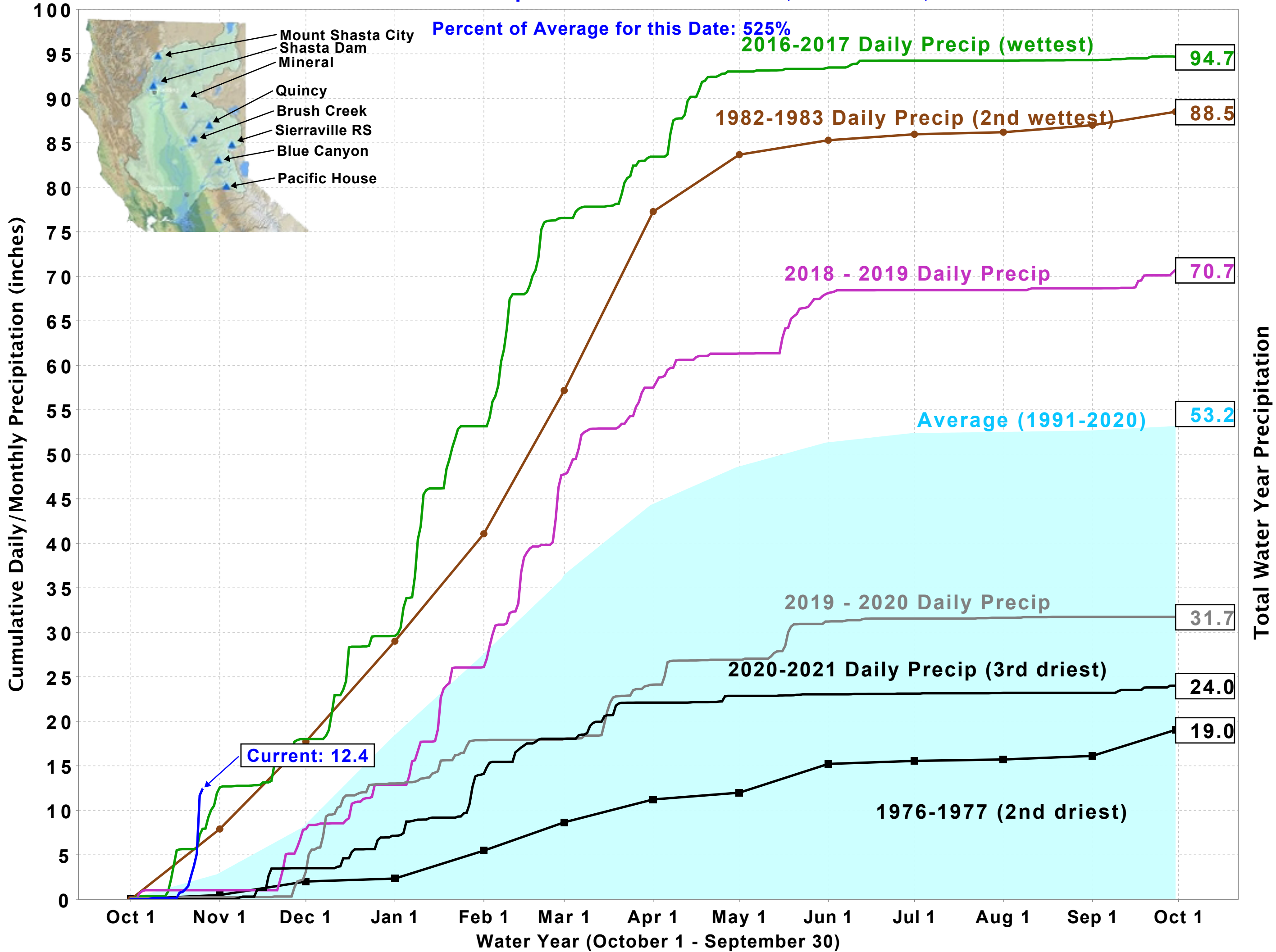


Northern Sierra Precipitation: 8-Station Index, October 26, 2021



UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

DAILY CVP WATER SUPPLY REPORT

OCTOBER 26, 2021

RUN DATE: October 27, 2021

RESERVOIR RELEASES IN CUBIC FEET/SECOND

RESERVOIR	DAM	WY 2021	WY 2022	15 YR MEDIAN
TRINITY	LEWISTON	291	310	303
SACRAMENTO	KESWICK	5,012	6,061	5,914
FEATHER	OROVILLE (SWP)	2,450	2,100	2,300
AMERICAN	NIMBUS	1,509	579	1,483
STANISLAUS	GOODWIN	573	549	1,107
SAN JOAQUIN	FRIANT	410	230	350

STORAGE IN MAJOR RESERVOIRS IN THOUSANDS OF ACRE-FEET

RESERVOIR	CAPACITY	15 YR AVG	WY 2021	WY 2022	% OF 15 YR AVG
TRINITY	2,448	1,277	1,307	662	52
SHASTA	4,552	2,177	2,099	1,005	46
FOLSOM	977	391	365	302	77
NEW MELONES	2,420	1,254	1,503	828	66
FED. SAN LUIS	966	321	384	20	6
TOTAL NORTH CVP	11,363	5,419	5,658	2,817	52
MILLERTON	520	245	162	305	125
OROVILLE (SWP)	3,538	1,492	1,522	959	64

ACCUMULATED INFLOW FOR WATER YEAR TO DATE IN THOUSANDS OF ACRE-FEET

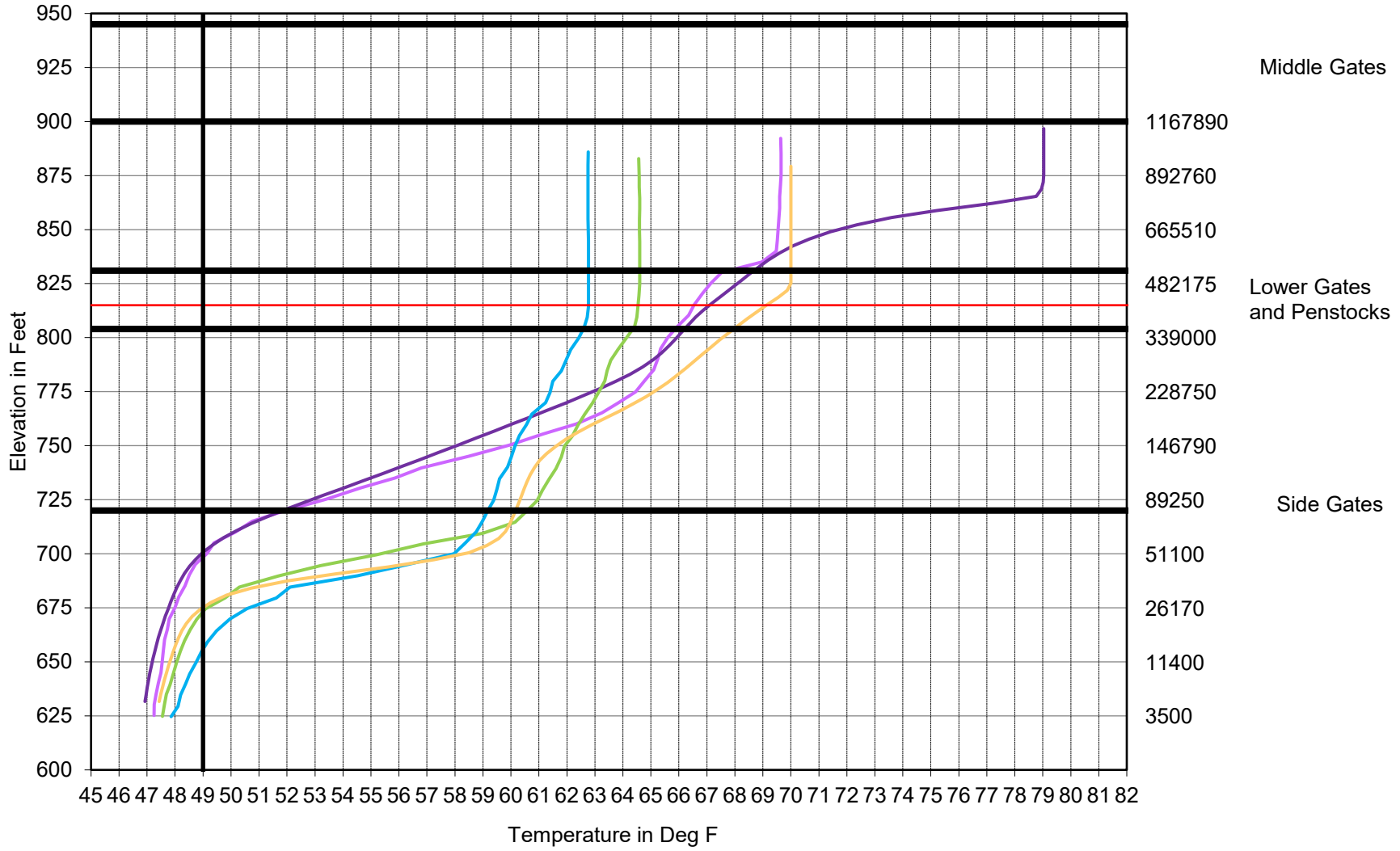
RESERVOIR	CURRENT WY2022	WY 1977	WY 1983	15 YR AVG	% OF 15 YR AVG
TRINITY	27	6	30	13	216
SHASTA	187	195	234	171	109
FOLSOM	104	50	121	54	192
NEW MELONES	24	----	63	33	72
MILLERTON	33	24	97	42	79

ACCUMULATED PRECIPITATION FOR WATER YEAR TO DATE IN INCHES

RESERVOIR	CURRENT WY 2022	WY 1977	WY1983	AVG (N YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	2.55	0.20	2.38	1.45 (59)	176	0.11
SACRAMENTO AT SHASTA DAM	7.89	0.07	4.04	2.24 (64)	352	0.06
AMERICAN AT BLUE CANYON	17.64	0.87	8.53	2.91 (46)	607	0.01
STANISLAUS AT NEW MELONES	5.63	----	3.26	1.16 (43)	486	0.58
SAN JOAQUIN AT HUNTINGTON LK	4.86	1.20	5.10	1.71 (46)	285	0.28

Shasta Lake Profiles

9/30/2021 Modeled Sep 30 10/20/2021 10/27/2021 Modeled Oct 30



DATE	MDWT TCD ¹	MDWT SHD	MDWT SPP ¹	MDWT KWK	MDWT SAC ²	MDWT CCR	MDWT BSF	MDWT JLF	MDWT BND	MDWT RDB	MDWT IGO	MDWT LWS	MDWT DGC ³	MDWT NFH	MDR Shasta Generation	MDR Spring Creek P.P.	MDR Keswick Total	MDAT RDD	MDAT BSF	MDAT RDB
Sep	58.0	57.4	-	57.1	57.6	58.2	59.2	60.0	60.8	61.6	56.7	51.3	54.4	57.5	4935	1502	6835	76.4	70.5	73.6
10/01	61.0 _A	59.5	- ^C	58.2	58.7	59.2	59.9	60.2	60.7	61.2	56.1	51.4	54.1	57.4	5015	1773	6865	70.5	65.6	68.9
10/02	61.0 _A	60.4	- ^C	58.5	58.9	59.4	59.9	60.3	60.7	61.2	56.0	51.5	54.1	57.6	4846	1710	6864	73.5	66.4	69.8
10/03	61.2	60.2	- ^C	58.6	59.0	59.5	60.0	60.4	60.8	61.3	55.8	52.0	54.2	57.7	4848	1804	6864	73.0	65.8	69.3
10/04	61.5	60.1	- ^C	58.5	58.9	59.4	60.0	60.4	60.9	61.3	55.7	52.3	54.5	57.4	5048	1691	6868	71.5	65.0	68.5
10/05	61.6	60.1	- ^C	58.7	58.9	59.2	59.7	60.0	60.6 _A	61.0	55.3	52.3	54.0	56.5	4646	1654	6855	67.5	63.6	66.9
10/06	61.8	60.9	- ^C	58.7	58.9	59.3	59.8	60.0	60.4	60.5	55.7	52.5	54.9	56.8	4415	1656	6864	67.0	64.1	63.5
10/07	61.5	60.5	- ^C	58.9	59.0	59.2	59.5	59.7	60.1	60.4	55.0	52.4	53.4	56.1	4650	1656	6857	62.5	59.4	59.9
10/08	61.8	60.7	- ^C	58.7	58.9	59.1	59.2	59.3	59.6	59.8	54.5	52.8	52.0	54.4	4738	1655	6871	56.0	55.6	57.9
10/09	61.8	61.2	- ^C	58.9	59.1	59.5	59.8	59.9	60.2 _A	60.2	55.4	53.2	53.1	54.3	4817	1660	6947	64.5	60.3	62.1
10/10	61.8 _A	60.6	- ^C	59.1	59.2	59.5	59.6	59.7	60.0	60.2	55.1	52.6	53.1	54.8	5101	1653	6871	64.0	60.3	62.7
10/11	62.2	61.2	- ^C	59.1	59.1	59.0	58.9	59.0	59.3	59.2	54.3	52.2	52.0	53.7	4870	1656	6814	58.5	58.4	60.0
10/12	62.0	61.2	- ^C	58.6	58.6	58.6	58.3	58.1	58.2	57.9	54.1	52.6	50.0	51.6	4960	1682	6810	59.5	54.4	57.5
10/13	62.1	61.2	- ^C	59.1	59.1	59.3	59.2	59.1	59.2	58.8	54.8	52.3	52.4	52.8	4903	1666	6829	61.0	57.0	58.0
10/14	62.5	61.3	- ^C	59.2	59.2	59.4	59.1	59.0	59.2	59.2	54.8	52.0	51.7	53.6	4562	1658	6812	64.5	61.2	63.5
10/15	62.3	61.7	- ^C	59.2	59.3	59.6	59.4	59.3	59.4	59.3	54.9	52.3	51.3	52.9	4483	1653	6820	62.5	56.3	61.0
10/16	62.3	61.5	- ^C	59.5	59.5	59.8	59.5	59.4	59.6	59.6	54.8	52.6	51.8	53.1	5066	1664	6802	62.0	56.4	60.6
10/17	62.0	60.8	- ^C	59.8	59.4	59.3	59.0	59.0	59.3	59.1	54.0	52.3	51.0	52.1	5737	759	6795	57.5	54.3	56.4
10/18	62.0	60.9	- ^C	59.6	59.5	59.6	59.3	59.0	59.1	58.5	54.3	52.5	50.2	52.3	5913	744	6881	52.0	51.3	52.8
10/19	62.2	61.0	- ^C	59.5	59.3	59.3	58.9	58.6	58.7	58.5	54.0	52.5	50.8	51.3	5943	785	6834	51.5	49.9	51.8
10/20	62.0	60.9	- ^C	59.7	59.4	59.2	58.9	58.6	58.9	58.3	54.3	52.9	51.4	52.2	5438	726	6484	52.5	53.3	54.1
10/21	62.2	61.0	- ^C	59.7	59.6	59.8	59.5	59.4	59.5	58.9	55.0	53.4	52.4	53.7	5239	754	6072	61.0	60.1	60.6
10/22	61.5	61.1	- ^C	59.9	59.9	60.2	60.2	60.3	60.7	60.5	55.7	53.6	53.1	53.3	4399	796	6065	61.0	60.3	60.8
10/23	61.2	61.1	- ^C	60.0	59.8	59.7	59.5	59.5	59.8	59.9	54.8	53.5	52.2	53.0	4520	760	6049	55.0	55.2	55.7
10/24	60.8	60.6	- ^C	59.7	59.0	58.9	57.8	57.9	58.2	58.0	55.0	53.7	51.7	51.5	4810	599	6010	56.0	56.3	55.8
10/25	60.8 _A	60.7	- ^C	59.4	59.4	59.7	58.3	57.5	57.6	57.3	54.9	53.7	51.4	51.3	4599	830	6014	56.5	54.9	57.0
10/26	60.5 _A	60.3	- ^C	59.3	59.1	59.0	58.4	57.9	58.2	57.8	54.4	53.8	51.9	51.8	4851	690	6061	54.5	55.1	56.3
Oct	61.7	60.8	-	59.2	59.2	59.4	59.3	59.3	59.6	59.5	55.0	52.6	52.4	54.0	4939	1321	6649	61.4	58.5	60.4

Legend

- A = 1-9 hours of data missing (Average includes estimations)
- B = 10 or more hours of data missing (Average not calculated)
- C = Station out of service
- D = Record high air temperature
- E = Record low air temperature
- MDWT = Mean Daily Water Temperature (Farenheit)
- MDR = Mean Daily Release (CFS)
- MDAT = Mean Daily Air Temperatures (Farenheit)

Notes

- ¹ Temperatures are weighted averages based on individual penstock flow and temperature
- ^x 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)
- ³ Data is currently being collected locally and periodically downloaded. Once downloaded and certified by USGS, missing data will be added.

