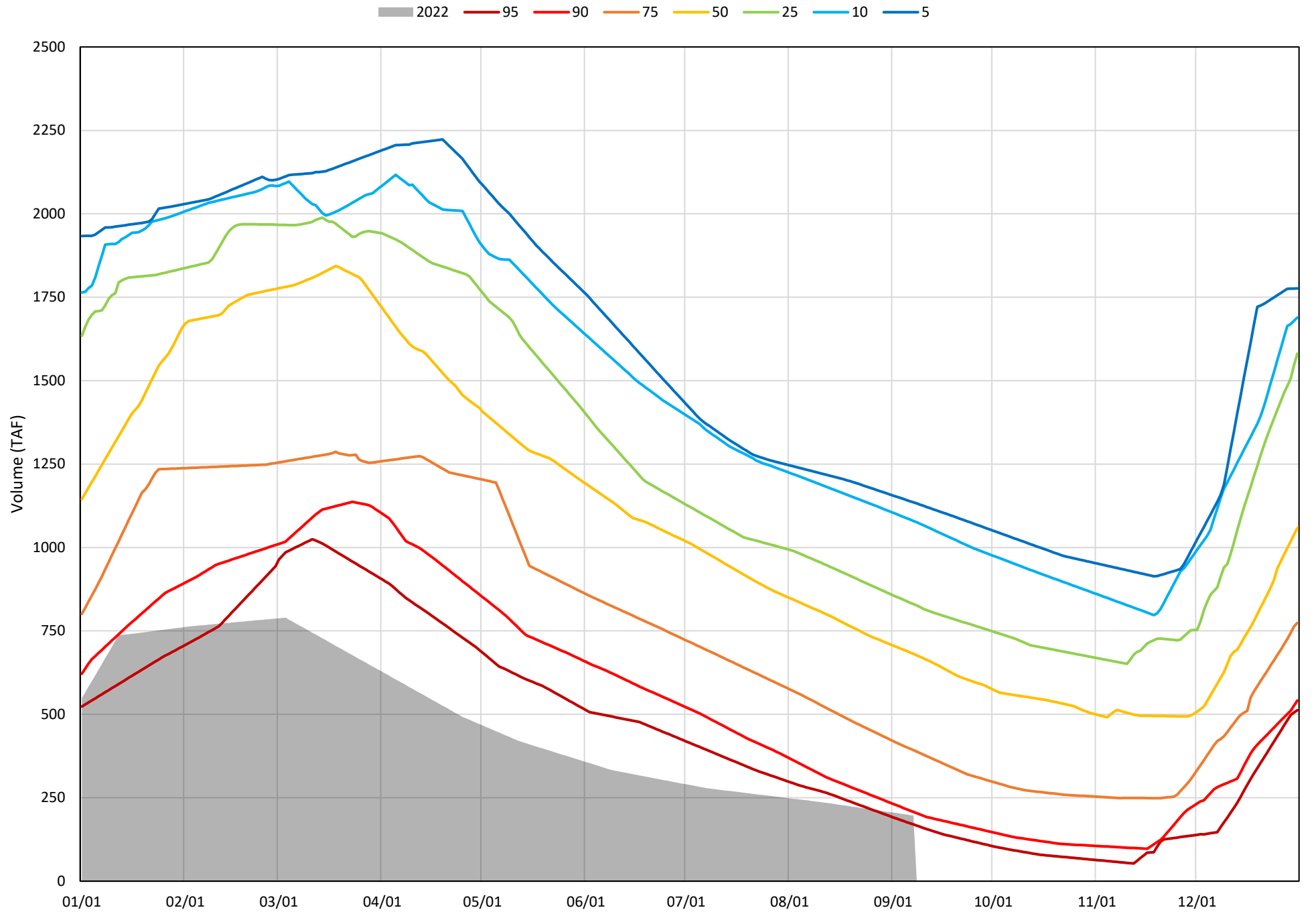
Avg (2000-2021) 2014 2015 2016 2019 2021 2022



