

Northern CVP Water Temperature Report

November - 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
Oct	56.2	56.6	60.9	56.2	56.6	57.0	58.0	58.4	59.4	56.2	53.0	53.3	56.0	3590	39	4002	69.3	63.2	65.9
11/01	57.8	58.1	61.0	57.0	56.6	56.5	56.9	56.6	56.6	56.3	51.0	50.0	51.1	3639	35	3907	52.5	51.1	52.1
11/02	58.2	58.0	61.0	56.6	56.2	55.9	55.9	55.4	55.7	55.8	50.6	47.8	49.9	3564	35	3910	47.0	47.5	49.1
11/03	57.8 ?	57.8	61.4	56.6	56.1	55.8	55.3	54.4	54.6	55.8	50.5	47.1	48.2	3390	35	3903	51.0	45.9	47.8
11/04	57.6	57.7	61.8	56.8	56.4	56.1	55.7	54.7	54.3	56.2	50.6	48.4	49.7	3936	35	3904	50.0	47.7	47.7
11/05	57.9 !	-	61.4	56.9	56.4	56.0	55.9	55.1	54.6	56.5	50.4	50.6	51.7	3714	35	3906	49.0	48.0	46.8
11/06	57.3 !	-	61.0	56.8	56.3	56.1	55.9	55.4 ?	55.0	56.7	50.0	49.7	51.2	3610	35	3904	50.5	51.2	53.0
11/07	57.4 !	-	61.2	56.6	56.0	55.5	55.2	54.3 ?	54.1	55.9	49.7	48.0	49.5	3374	36	3932	45.5	46.8	46.5
11/08	57.5 !	-	60.8	56.2	55.5	55.1	54.7	53.6 ?	53.3	55.3	49.6	46.9	48.4	3746	36	3920	↓ 49.0	43.0	44.3
11/09	57.6	57.5	60.7	56.0	55.5	55.3	54.5	53.6	53.2	56.0	49.6	46.7	48.2	3681	35	3817	46.0	44.8	45.6
11/10	58.0	57.9	60.6	56.1	55.5	55.3	54.3	53.1	53.0	56.0	49.2	47.7	48.6	3537	35	3714	47.0	43.3	45.5
11/11	58.0	57.7	60.2	56.2	55.7	55.5	54.4	53.2	53.0	56.4	48.7	47.1	48.3	3040	36	3708	45.5	42.8	45.6
11/12	57.9	57.5	59.7	56.5	56.0	55.7	55.1	53.9	53.5	56.3	48.3	47.5	48.3	2995	36	3729	47.5	45.1	47.1
11/13	57.7	57.2	59.6	56.6	56.0	55.7	54.6	53.4	53.4	55.9	48.2	46.7	48.3	3550	36	3724	52.5	47.0	48.0
11/14	57.7	57.3	59.2	56.5	56.0	55.7	54.6	53.2	53.1	55.6	48.1	45.8	47.0	3222	35	3726	49.0	43.3	45.9
11/15	57.7	57.4	59.1	56.4	56.0	55.9	54.8	53.2	53.1	55.6	48.1	45.0	46.0	3228	35	3615	52.5	46.6	51.7
11/16	57.8	57.5	59.1	56.2	56.0	55.9	54.8	53.2 ?	53.0	55.6	48.1	44.0	44.9	3012	35	3481	56.5	47.3	52.8
11/17	57.8	56.9	58.6	56.2	55.8	55.5	54.6	53.1 ?	53.2	54.9	48.1	44.0	44.2	3016	35	3392	50.0	43.8	47.4
11/18	57.9	57.0	58.4	55.4	55.6	55.1	54.2	52.5 ?	52.8	55.0	47.8	44.7	44.8	2728	41	3288	52.5	49.6	51.3
11/19	57.5	56.8	58.2	55.5	55.2	54.7	53.4	50.8 ?	51.8	54.4	47.4	43.0	43.7	2926	42	3235	51.0	43.6	47.9
11/20	57.3	56.2	57.8	55.3	55.0	54.5	53.1	50.2	51.4	53.7	47.3	42.3	42.6	2942	35	3232	46.5	39.8	43.9
11/21	57.0	55.9	57.8	55.2	55.0	54.6	53.1	50.2 ?	51.1	54.0	47.2	42.7	42.5	2968	35	3226	48.5	41.5	45.0
11/22	56.7	55.7	57.4	55.1	54.8	54.3	53.3	50.7	51.3	54.2	47.2	43.3	43.0	3039	34	3249	46.0	42.0	44.5
11/23	56.5	55.6	57.3	55.0	54.9	54.6	53.5	51.1	51.9	54.3	47.1	44.3	44.8	2870	34	3284	54.5	50.3	54.6
11/24	56.4	55.5	57.1	54.9	54.9	54.9	54.1	51.9 ?	52.5	54.2	46.9	44.2	44.8	2953	34	3278	61.0	53.0	58.1
11/25	56.2	55.0	57.1	54.7	54.6	54.5	53.9	52.2 ?	52.9	53.7	46.8	43.7	44.2	3027	34	3291	53.0	46.8	49.8
11/26	56.1	54.9	57.1	54.7	54.7	54.8	54.3	52.7 ?	53.1	54.0 ?	46.6 ?	44.1 ?	44.7	3003	34	3285	58.0	52.3	54.0
11/27	55.8	54.6	56.6	54.4	54.3	54.2	53.6	51.9 ?	53.1	53.5	46.6	43.7	44.5	3109	41	3286	49.5	45.0	49.0
11/28	55.9	54.4	56.1	54.1	53.8	53.5	53.0	51.1	52.1	53.1	46.6	44.3	44.9	2544	174	3288	47.0	43.8	48.3
11/29	55.6	54.0	56.3	53.7	53.4	52.9	52.0	49.5 ?	50.9	52.6	46.2	42.0	43.2	2848	41	3288	44.5	40.5	43.3
11/30	55.5	53.7	53.2	53.4	53.1	52.5	51.5	49.6 ?	49.9	52.6	46.3	42.3	42.2	2773	25	3282	42.5	41.7	44.2
-																			
Nov	57.2	56.5	58.9	55.7	55.4	55.1	54.3	52.8	53.0	55.0	48.3	45.6	46.4	3199	40	3557	49.9	45.8	48.4
														Total CFS	95984	1204	106704		
														Total AF	190380	2388	211643		