Total CFS	128417	34334	172878
Total AF	254710	68100	342896

Redding (RDD) Daily Air Temperatures (°F)

DATE	Previous Low	Previous High	Previous Avg	Current Low	Current High	Current Avg	1 Day Low ^x	1 Day High ^x	1 Day Avg ^x	2 Day Low ^x	2 Day High ^x	2 Day Avg ^x	3 Day Low ^x	3 Day High ^x	3 Day Avg ^x	4 Day Low ^x	4 Day High ^x	4 Day Avg ^x
10/01	52	94	73.0	54	91	72.5	53	92	72.5	54	92	73.0	54	89	71.5	52	83	67.5
10/02	51	90	70.5	52	93	72.5	54	92	73.0	55	88	71.5	53	81	67.0	49	72	60.5
10/03	51	96	73.5	54	93	73.5	54	89	71.5	53	81	67.0	49	71	60.0	51	68	59.5
10/04	53	93	73.0	55	89	72.0	52	80	66.0	49	69	59.0	49	72	60.5	43	70	56.5
10/05	53	90	71.5	53	81	67.0	49	71	60.0	48	72	60.0	43	69	56.0	44	75	59.5
10/06	52	83	67.5	60	73	66.5	48	72	60.0	45	69	57.0	43	74	58.5	45	78	61.5
10/07	58	76	67.0	52	72	62.0	44	67	84.5	43	74	58.5	44	78	61.0	41	65	53.0
10/08	51	74	62.5	44	69	56.5	41	73	55.5	43	79	61.0	42	65	53.5	39	69	54.0
10/09	43	69	56.0	50	74	62.0	44	79	57.0	40	65	52.5	38	69	53.5	39	71	55.0
10/10	50	79	64.5	46	80	63.0	42	64	61.5	37	68	52.5	41	68	54.5	41	76	58.5
10/11	44	84	64.0	52	67	59.5	43	70	53.0	42	72	57.0	41	75	58.0	46	79	62.5
10/12	50	67	58.5	49	71	60.0	45	69	56.5	45	75	60.0	46	80	63.0	43	81	62.0
10/13	48	71	59.5	51	70	60.5	44	75	57.0	42	80	61.0	44	83	63.5	45	77	61.0
10/14	51	71	61.0	56	77	66.5	42	81	59.5	45	84	64.5	45	73	59.0	41	66	53.5
10/15	52	77	64.5	44	81	62.5	44	84	61.5	45	72	58.5	39	63	51.0	38	66	52.0
10/16	44	81	62.5	42	85	63.5	43	71	64.0	36	61	50.0	37	66	51.5	43	57	50.0
10/17	41	83	62.0	44	72	58.0	38	59	57.0	36	64	49.0	43	55	49.0	46	61	53.5
10/18	42	73	57.5	49	60	54.5	37	61	48.5	43	55	54.0	47	60	53.5	51	64	57.5
10/19	44	60	52.0	39	63	51.0	44	57	49.0	48	60	55.5	50	62	56.0	47	56	51.5
10/20	39	64	51.5	47	57	52.0	47	62	50.5	48	63	51.5	44	54	49.0	46	56	51.0
10/21	50	55	52.5	55	63	59.0	50	64	54.5	47	56	52.0	47	57	52.0	44	56	50.0
10/22	55	67	61.0	56	64	60.0	47	57	57.0	48	56	50.0	43	55	49.0	42	52	47.0
10/23	54	68	61.0	53	55	54.0	46	57	52.0	43	57	49.0	42	54	48.0	45	66	55.5
10/24	52	58	55.0	54	58	56.0	45	58	51.5	43	55	49.0	45	66	55.5	45	74	59.5
10/25	54	58	56.0	47	59	53.0	44	56	50.0	46	66	56.0	45	74	59.5	46	71	58.5
10/26	48	65	56.5	53	56	54.5	51	66	58.5	51	75	63.0	49	71	60.0	50	65	57.5
10/27	53	56	54.5	54	67	60.5	47	76	61.5	48	73	60.5	49	67	58.0	45	65	55.0

[Web Links](#)

[10-Day Min/Max Forecast](#)
[Previous Days Min/Max Actuals](#)

Legend

- NR = Forecasted temperatures not recorded
- A** = Record temperature for that date
- X** = Forecasted

Redding (RDD) Daily Air Temperatures (°F) Continued

DATE	5 Day Low ^X	5 Day High ^X	5 Day Avg ^X	6 Day Low ^X	6 Day High ^X	6 Day Avg ^X	7 Day Low ^X	7 Day High ^X	7 Day Avg ^X	8 Day Low ^X	8 Day High ^X	8 Day Avg ^X	9 Day Low ^X	9 Day High ^X	9 Day Avg ^X	10 Day Low ^X	10 Day High ^X	10 Day Avg ^X
10/01	50	76	63.0	48	73	60.5	51	72	61.5	49	73	61.0	49	77	63.0	49	80	64.5
10/02	48	70	59.0	44	66	55.0	52	80	66.0	47	80	63.5	48	79	63.5	50	75	62.5
10/03	46	65	55.5	43	73	58.0	48	81	64.5	48	78	63.0	46	75	60.5	45	76	60.5
10/04	43	74	58.5	45	78	61.5	52	74	63.0	44	74	59.0	44	72	58.0	45	71	58.0
10/05	46	80	63.0	46	68	57.0	49	73	61.0	46	69	57.5	47	77	62.0	50	77	63.5
10/06	44	69	56.5	39	68	53.5	45	76	60.5	48	77	62.5	45	77	61.0	48	77	62.5
10/07	38	68	53.0	40	71	55.5	46	78	62.0	49	80	64.5	47	79	63.0	44	80	62.0
10/08	38	69	53.5	40	76	58.0	51	85	68.0	48	78	63.0	43	76	59.5	48	76	62.0
10/09	42	77	59.5	44	81	62.5	48	85	66.5	46	78	62.0	46	76	61.0	47	74	60.5
10/10	42	81	61.5	45	81	63.0	49	86	67.5	47	80	63.5	46	81	63.5	47	78	62.5
10/11	47	82	64.5	49	80	64.5	50	87	68.5	48	80	64.0	45	75	60.0	46	71	58.5
10/12	45	81	63.0	44	81	62.5	49	82	65.5	48	70	59.0	51	73	62.0	48	76	62.0
10/13	43	73	58.0	42	72	57.0	49	78	63.5	45	78	61.5	47	79	63.0	46	78	62.0
10/14	40	71	55.5	44	67	55.5	49	86	67.5	49	79	64.0	48	75	61.5	46	72	59.0
10/15	44	61	52.5	47	68	57.5	52	84	68.0	50	80	65.0	49	75	62.0	47	73	60.0
10/16	47	69	58.0	49	69	59.0	53	70	61.5	54	64	59.0	49	71	60.0	46	68	57.0
10/17	51	64	57.5	47	59	53.0	47	63	55.0	52	61	56.5	44	66	55.0	44	71	57.5
10/18	47	59	53.0	46	59	52.5	48	64	56.0	52	63	57.5	44	65	54.5	44	64	54.0
10/19	46	57	51.5	45	58	51.5	49	63	56.0	46	70	58.0	48	69	58.5	48	67	57.5
10/20	47	57	52.0	42	57	49.5	47	71	59.0	52	74	63.0	50	70	60.0	46	72	59.0
10/21	43	56	49.5	46	61	53.5	47	76	61.5	53	76	64.5	51	72	61.5	49	65	57.0
10/22	44	63	53.5	43	70	56.5	52	70	61.0	52	73	62.5	53	70	61.5	50	68	59.0
10/23	44	71	57.5	45	69	57.0	52	73	62.5	45	72	58.5	44	73	58.5	46	71	58.5
10/24	46	69	57.5	46	68	57.0	48	77	62.5	48	75	61.5	48	72	60.0	48	68	58.0
10/25	46	67	56.5	46	66	56.0	49	70	59.5	46	71	58.5	48	70	59.0	51	71	61.0
10/26	46	66	56.0	44	63	53.5	47	71	59.0	50	66	58.0	46	64	55.0	43	67	55.0
10/27	45	60	52.5	46	64	55.0	50	69	59.5	52	69	60.5	46	62	54.0	44	61	52.5

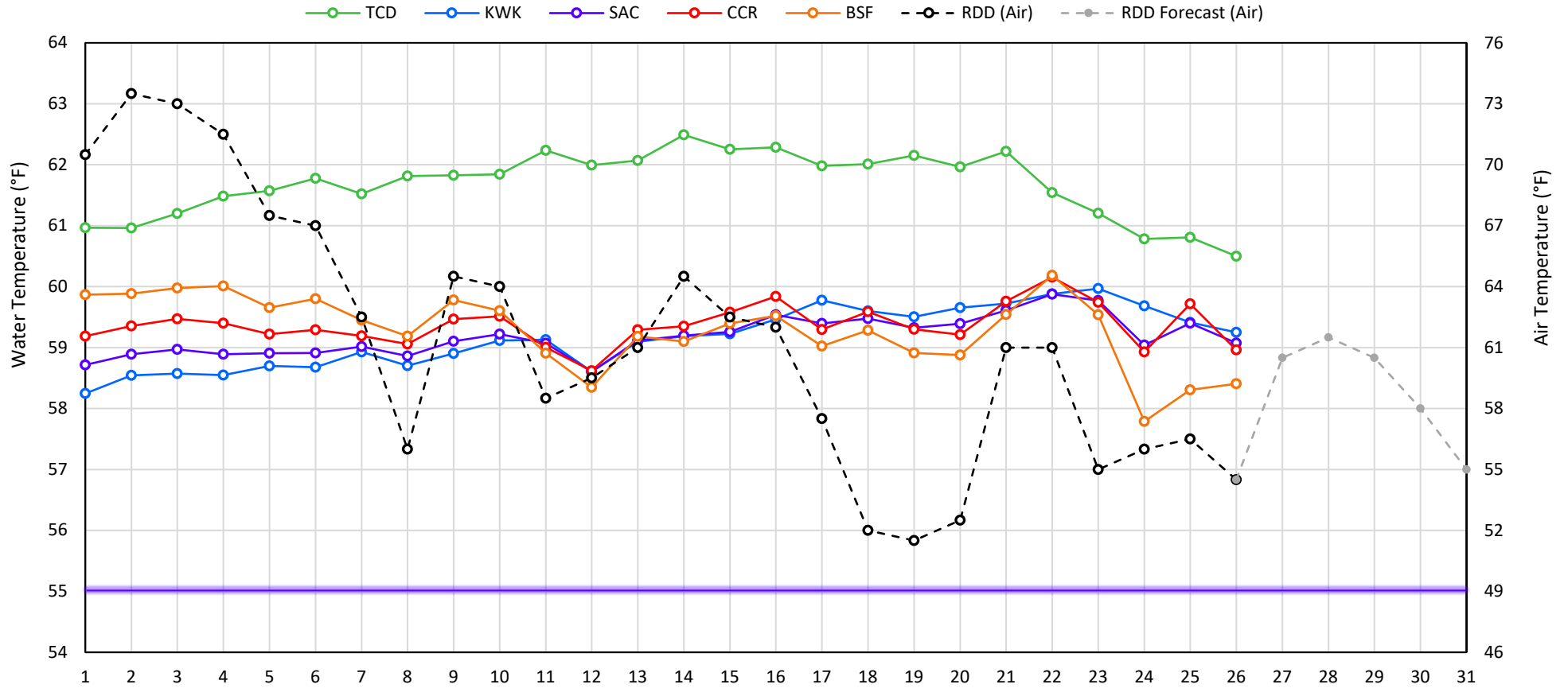
[Web Links](#)

[10-Day Min/Max Forecast](#)
[Previous Days Min/Max Actuals](#)

Legend

NR = Forecasted temperatures not recorded
A = Record temperature for that date
X = Forecasted

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
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

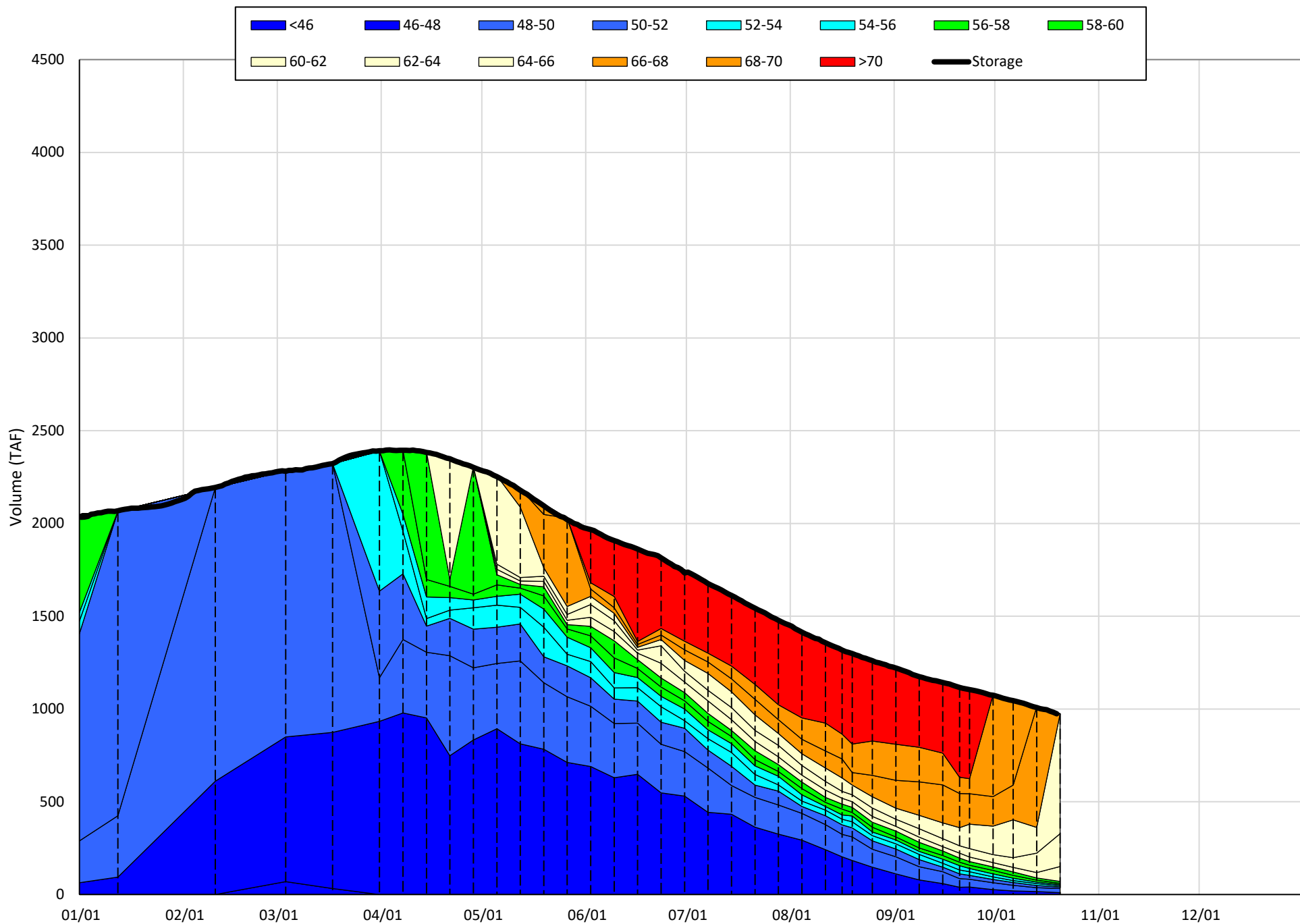
Water Right Temperature Control Points

River	Point	Temp. (°F)	Begin Date	End Date
Sacramento	CCR	56	09/21/2020	04/18/2021
Sacramento	CCR	60	04/18/2021	05/17/2021
Sacramento	SAC	57	05/17/2021	06/15/2021
Sacramento	SAC	55	06/15/2021	TBD
Trinity	DGC	56	09/15/2021	10/01/2021
Trinity	NFH	56	10/01/2021	12/31/2021

