

# Northern CVP Water Temperature Report

## December - 2020

Page	Description
2	- Mean Daily Water Temperature, Release Flow Rates and Air Temperatures with Monthly Averages
3	- Redding 10-Day Forecasted Air Temperatures
4	- Sacramento River Mean Daily Water Temperature, Air Temperature and 10-Day Forecasted Air Temperature Plot - Water Temperature Measuring Station Details - Temperature Control Point Details
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	- <a href="#">TCD Configuration</a> (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 <sup>1</sup>	SHD	SPP <sup>1</sup>	KWK	SAC	CCR <sup>2</sup>	BSF	JLF	BND	RDB	IGO <sup>3</sup>	LWS	DGC	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB		
Nov	55.2	54.8	54.8	54.2	54.1	54.1	53.5	53.3	53.3	53.0	52.1	46.9	45.7	46.3	4234	159	4521	52.4	48.3	51.4		
12/01	54.9	54.1	52.6	53.6	53.5	53.5	52.5	51.9	51.6	51.2	49.8	45.0	43.4	43.3	3449	162	3836	56.5	47.2	52.7		
12/02	54.6	54.0	52.8	53.4	53.3	53.3	52.3	51.8	51.6	51.4	49.4	44.9	43.0	43.0	3496	125	3718	52.5	45.9	49.3		
12/03	54.5	53.7	52.6	53.4	53.3	53.1	52.1	51.7	51.4	51.2	49.4	44.9	42.4	42.5	3275	98	3611	50.0	43.9	48.0		
12/04	54.4	53.5	52.2	53.4	53.3	53.1	52.1	51.6	51.3	51.0	49.3	44.9	42.5	42.2	3552	172	3519	53.0	45.8	50.3		
12/05	54.3	53.5	52.2	53.2	53.1	52.8	51.7	51.3	51.0	50.8	49.0	45.0	42.6	42.0	3065	186	3511	46.0	43.0	46.3		
12/06	54.2	53.4	51.9	53.0	53.0	52.8	51.9	51.5	51.3	50.9	49.0	45.1	43.6	43.4	2955	174	3505	50.0	51.2	54.0		
12/07	54.2	53.5	52.0	53.0	53.0	52.9	52.1	51.7	51.5	51.2	49.3	45.0	42.4	42.4	3171	139	3509	56.5	57.3	59.1		
12/08	55.3	54.1	52.1	52.9	52.8	52.7	51.7	51.3	51.1	51.1	49.0	45.0	41.7	41.3	3318	86	3513	54.5	48.0	53.1		
12/09	56.4	55.5	51.6	52.8	52.7	52.4	51.5	51.1	50.9	50.7	49.7	45.1	41.8	40.9	3461	258	3511	51.0	49.4	53.3		
12/10	56.3	55.6	51.9	52.9	52.7	52.5	51.7	51.4	51.1	50.9	49.8	45.0	42.5	41.8	3090	255	3509	55.0	53.4	56.5		
12/11	55.9	55.1	51.9	53.7	53.1	52.6	51.3	50.7	50.5	50.4	49.6	44.9	42.3	41.5	3083	200	3505	43.5	42.0	45.5		
12/12	55.8	54.9	51.5	54.2	53.8	53.6	52.5	52.1	51.8	50.9	49.9	45.0	50.3	43.2	3174	160	3506	49.5	47.1	48.4		
12/13	55.7	54.8	51.4	54.3	53.8	53.5	52.6	52.2	52.1	51.6	49.5	44.7	45.9	43.4	3069	80	3509	41.5	44.3	45.3		
12/14	55.4	54.7	50.8	54.1	53.7	53.3	51.8	51.5	51.4	51.3	48.8	44.7	44.3	42.2	2758	351	3516	43.5	42.7	45.3		
12/15	55.1	54.4	?	51.1	53.9	53.5	53.3	52.0	?	51.4	51.2	50.9	44.7	44.7	3070	304	3522	45.0	42.3	45.2		
12/16	54.8	54.1	51.2	53.7	53.3	52.8	51.7	!	-	51.1	50.7	48.9	44.7	44.4	?	44.4	3300	78	3524	41.5	40.9	42.8
12/17	54.7	54.0	50.7	53.8	53.5	53.3	52.2	#	-	51.8	51.3	48.9	44.7	44.4	44.4	3396	177	3435	49.0	47.3	49.5	
12/18	54.7	54.1	50.4	53.6	53.3	53.0	51.4	!	-	#	-	51.0	48.3	44.7	43.5	43.1	2809	374	3307	49.5	44.3	46.7
12/19	54.4	53.8	50.7	53.3	53.0	52.6	51.2	50.6	#	-	50.2	48.3	44.8	43.3	43.0	2941	214	3266	43.0	40.6	44.2	
12/20	54.3	53.5	50.4	53.2	53.0	52.9	51.5	50.7	#	-	50.1	48.6	44.9	44.4	43.8	2840	142	3263	49.0	42.5	45.8	
12/21	54.0	53.3	50.1	53.1	52.9	52.6	51.4	50.9	#	-	50.3	48.3	45.0	44.6	44.3	2998	124	3259	43.5	42.1	44.5	
12/22	53.9	53.1	49.7	53.1	52.8	52.5	51.3	50.8	#	-	50.4	47.9	44.9	44.2	43.5	2569	304	3264	46.0	46.5	48.5	
12/23	54.3	53.6	49.9	52.7	52.5	52.0	50.4	49.8	#	-	49.5	47.5	44.7	43.2	42.2	2769	175	3259	48.5	47.4	48.7	
12/24	53.8	53.2	50.2	52.4	52.1	51.5	50.0	49.3	#	-	48.8	47.1	44.6	42.1	40.4	2995	93	3260	42.5	38.2	41.2	
12/25	53.4	52.8	49.4	52.1	51.9	51.4	50.2	49.6	#	-	48.8	47.7	44.8	43.5	41.4	2900	286	3264	43.5	42.0	44.1	
12/26	53.3	52.6	49.5	52.3	52.2	52.1	50.3	50.2	50.5	50.2	48.1	44.9	43.3	42.5	2872	145	3260	50.0	48.3	50.3		
12/27	53.3	52.6	49.4	52.3	52.1	51.8	50.2	49.8	49.7	49.9	47.5	44.8	43.5	42.9	2936	143	3261	46.0	41.7	45.1		
12/28	53.3	52.6	49.4	52.1	51.9	51.6	50.0	49.4	49.2	49.1	47.3	44.5	42.3	42.1	2708	197	3263	46.0	42.1	45.3		
12/29	53.1	52.4	49.3	51.8	51.6	51.2	49.8	49.2	48.9	48.7	47.0	44.3	41.7	41.3	2740	264	3267	48.5	43.6	45.7		
12/30	52.7	52.0	49.3	51.7	51.5	51.1	49.8	49.2	48.6	48.6	47.3	44.3	41.6	40.8	3131	199	3265	42.5	42.5	44.6		
12/31	52.5	51.8	49.0	51.7	51.5	51.2	50.2	49.8	48.5	49.2	47.2	44.3	42.9	42.2	3141	177	3261	46.0	43.8	46.6		
Dec	54.4	53.7	50.9	53.1	52.8	52.6	51.3	50.8	50.8	50.4	48.6	44.8	43.4	42.5	3066	188	3419	47.8	45.1	47.9		
															Total CFS	95031	5842	105978				
															Total AF	188490	11587	210203				

Legend

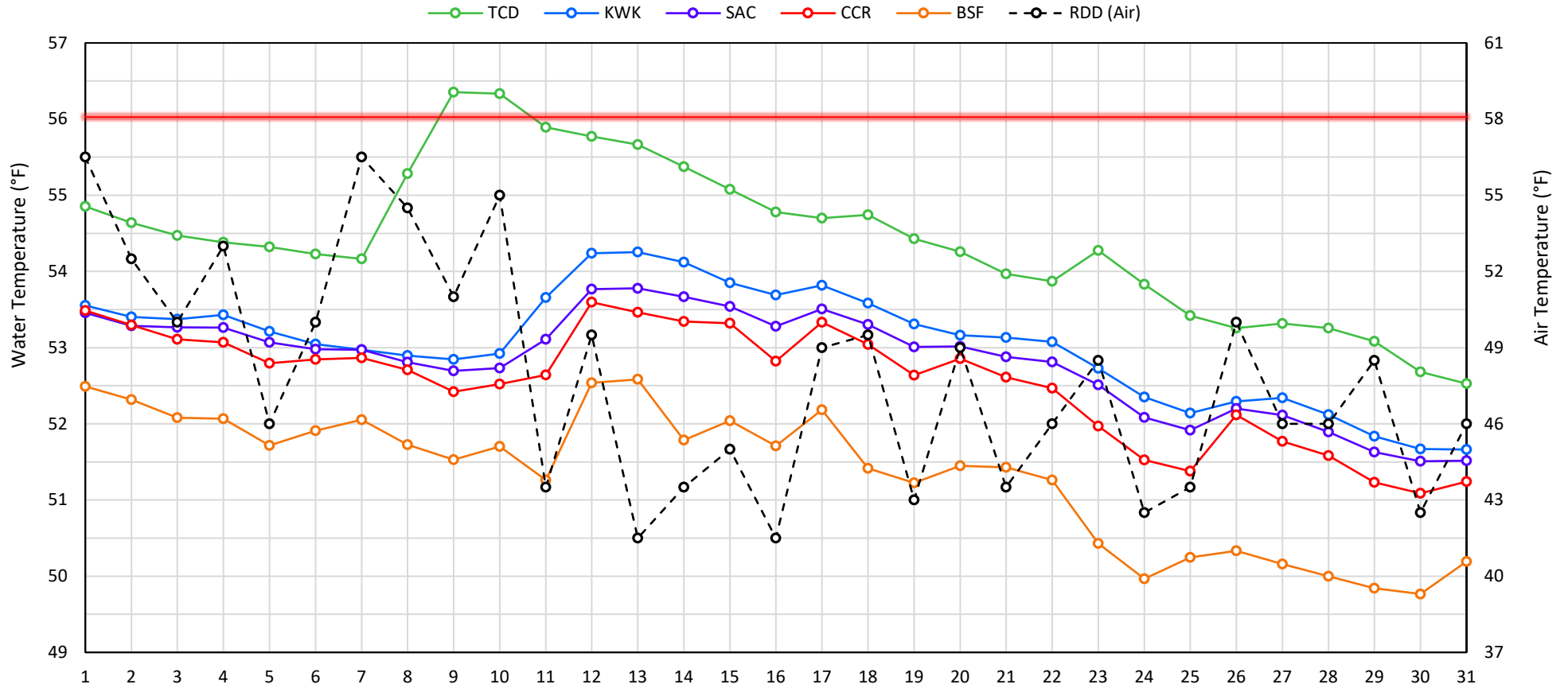
- ? = 1-9 hours of data missing (Average includes estimations)
- ! = 10 or more hours of data missing (Average not calculated)
- # = Station out of service
- ↑ = Record high air temperature
- ↓ = Record low air temperature
- = Monthly Averages

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



## 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>
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
Sacramento	BSF	56	05/15/2019	09/20/2020
Sacramento	CCR	56	09/21/2020	TBD
Trinity	DGC	56	09/15/2020	10/01/2020
Trinity	NFH	56	10/01/2020	12/31/2020