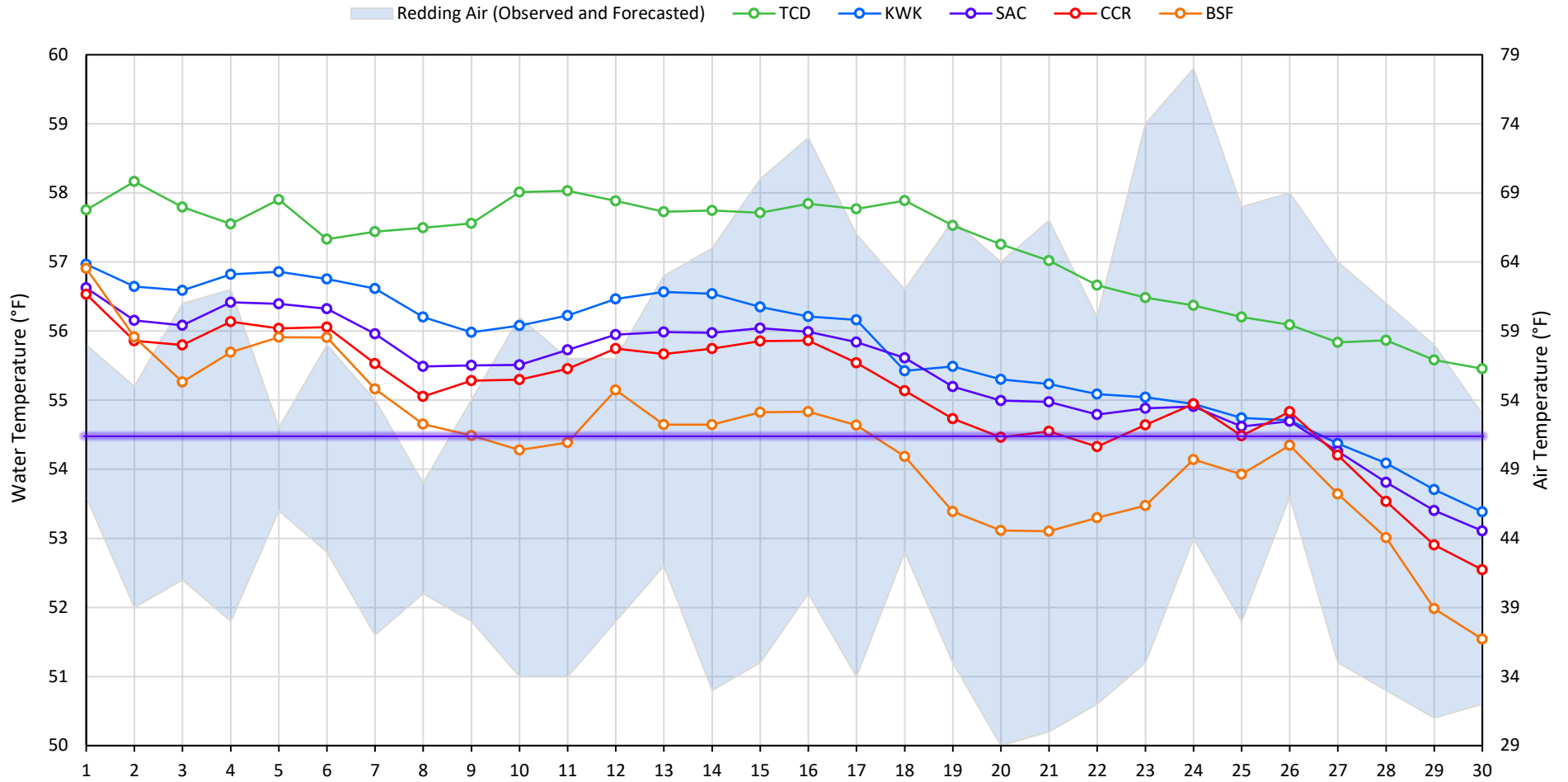
Legend

- ? = 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



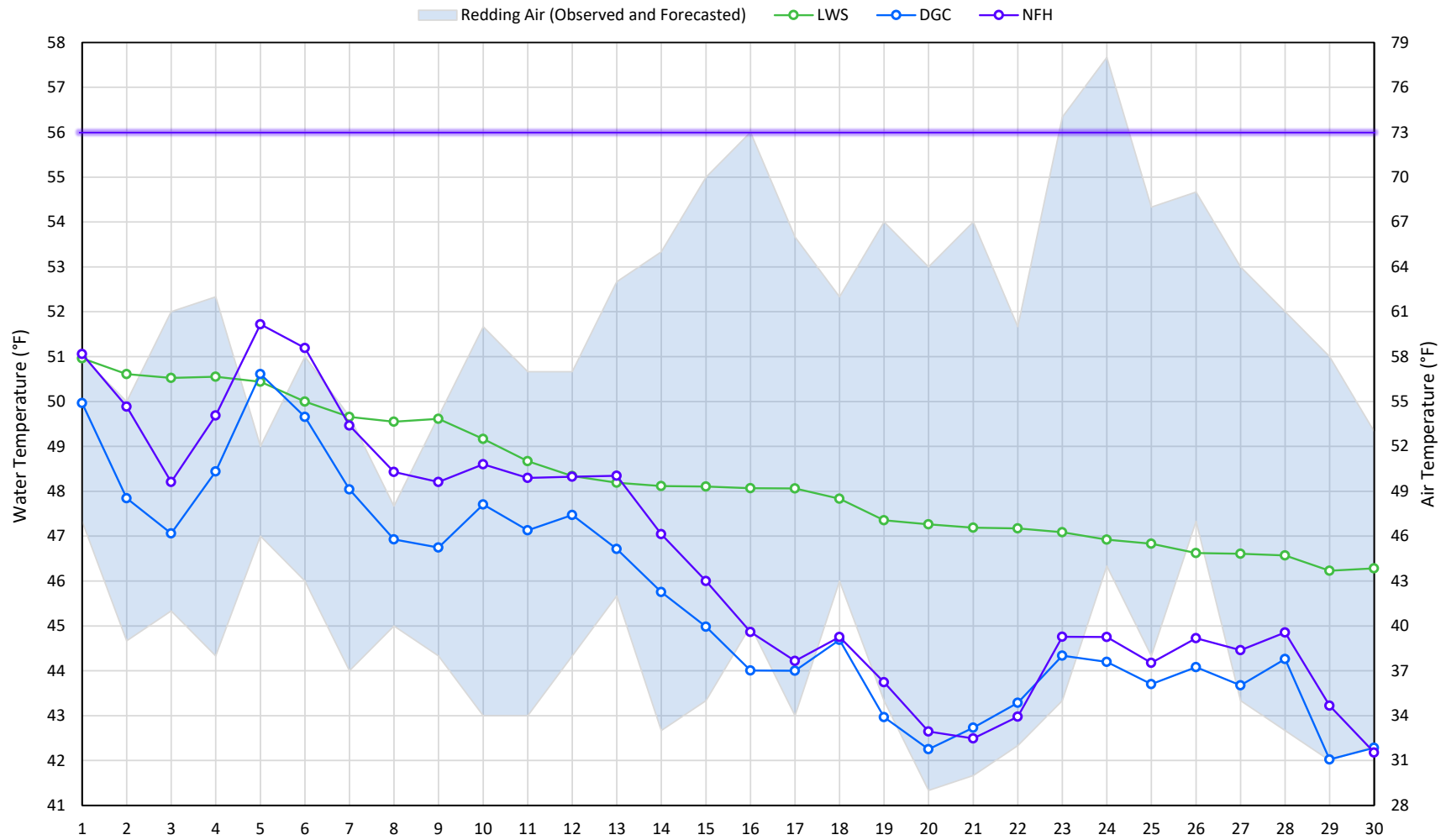
Station Details			
Code	Body of Water	Location ¹	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles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

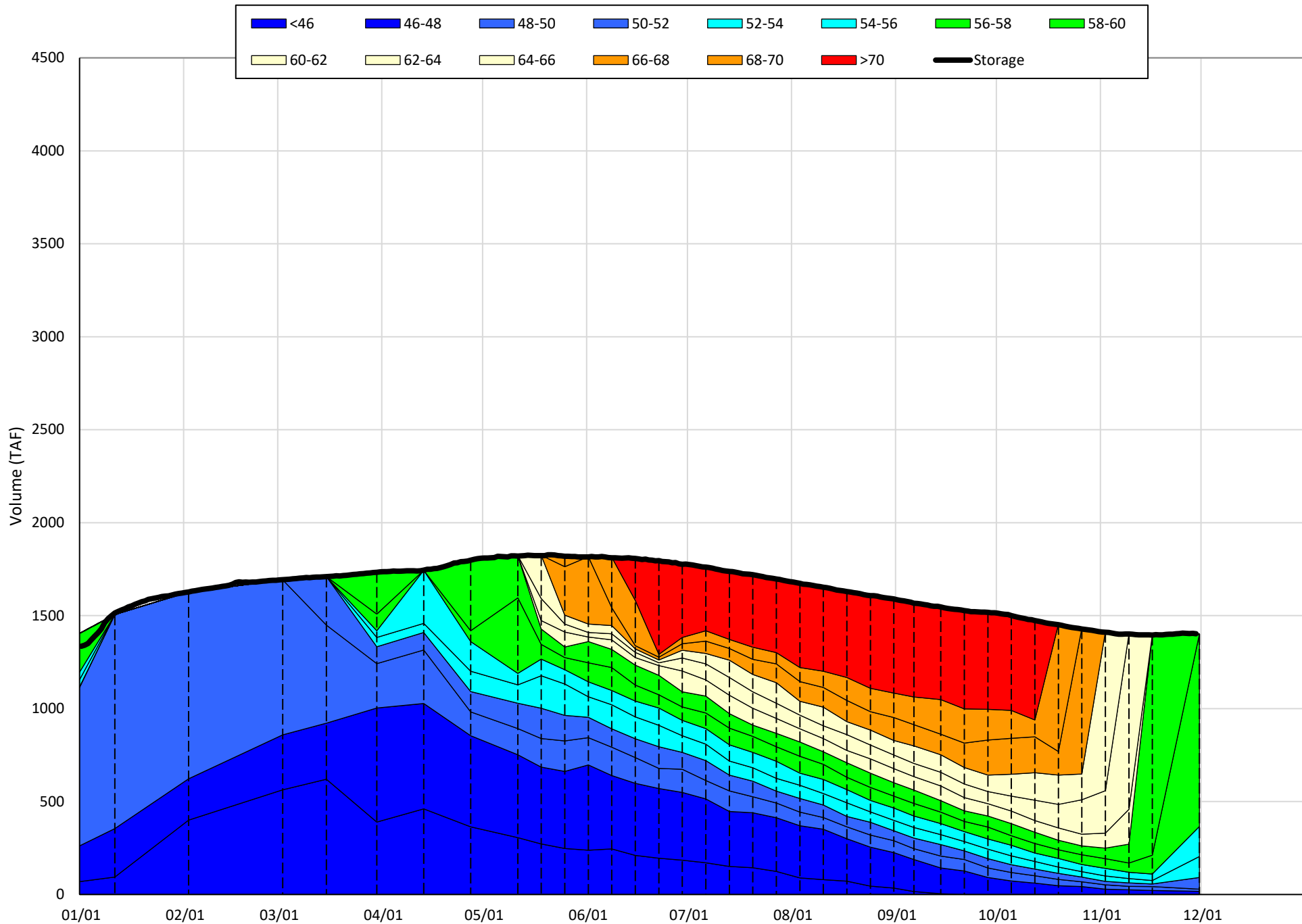
¹ Distances are approximate

Shasta Lake Isothermobaths & Cold Water Pool Statistics

2022

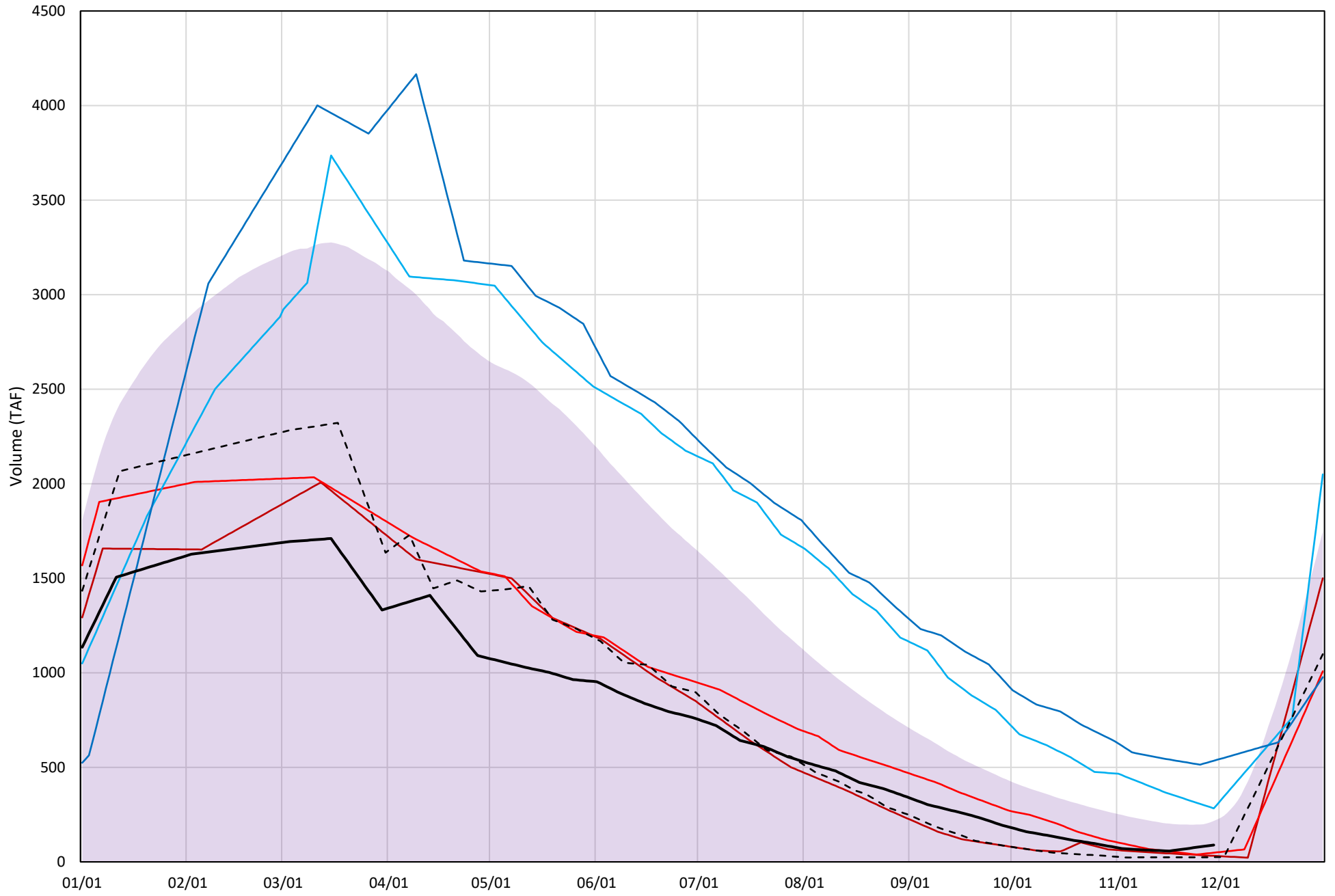
Page	Description
6	- Shasta Lake Isothermobaths Plot
7	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
8	- Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
9	- Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
10	- Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$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



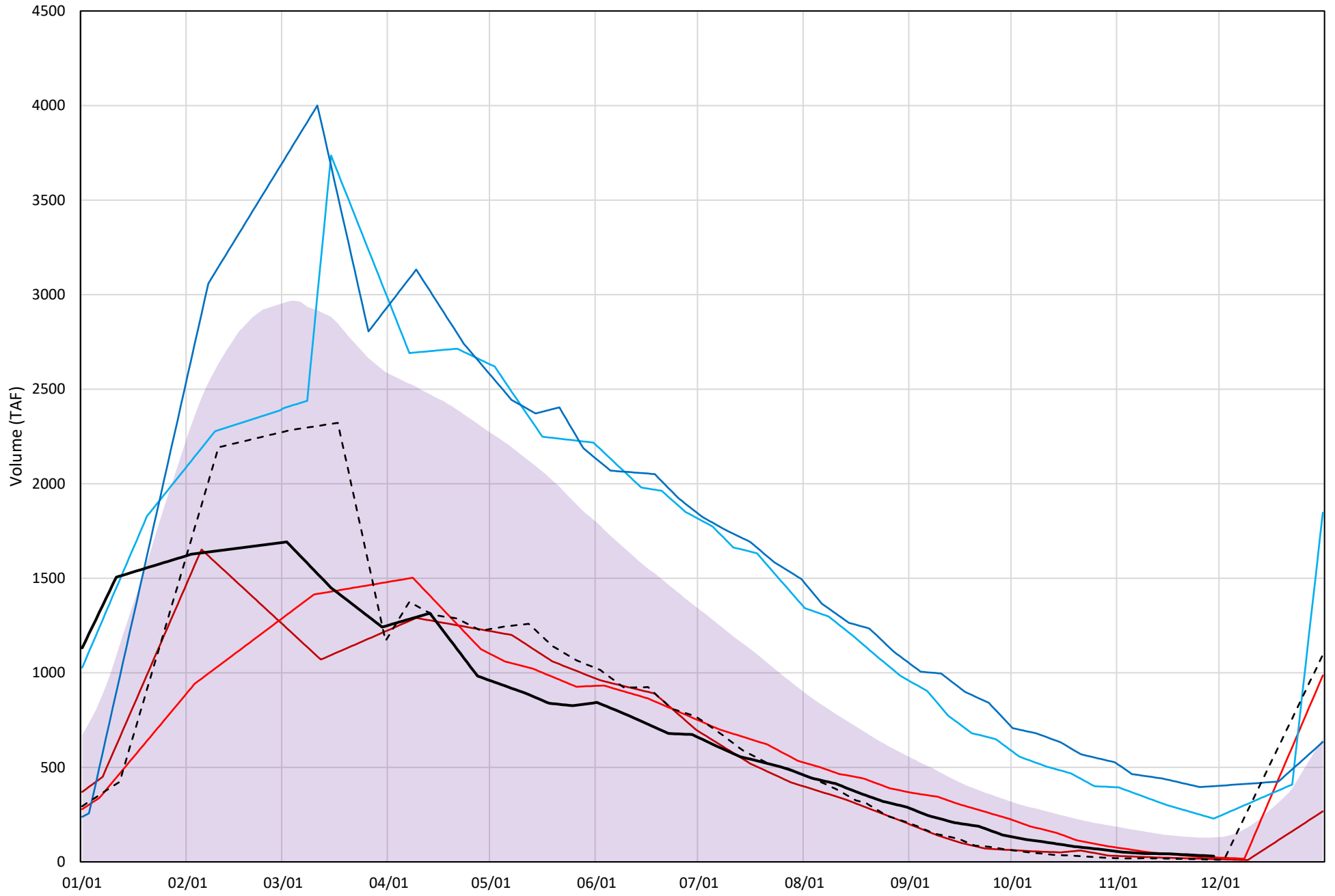
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