Notes

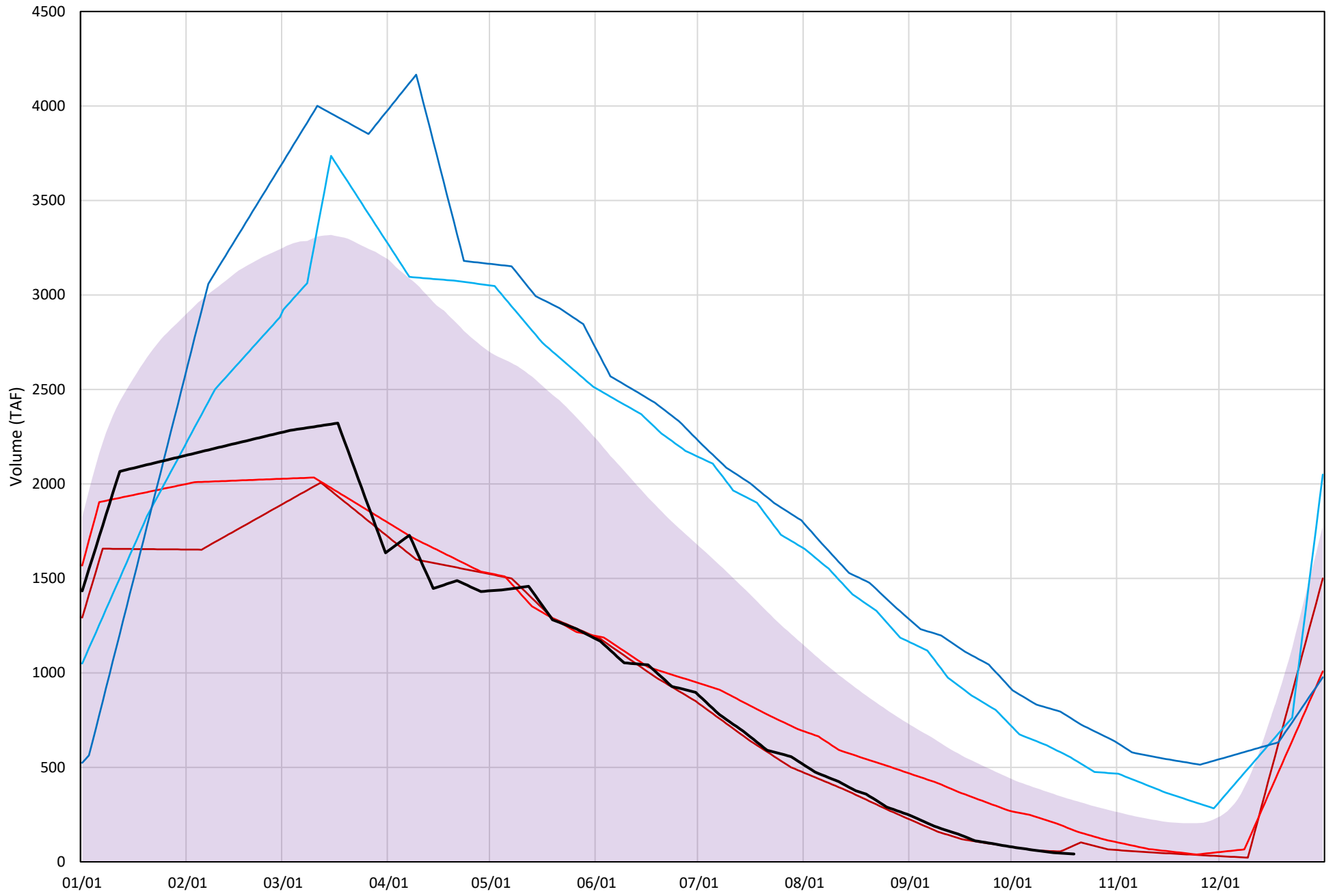
¹ Distances are approximate

Shasta Lake Isothermobaths Plot - 2021

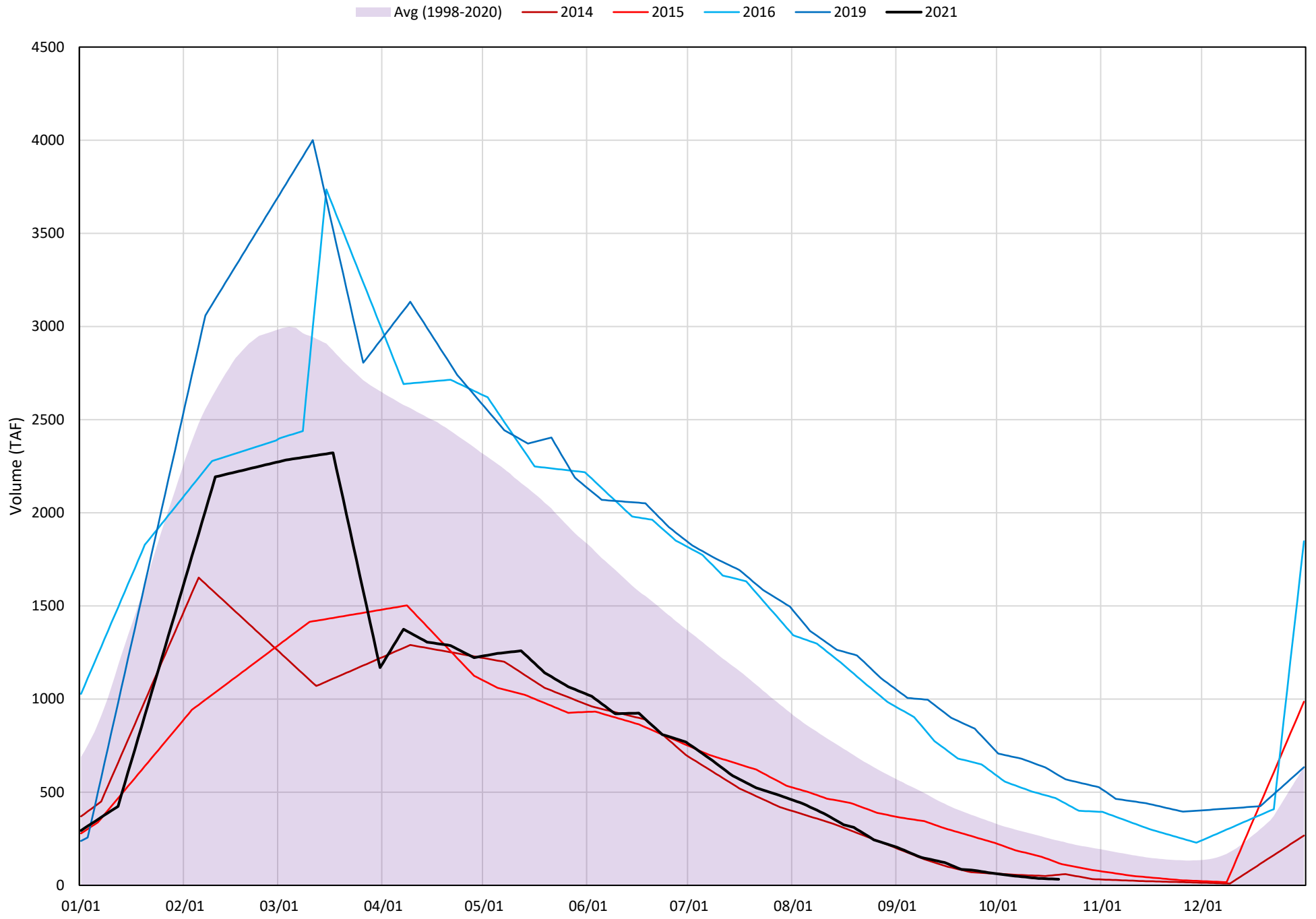


Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

Avg (1998-2020) 2014 2015 2016 2019 2021

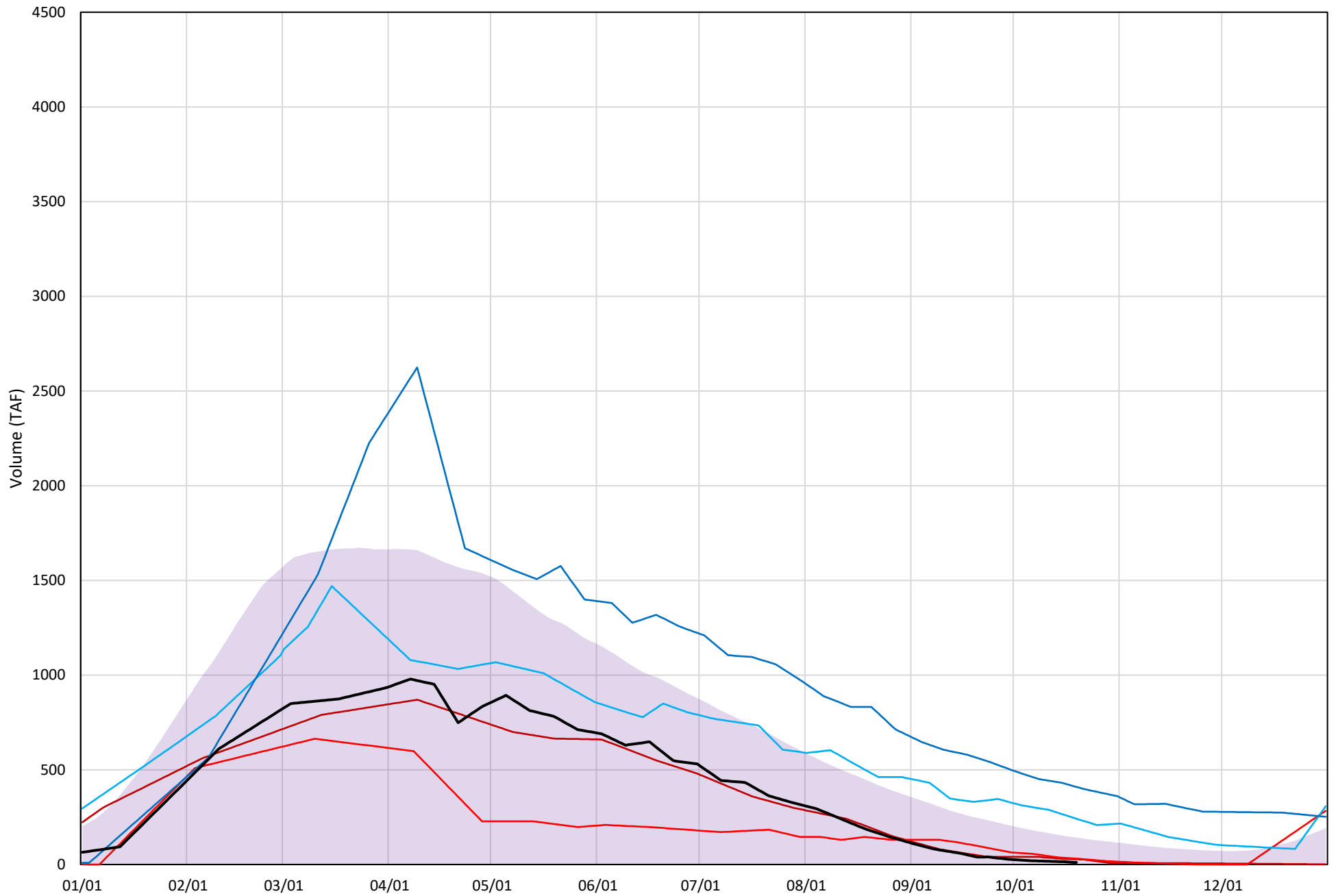


Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$



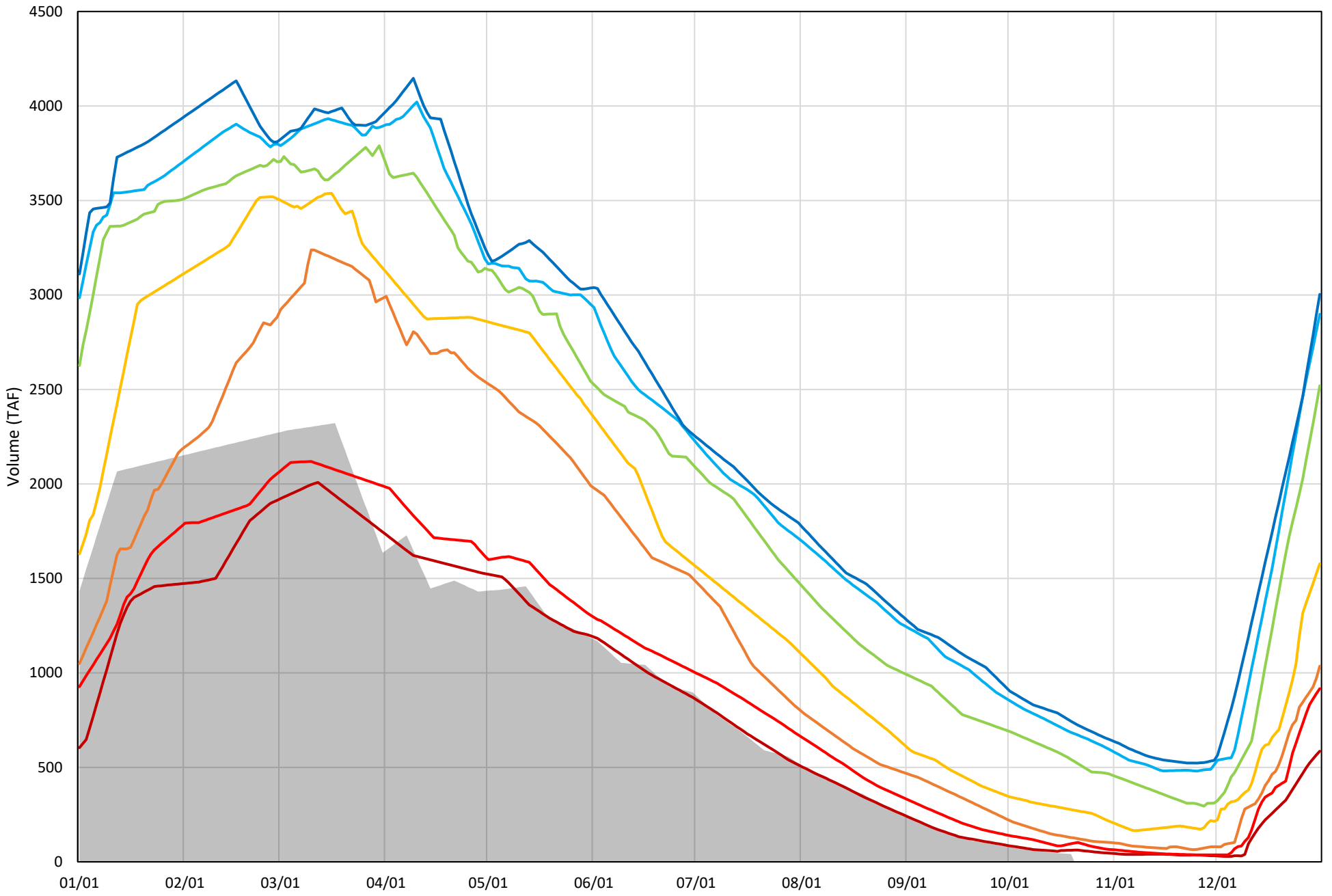
Shasta Lake Cold Water Pool Volume $\leq 48^\circ\text{F}$