### Notes

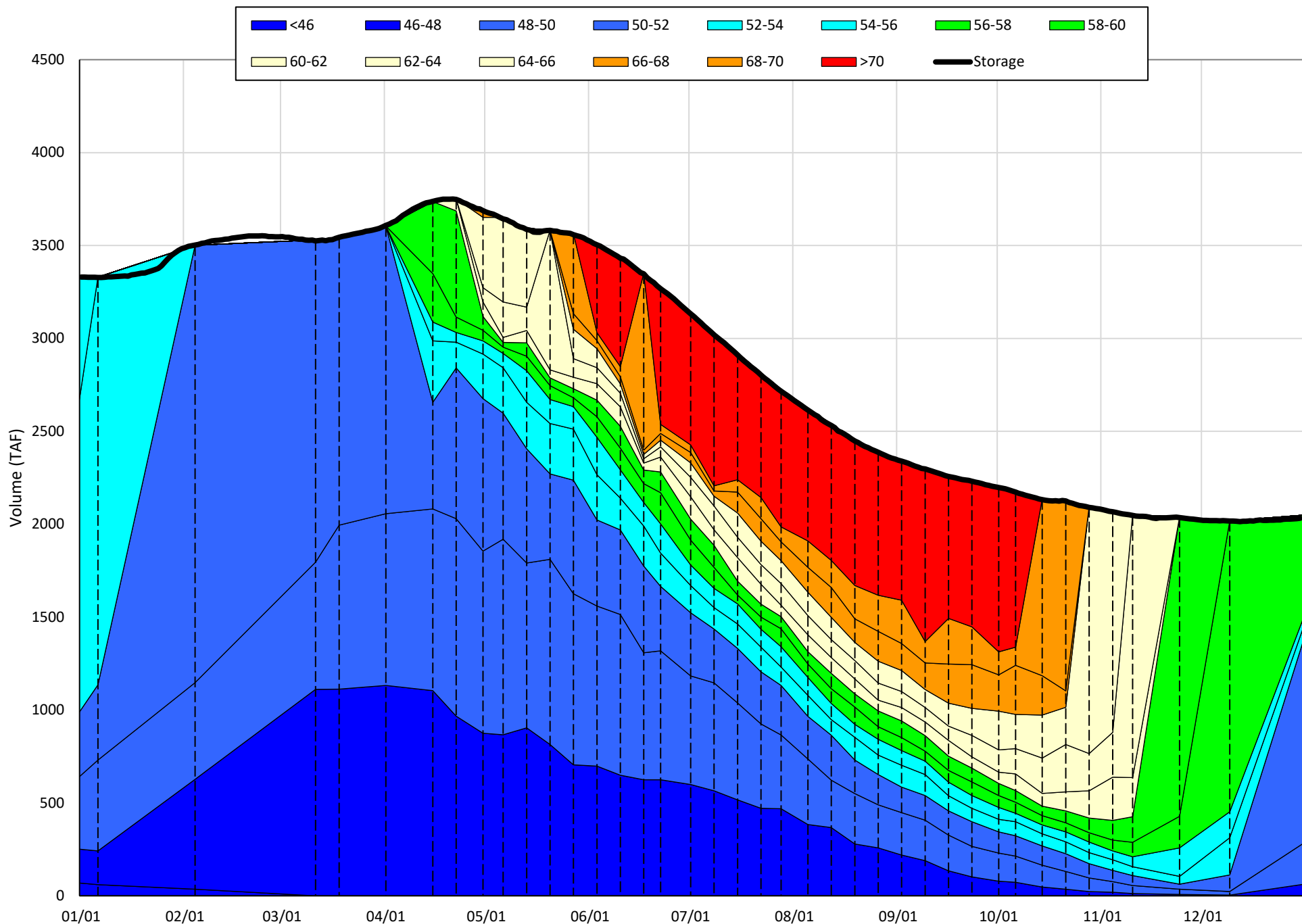
<sup>1</sup> Distances are approximate

# Shasta Lake Isothermobaths & Cold Water Pool Statistics

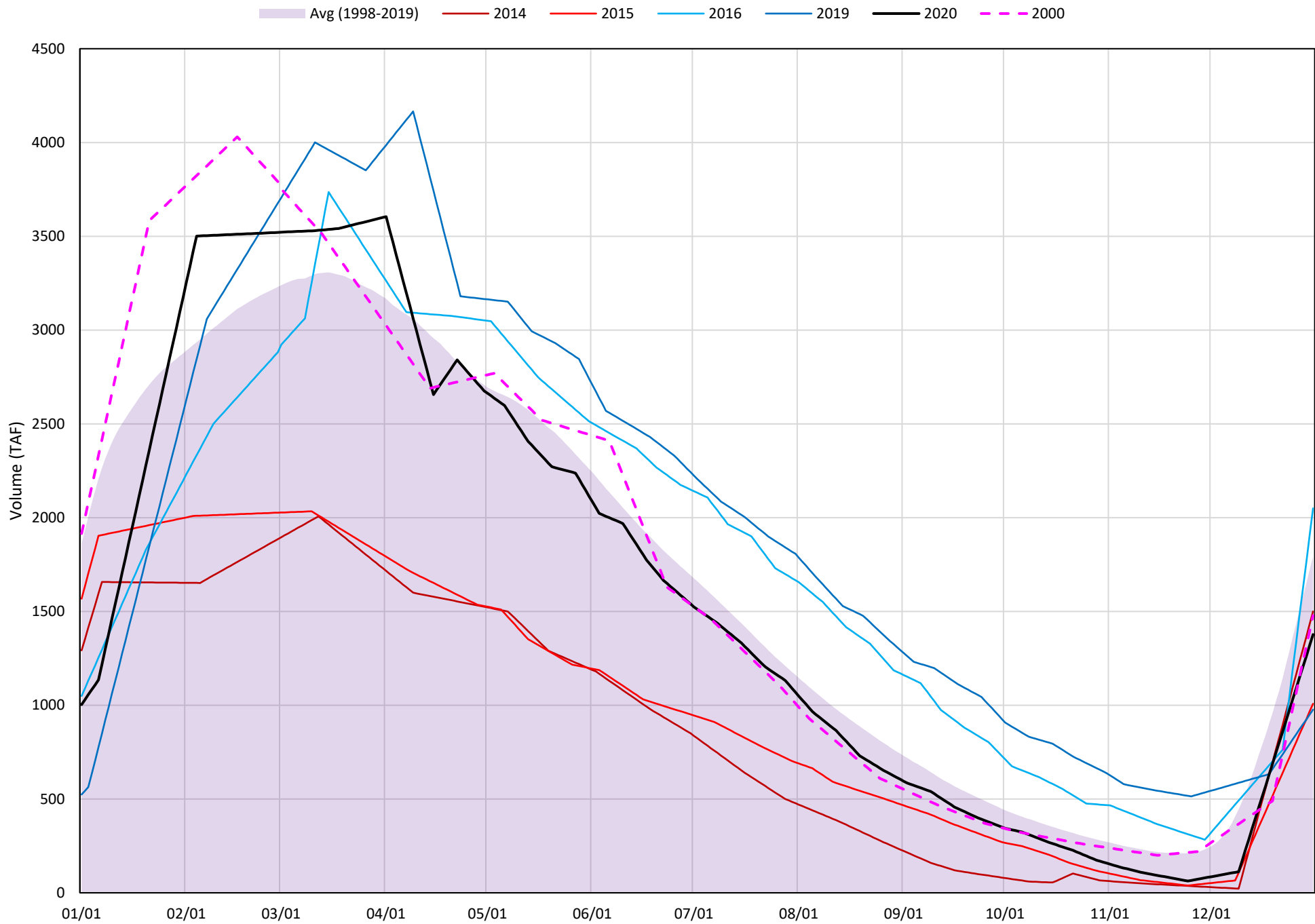
## 2020

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

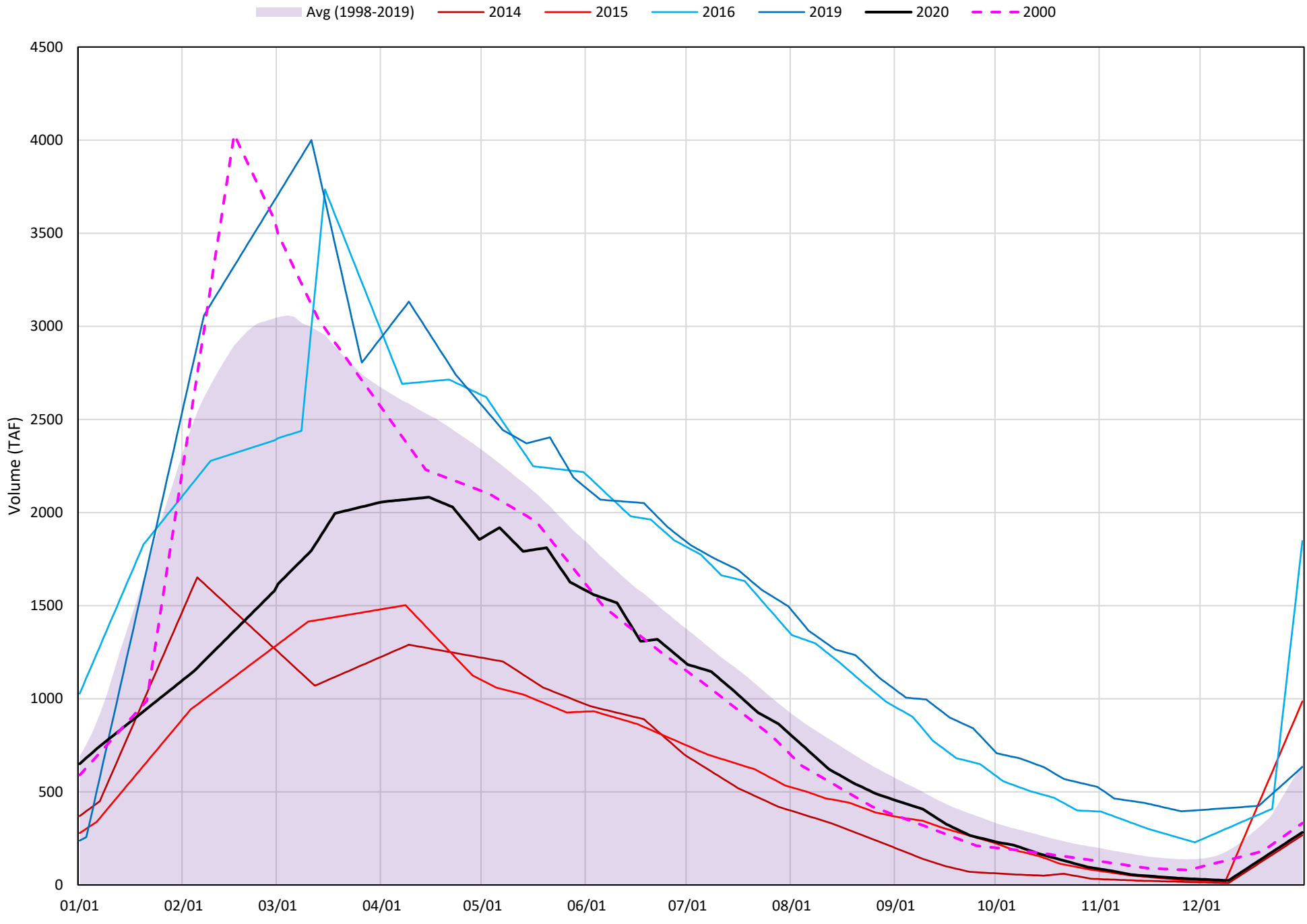
Shasta Lake Isothermobaths Plot - 2020



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