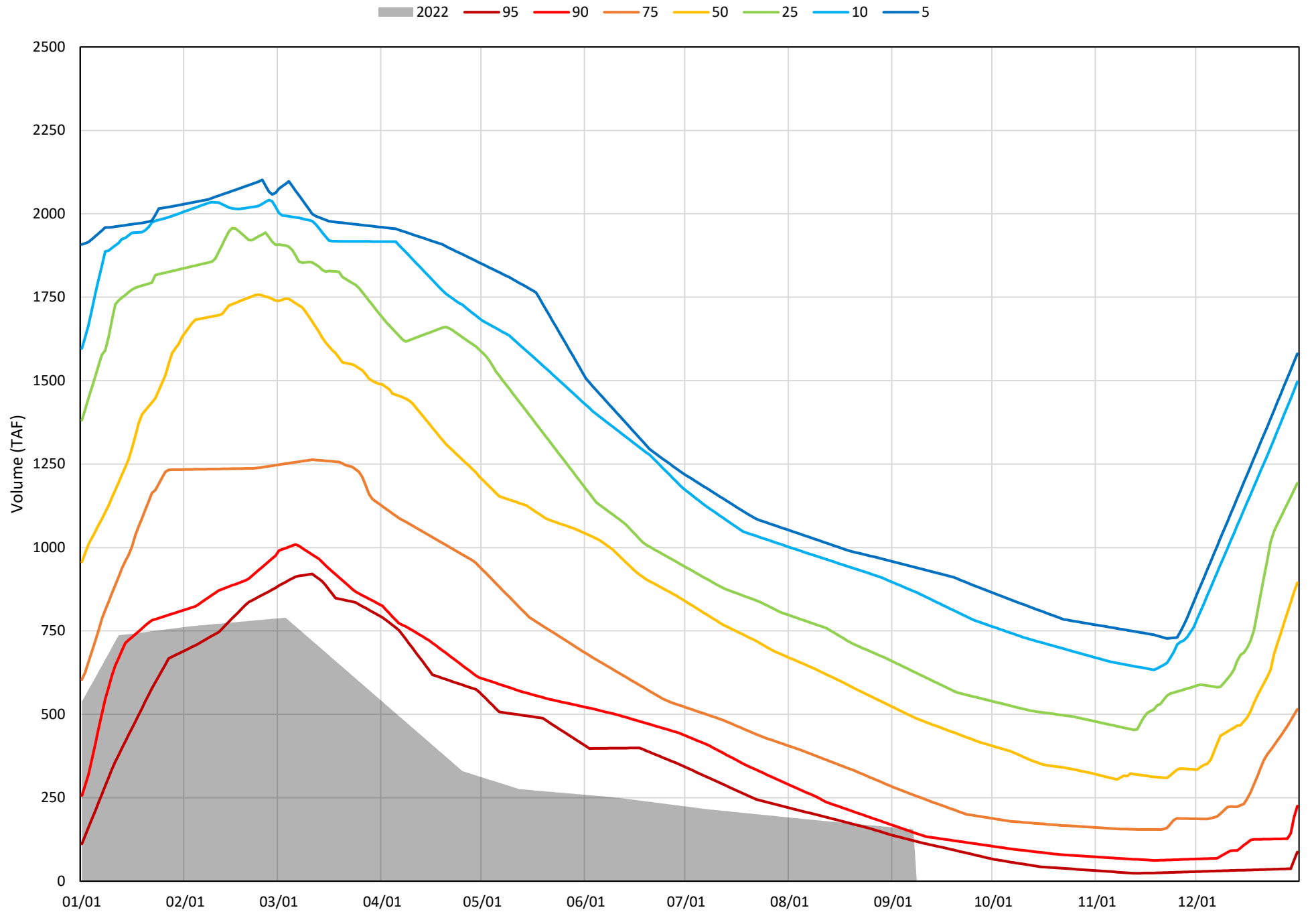
Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (2000-2021)



Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (2000-2021)



Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (2000-2021)



Trinity Cold Water Pool Comparison by Year (for Specified Date)

Sep-08 2022	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	651	490	322	488	274	249	207	243
2001	527	464	350	447	222	236	225	227
2002	538	489	406	478	226	248	261	245
2003	839	639	415	631	353	325	266	315
2004	593	480	298	457	250	244	191	228
2005	774	630	321	575	326	320	206	284
2006	888	750	529	722	374	381	339	365
2007	592	536	454	527	249	272	291	271
2008	283	204	113	200	119	104	73	98
2009	207	170	73	150	87	86	47	73
2010	583	432	199	405	246	220	128	198
2011	1077	912	697	895	453	463	447	455
2012	858	816	721	798	361	415	463	413
2013	390	345	250	328	164	175	161	167
2014	-25	-6	-23	18	-10	-3	-15	10
2015	-34	-30	-36	33	-14	-15	-23	18
2016	172	100	71	114	73	51	45	56
2017	707	535	371	538	298	272	238	269
2018	678	632	529	613	285	321	340	315
2019	1009	943	798	917	425	479	512	472
2020	467	450	361	426	197	229	232	219
2021	44	51	22	39	18	26	14	20
2022	0	0	0	0	0	0	0	0