Avg (1998-2020) 2014 2015 2016 2019 2021



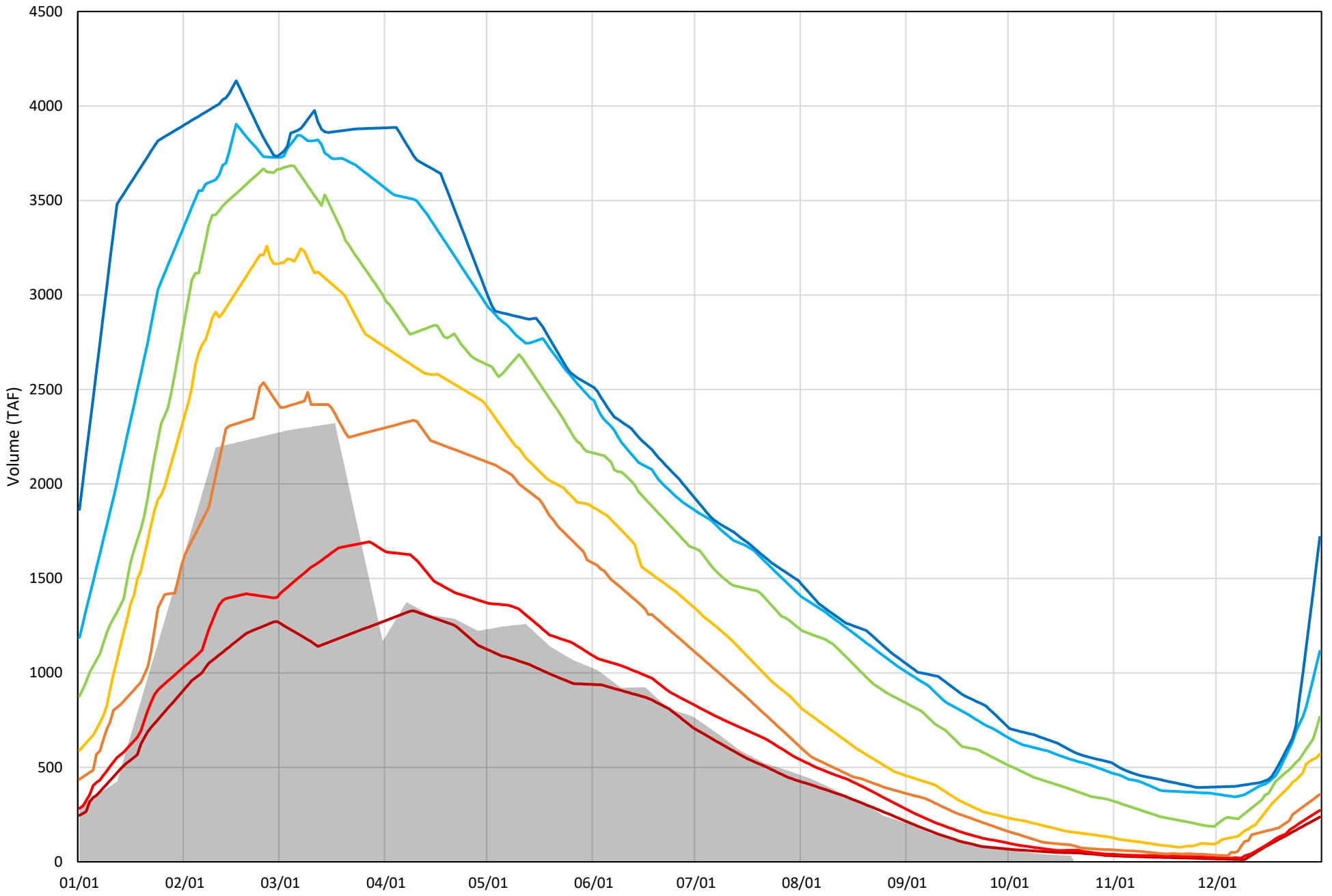
Shasta Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (1998-2020)

2021 95 90 75 50 25 10 5



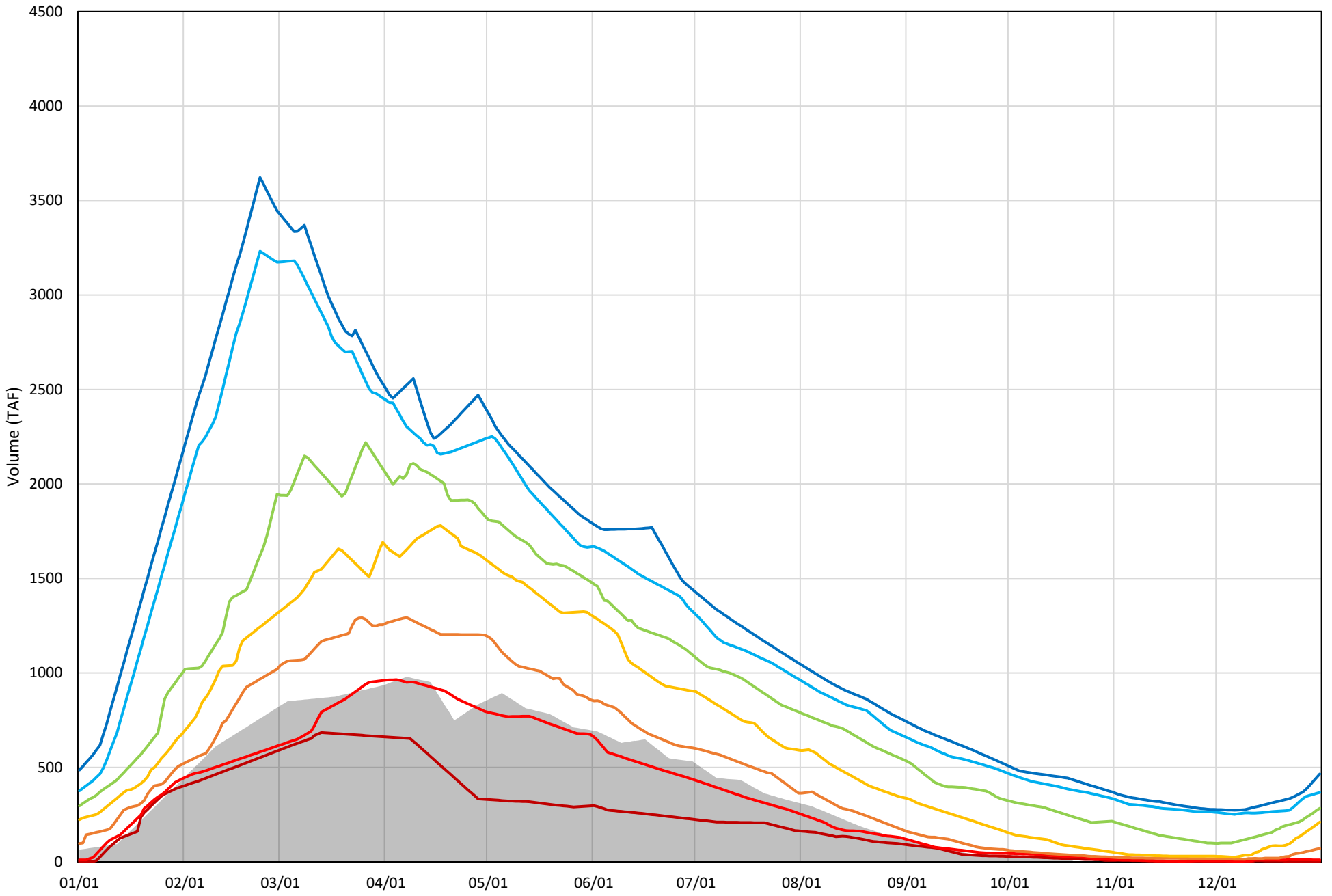
Shasta Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (1998-2020)

2021 95 90 75 50 25 10 5

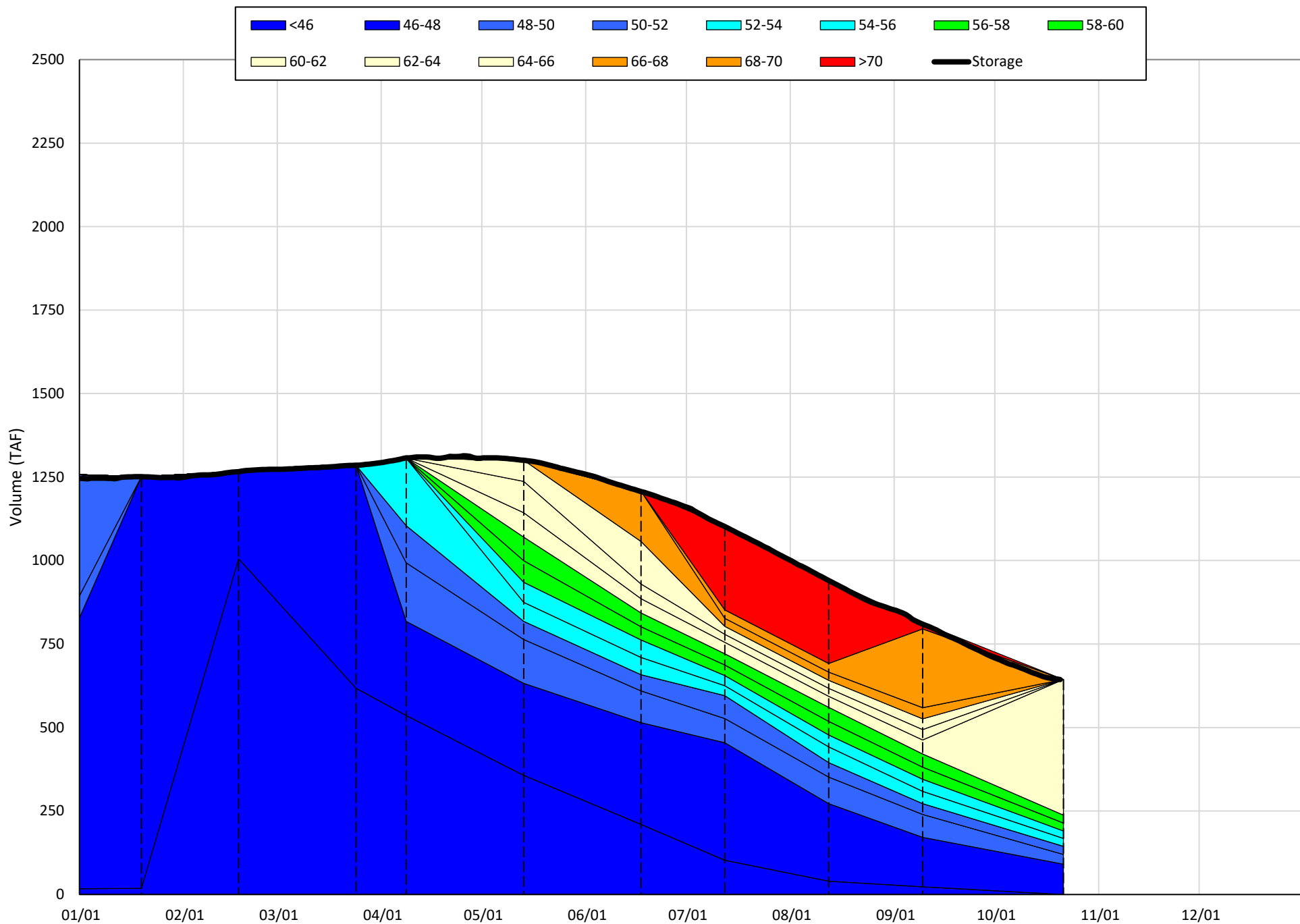


Shasta Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (1998-2020)

2021 95 90 75 50 25 10 5

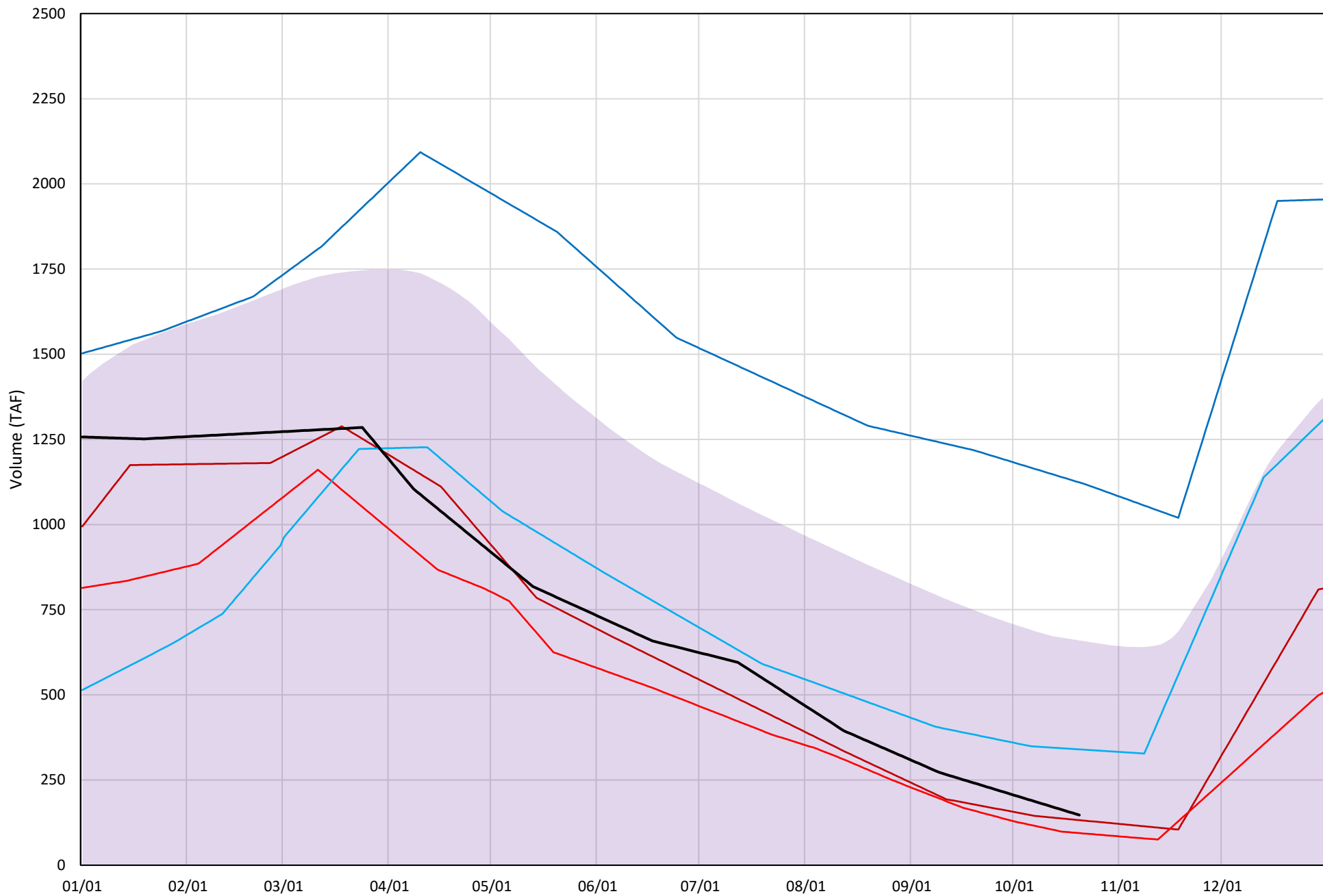


Trinity Lake Isothermobaths Plot - 2021



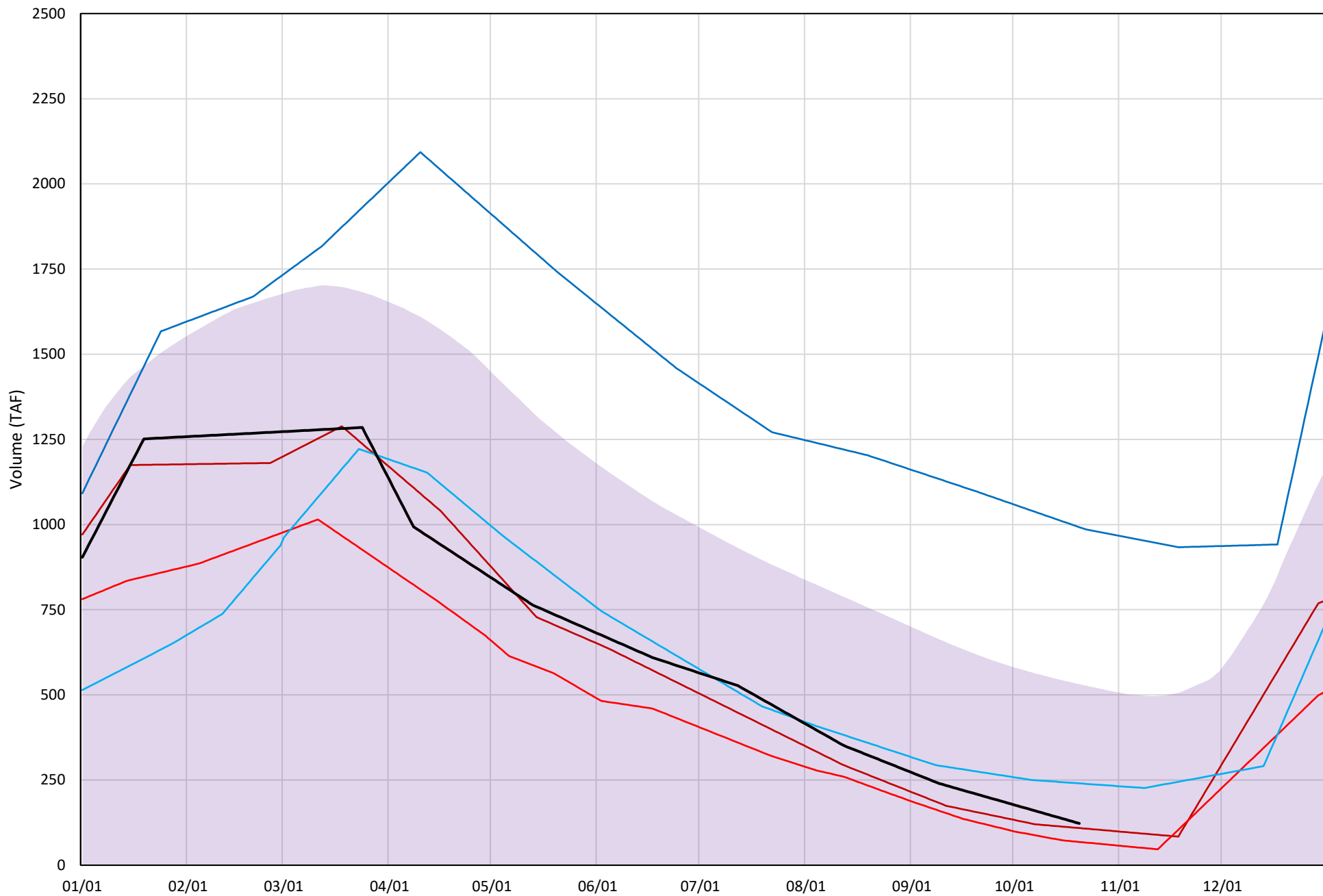
Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$