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



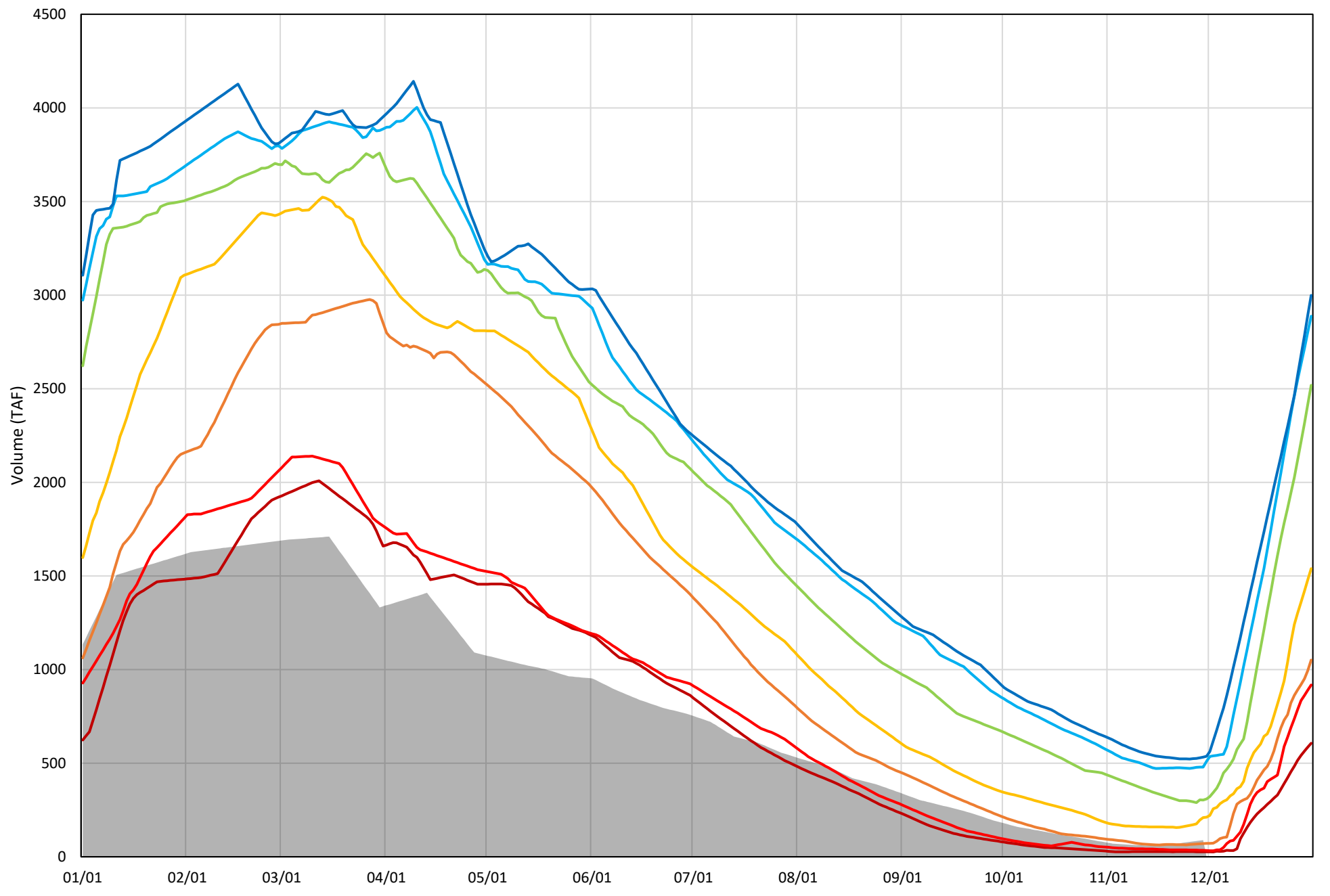
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

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

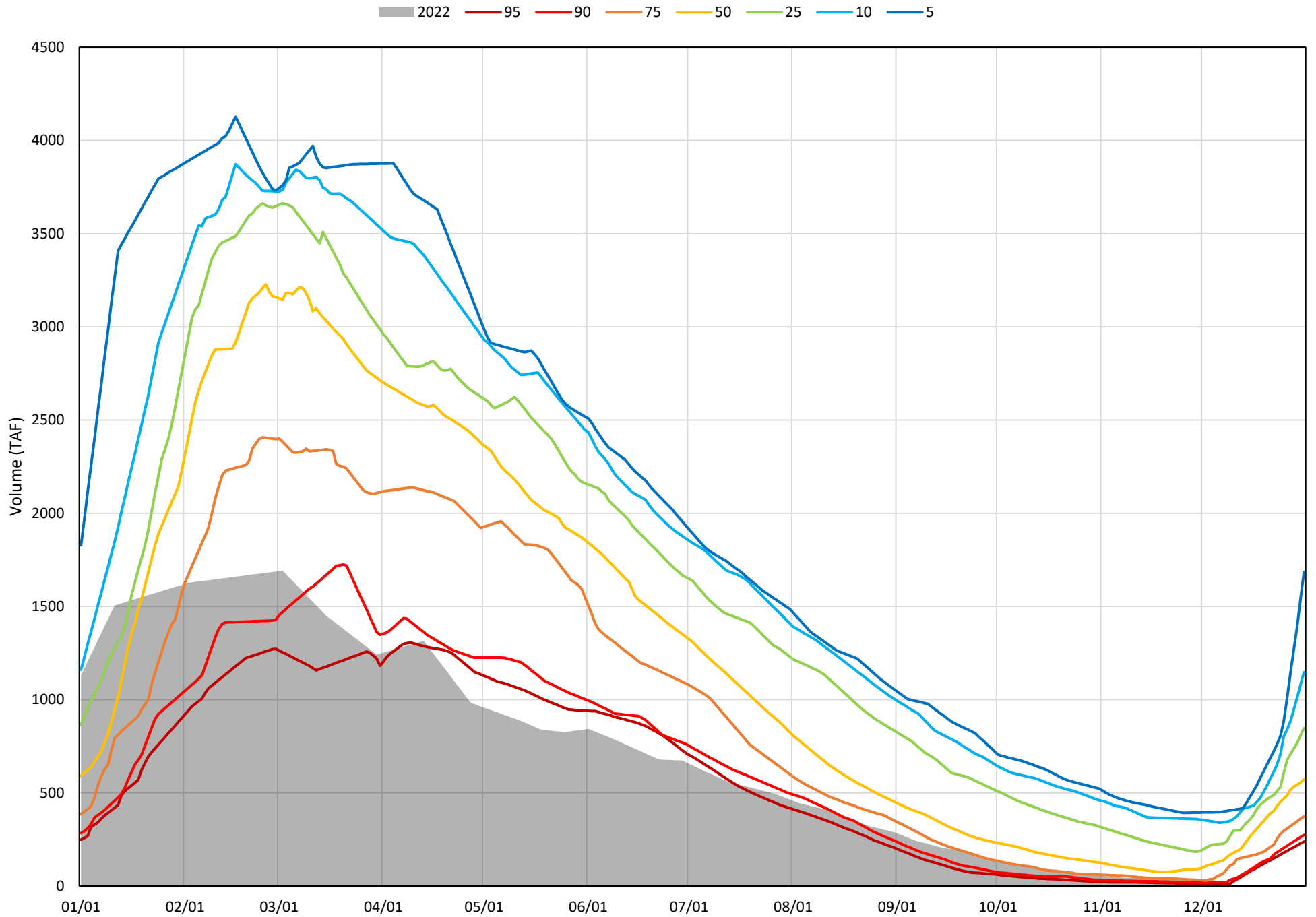


Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2021)

2022 95 90 75 50 25 10 5

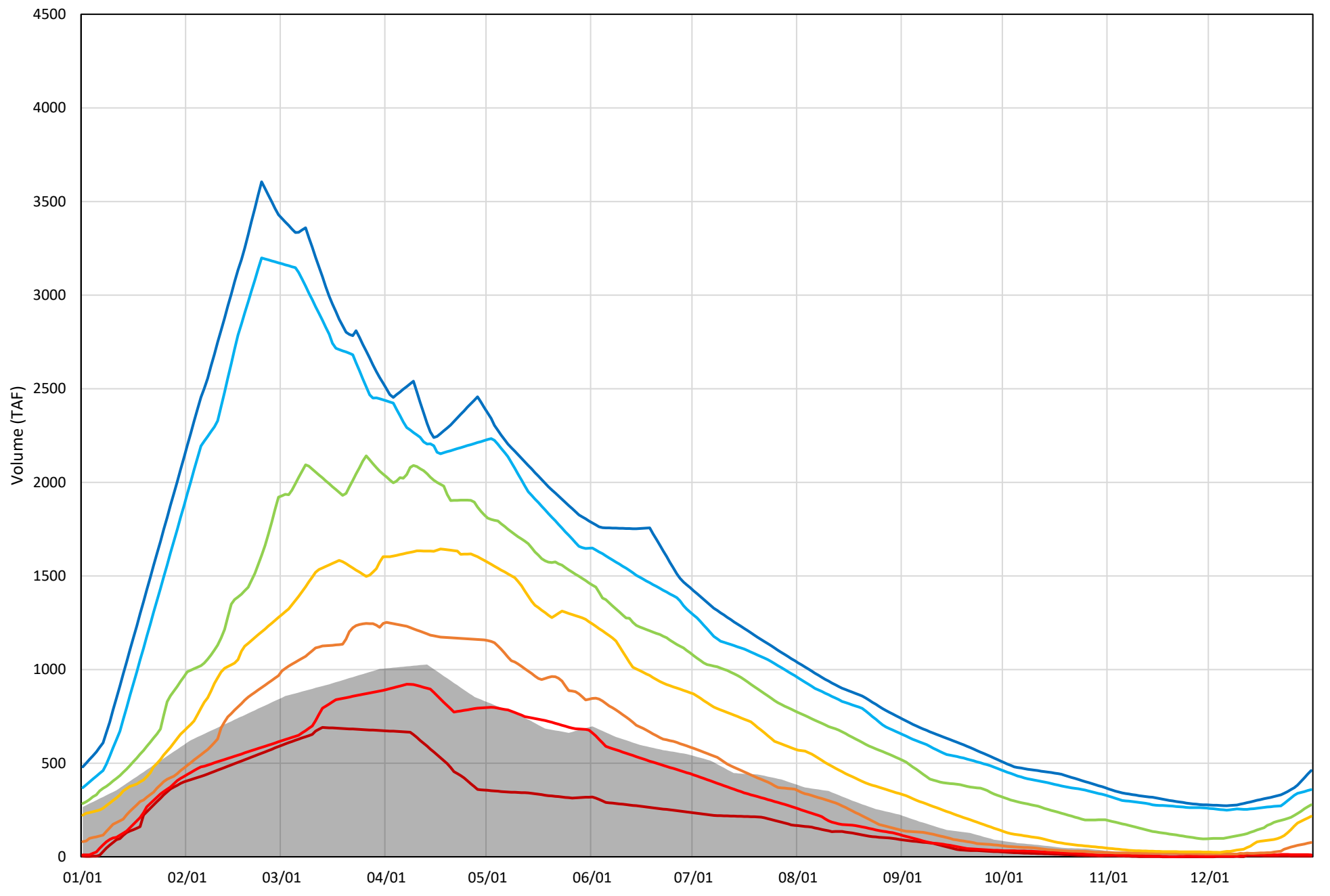


Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2021)