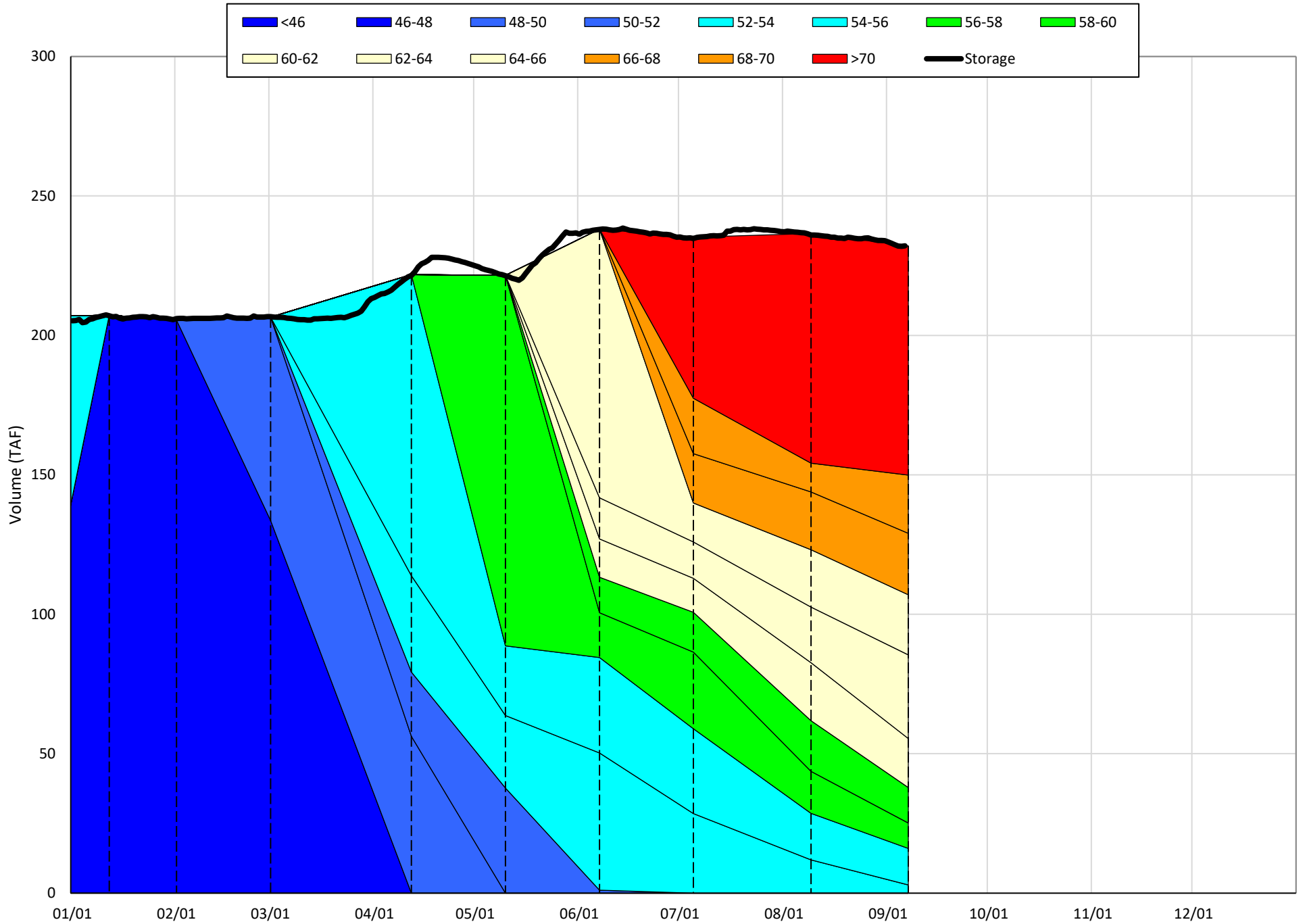
} Historic - Current
} (Historic - Current) / Current

Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

2022

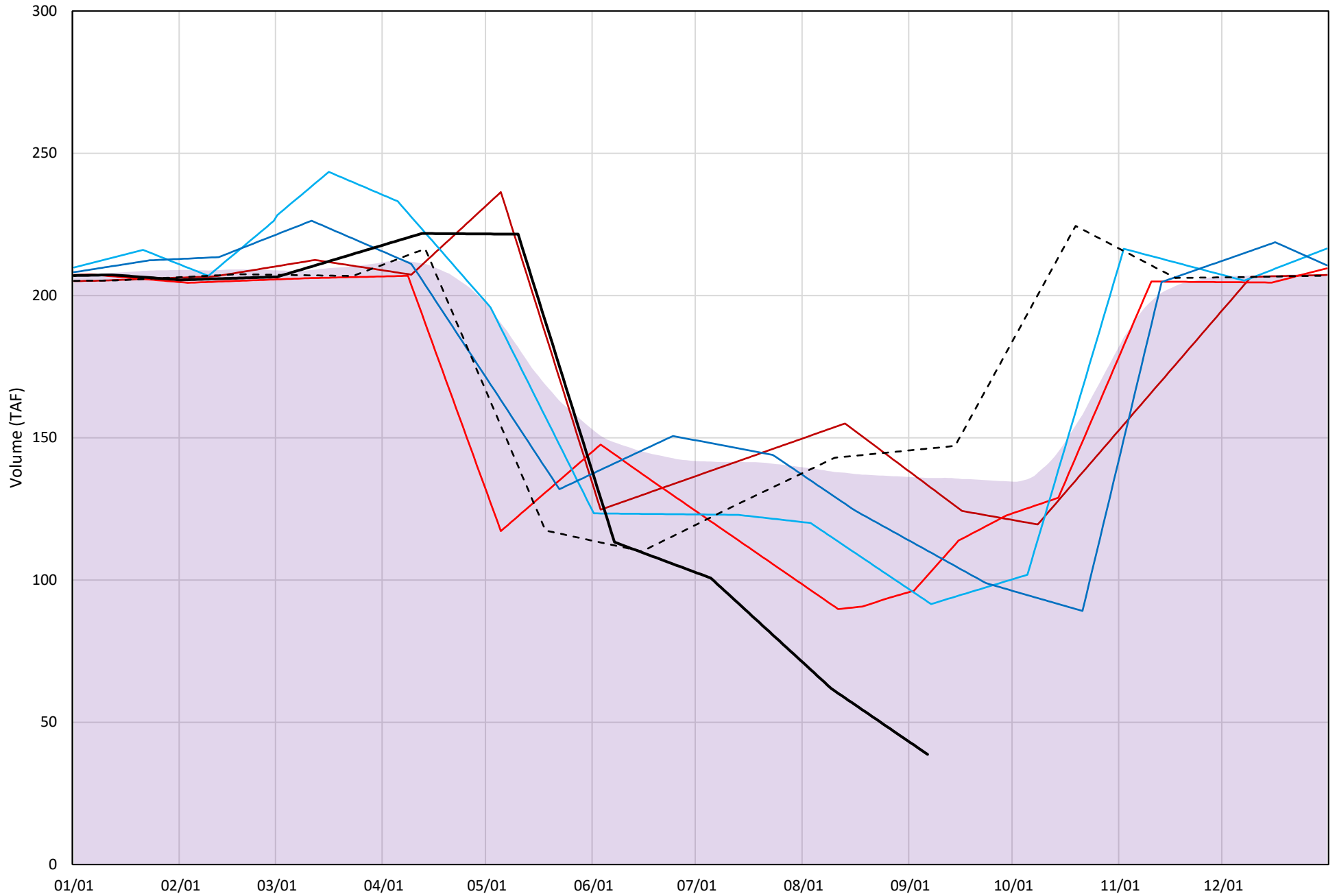
Page	Description
24	- Whiskeytown Lake Isothermobaths Plot
25	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$
26	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$