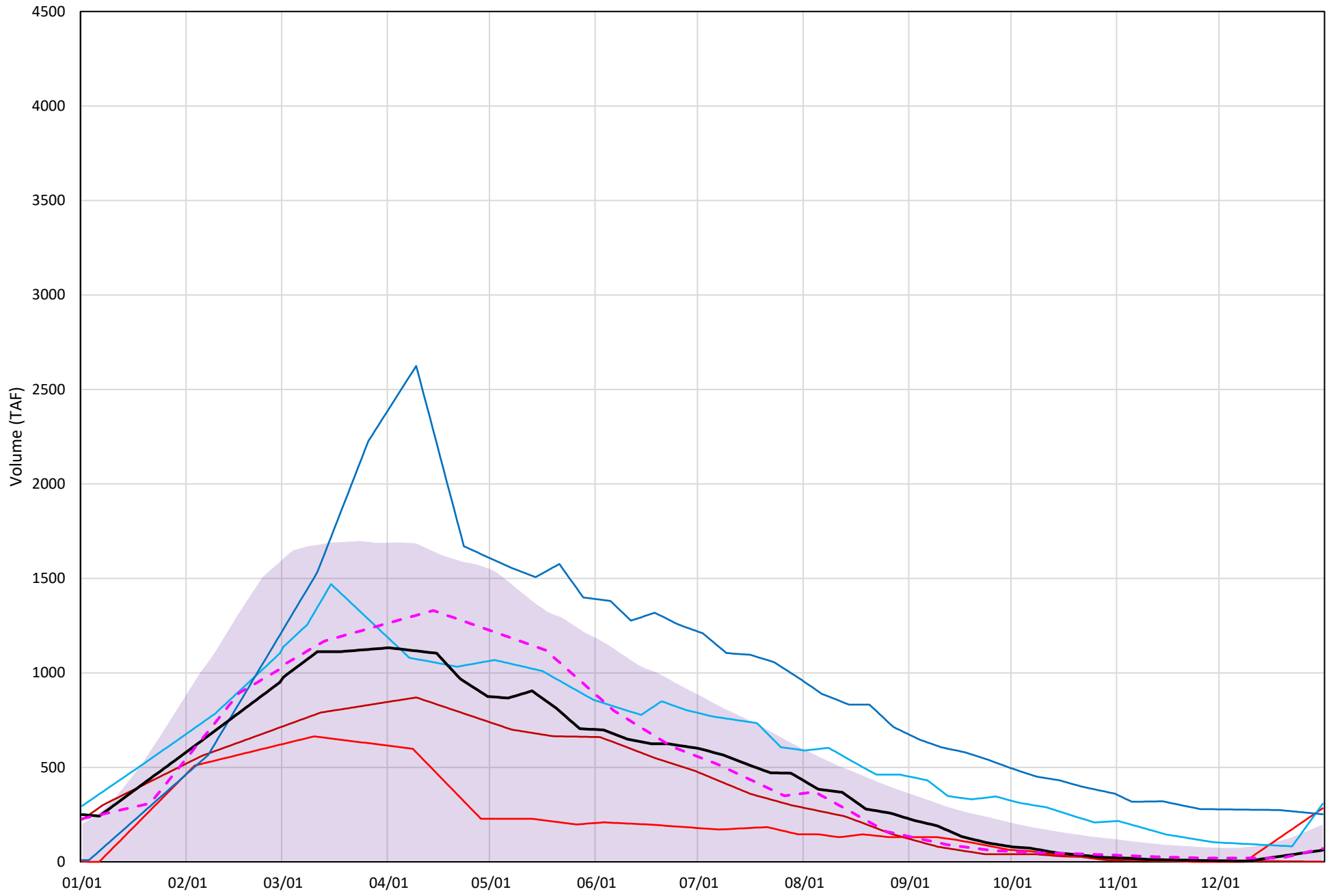
# Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$



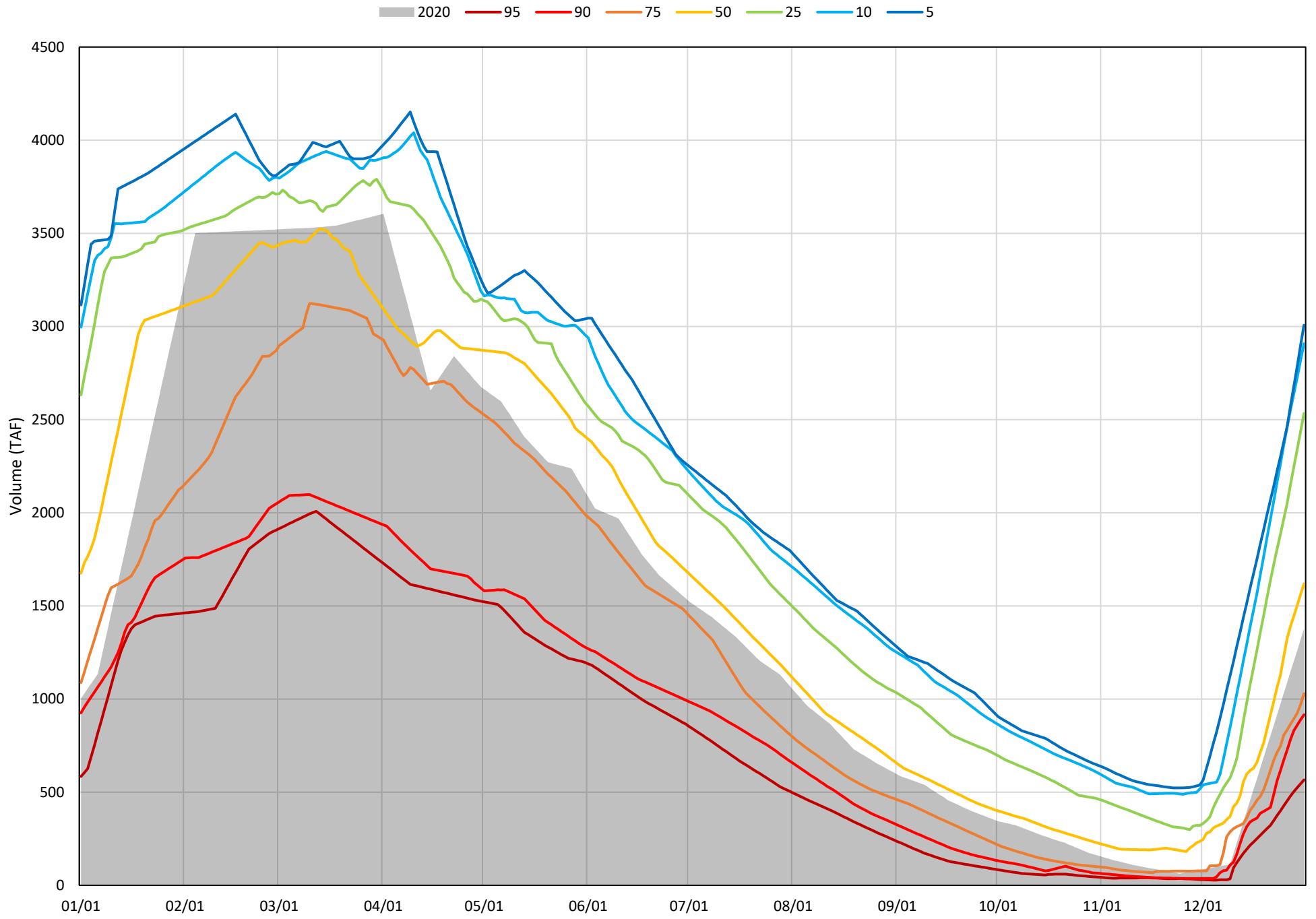


# Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

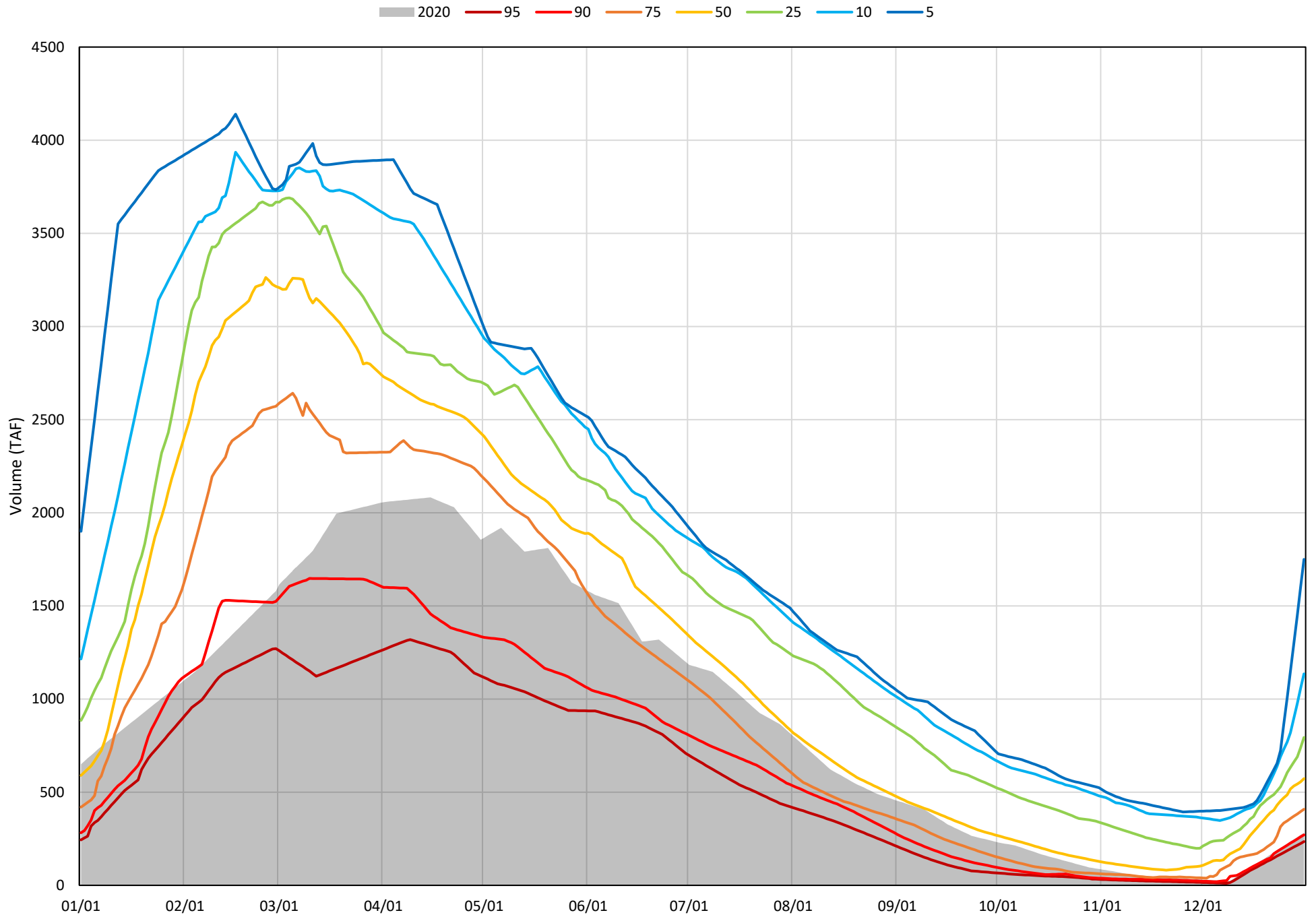
Avg (1998-2019) 2014 2015 2016 2019 2020 2000



Shasta Lake Cold Water Pool Volume  $\leq 52^{\circ}\text{F}$  - Percent Exceedances (1998-2019)