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)

Nov-30 2022	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
1998	148	45	-8	67	165	151	-49	122
1999	221	220	163	201	246	729	961	645
2000	155	59	3	72	173	195	18	129
2001	107	85	14	69	120	282	84	162
2002	327	142	68	179	366	472	399	412
2003	186	64	2	84	208	213	15	145
2004	99	49	-1	50	111	162	-4	92
2005	-9	7	5	7	-11	23	28	20
2006	129	119	68	105	144	395	401	313
2007	-51	-6	2	20	-58	-20	12	30
2008	-53	-4	-1	19	-59	-13	-4	26
2009	-21	12	13	15	-24	39	77	47
2010	266	137	42	148	297	455	250	334
2011	437	347	260	348	489	1149	1530	1056
2012	171	158	82	137	191	525	484	400
2013	111	78	26	71	123	258	154	178
2014	-58	-15	-12	28	-64	-51	-68	61
2015	-41	-6	-17	21	-46	-21	-100	55
2016	193	199	87	160	216	659	510	462
2017	343	313	230	295	383	1037	1356	925
2018	23	29	-2	18	26	95	-9	43
2019	445	370	261	359	497	1228	1540	1088
2020	-10	2	-10	7	-11	6	-62	26
2021	-65	-18	-17	33	-72	-59	-100	77
2022	0	0	0	0	0	0	0	0

Historic - Current

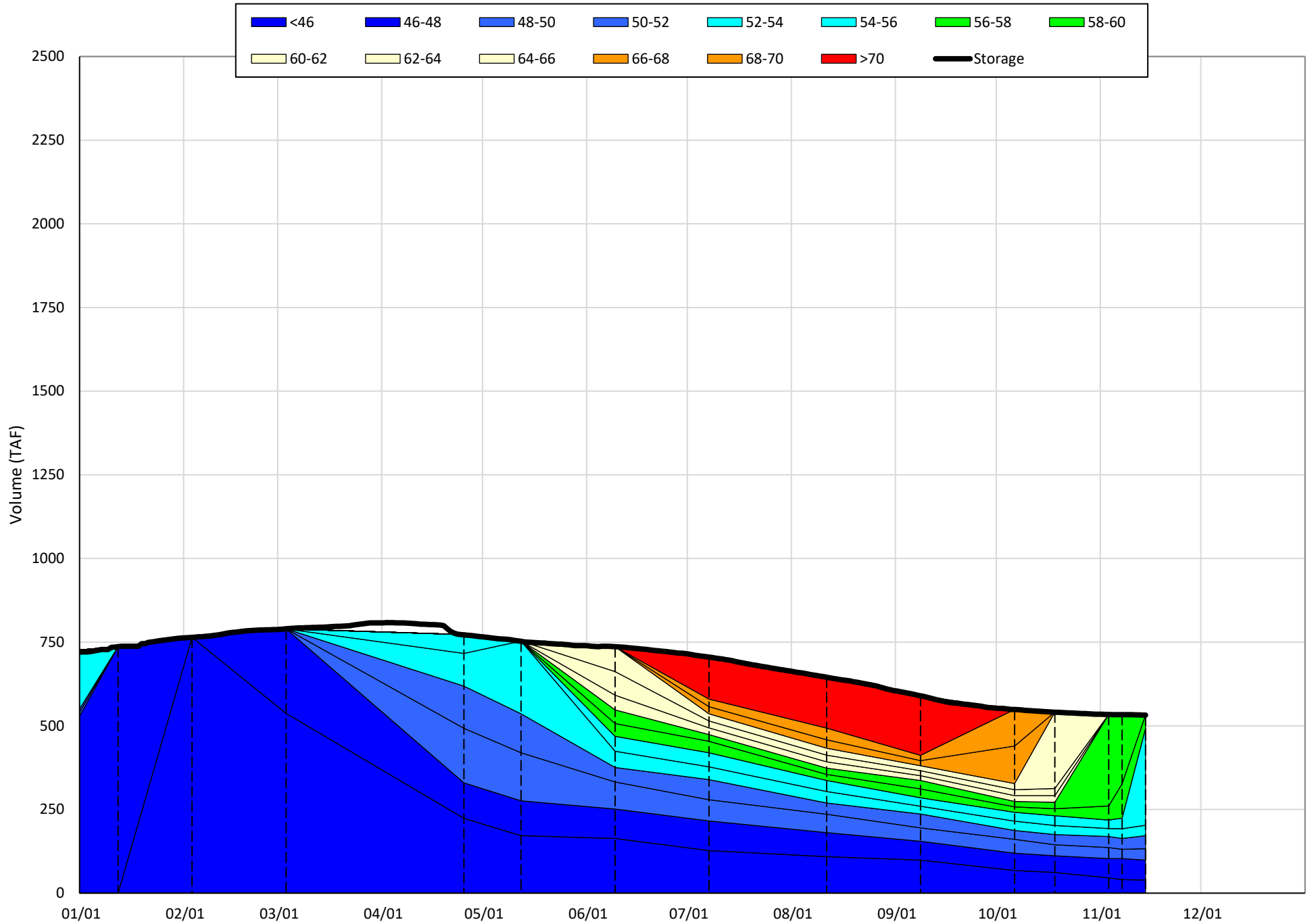
(Historic - Current) / Current

Trinity Lake Isothermobaths & Cold Water Pool Statistics

2022

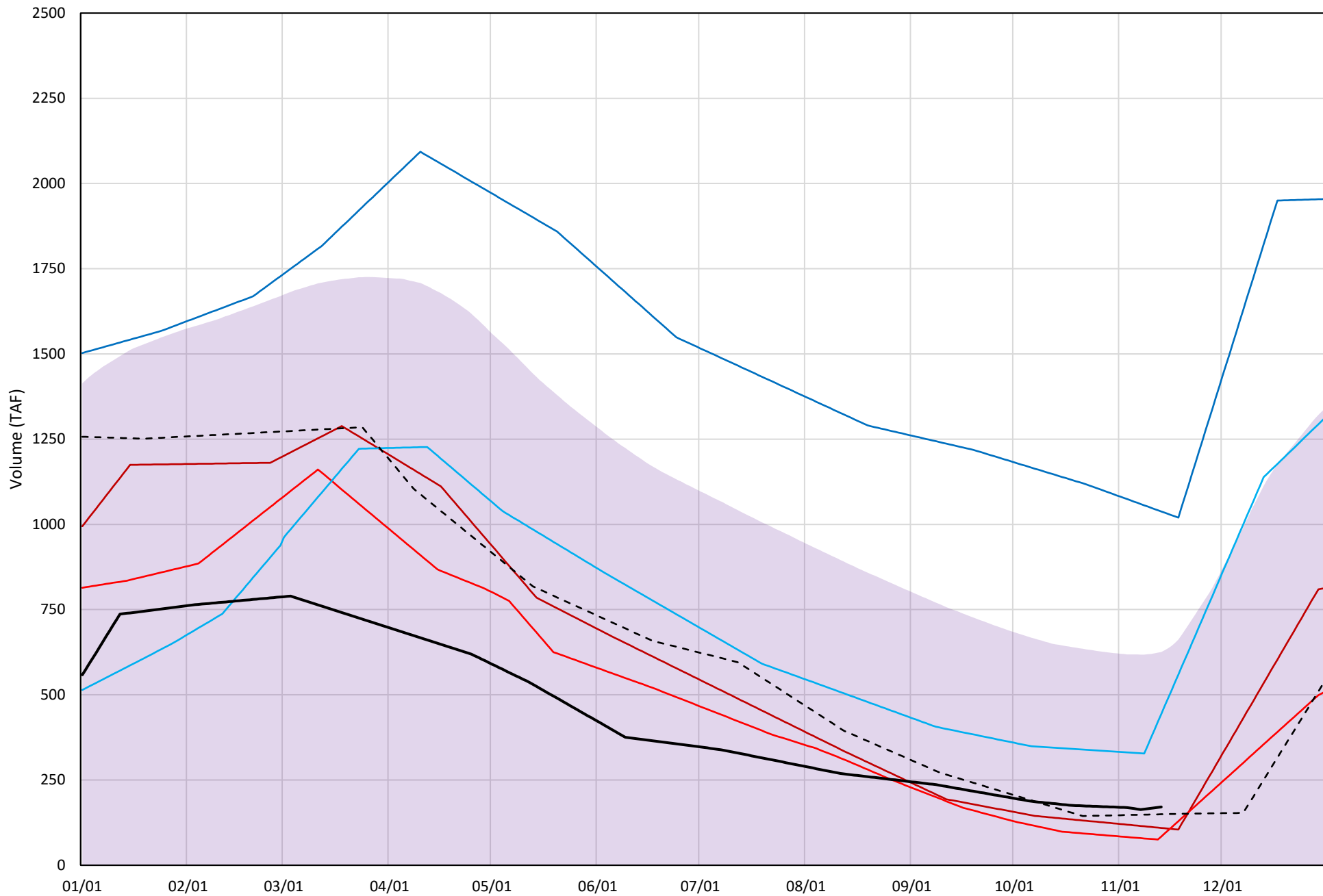
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq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