Avg (2000-2020) 2014 2015 2016 2019 2021



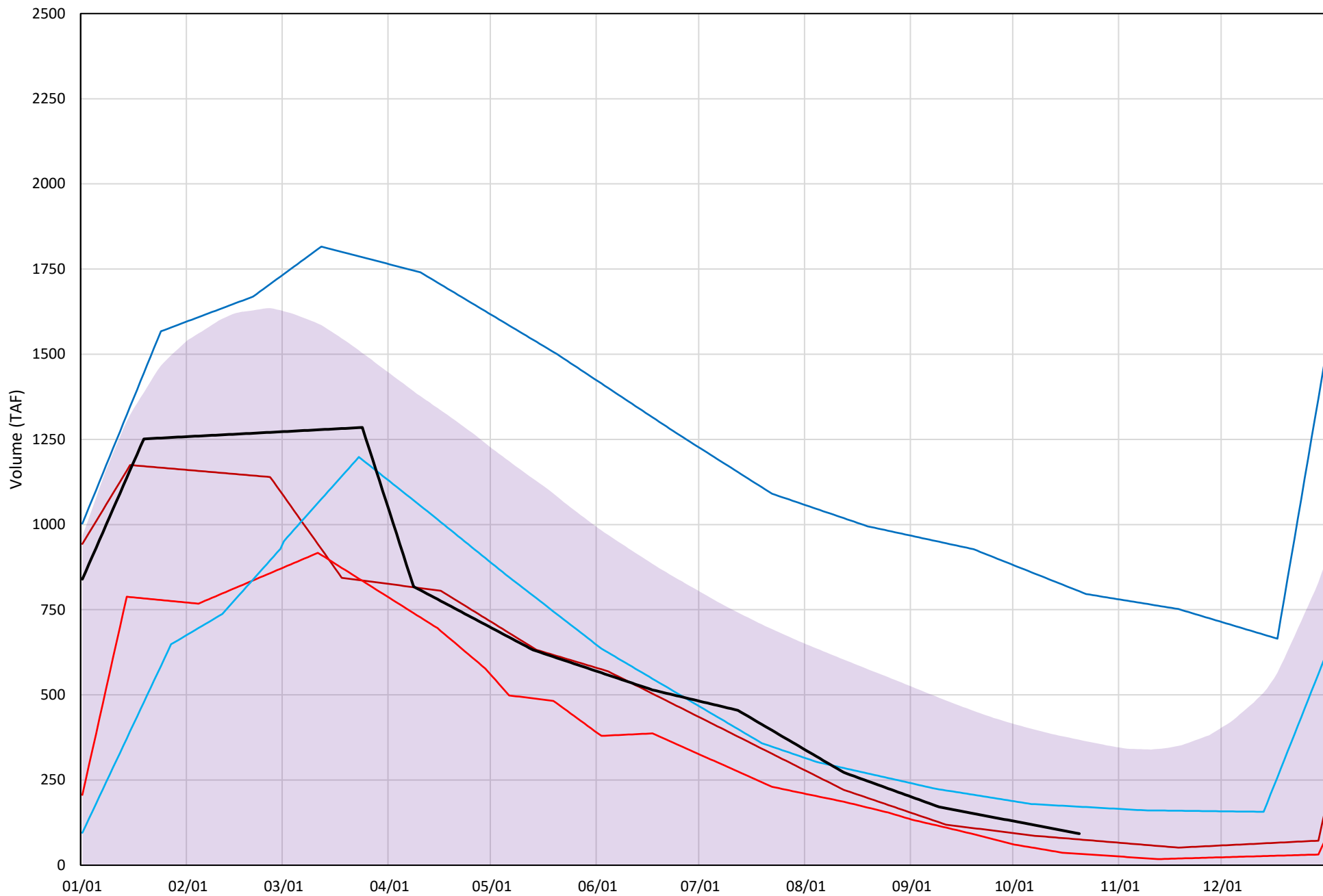
Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$

Avg (2000-2020) 2014 2015 2016 2019 2021

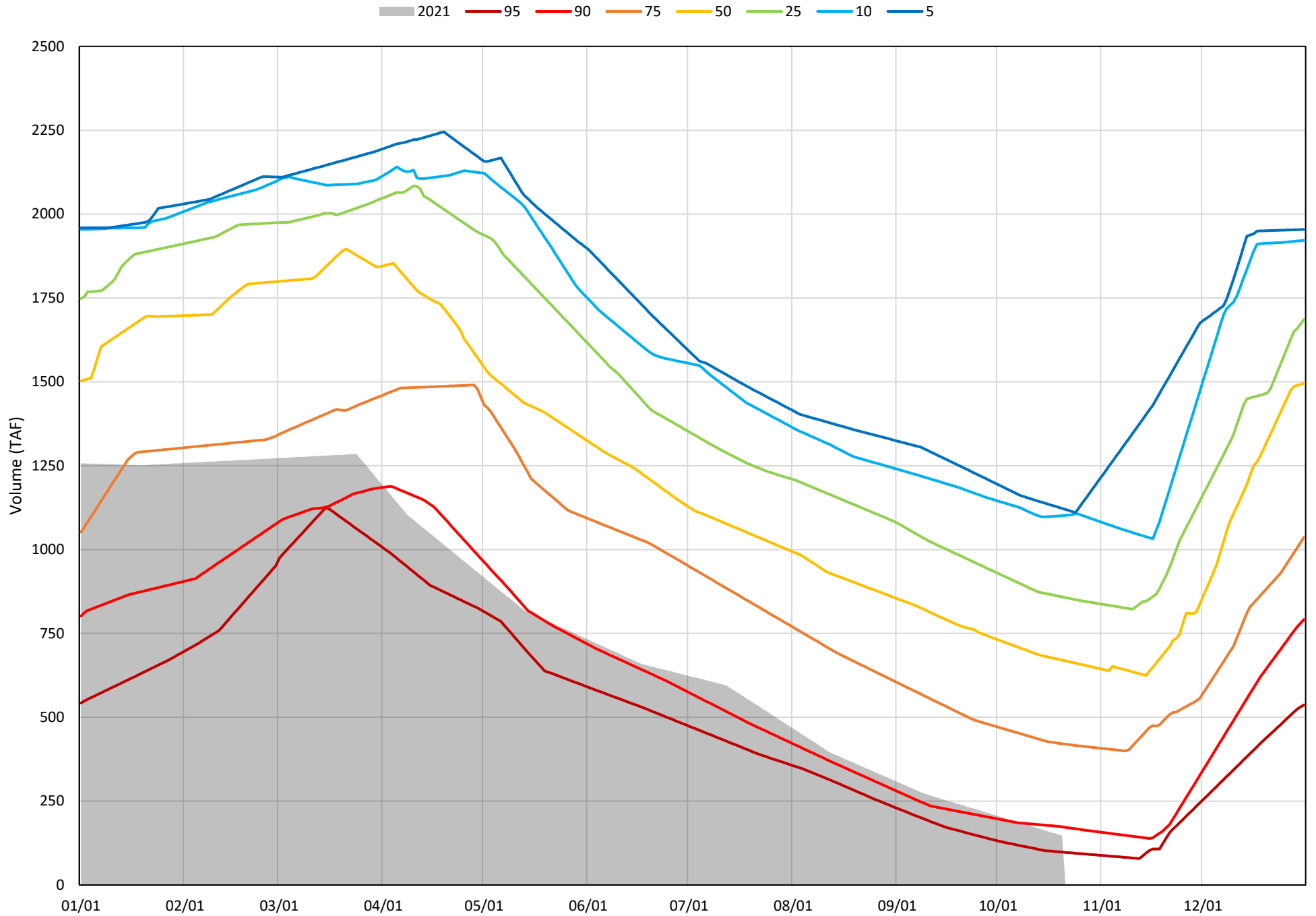


Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$

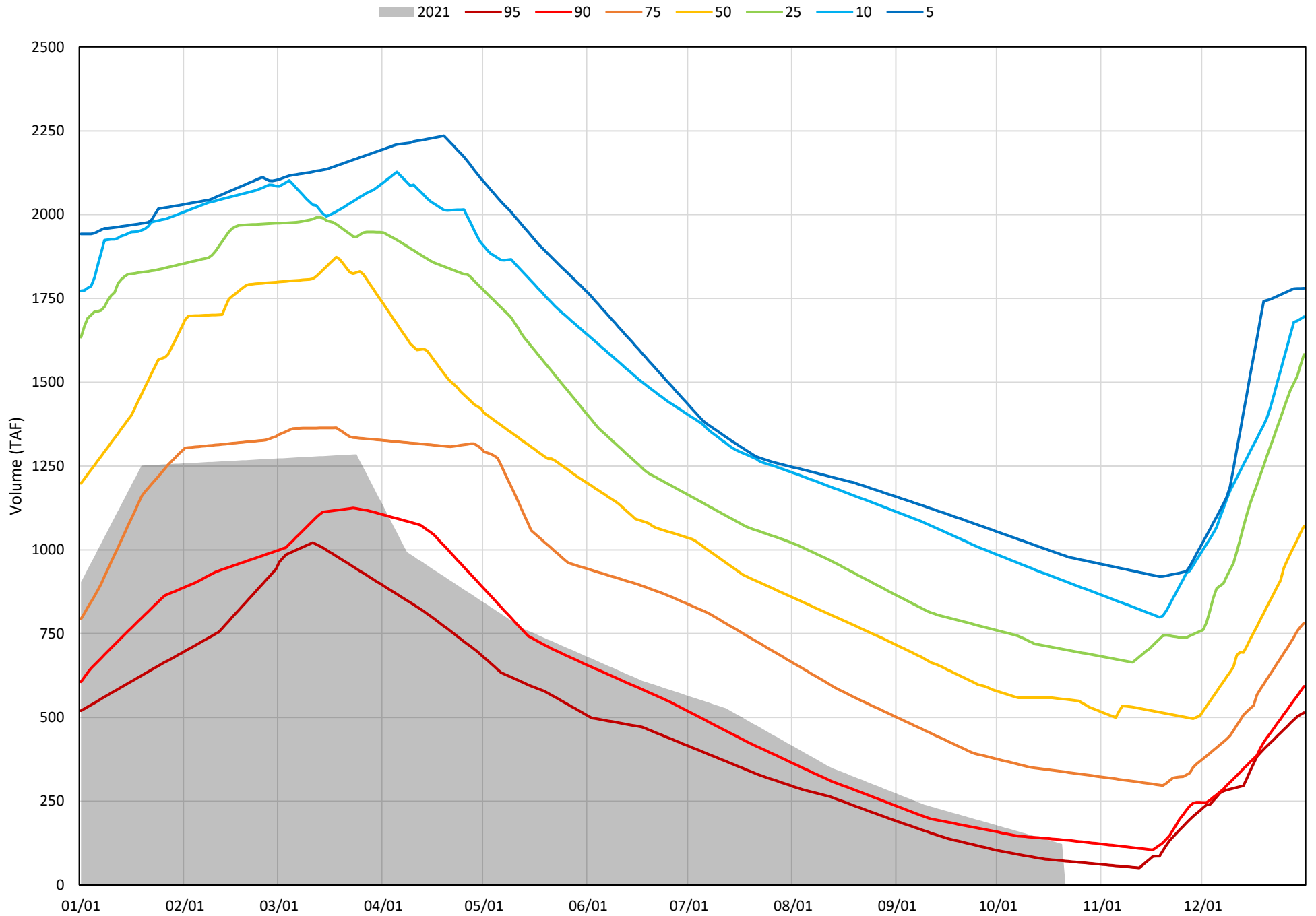
Avg (2000-2020) 2014 2015 2016 2019 2021



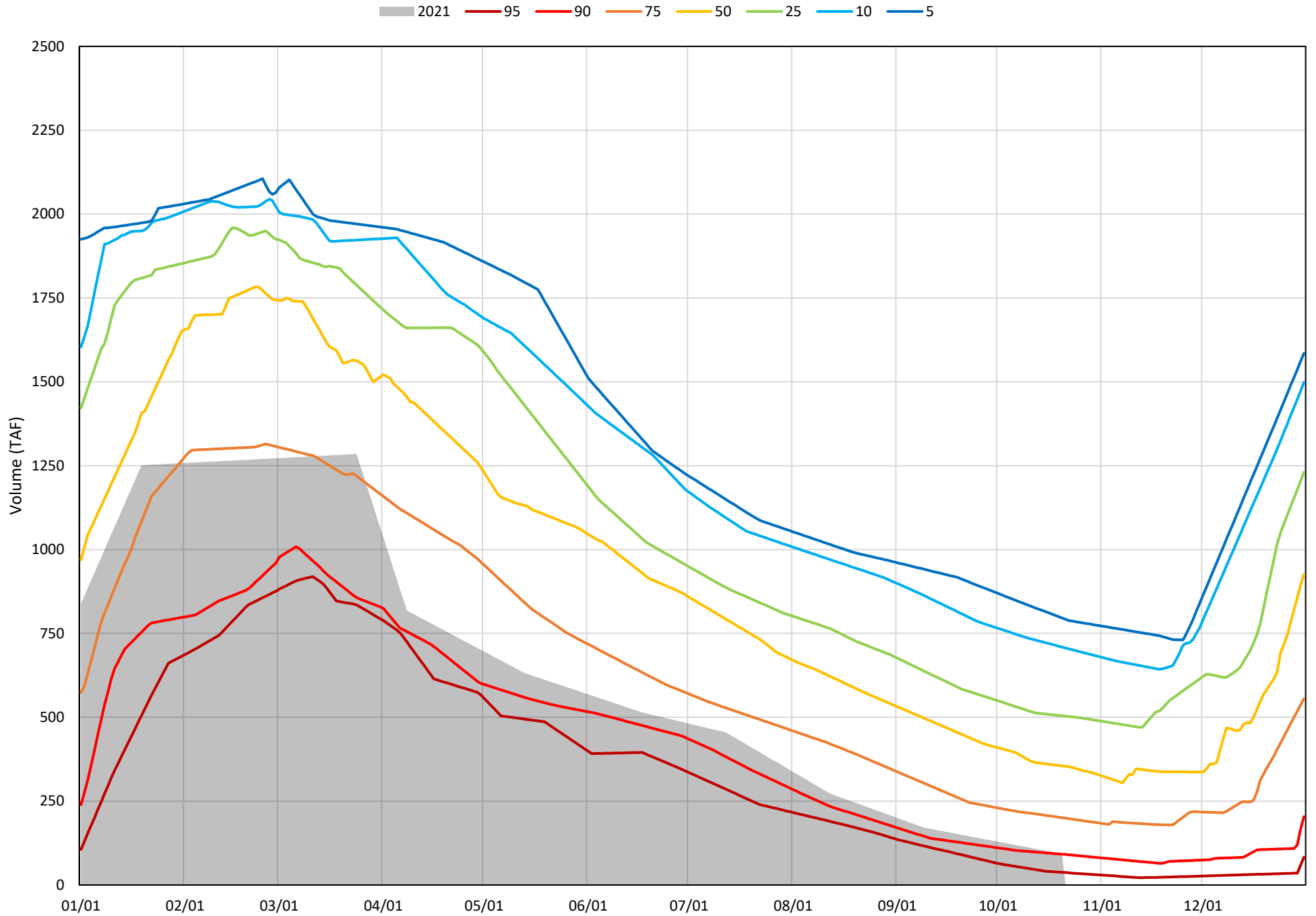
Trinity Lake Cold Water Pool Volume $\leq 52^{\circ}\text{F}$ - Percent Exceedances (2000-2020)