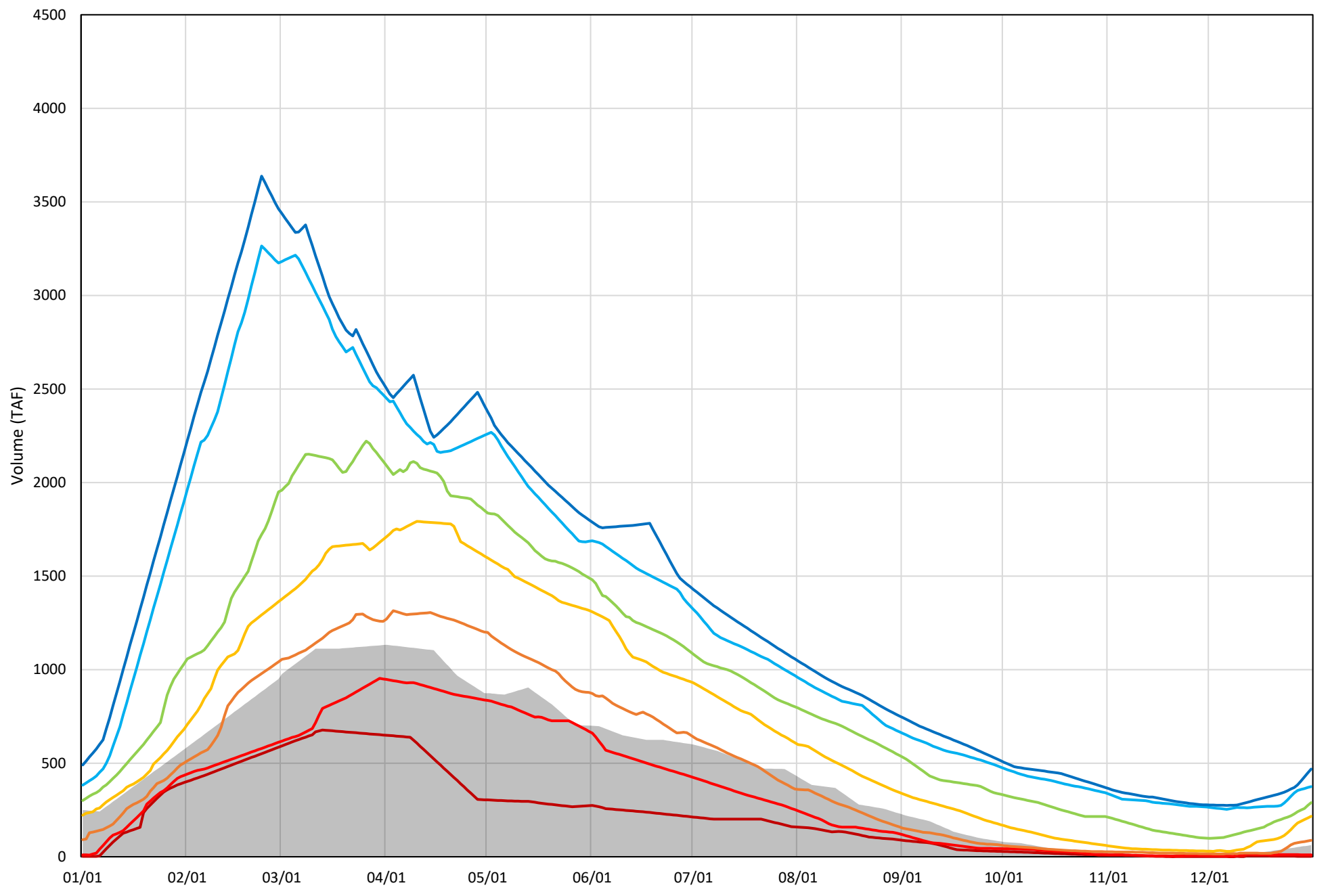


Shasta Lake Cold Water Pool Volume  $\leq 50^{\circ}\text{F}$  - Percent Exceedances (1998-2019)



Shasta Lake Cold Water Pool Volume  $\leq 48^{\circ}\text{F}$  - Percent Exceedances (1998-2019)

2020 95 90 75 50 25 10 5



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

Dec-31 2020	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
1998	1202	571	398	724	91	211	671	324
1999	429	279	160	289	33	103	270	135
2000	76	48	7	44	6	18	12	12
2001	-44	834	124	334	-3	308	209	173
2002	1442	340	177	653	109	126	298	177
2003	1524	142	-47	571	116	53	-79	82
2004	-348	433	84	289	-26	160	142	110
2005	1097	406	100	534	83	150	169	134
2006	1177	290	158	542	89	107	267	154
2007	278	-1	32	103	21	0	53	25
2008	-426	618	67	370	-32	228	112	124
2009	206	189	168	188	16	70	284	123
2010	1589	270	-33	630	120	100	-55	92
2011	1000	280	335	538	76	103	564	248
2012	1093	340	234	556	83	126	394	201
2013	-149	72	138	120	-11	27	232	90
2014	114	-15	-58	62	9	-6	-98	37
2015	-352	673	212	412	-27	248	358	211
2016	587	1416	223	742	45	523	377	315
2017	-432	227	254	305	-33	84	429	182
2018	-834	-51	-50	312	-63	-19	-84	55
2019	-369	347	194	303	-28	128	328	161
2020	0	0	0	0	0	0	0	0

Historic - Current

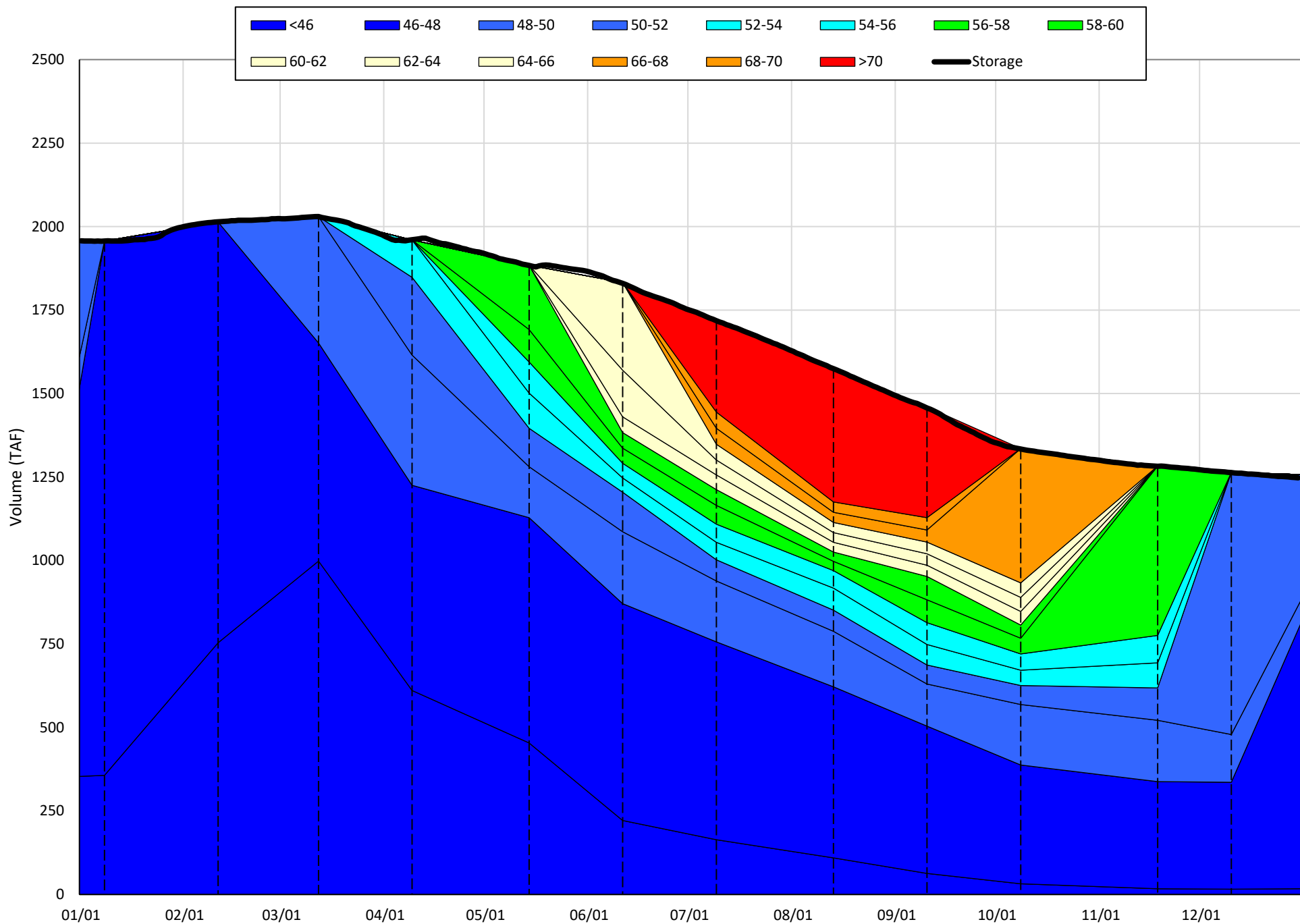
(Historic - Current) / Current

# Trinity Lake Isothermobaths & Cold Water Pool Statistics

## 2020

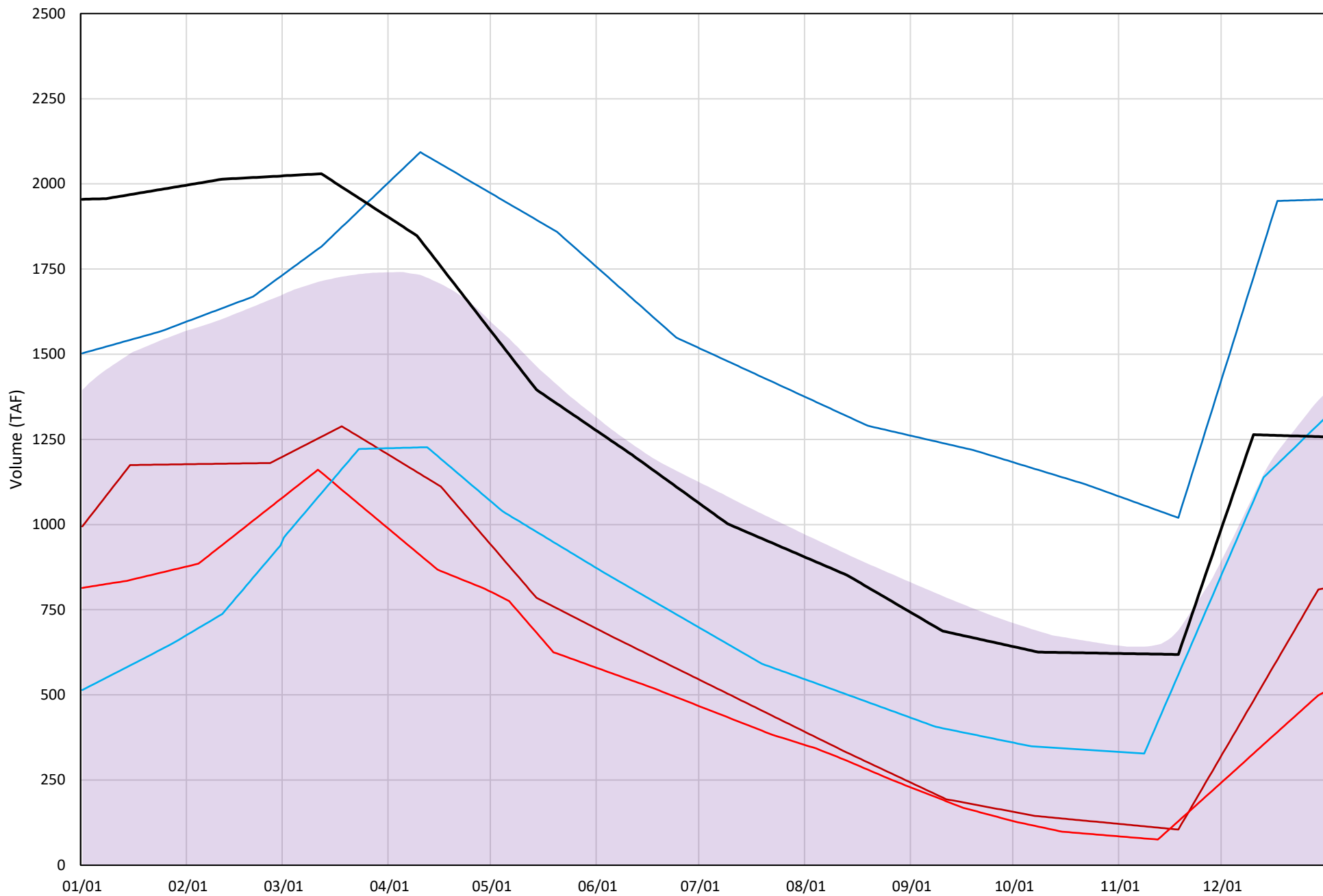
Page	Description
15	- Trinity Lake Isothermobaths Plot
16	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$
17	- Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$
18	- Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$
19	- Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - 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 - 2020