27	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$
28	- Whiskeytown Lake Cold Water 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 - 2022



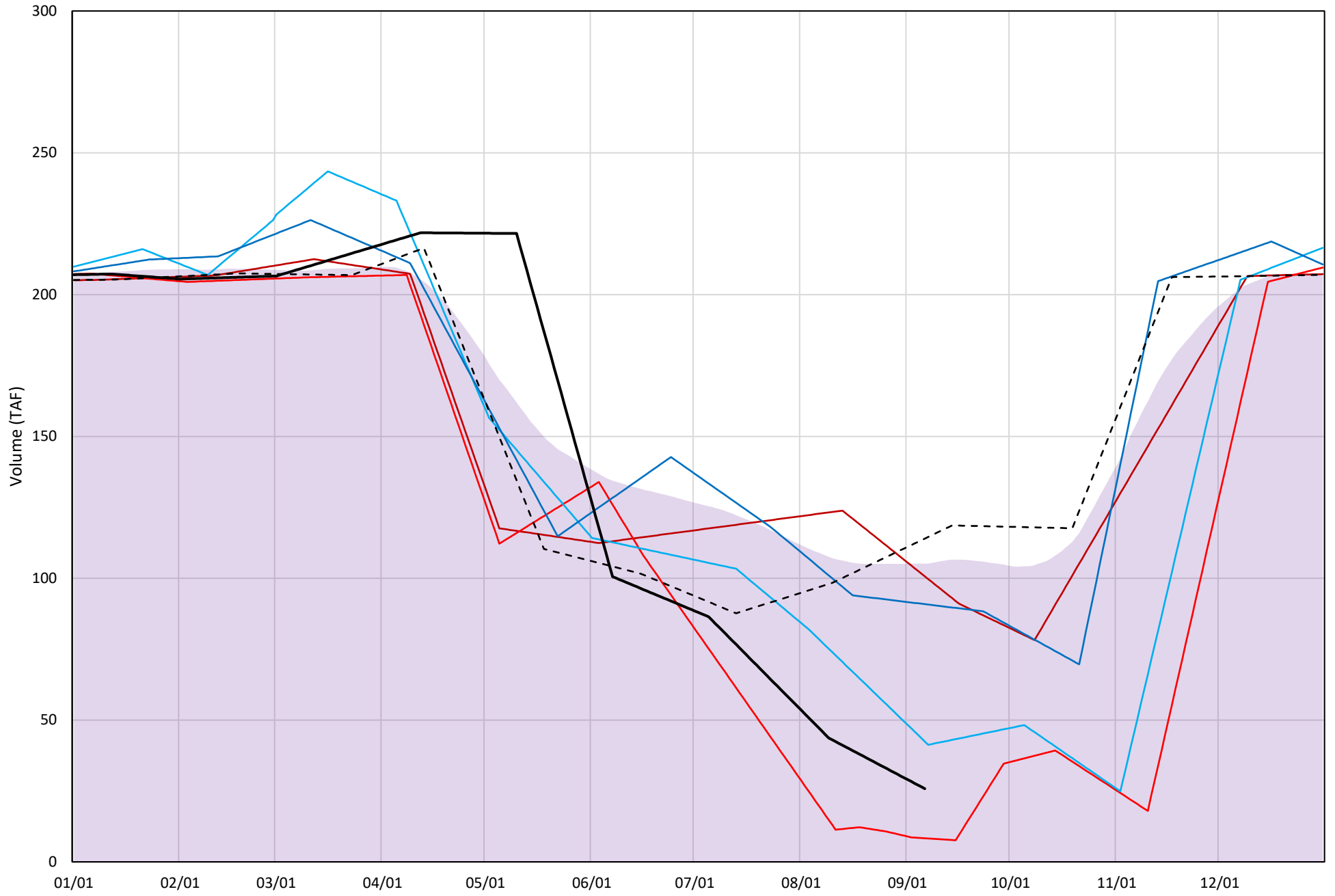
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