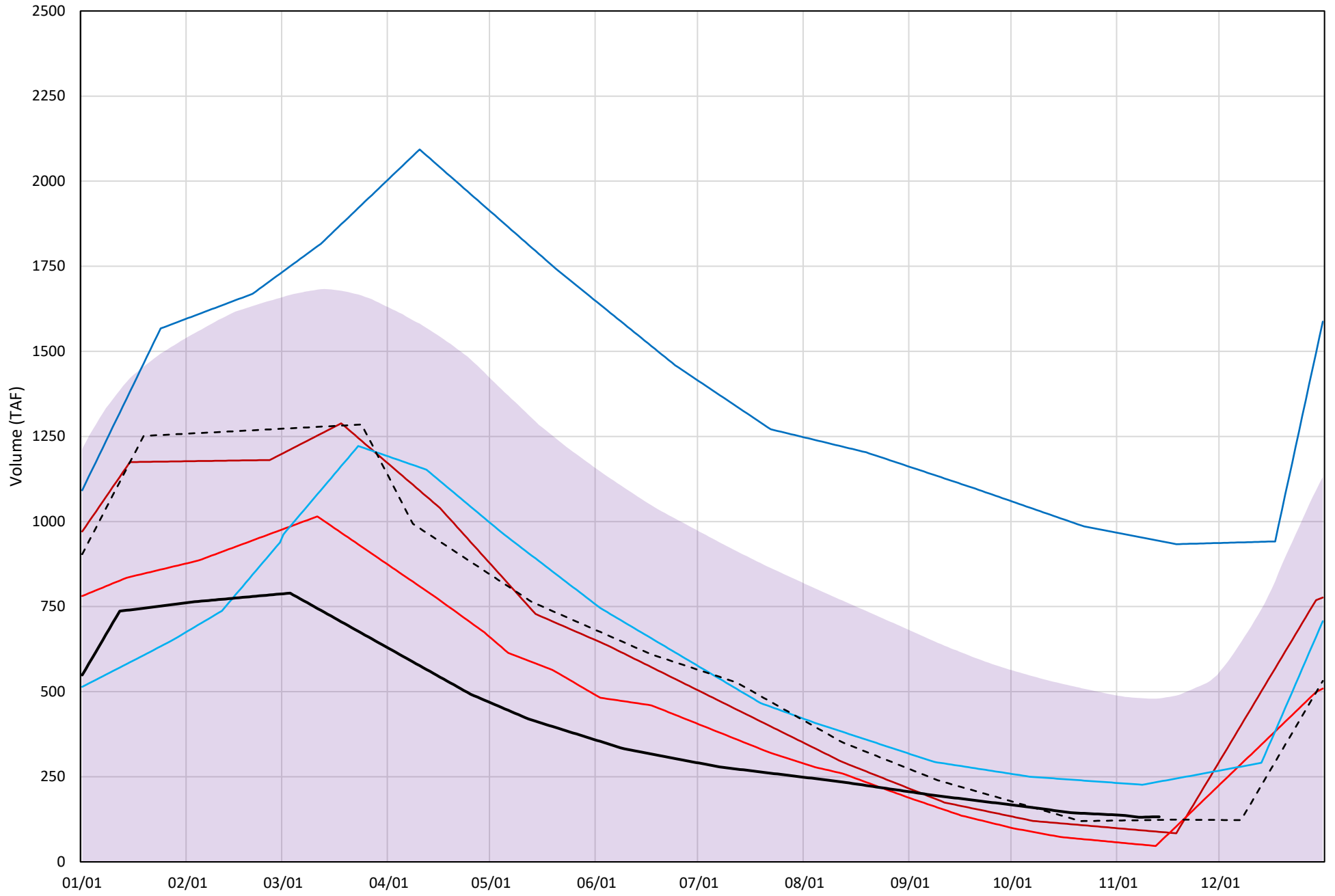
Trinity Lake Cold Water Pool Volume ≤52°F

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



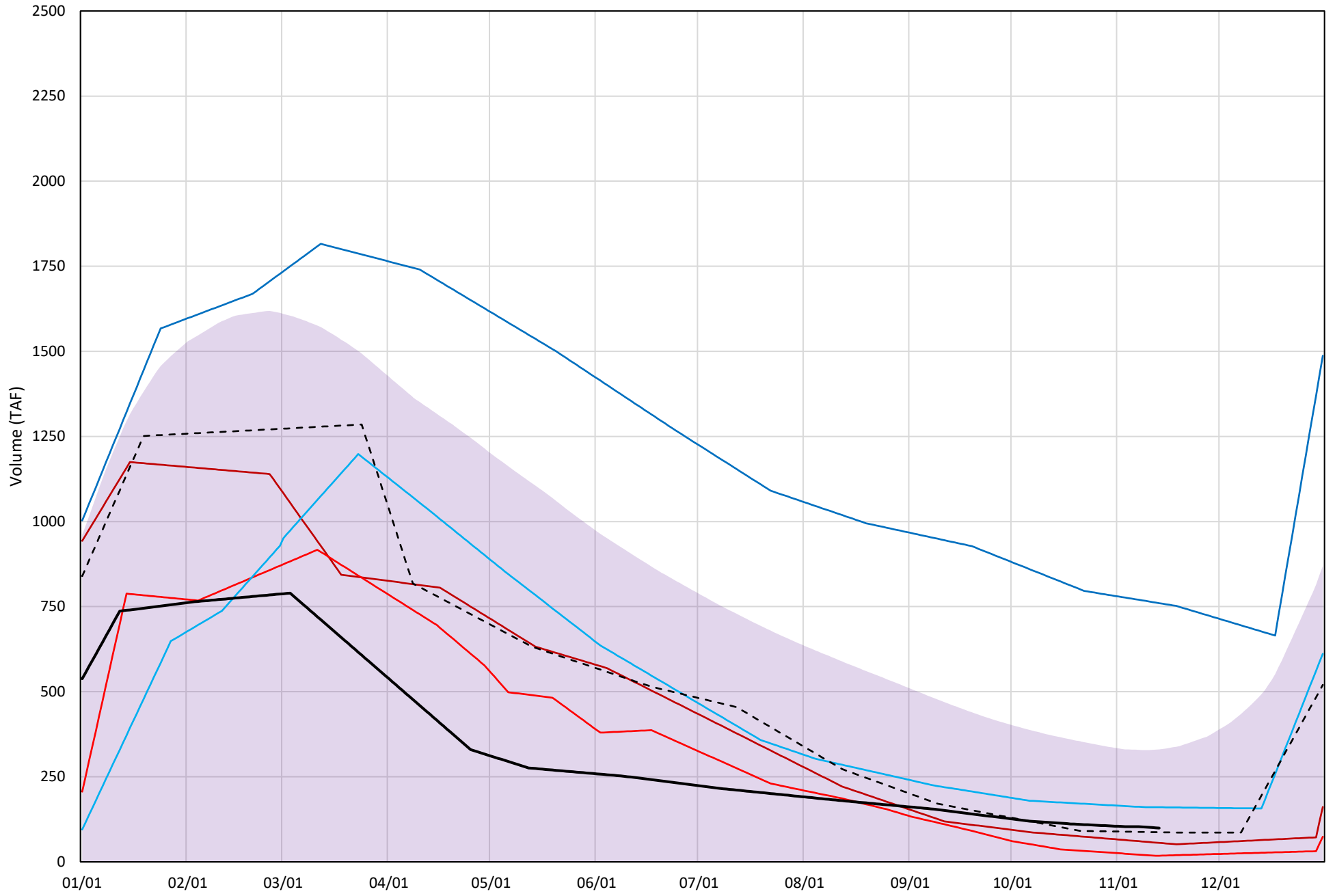
Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

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

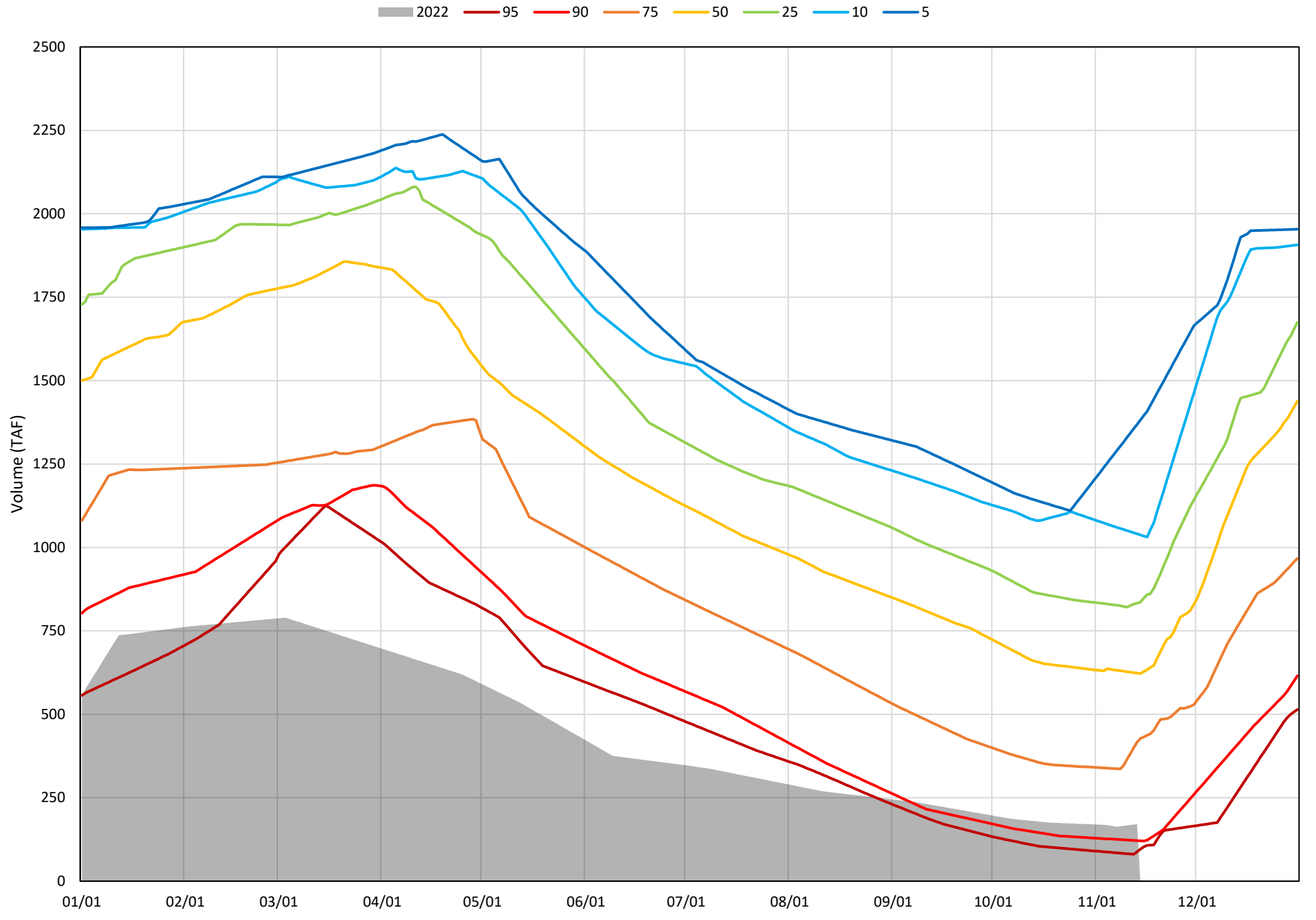


Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

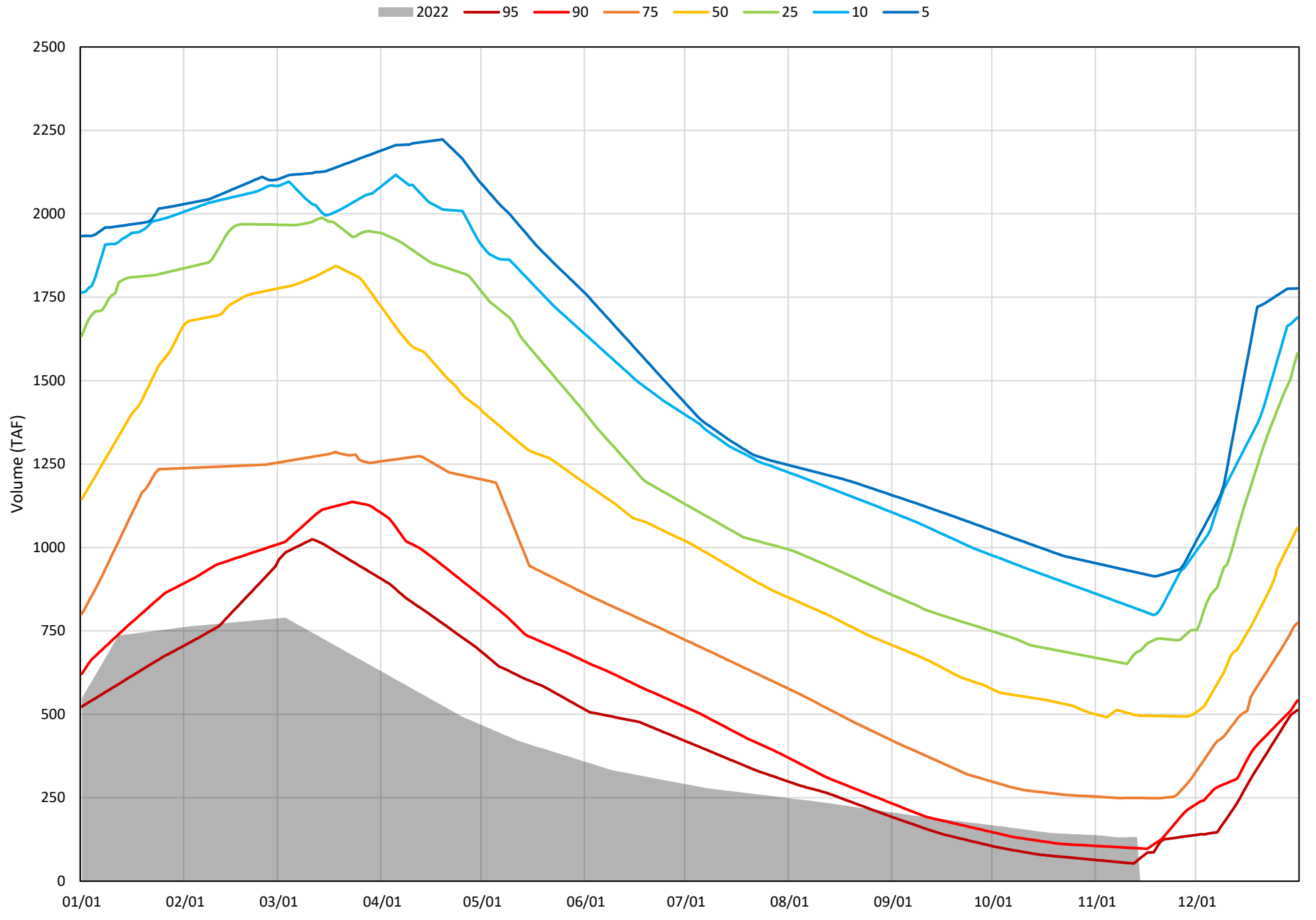
Avg (2000-2021) 2014 2015 2016 2019 2021 2022