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

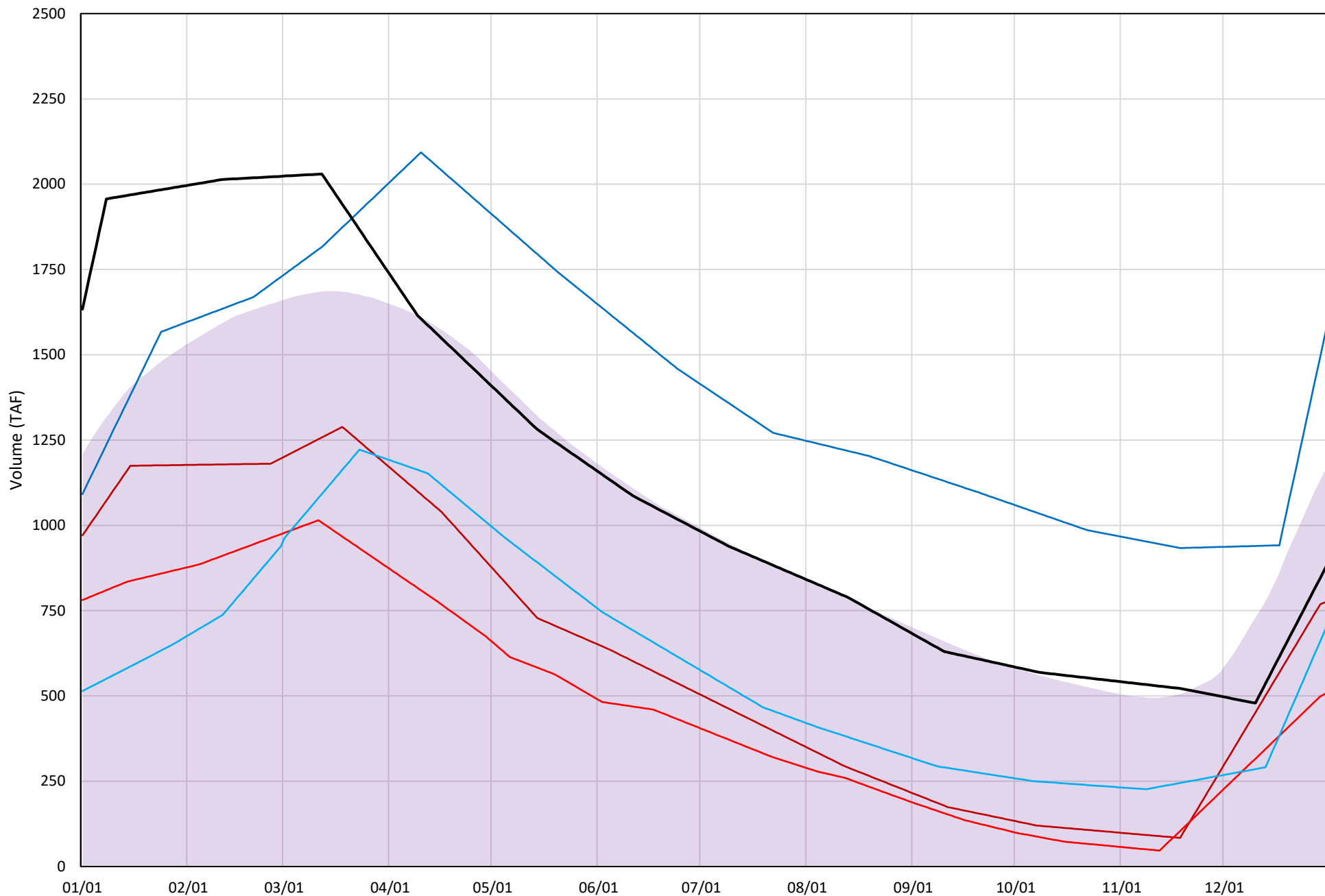
Avg (2000-2019) 2014 2015 2016 2019 2020





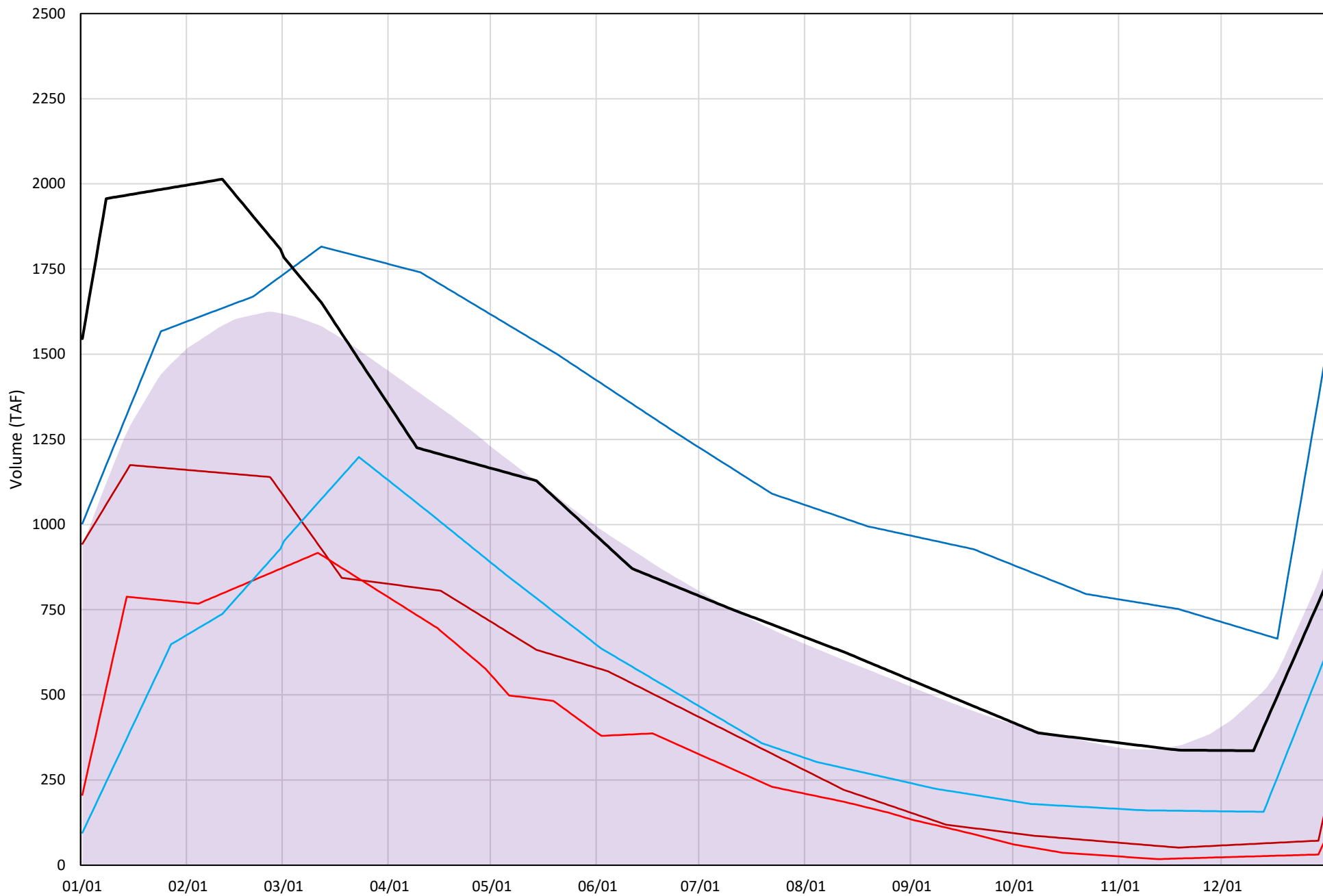
# Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