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



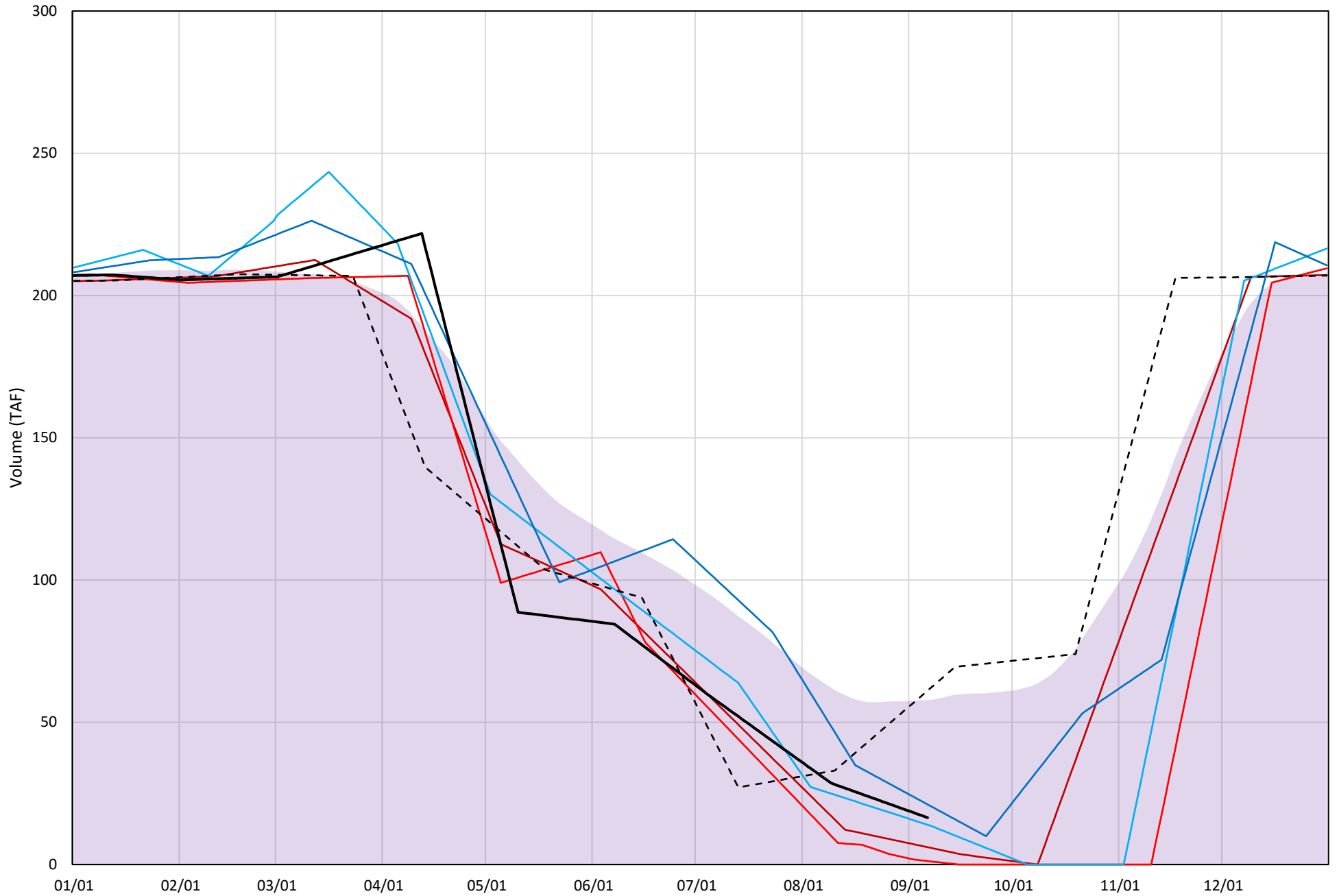
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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