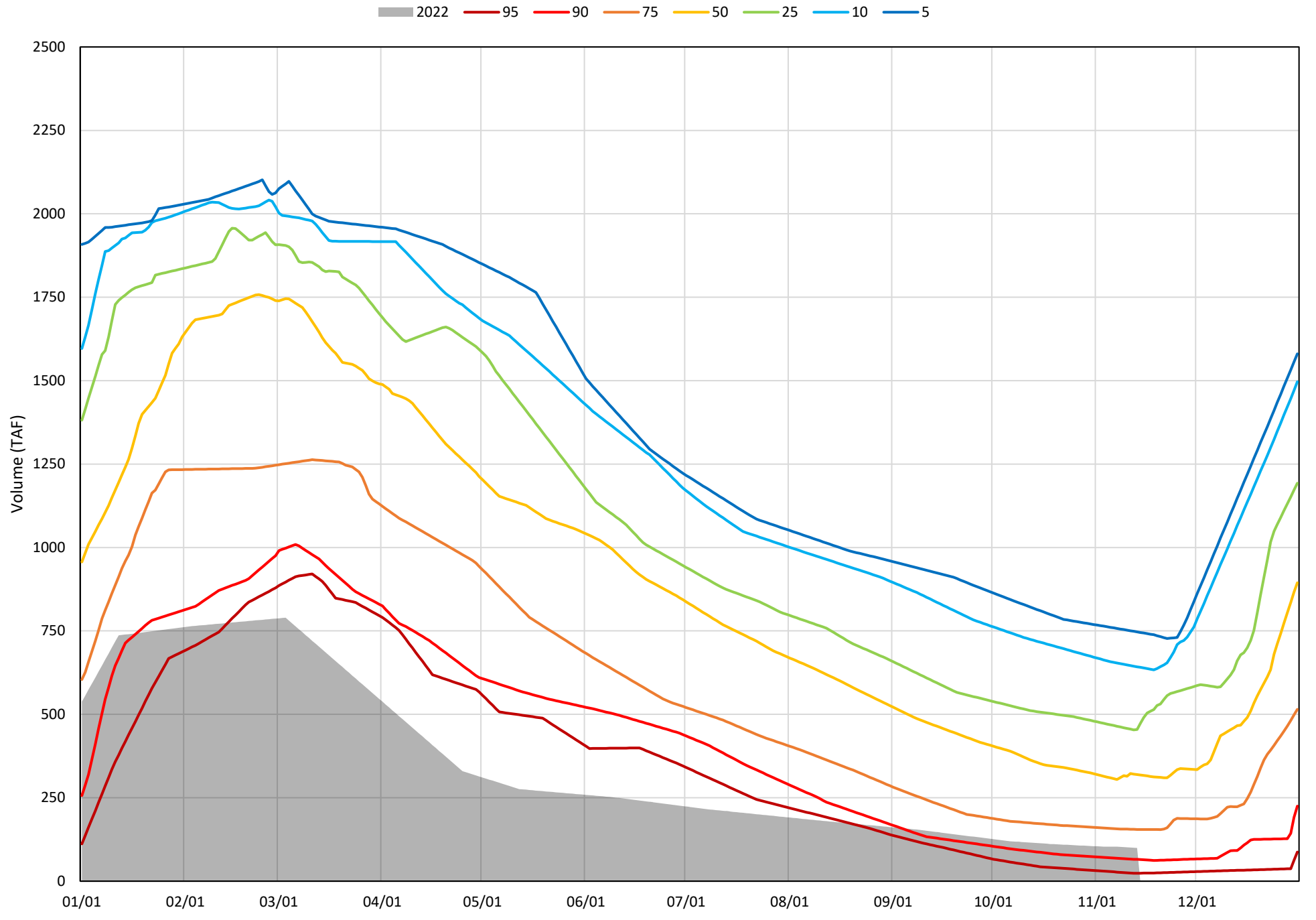
Trinity Lake Cold Water Pool Volume ≤52°F - Percent Exceedances (2000-2021)



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)

Nov-14 2022	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	563	393	196	384	330	296	197	274
2001	343	291	185	273	201	219	187	202
2002	385	337	253	325	225	254	254	245
2003	519	334	149	334	304	252	150	235
2004	336	245	105	229	197	185	106	162
2005	697	561	298	519	408	423	300	377
2006	1256	553	404	738	735	417	407	520
2007	456	418	334	403	267	315	337	306
2008	97	56	24	59	57	42	24	41
2009	166	121	39	109	97	91	40	76
2010	639	526	339	501	374	397	341	371
2011	871	691	447	670	510	521	450	494
2012	697	667	574	646	408	503	577	496
2013	281	225	142	216	164	169	143	159
2014	-61	-44	-44	50	-36	-33	-44	38
2015	-86	-76	-81	81	-51	-58	-82	63
2016	273	103	61	146	160	78	62	100
2017	651	477	296	475	381	360	298	346
2018	634	582	472	563	371	439	476	428
2019	867	810	661	779	508	611	665	595
2020	449	395	245	363	263	298	246	269
2021	-21	-9	-12	14	-12	-7	-12	11
2022	0	0	0	0	0	0	0	0

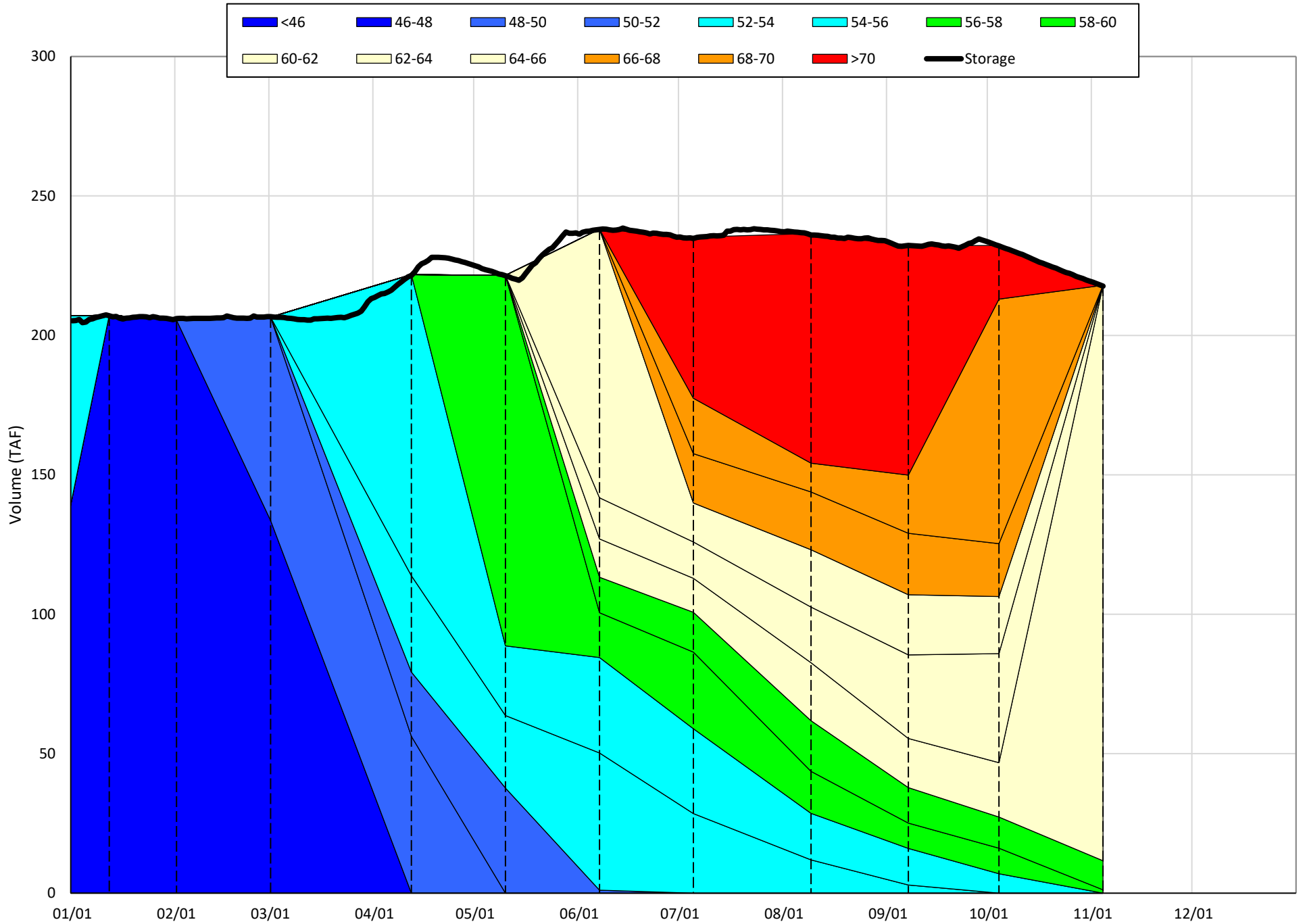
} Historic - Current
} (Historic - Current) / Current

Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

2022

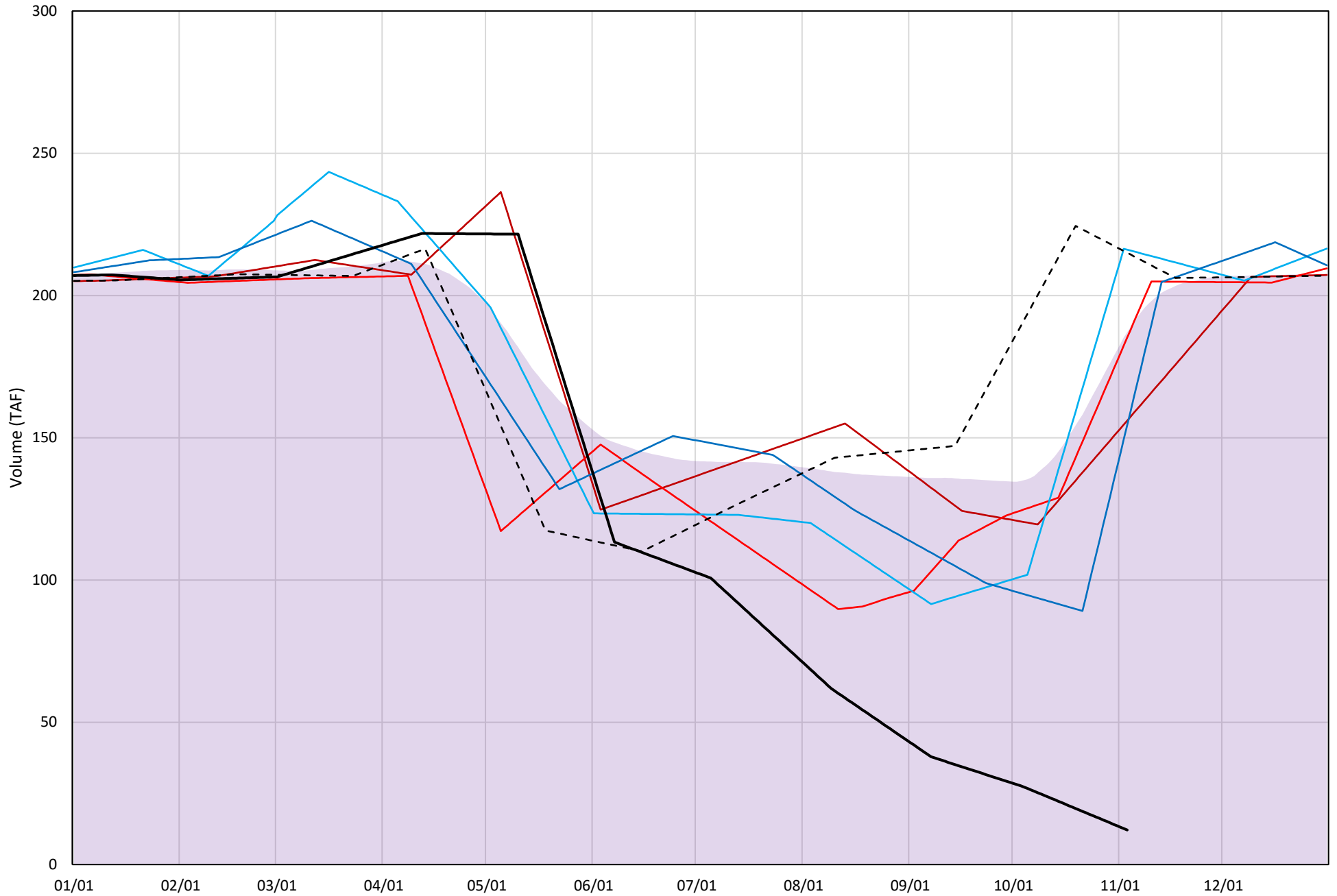
Page	Description
24	- Whiskeytown Lake Isothermobaths Plot
25	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$
26	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$
27	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$
28	- Whiskeytown Lake Cold Water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



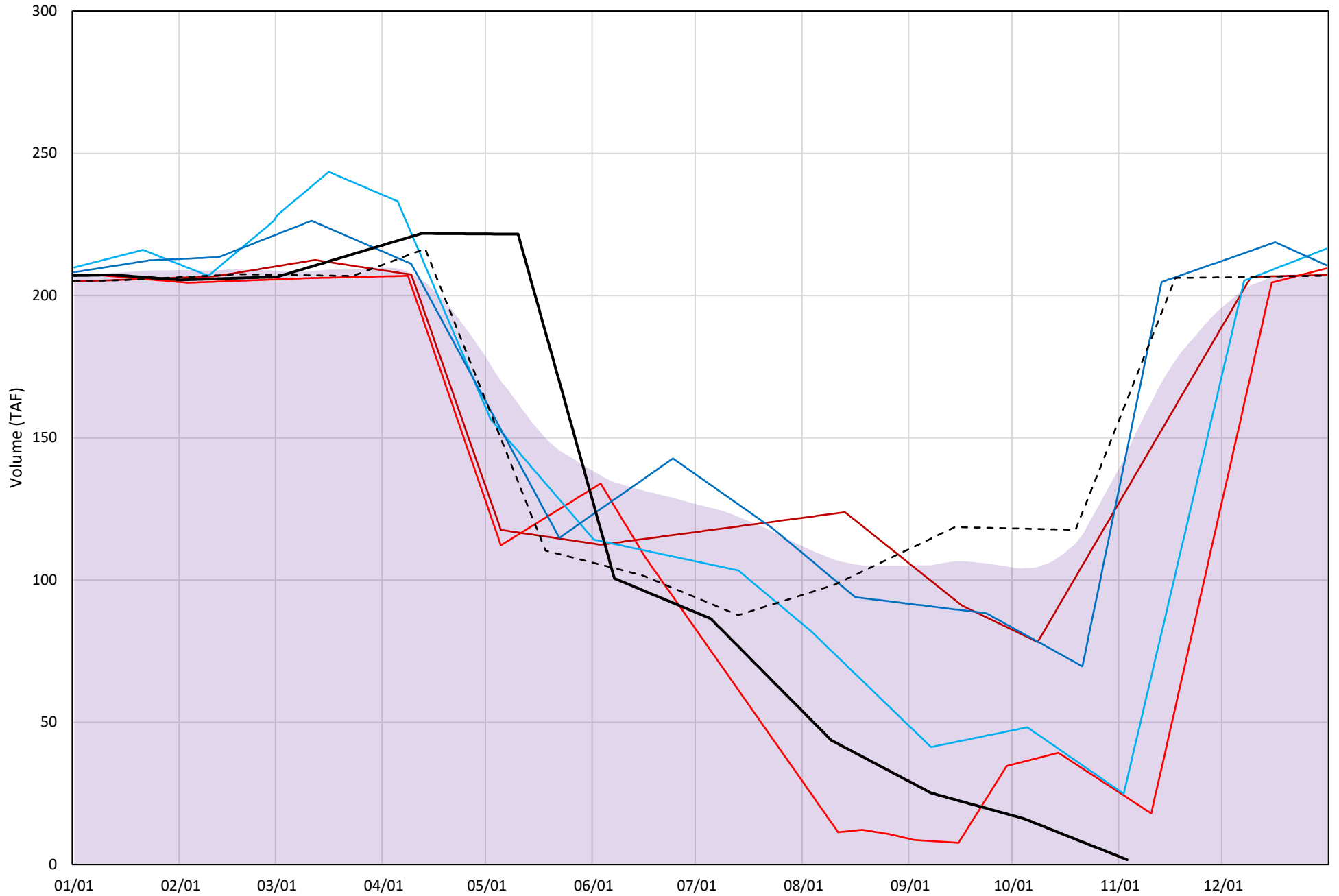
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

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



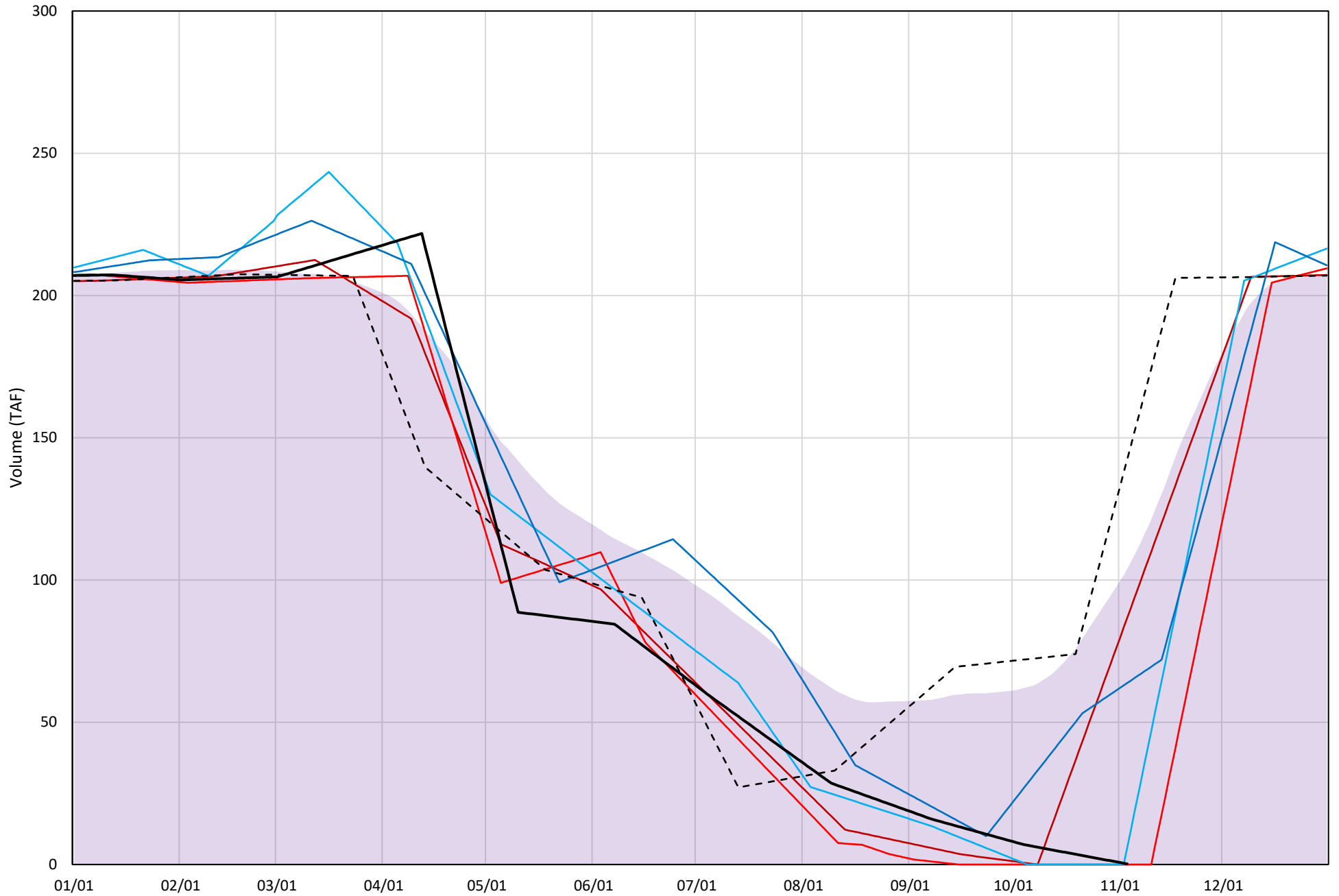
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