Avg (2000-2019) 2014 2015 2016 2019 2020

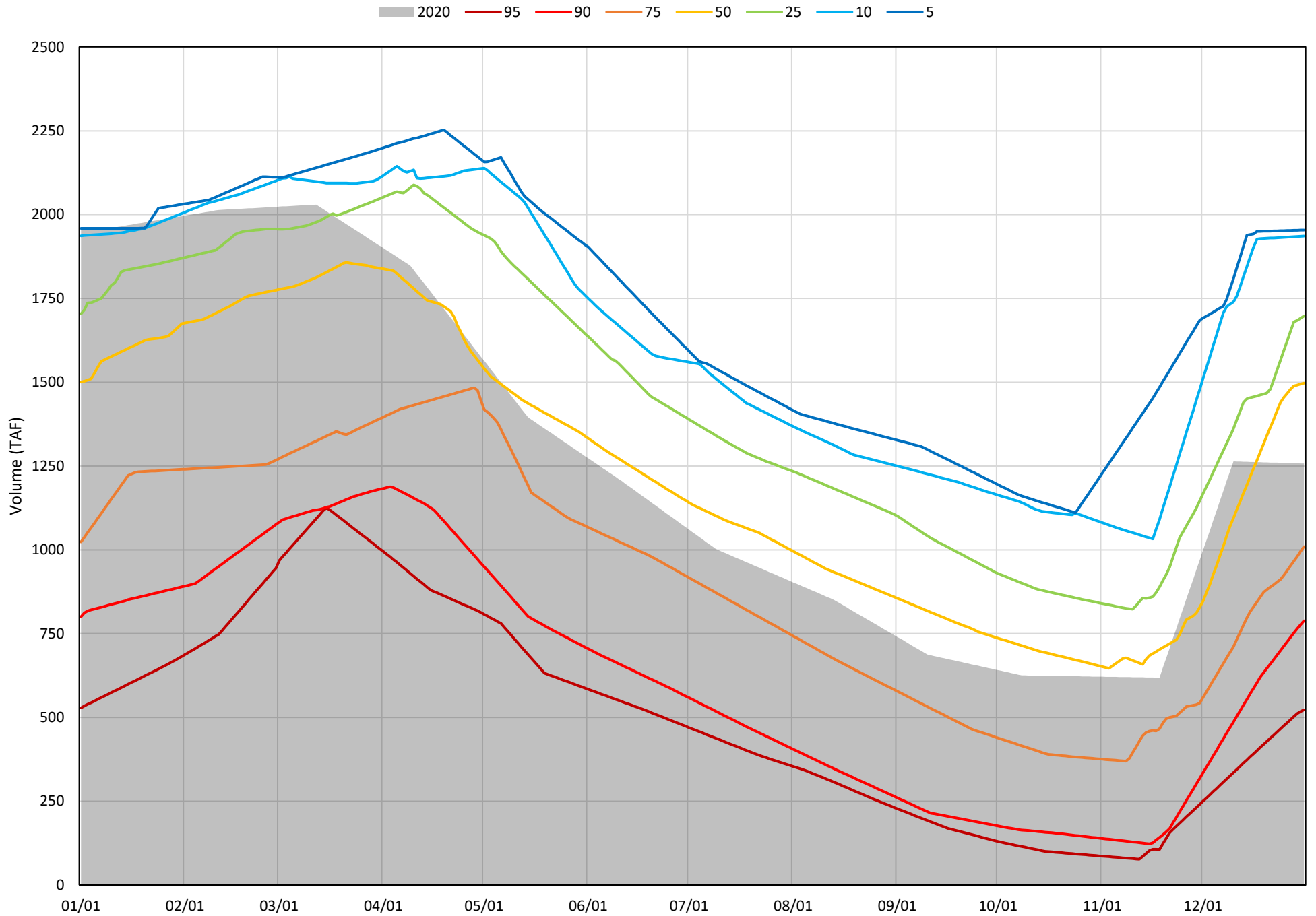


# Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

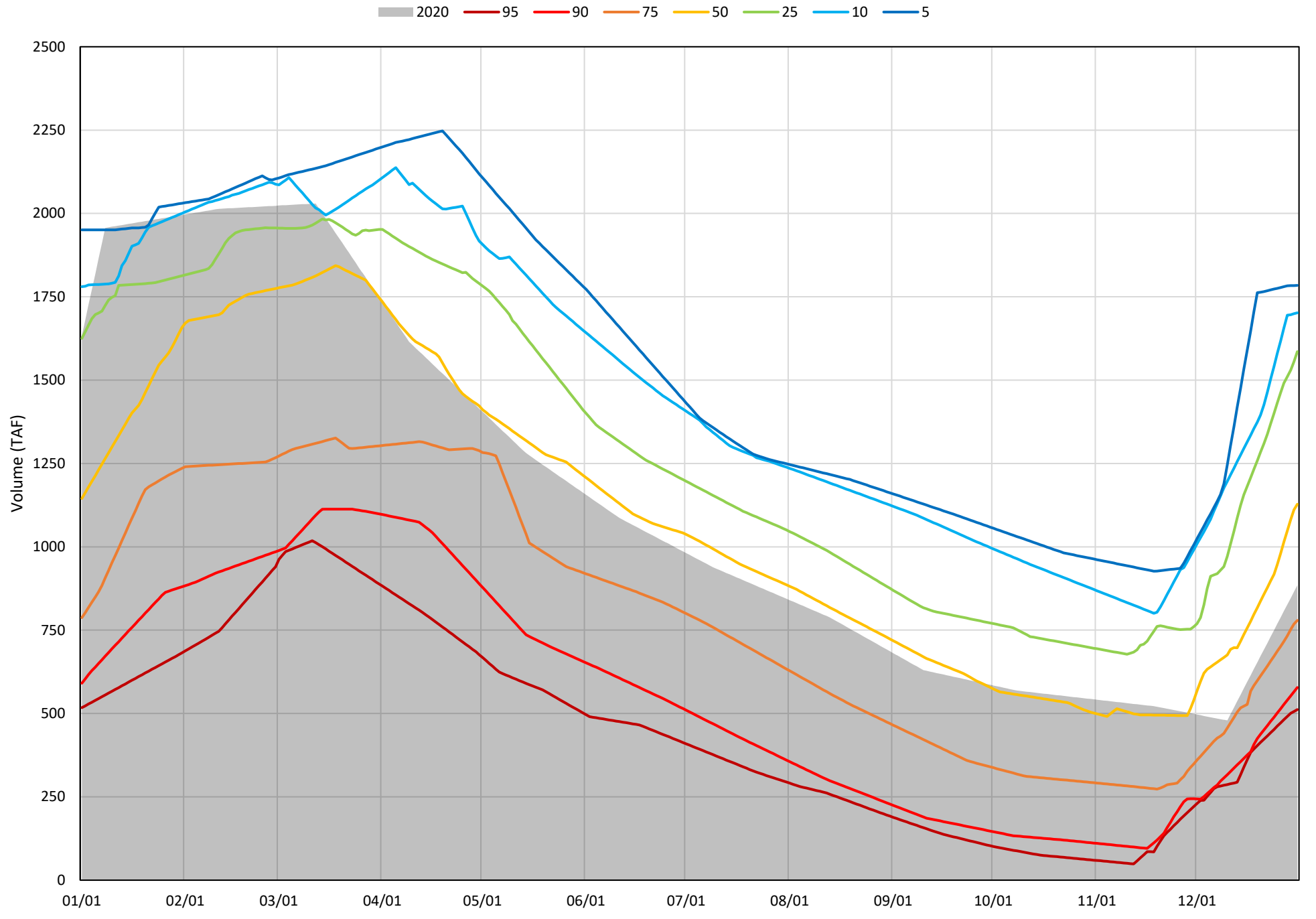
Avg (2000-2019) 2014 2015 2016 2019 2020



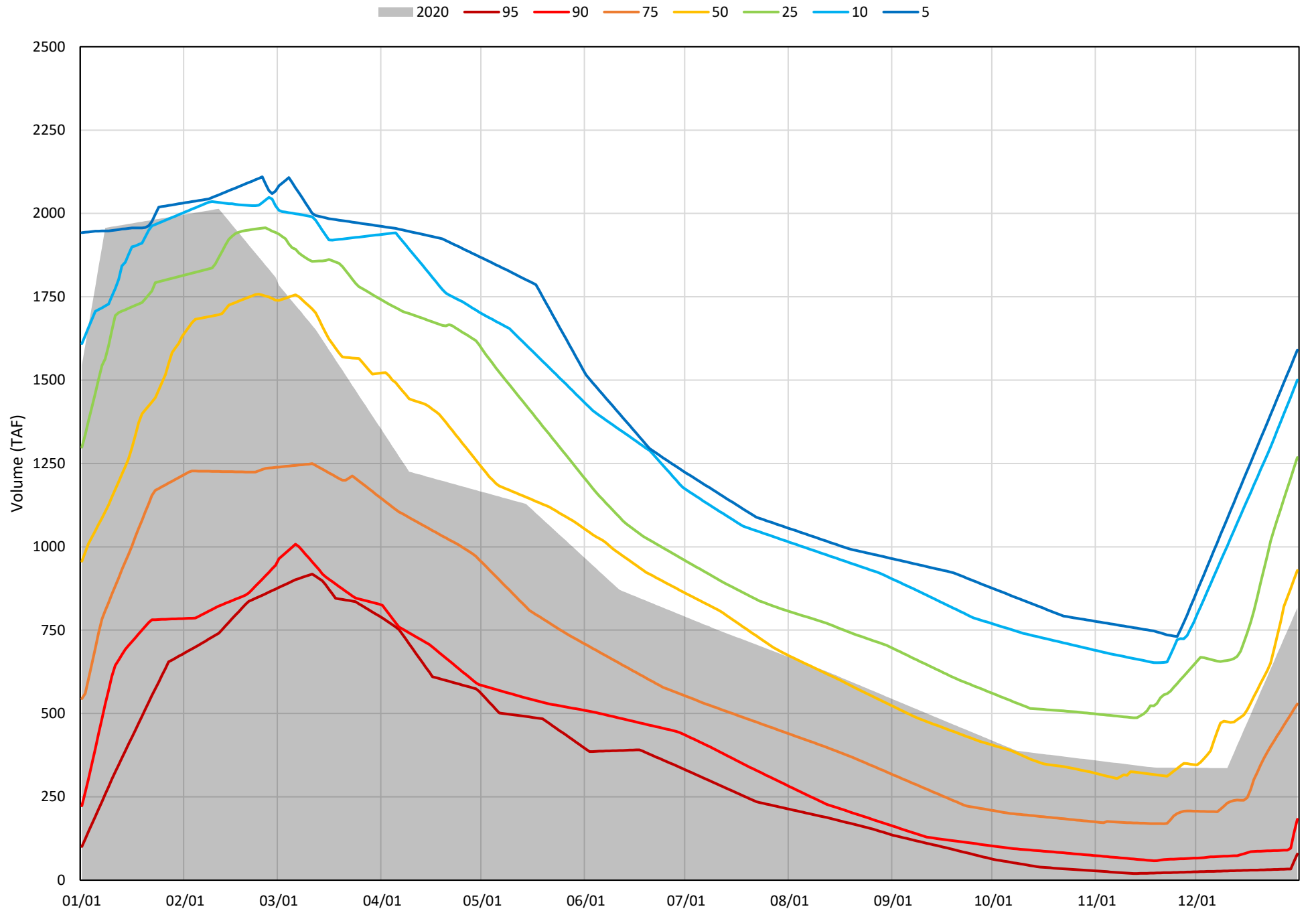
Trinity Lake Cold Water Pool Volume  $\leq 52^{\circ}\text{F}$  - Percent Exceedances (2000-2019)



Trinity Lake Cold Water Pool Volume  $\leq 50^{\circ}\text{F}$  - Percent Exceedances (2000-2019)



Trinity Lake Cold Water Pool Volume  $\leq 48^{\circ}\text{F}$  - Percent Exceedances (2000-2019)



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

Dec-31 2020	Δ TAF				% Δ			
	≤52°	≤50°	≤48°	Abs. Avg.	≤52°	≤50°	≤48°	Abs. Avg.
2000	451	844	-430	575	36	97	-54	63
2001	-185	161	162	169	-15	19	20	18
2002	92	467	476	345	7	54	60	40
2003	544	316	244	368	43	37	31	37
2004	235	-98	-208	180	19	-11	-26	19
2005	363	695	664	574	29	80	84	64
2006	530	922	101	518	42	107	13	54
2007	-66	306	346	239	-5	35	44	28
2008	-485	-114	-59	219	-39	-13	-7	20
2009	-339	-313	-305	319	-27	-36	-38	34
2010	355	730	777	620	28	84	98	70
2011	693	147	44	295	55	17	5	26
2012	280	651	682	538	22	75	86	61
2013	-289	76	116	160	-23	9	15	15
2014	-447	-93	-677	405	-36	-11	-85	44
2015	-754	-361	-741	619	-60	-42	-93	65
2016	45	-181	-208	145	4	-21	-26	17
2017	379	746	-421	515	30	86	-53	56
2018	239	185	160	195	19	21	20	20
2019	696	676	635	669	55	78	80	71
2020	0	0	0	0	0	0	0	0