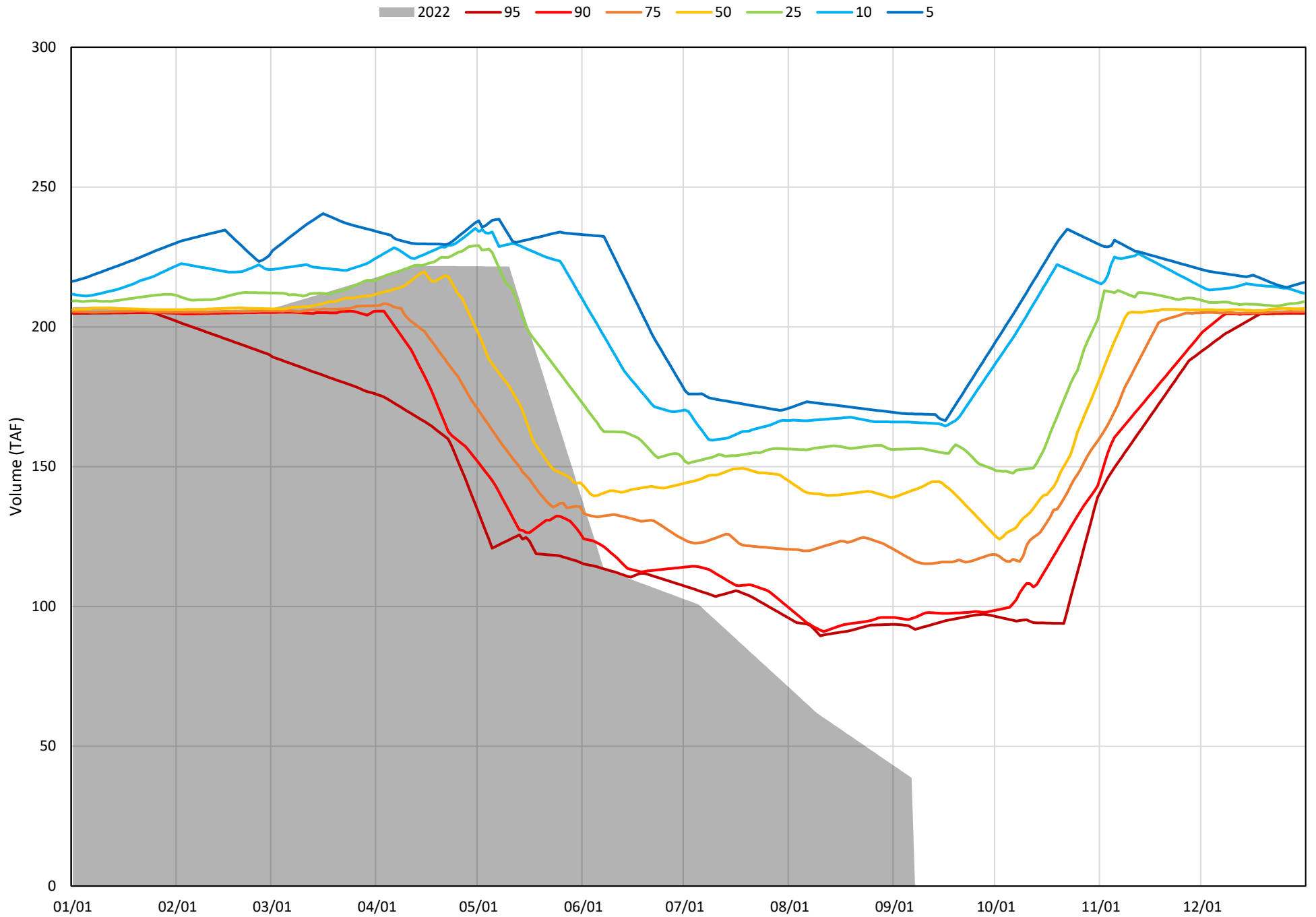


Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

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

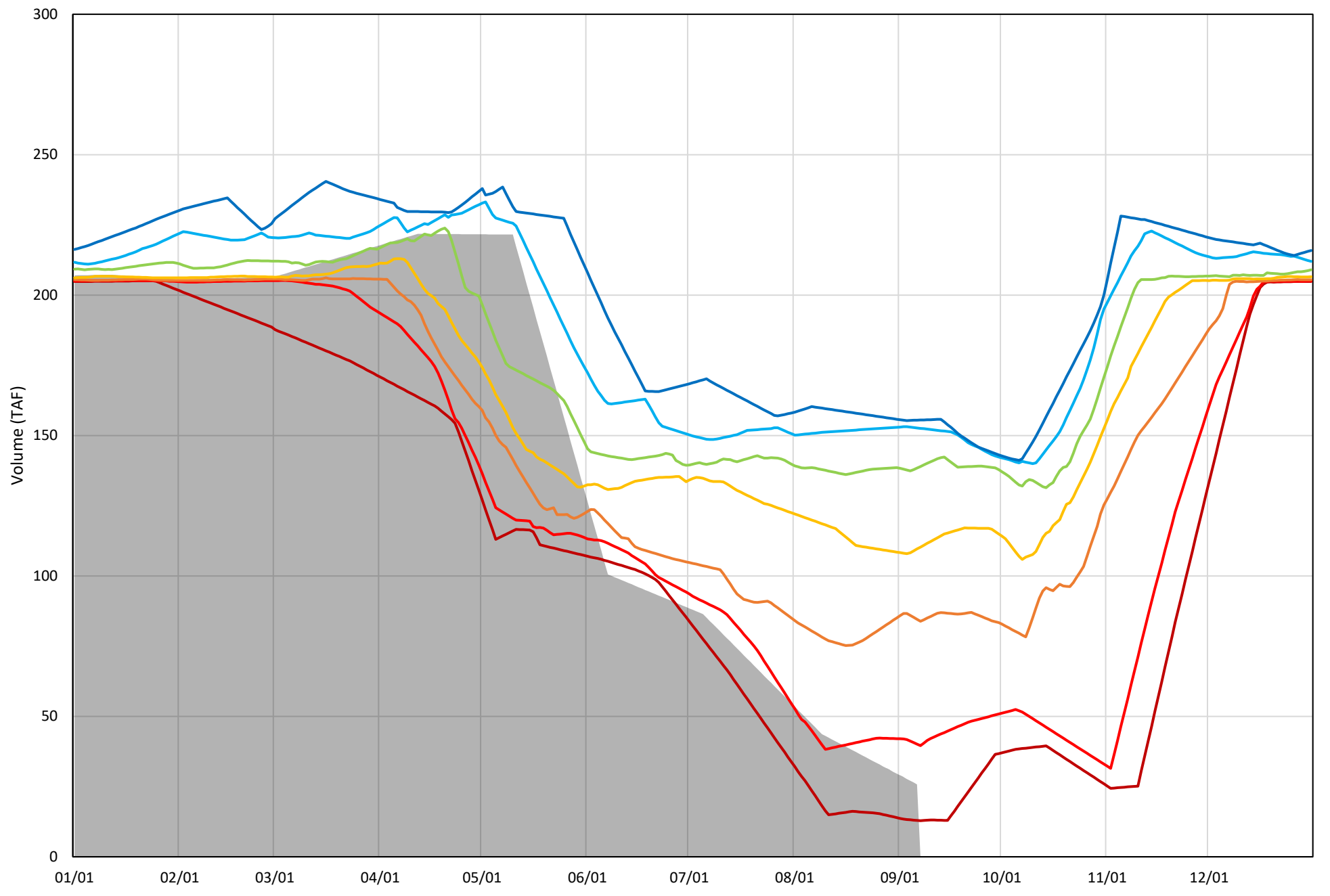


Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2021)