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

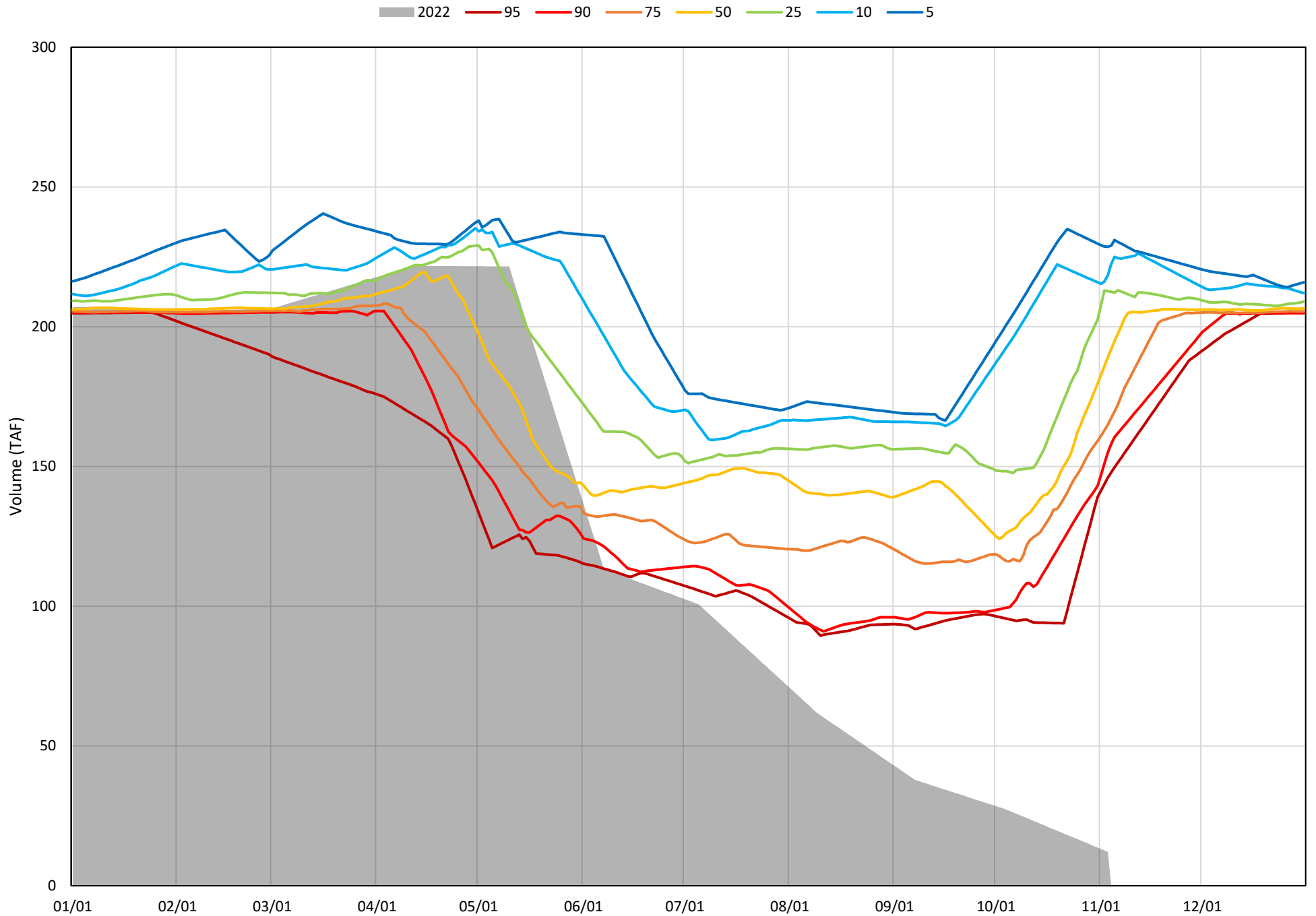


Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

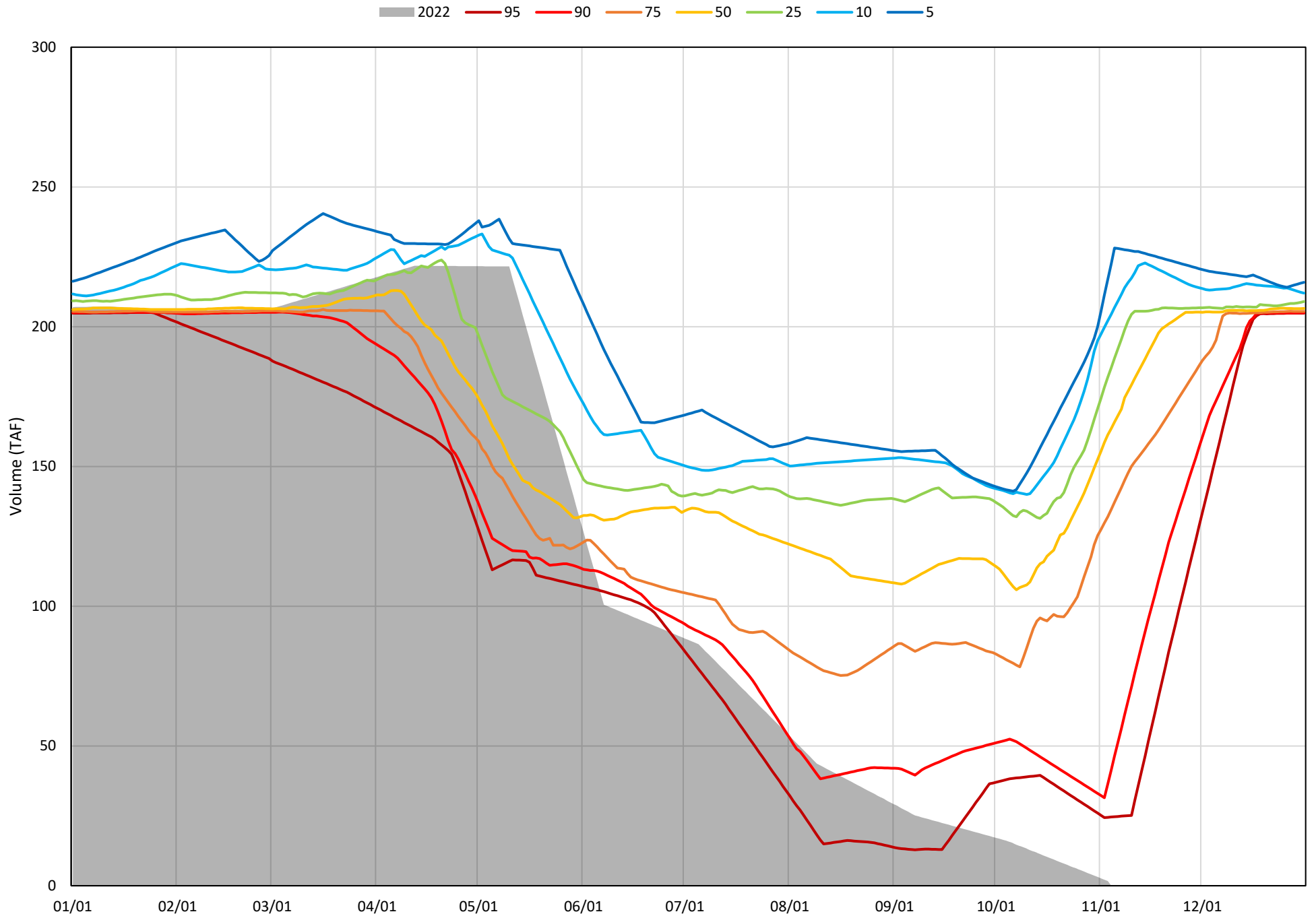
Avg (2000-2021) 2014 2015 2016 2019 2021 2022



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

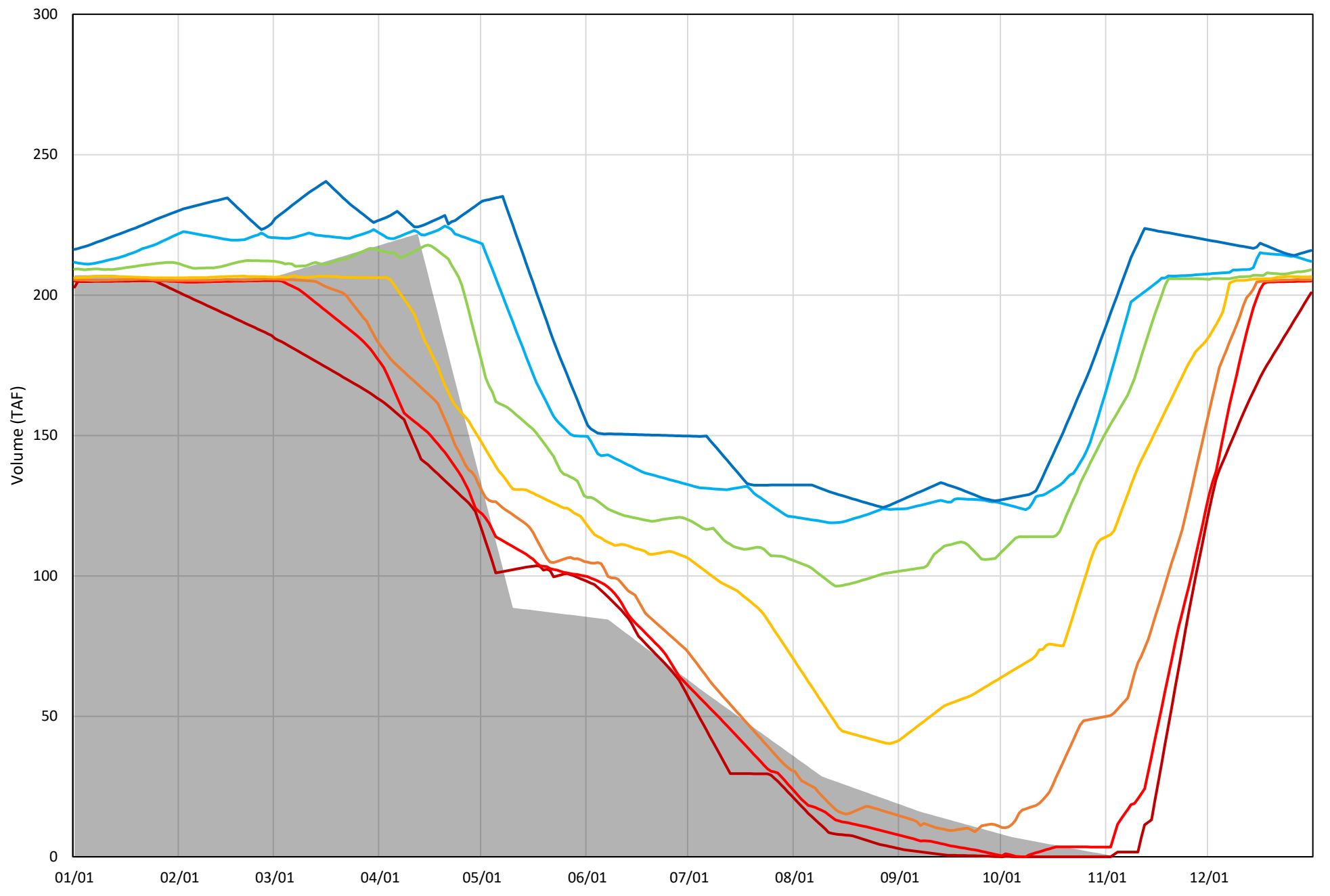


Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$ - Percent Exceedances (2000-2021)



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)

Nov-04 2022	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	132.3	137.4	128.5	132.8	1091.0	8189.3	57067.9	22116.1
2001	157.1	166.1	162.8	162.0	1294.9	9897.6	72293.2	27828.5
2002	158.6	164.7	154.7	159.3	1307.7	9814.4	68697.3	26606.5
2003	207.1	217.2	108.0	177.5	1707.5	12943.6	47983.1	20878.1
2004	195.4	204.0	199.4	199.6	1610.6	12153.0	88580.6	34114.8
2005	174.7	180.6	33.0	129.4	1440.3	10759.8	14665.0	8955.1
2006	152.4	161.3	159.5	157.7	1256.1	9610.3	70853.1	27239.8
2007	182.3	192.2	76.2	150.2	1502.7	11450.5	33851.8	15601.6
2008	157.7	165.8	163.0	162.2	1300.4	9876.8	72402.1	27859.8
2009	149.1	150.3	109.5	136.3	1229.2	8954.0	48629.1	19604.1
2010	201.3	49.8	35.8	95.6	1659.1	2964.9	15893.6	6839.2
2011	179.0	188.2	181.4	182.8	1475.3	11211.0	80556.1	31080.8
2012	185.7	80.9	56.1	107.6	1530.9	4822.5	24900.8	10418.0
2013	218.1	139.4	132.5	163.3	1798.0	8304.6	58848.8	22983.8
2014	143.9	130.4	86.4	120.2	1186.3	7767.1	38374.9	15776.1
2015	173.1	21.8	-0.2	65.0	1426.9	1299.9	-100.0	942.3
2016	204.0	28.3	5.6	79.3	1681.6	1687.8	2504.2	1957.9
2017	200.4	130.3	122.3	151.0	1651.9	7763.6	54302.4	21239.3
2018	179.5	180.1	11.3	123.6	1479.6	10730.9	5032.5	5747.7
2019	142.3	144.3	63.6	116.7	1173.4	8599.5	28233.5	12668.8
2020	153.0	158.0	148.5	153.2	1261.4	9412.5	65948.3	25540.7
2021	202.9	161.8	142.1	168.9	1672.5	9637.8	63128.5	24812.9
2022	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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