Historic - Current

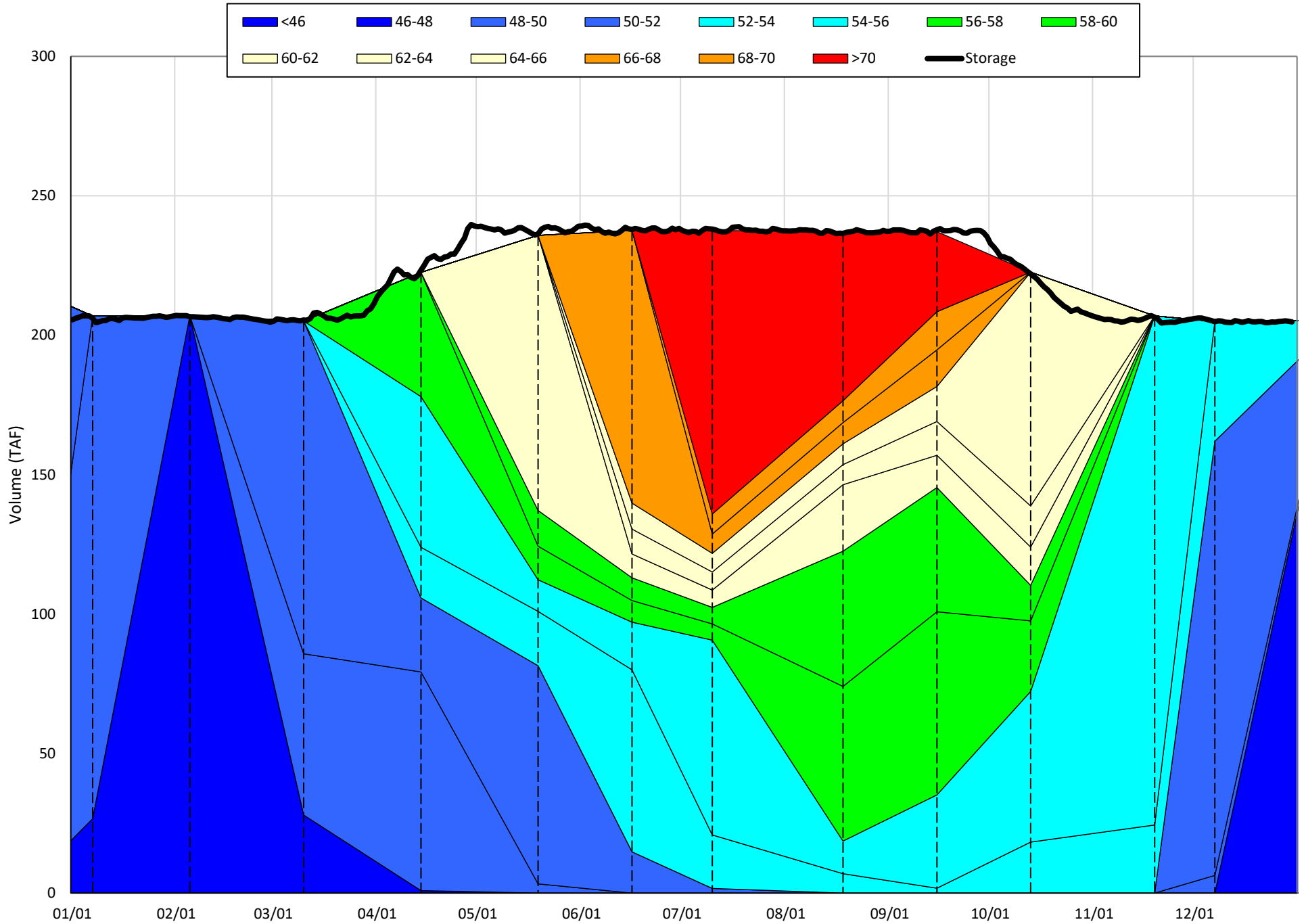
(Historic - Current) / Current

# Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

## 2020

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

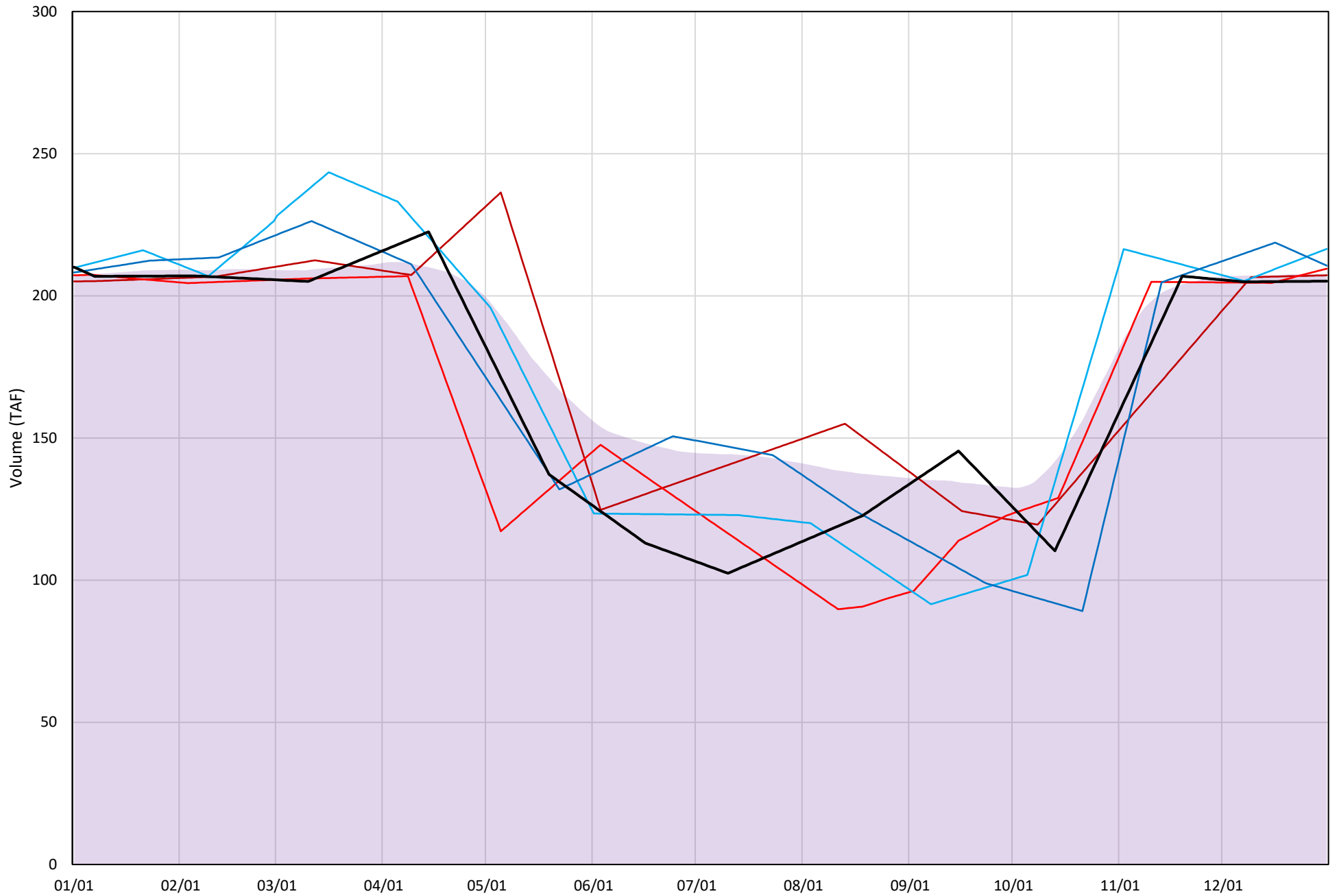
# Whiskeytown Lake Isothermobaths Plot - 2020





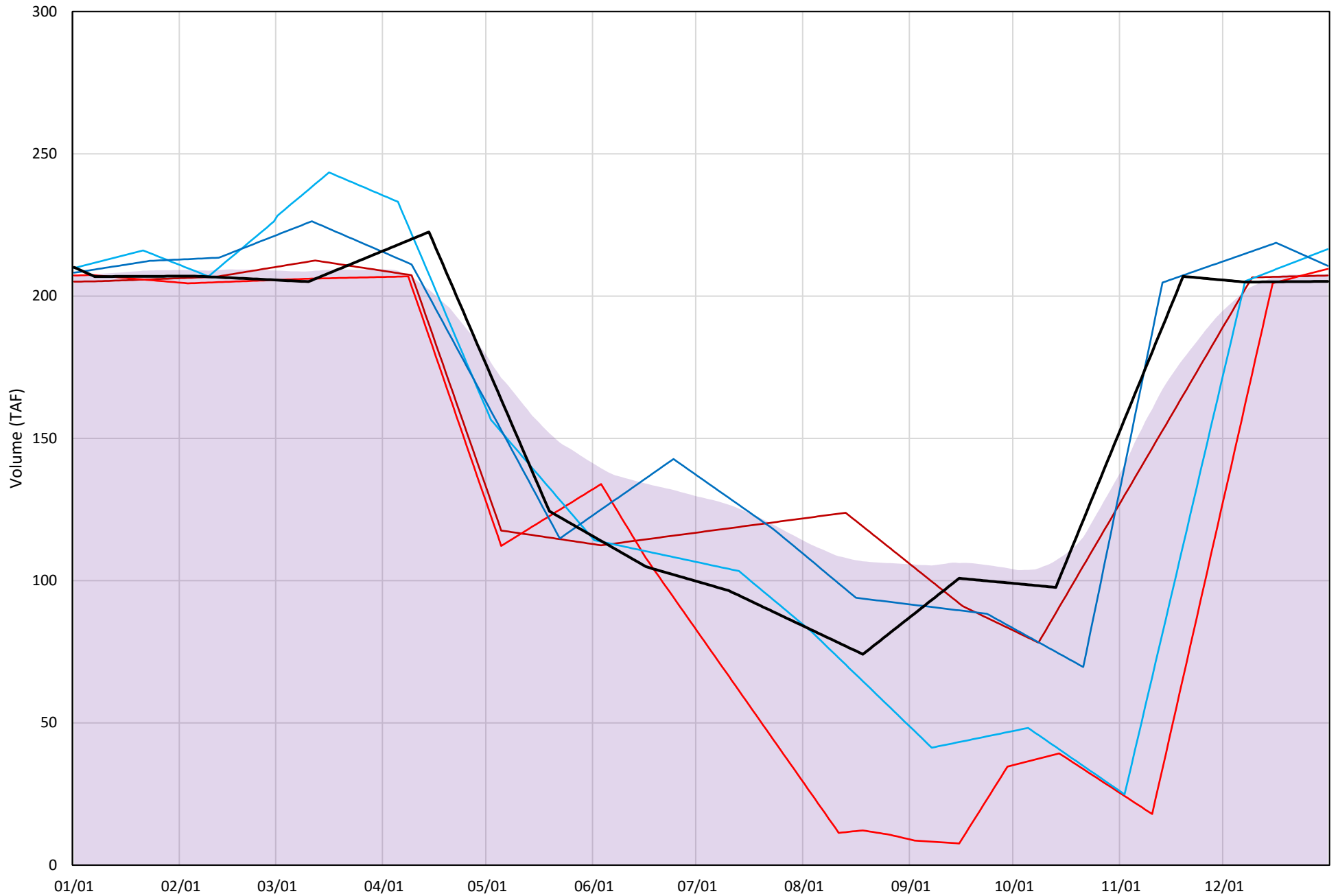
# Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

Avg (2000-2019) 2014 2015 2016 2019 2020



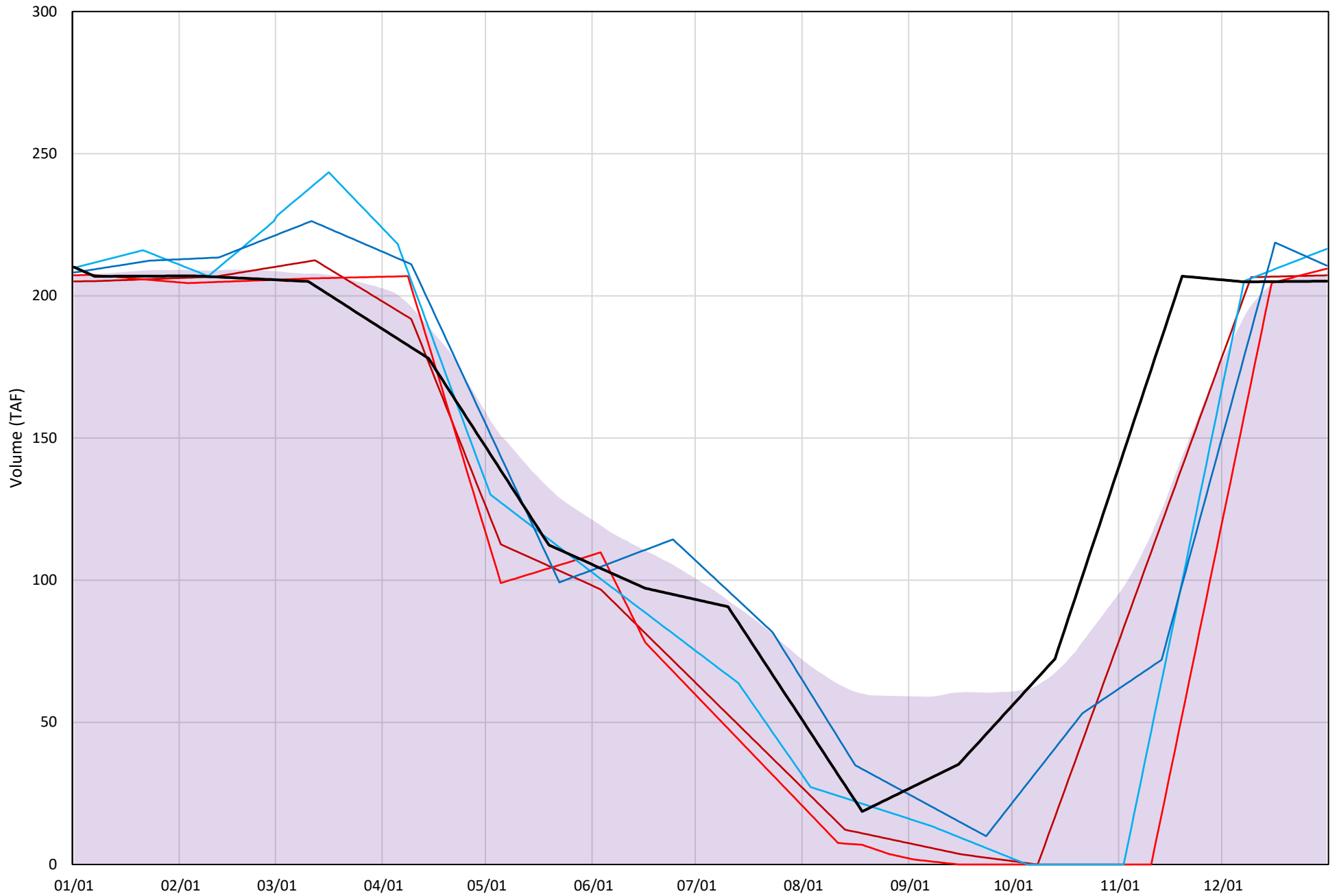
# Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