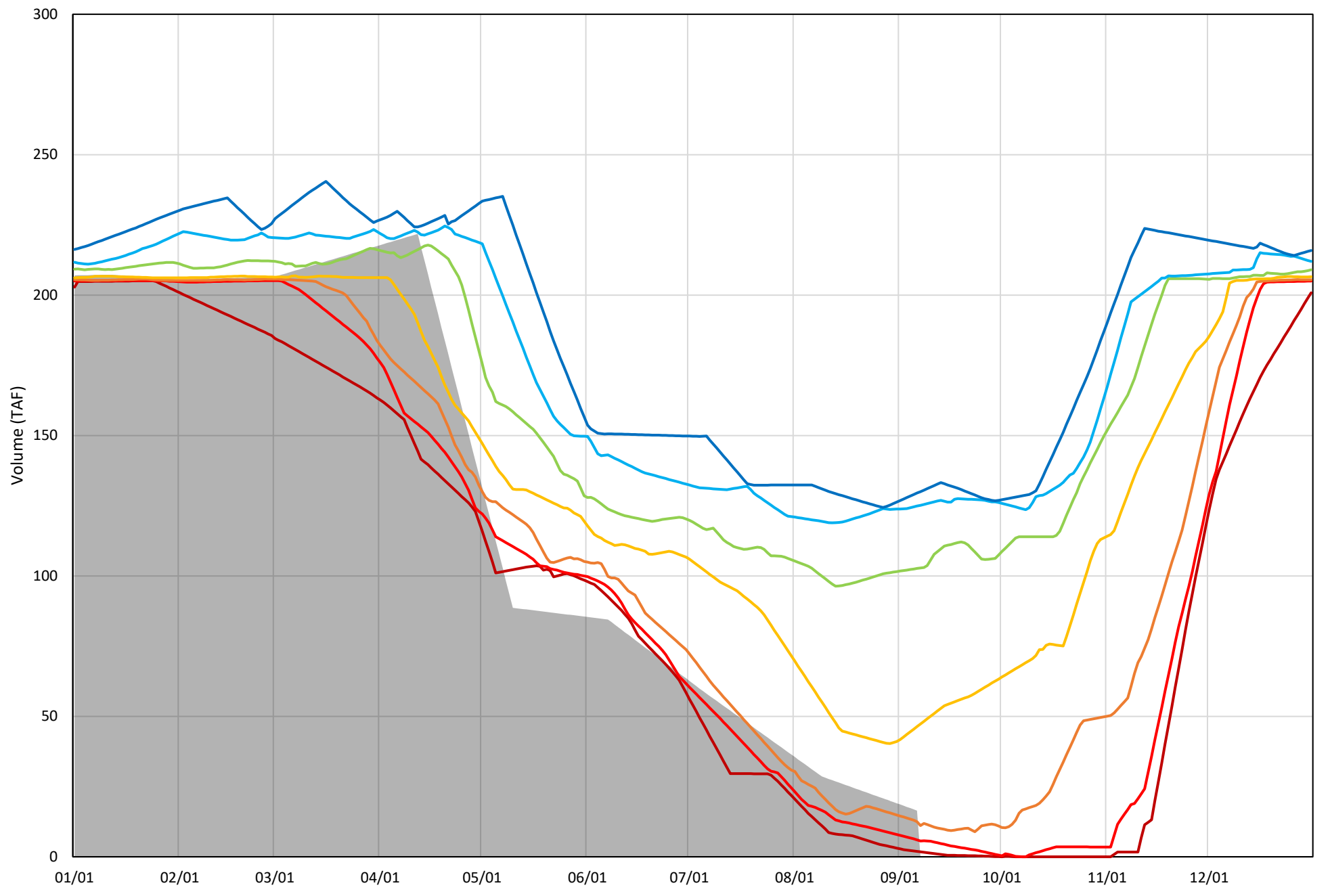
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$ - Percent Exceedances (2000-2021)

2022 95 90 75 50 25 10 5



Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$ - Percent Exceedances (2000-2021)

2022 95 90 75 50 25 10 5



Whiskeytown Cold Water Pool Comparison by Year (for Specified Date)

Sep-07 2022	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	103.8	112.1	105.7	107.2	268.1	434.5	641.9	448.2
2001	120.3	122.6	109.6	117.5	310.8	475.1	665.6	483.8
2002	119.1	119.5	88.9	109.2	307.7	463.4	539.8	437.0
2003	108.8	110.4	78.6	99.2	281.1	427.8	477.3	395.4
2004	117.2	108.9	56.8	94.3	302.8	422.3	345.1	356.7
2005	54.4	13.4	-10.5	26.1	140.5	51.8	-63.6	85.3
2006	130.2	129.8	113.7	124.6	336.5	503.3	690.3	510.0
2007	112.3	100.8	64.7	92.6	290.1	390.8	393.0	358.0
2008	112.0	109.8	85.3	102.4	289.5	425.6	518.2	411.1
2009	87.3	56.7	-8.6	50.9	225.6	219.9	-52.2	165.9
2010	67.2	22.2	-7.5	32.3	173.6	86.2	-45.8	101.9
2011	80.2	59.4	-2.8	47.5	207.3	230.4	-17.2	151.6
2012	101.6	79.4	15.2	65.4	262.5	307.9	92.0	220.8
2013	129.8	128.8	103.2	120.6	335.5	499.1	626.7	487.1
2014	94.6	74.9	-10.4	60.0	244.5	290.3	-63.0	199.3
2015	62.9	-17.5	-15.2	31.9	162.6	-67.7	-92.6	107.6
2016	53.7	16.7	-2.5	24.3	138.7	64.6	-15.2	72.8
2017	120.9	114.3	73.5	102.9	312.4	443.2	446.7	400.8
2018	83.4	64.1	8.9	52.1	215.4	248.7	54.1	172.7
2019	71.6	65.1	4.7	47.1	184.9	252.2	28.3	155.1
2020	99.4	66.4	13.4	59.8	256.8	257.6	81.5	198.6
2021	107.5	88.2	44.7	80.1	277.7	341.9	271.2	297.0
2022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Historic - Current

(Historic - Current) / Current