Trinity Lake Cold Water Pool Volume $\leq 50^{\circ}\text{F}$ - Percent Exceedances (2000-2020)



Trinity Lake Cold Water Pool Volume $\leq 48^{\circ}\text{F}$ - Percent Exceedances (2000-2020)

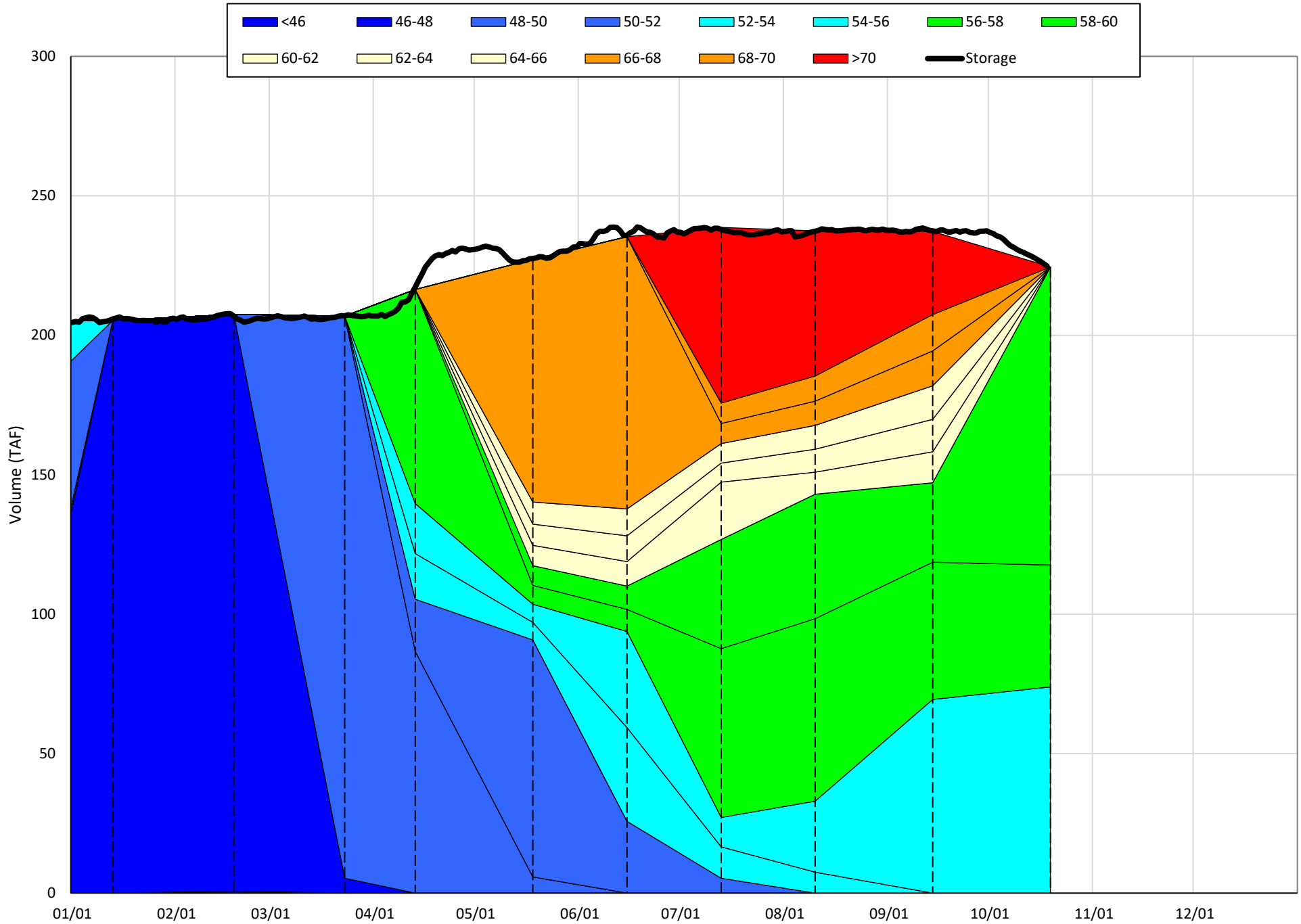


Whiskeytown Lake Isothermobaths & Cold Water Pool Statistics

2021

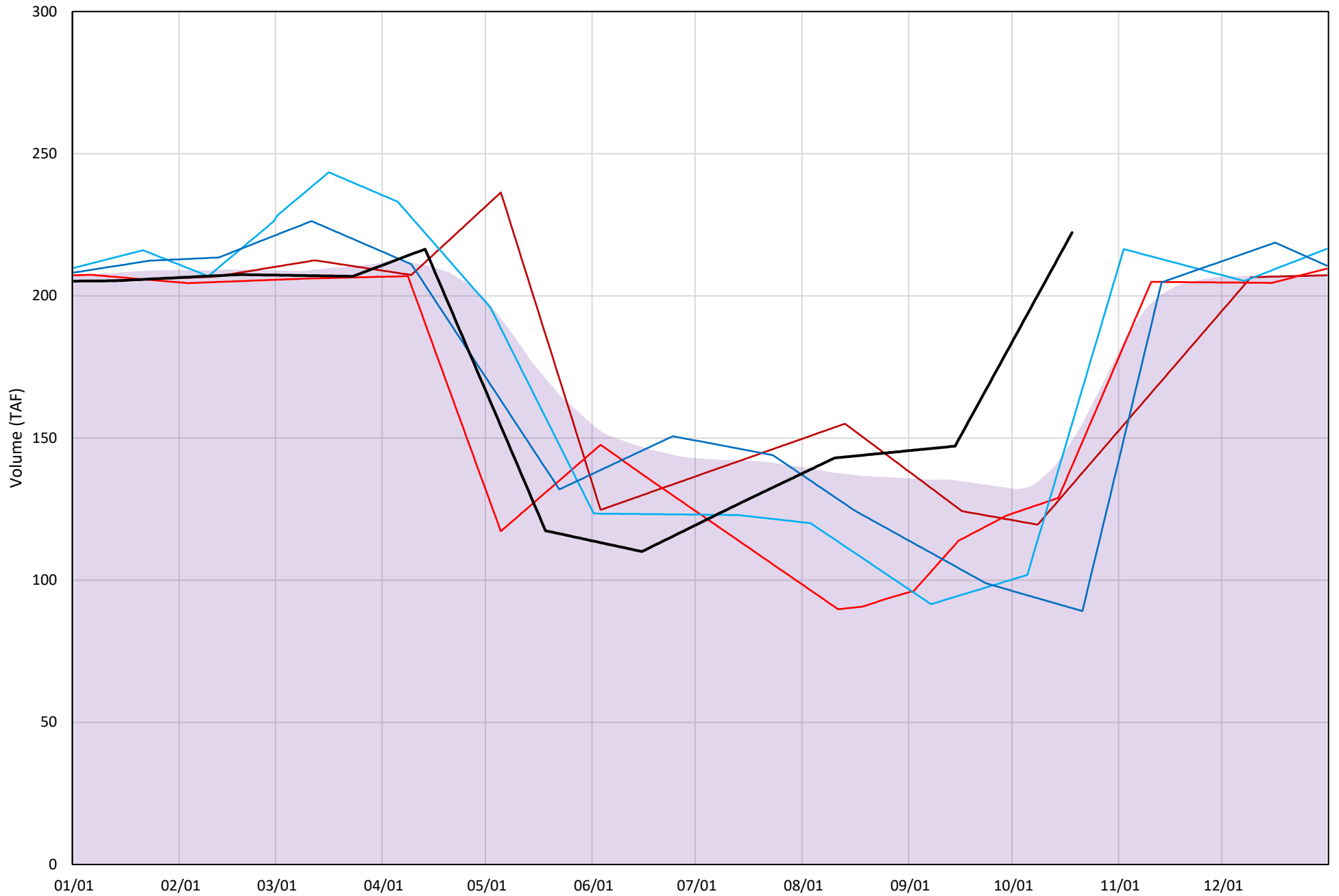
Page	Description
24	- Whiskeytown Lake Isothermobaths Plot
25	- Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$
26	- Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$
27	- Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$
28	- Whiskeytown Lake Cold Water 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 - 2021



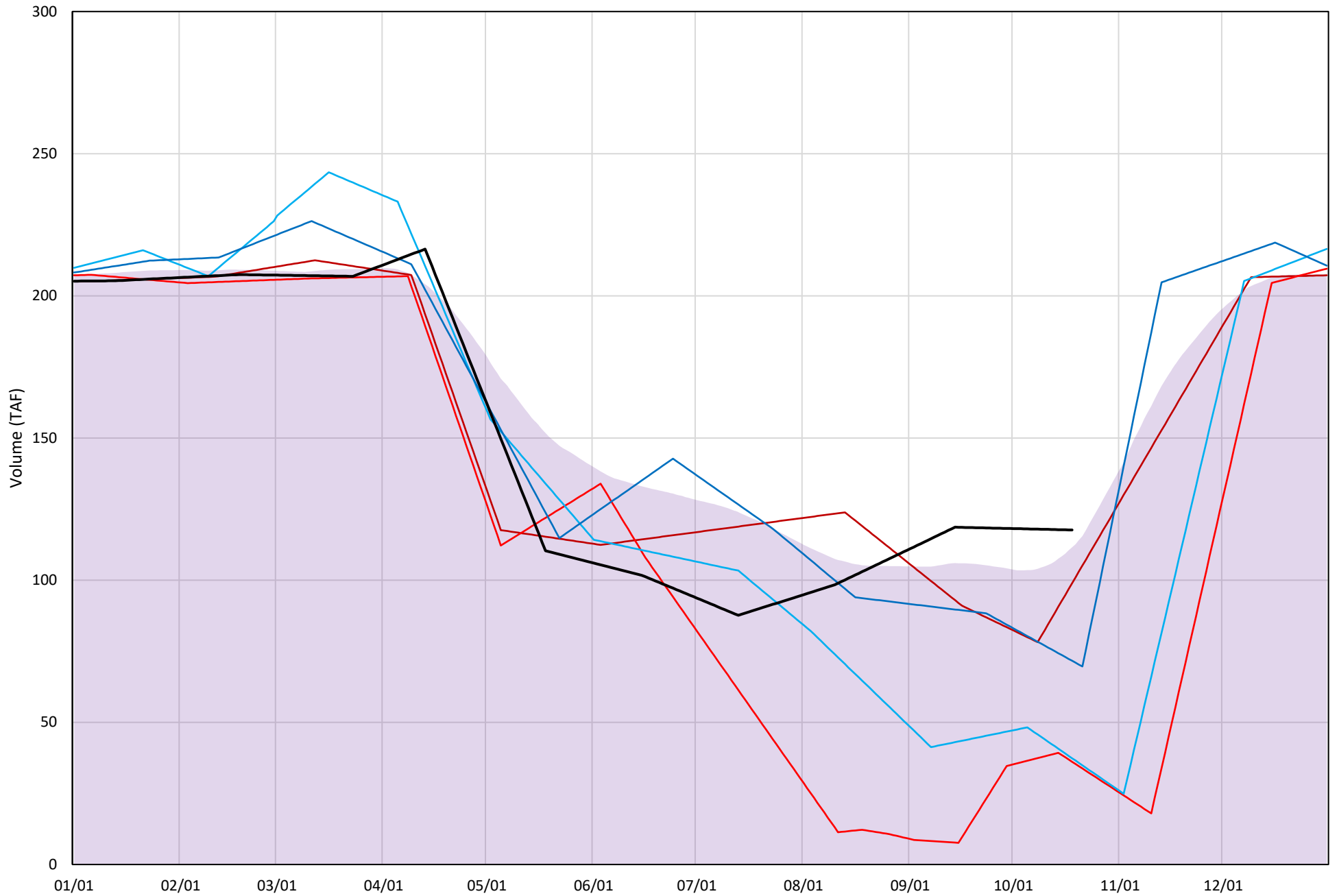
Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$

Avg (2000-2020) 2014 2015 2016 2019 2021



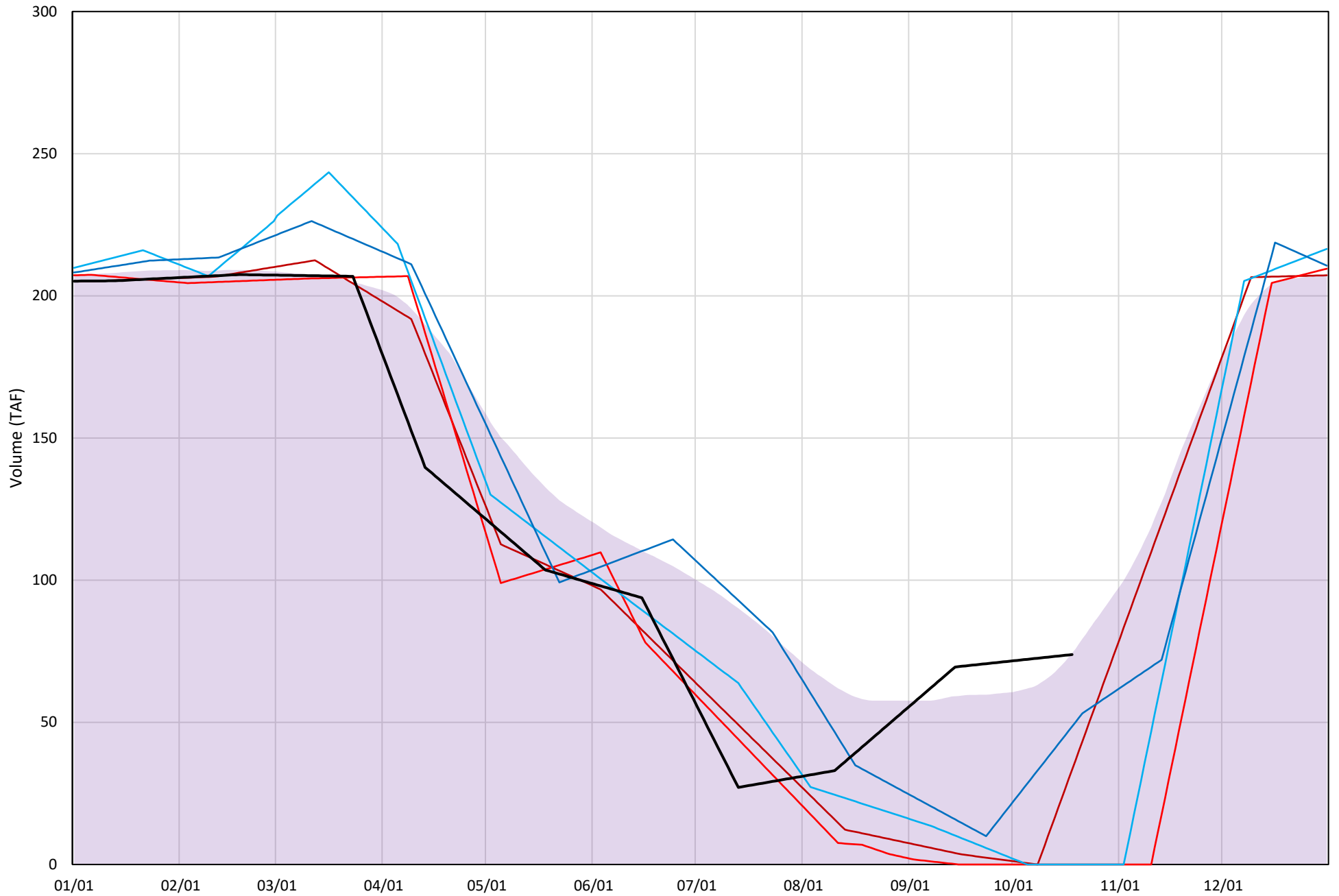
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$