Avg (2000-2019) 2014 2015 2016 2019 2020



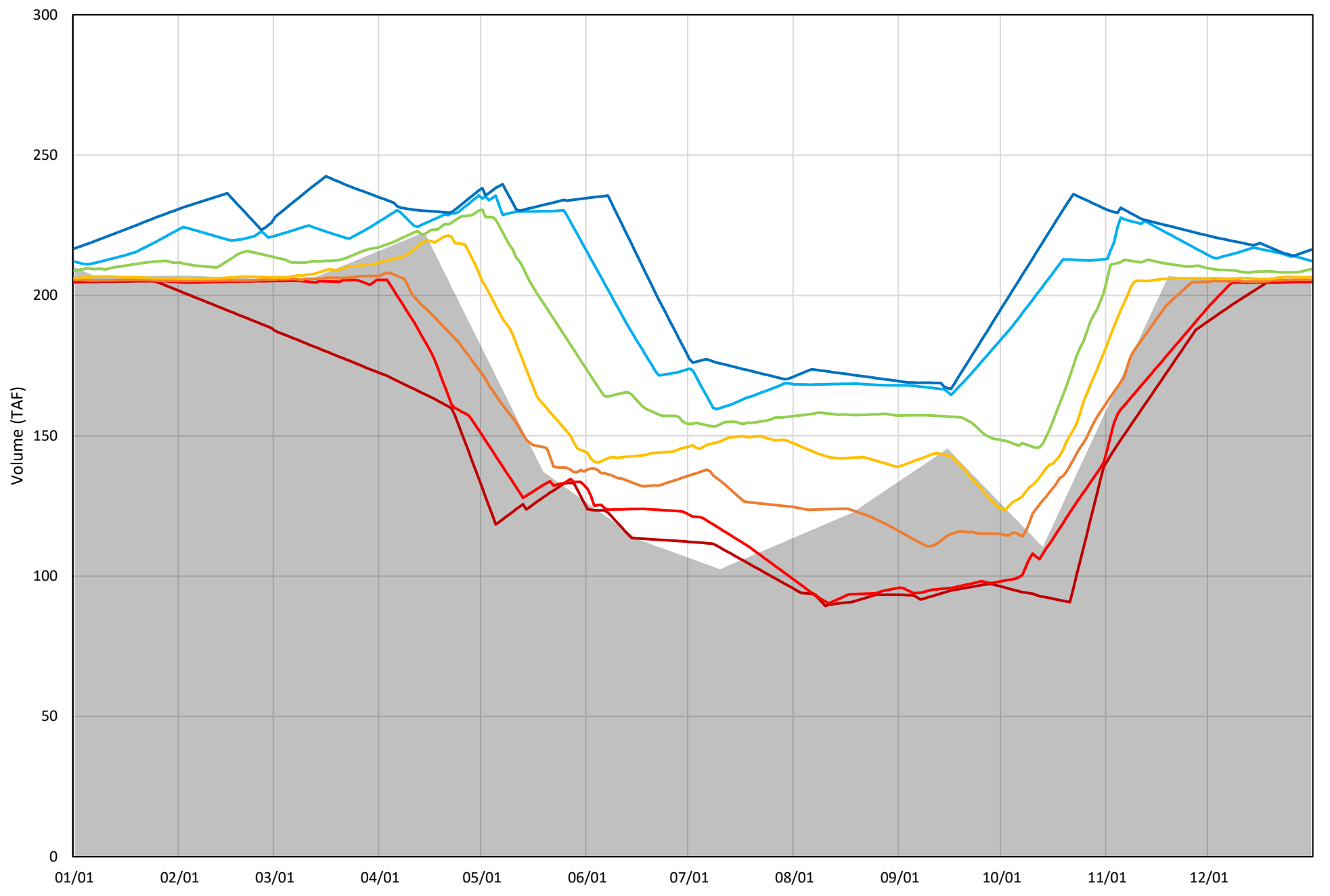
# Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

Avg (2000-2019) 2014 2015 2016 2019 2020



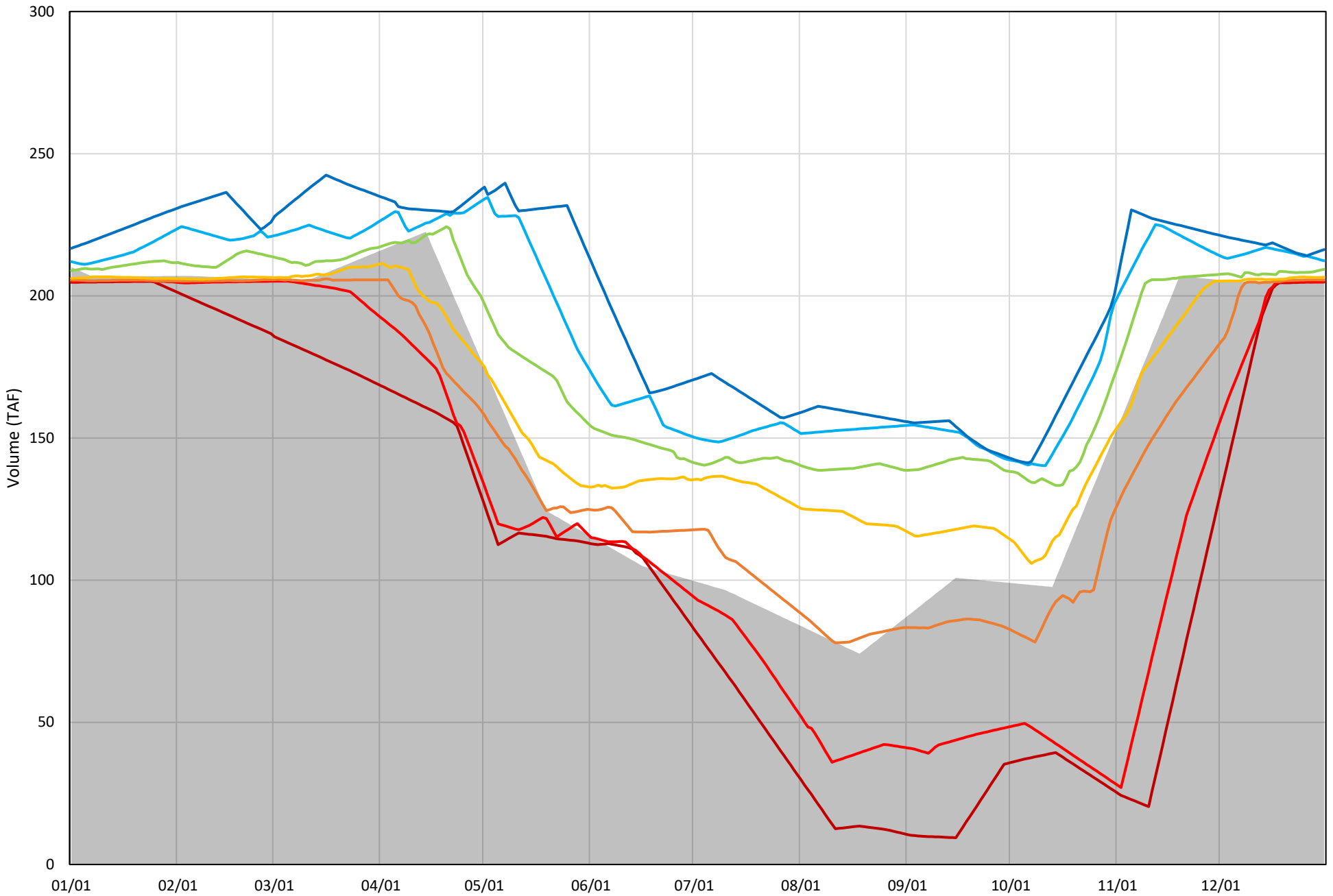
Whiskeytown Lake Cold Water Pool Volume  $\leq 60^{\circ}\text{F}$  - Percent Exceedances (2000-2019)

2020 95 90 75 50 25 10 5

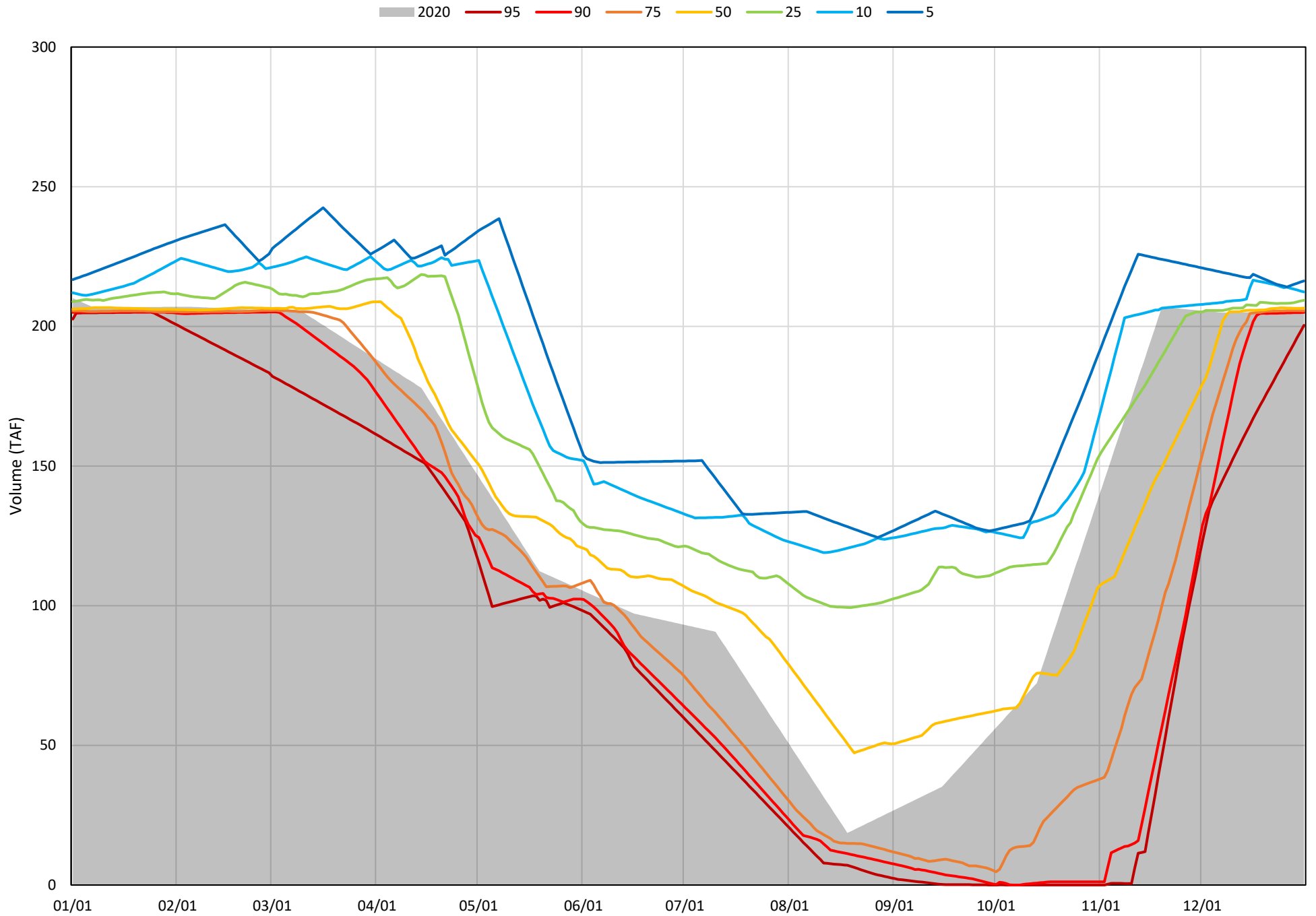


Whiskeytown Lake Cold Water Pool Volume  $\leq 58^{\circ}\text{F}$  - Percent Exceedances (2000-2019)

2020 95 90 75 50 25 10 5



Whiskeytown Lake Cold Water Pool Volume  $\leq 56^{\circ}\text{F}$  - Percent Exceedances (2000-2019)



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

Dec-31 2020	Δ TAF				% Δ			
	≤60°	≤58°	≤56°	Abs. Avg.	≤60°	≤58°	≤56°	Abs. Avg.
2000	3	3	3	3	2	2	2	2
2001	6	6	6	6	3	3	3	3
2002	1	1	1	1	1	1	1	1
2003	1	1	1	1	0	0	0	0
2004	8	8	8	8	4	4	4	4
2005	1	1	1	1	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	0	-7	3	0	0	-4	1
2008	1	1	1	1	1	1	1	1
2009	0	0	0	0	0	0	0	0
2010	1	1	1	1	0	0	0	0
2011	0	0	0	0	0	0	0	0
2012	3	3	3	3	1	1	1	1
2013	0	0	0	0	0	0	0	0
2014	2	2	2	2	1	1	1	1
2015	4	4	4	4	2	2	2	2
2016	11	11	11	11	5	5	5	5
2017	0	0	0	0	0	0	0	0
2018	3	3	3	3	1	1	1	1
2019	6	6	6	6	3	3	3	3
2020	0	0	0	0	0	0	0	0

Historic - Current

(Historic - Current) / Current