Avg (2000-2020) 2014 2015 2016 2019 2021

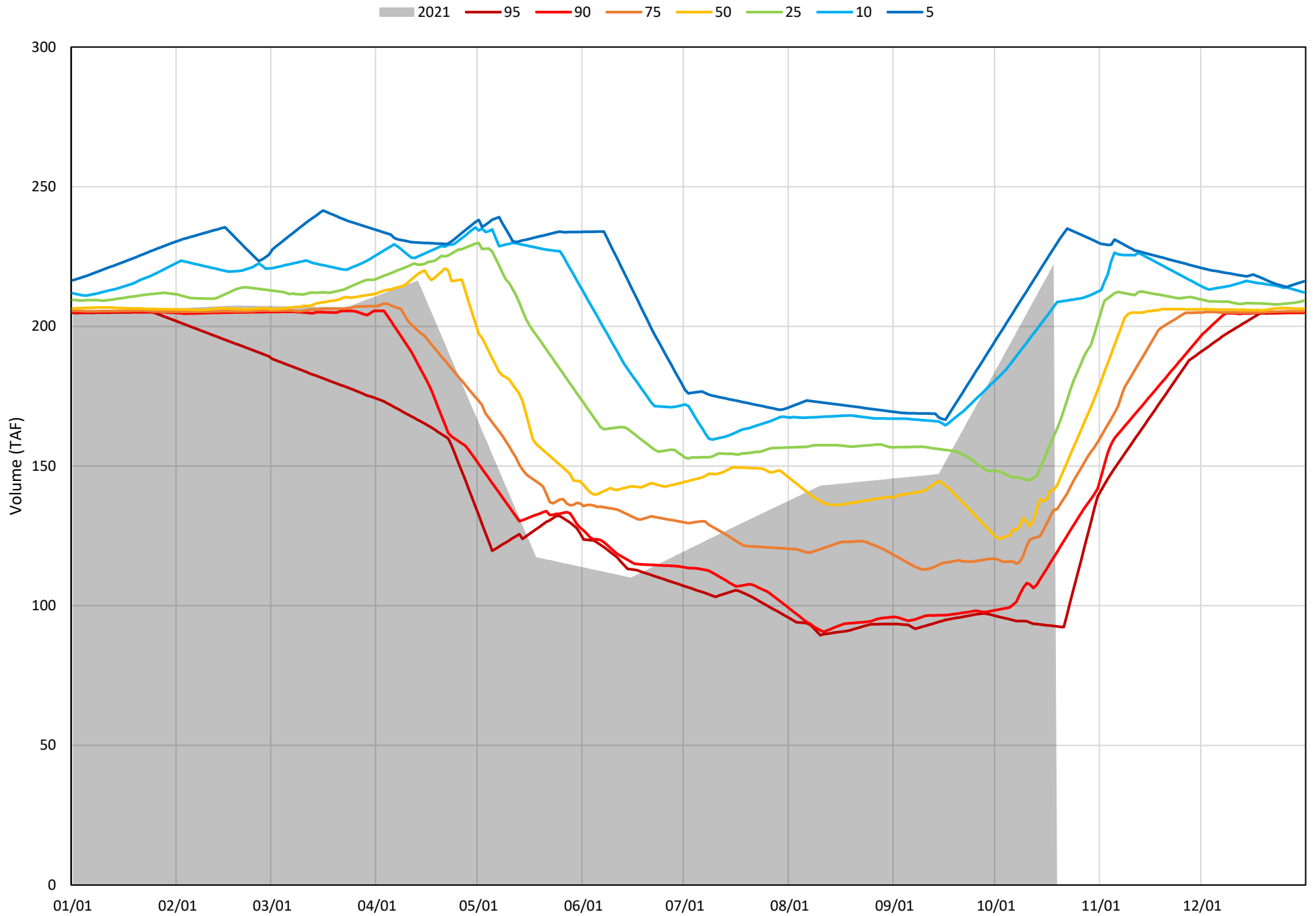


Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$

Avg (2000-2020) 2014 2015 2016 2019 2021

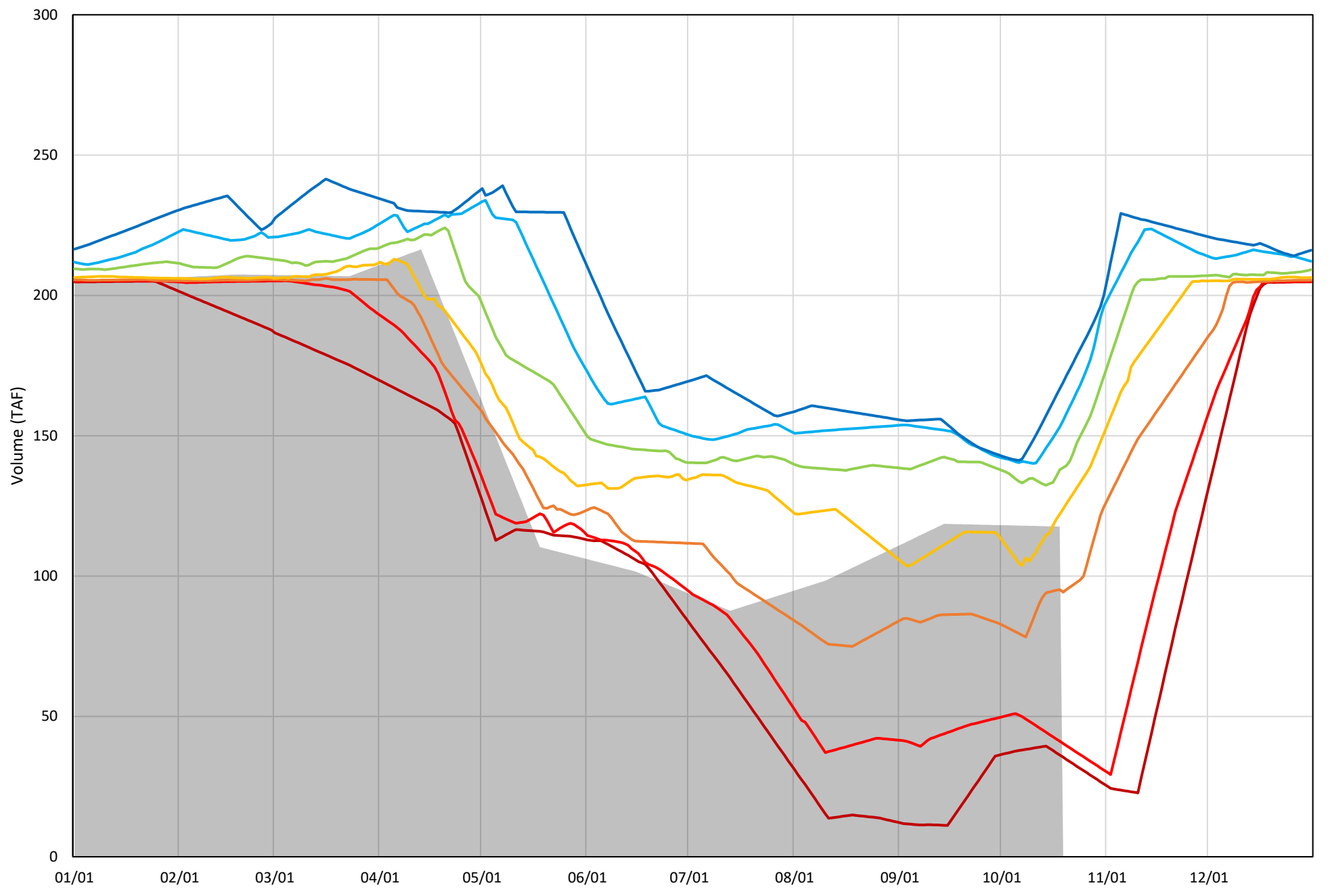


Whiskeytown Lake Cold Water Pool Volume $\leq 60^{\circ}\text{F}$ - Percent Exceedances (2000-2020)



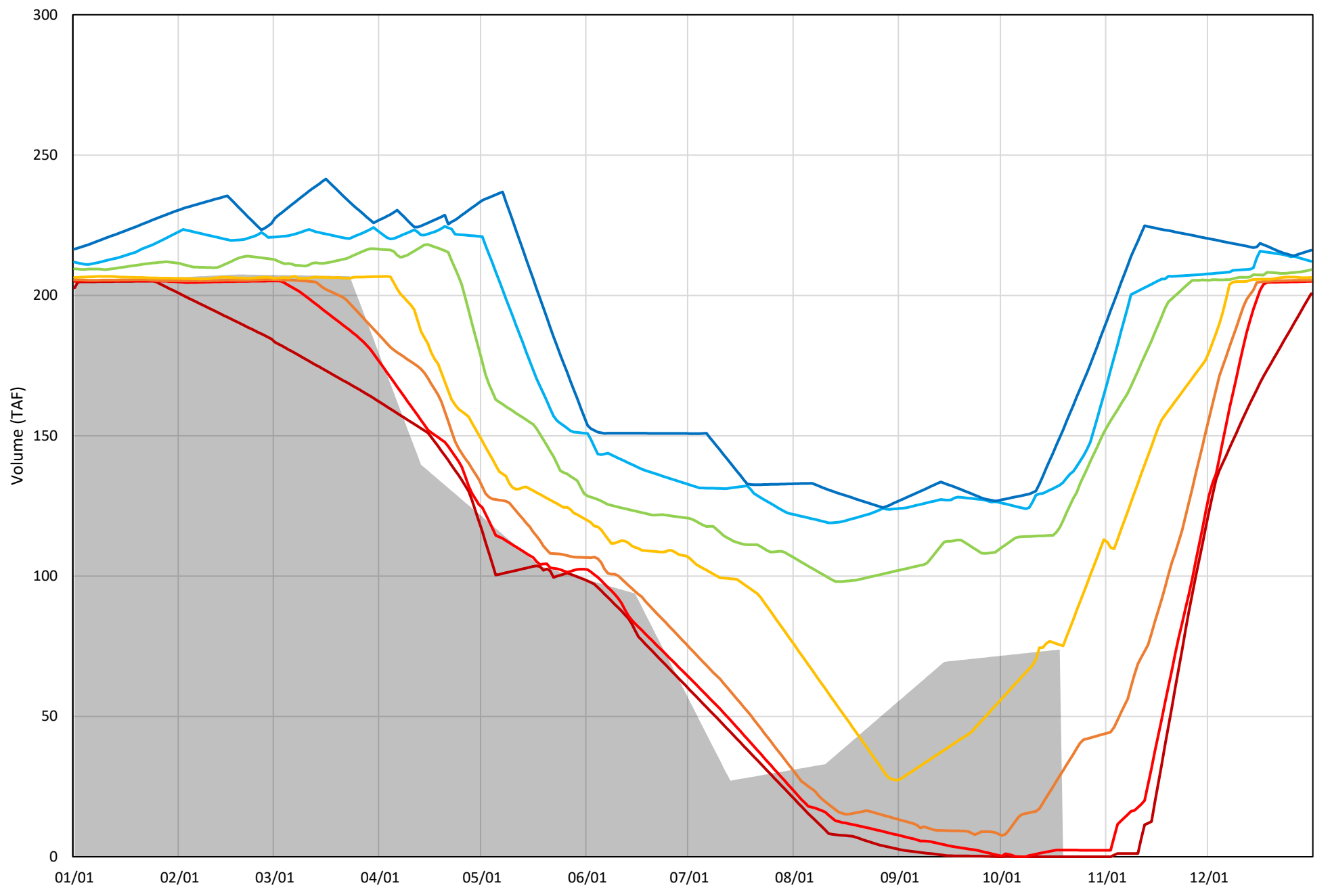
Whiskeytown Lake Cold Water Pool Volume $\leq 58^{\circ}\text{F}$ - Percent Exceedances (2000-2020)

2021 95 90 75 50 25 10 5



Whiskeytown Lake Cold Water Pool Volume $\leq 56^{\circ}\text{F}$ - Percent Exceedances (2000-2020)

2021 95 90 75 50 25 10 5



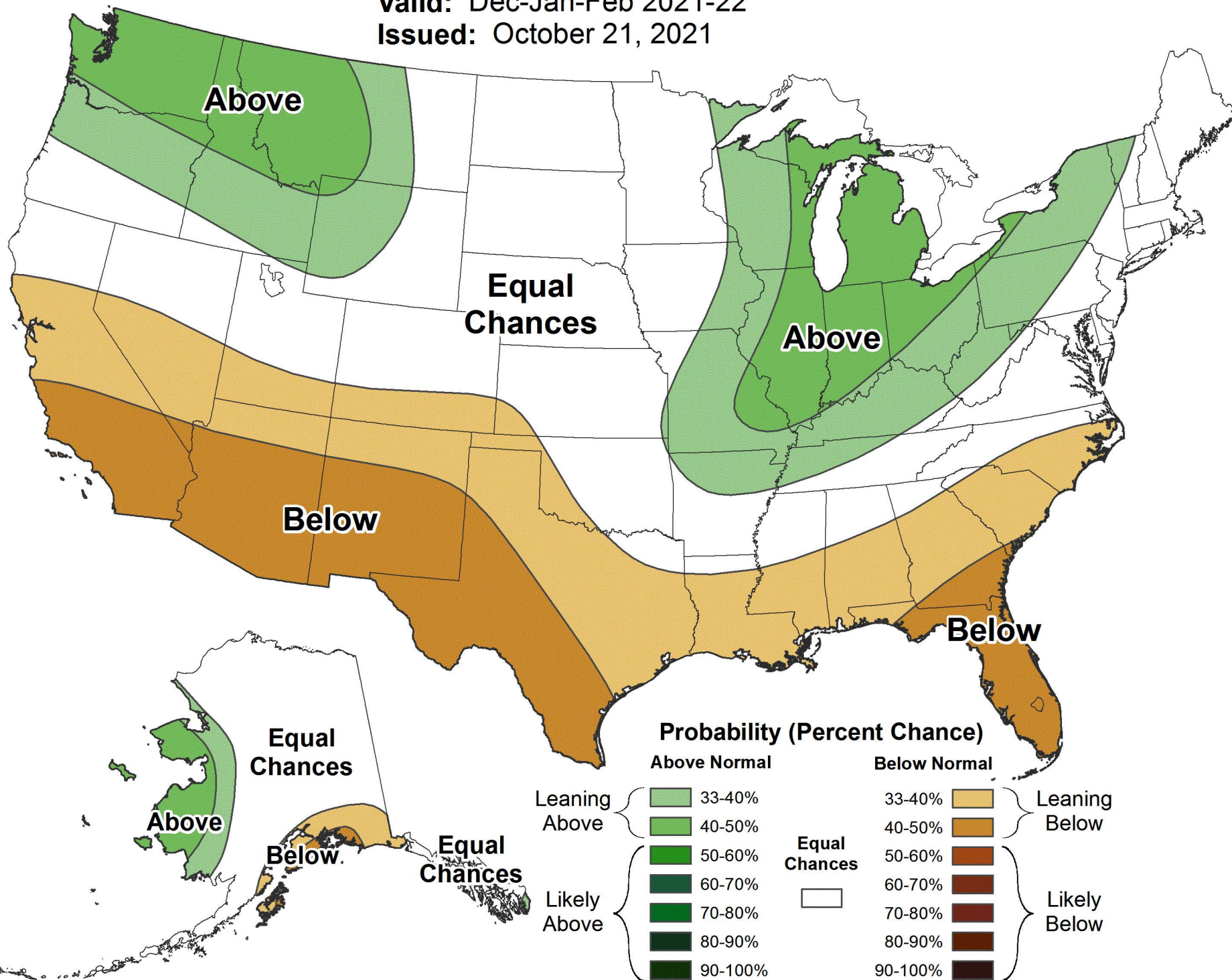


Seasonal Precipitation Outlook



Valid: Dec-Jan-Feb 2021-22

Issued: October 21, 2021



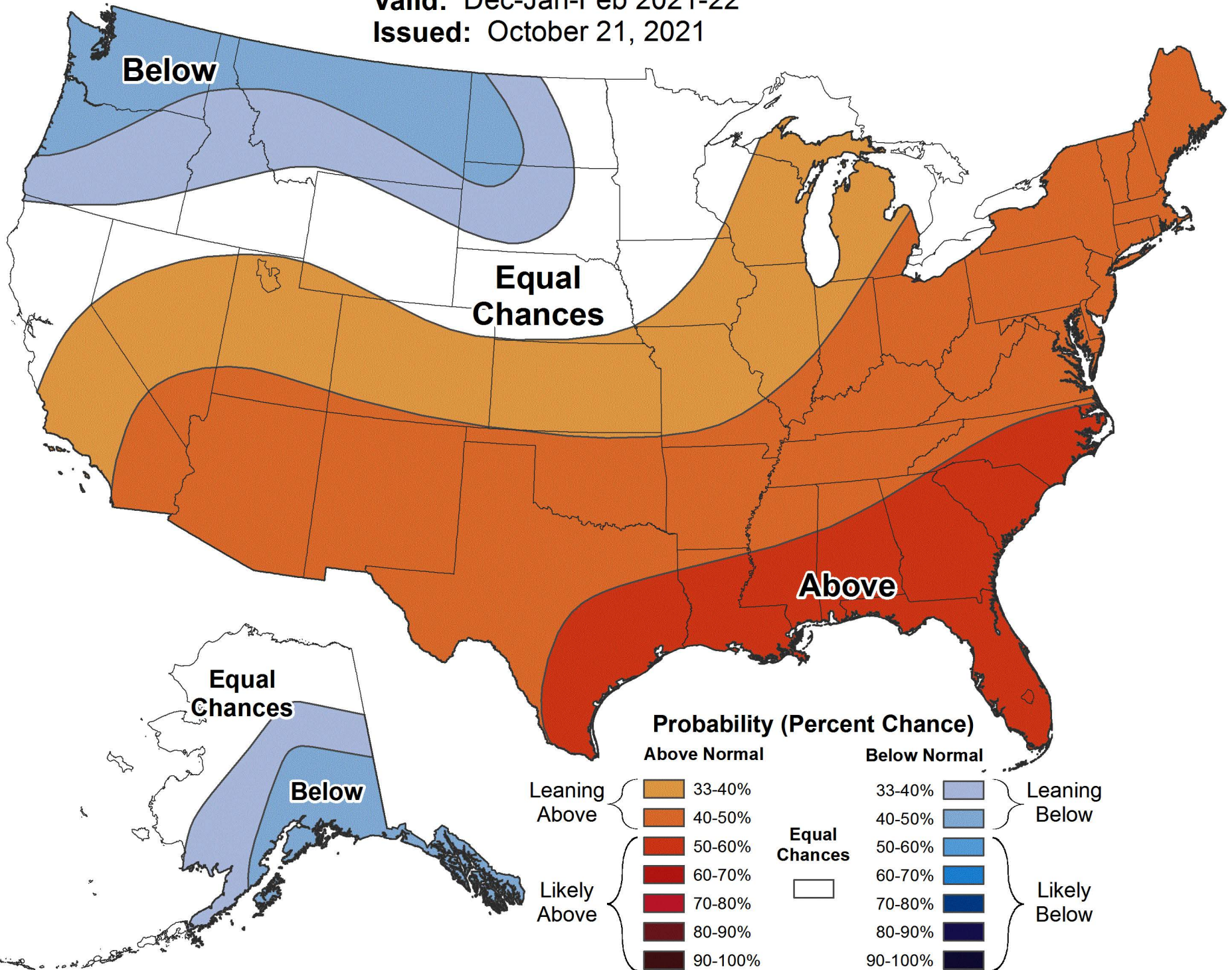


Seasonal Temperature Outlook



Valid: Dec-Jan-Feb 2021-22

Issued: October 21, 2021



Estimated CVP Operations 90% Exceedance

Storages

Federal End of the Month Storage/Elevation (TAF/Feet)

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Trinity	710	645	603	576	574	602	668	726	749	700	601	465	357
	Elev.	2209	2202	2198	2198	2202	2212	2221	2224	2217	2202	2178	2156
Whiskeytown	238	206	206	206	206	206	206	238	238	238	238	238	238
	Elev.	1199	1199	1199	1199	1199	1199	1209	1209	1209	1209	1209	1209
Shasta	1074	903	902	903	1032	1240	1567	1676	1574	1350	1046	816	684
	Elev.	876	876	876	888	906	930	937	931	914	890	867	852
Folsom	230	208	188	178	207	280	418	592	583	373	301	283	297
	Elev.	369	364	361	369	384	406	428	427	399	387	384	387
New Melones	843	796	793	792	796	791	781	760	723	653	579	521	496
	Elev.	912	912	911	912	911	910	906	900	888	874	862	857
San Luis	43	6	6	26	222	244	269	272	232	158	86	36	140
	Elev.	356	359	365	407	407	405	400	389	373	357	345	364
Total		2763	2698	2680	3037	3363	3910	4264	4099	3472	2851	2359	2211

State End of the Month Reservoir Storage (TAF)

Oroville	740	746	747	747	830	977	1186	1405	1397	1255	1026	860	825
	Elev.	620	621	621	636	661	691	719	718	700	668	642	636
San Luis	215	230	247	355	335	295	253	205	165	138	127	130	
Total San Luis (TAF)	251	221	236	273	577	580	564	526	437	323	224	162	270

Monthly River Releases (TAF/cfs)

Trinity	TAF	23	18	18	18	17	18	36	92	47	28	53	52
	cfs	373	300	300	300	300	300	600	1,498	783	450	857	870
Clear Creek	TAF	12	12	12	12	11	12	12	22	9	9	9	9
	cfs	200	200	200	200	200	200	200	360	150	150	150	150
Sacramento	TAF	375	199	200	200	180	200	350	450	506	569	477	357
	cfs	6100	3350	3250	3250	3250	3250	5890	7314	8500	9250	7760	6000
American	TAF	34	33	34	34	31	34	33	183	284	116	61	33
	cfs	550	550	553	550	550	555	550	2985	4776	1890	1000	550
Stanislaus	TAF	35	12	12	13	12	12	27	25	9	9	9	9
	cfs	577	200	200	213	214	200	460	400	150	150	150	150
Feather	TAF	77	57	58	58	53	58	57	92	151	184	123	74
	cfs	1250	950	950	950	950	950	950	1500	2540	3000	2000	1250

Trinity Diversions (TAF)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Carr PP	41	30	21	15	10	3	44	31	57	85	86	60
Spring Crk. PP	62	20	12	10	10	10	15	15	50	75	75	50

Delta Summary (TAF)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Tracy	79	89	121	260	45	59	39	28	27	49	50	194	
USBR Banks	0	0	0	0	0	0	0	0	0	0	0	0	
Contra Costa	3.0	4.0	2.0	0.5	0.5	5.0	6.0	6.0	8.0	3.0	4.0	2.0	
Total USBR	82	93	123	261	46	64	45	34	35	52	54	196	
State Export	18	17	19	134	14	20	18	22	17	7	20	23	
Total Export	100	110	142	395	60	84	63	55	52	59	74	219	
COA Balance	100	93	61	61	6	-106	-120	-72	32	58	80	63	
Vernalis	TAF	44	21	24	74	78	85	79	76	38	38	18	18
Vernalis	cfs	723	351	395	1205	1403	1388	1334	1229	637	622	296	301
Old/Middle River Std.													
Old/Middle R. calc.		-1,517	-1,856	-2,191	-4,989	-784	-1,018	-807	-728	-976	-1,049	-1,384	-3,289
Computed DOI		5140	4001	4002	5921	10626	11403	7094	7076	7144	4474	3205	3026
Excess Outflow		1643	0	0	1415	0	0	0	0	0	0	0	0
% Export/Inflow		19%	27%	33%	56%	9%	11%	10%	8%	6%	9%	14%	40%
% Export/Inflow std.		65%	65%	65%	65%	45%	35%	35%	35%	35%	65%	65%	65%

Hydrology

	Trinity	Shasta	Folsom	New Melones
Water Year Inflow (TAF)	575	3,325	1,110	420
Year to Date + Forecasted % of mean	48%	60%	41%	40%

CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions.
 CVP operational forecasts or outlooks represent general system-wide dynamics and do not necessarily address specific watershed/tributary details.
 CVP releases or export values represent monthly averages.
 CVP Operations are updated monthly as new hydrology information is made available December through May.

Estimated CVP Operations 50% Exceedance

Storages

Federal End of the Month Storage/Elevation (TAF/Feet)

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Trinity		710	648	630	640	706	816	946	1087	1033	969	854	737	622
	Elev.	2209	2207	2208	2218	2233	2249	2265	2259	2252	2238	2222	2205	
Whiskeytown		238	206	206	206	206	206	238	238	238	238	238	238	
	Elev.	1199	1199	1199	1199	1199	1199	1209	1209	1209	1209	1209	1209	
Shasta		1074	901	971	1102	1500	2083	2716	3144	3223	3063	2767	2530	2431
	Elev.	876	883	894	925	962	995	1014	1017	1010	997	986	981	
Folsom		230	208	218	248	367	599	758	903	937	931	703	536	566
	Elev.	369	371	377	398	428	445	459	462	462	440	421	425	
New Melones		843	792	804	818	852	907	965	1014	1127	1147	1069	1002	967
	Elev.	911	913	913	916	921	929	938	944	959	962	952	943	938
San Luis		43	3	84	249	462	636	780	704	538	271	103	37	67
	Elev.	351	372	419	455	480	503	488	465	429	401	384	397	
Total		2757	2912	3263	4093	5247	6370	7090	7094	6619	5734	5080	4891	

State End of the Month Reservoir Storage (TAF)

Oroville		788	681	613	618	840	1237	1627	2053	2248	2166	1934	1799	1732
	Elev.	609	595	596	638	698	745	788	805	798	776	763	756	
San Luis		208	187	234	430	555	650	761	663	583	496	432	367	434
Total San Luis (TAF)		251	191	317	680	1017	1286	1541	1367	1121	767	535	404	502
	Elev.	351	372	419	455	480	503	488	465	429	401	384	397	

Monthly River Releases (TAF/cfs)

Trinity	TAF	23	18	18	18	17	18	36	258	126	68	53	52
	cfs	373	300	300	300	300	300	600	4,189	2,120	1,102	857	870
Clear Creek	TAF	12	12	12	25	11	12	12	16	12	9	9	9
	cfs	200	200	200	400	200	200	200	265	200	150	150	150
Sacramento	TAF	375	193	200	200	180	200	193	400	476	569	492	357
	cfs	6100	3250	3250	3250	3250	3250	3250	6500	8000	9250	8000	6000
American	TAF	34	33	34	34	31	154	280	430	229	348	267	75
	cfs	550	551	550	550	550	2500	4700	7000	3844	5665	4347	1258
Stanislaus	TAF	39	12	12	13	12	12	27	25	12	12	12	12
	cfs	635	200	200	219	221	200	460	400	200	200	200	200
Feather	TAF	77	57	58	58	53	58	57	58	150	184	117	113
	cfs	1250	950	950	950	950	950	950	950	2520	3000	1900	1900

Trinity Diversions (TAF)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Carr PP	38	21	12	0	2	1	30	12	36	69	70	69
Spring Crk. PP	60	15	12	10	35	26	10	10	30	60	60	60

Delta Summary (TAF)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Tracy	76	170	251	230	220	241	48	49	75	250	250	251	
USBR Banks	0	0	0	0	0	0	0	0	0	0	0	0	
Contra Costa	16.8	18.4	18.3	14.0	14.0	12.7	12.7	12.7	9.8	11.1	12.7	14.0	
Total USBR	93	188	269	244	234	254	60	62	85	261	263	265	
State Export	20	67	200	170	150	169	42	44	25	32	21	120	
Total Export	113	255	469	414	384	423	102	106	110	293	284	385	
COA Balance	100	-13	-13	-13	-13	-13	-13	-13	-12	-31	-35	-68	
Vernalis	TAF	108	83	83	92	111	120	117	123	59	49	54	
Vernalis	cfs	1758	1393	1355	1504	2004	1957	1960	2001	990	834	906	
Old/Middle River Std.													
Old/Middle R. calc.	cfs	-1,212	-3,269	-5,859	-5,099	-5,013	-5,004	-1,027	-1,017	-1,566	-3,886	-5,165	
Computed DOI		8020	4001	4246	12835	17254	18528	14137	12640	7749	6003	4002	3009
Excess Outflow		4522	0	244	8329	5853	7125	7043	5384	0	0	0	0
% Export/Inflow		13%	43%	62%	35%	28%	26%	9%	9%	13%	30%	35%	50%
% Export/Inflow std.		65%	65%	65%	65%	45%	35%	35%	35%	35%	65%	65%	65%

Hydrology

	Trinity	Shasta	Folsom	New Melones
Water Year Inflow (TAF)	1340	7,352	3,277	1345
Year to Date + Forecasted % of mean	111%	133%	120%	127%

CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions.
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 CVP Operations are updated monthly as new hydrology information is made available December through May.

Water Year 2021 Winter-Run Chinook Temperature-Dependent Mortality Estimate
 Prepared by the Southwest Fisheries Science Center (SWFSC), October 24th, 2021

This document provides hindcast estimates of temperature-dependent mortality (TDM) for water year 2021. River temperature was generated using the RAFT model with data assimilation and associated TDM estimates using the SWFSC stage-independent temperature mortality model (Martin et al. 2017). Additionally, since the RAFT model showed a bias in predicting temperature during the peak month of observed spawning in June and July, TDM was also estimated using observed water temperatures at the CDEC gauges (KWK, SAC, CCR, and BSF) and linearly interpolating in space between gauge locations.

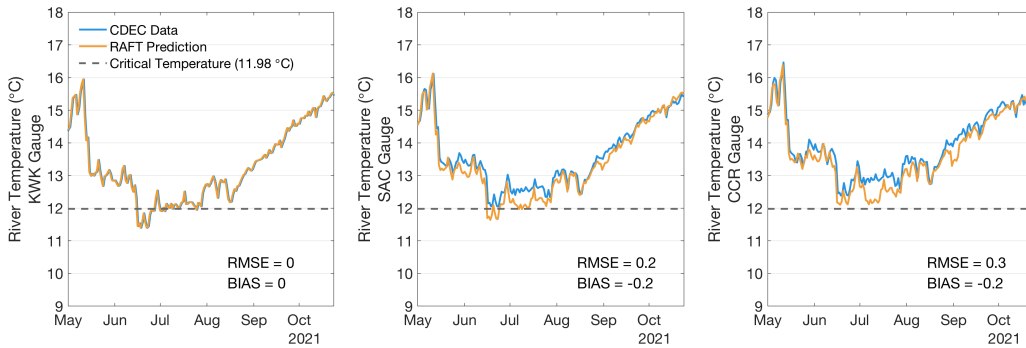


Figure 1: Differences in daily mean river temperature between CDEC data and the RAFT hindcast model at the KWK, SAC, and CCR gauge. Note: RAFT model error statistics, bias and root mean square error (RMSE), are displayed.

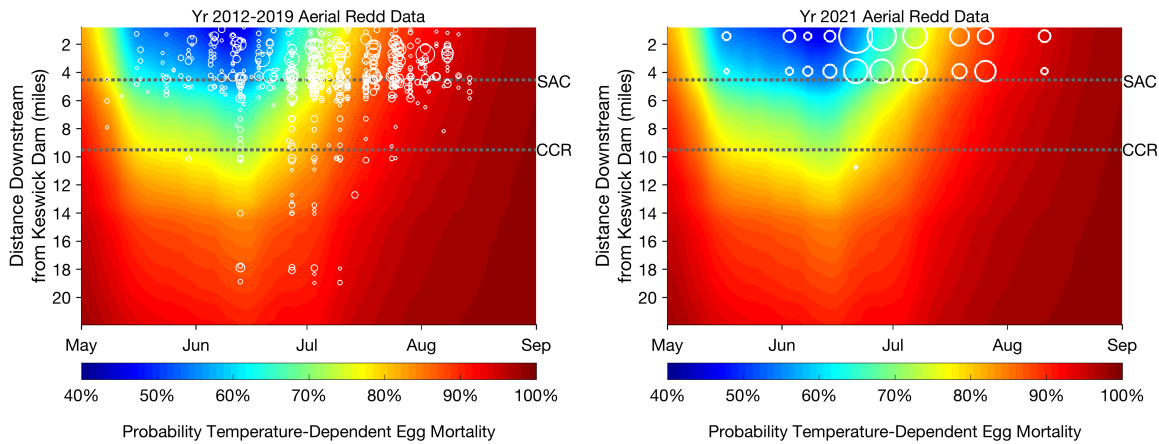


Figure 2: Estimated temperature-dependent egg survival produced by the SWFSC stage-independent model under a 2012-2019 redd distribution (left plot) and 2021 redd distribution (right plot). Note: redd distribution shown as white circles, scaled to the number of redds observed during the aerial survey.

Table 1: Estimated TDM under two spatial and temporal redd distribution using output from the RAFT model and linear interpolation of observed gauge data. TDM estimates were generated for the SWFSC stage-independent temperature mortality model by running the following parameter conditions, $T_{crit} = 11.98 \text{ }^\circ\text{C}$, $b_T = 0.023 \text{ }^\circ\text{C}^{-1} \text{ day}^{-1}$.

Redd distribution (years)	Method to estimate river temperature	Mean Annual TDM (%)
2012-2019	RAFT Model	77
2021	RAFT Model	70
2021	Linear interpolation of observed gauge data	75