

## Sacramento River Temperature Task Group Meeting

December 31, 2019

### Update

- Hydrology & Operations update (information is available on web-pages)
  - Daily Operation
  - Summary
  - 8-Station Index and Snow Water Content
  - Operations Outlook
  - Mean Daily Water Temperatures
  - Redding 10-Day Forecasted Air Temperatures
  - Sac River Gage temp plot and air temp plot
  - Lake Shasta Isothermobath Plot
  - Lake Shasta Isotherm Statistics Plots
  - Lake Shasta Current TCD Configuration
  - Trinity Lake Isothermobath Plot
  - Whiskeytown Lake Isothermobath Plot

**DAILY CVP WATER SUPPLY REPORT**

DECEMBER 30, 2019

RUN DATE: December 31, 2019

**RESERVOIR RELEASES IN CUBIC FEET/SECOND**

RESERVOIR	DAM	WY 2019	WY 2020	15 YR MEDIAN
TRINITY	LEWISTON	297	295	305
SACRAMENTO	KESWICK	3,879	5,801	4,506
FEATHER	OROVILLE (SWP)	1,750	2,000	1,750
AMERICAN	NIMBUS	1,804	2,321	1,804
STANISLAUS	GOODWIN	202	804	279
SAN JOAQUIN	FRIANT	430	0	152

**STORAGE IN MAJOR RESERVOIRS IN THOUSANDS OF ACRE-FEET**

RESERVOIR	CAPACITY	15 YR AVG	WY 2019	WY 2020	% OF 15 YR AVG
TRINITY	2,448	1,434	1,460	1,960	137
SHASTA	4,552	2,591	2,266	3,328	128
FOLSOM	977	382	313	513	134
NEW MELONES	2,420	1,404	1,788	1,980	141
FED. SAN LUIS	966	548	628	392	72
TOTAL NORTH CVP	11,363	6,359	6,455	8,173	129
MILLERTON	520	254	299	0	0
OROVILLE (SWP)	3,538	1,735	1,031	2,077	120

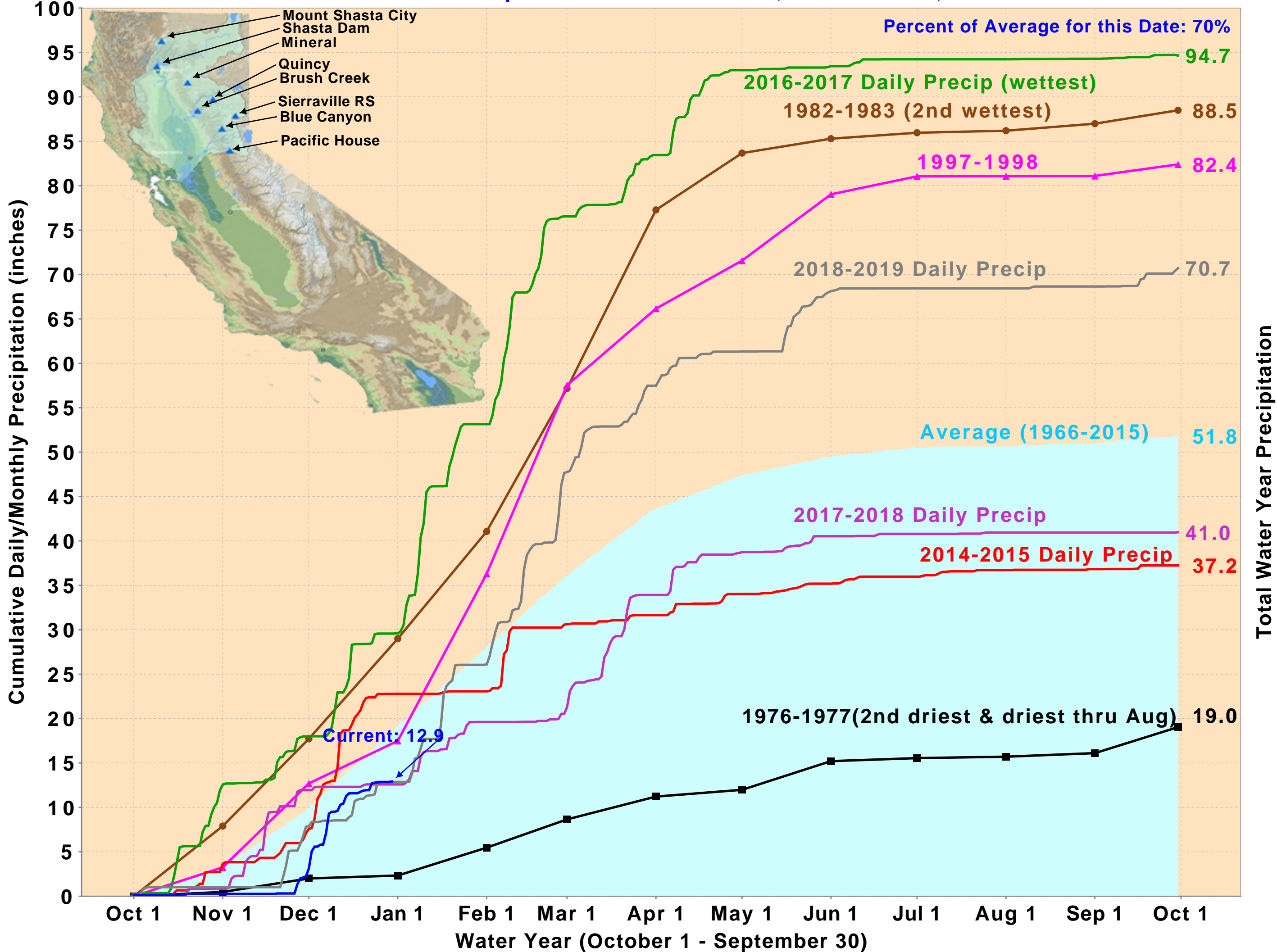
**ACCUMULATED INFLOW FOR WATER YEAR TO DATE IN THOUSANDS OF ACRE-FEET**

RESERVOIR	CURRENT WY 2020	WY 1977	WY 1983	15 YR AVG	% OF 15 YR AVG
TRINITY	74	27	253	152	49
SHASTA	847	689	1,454	966	88
FOLSOM	304	109	1,074	364	84
NEW MELONES	155	---	380	143	108
MILLERTON	197	68	502	155	127

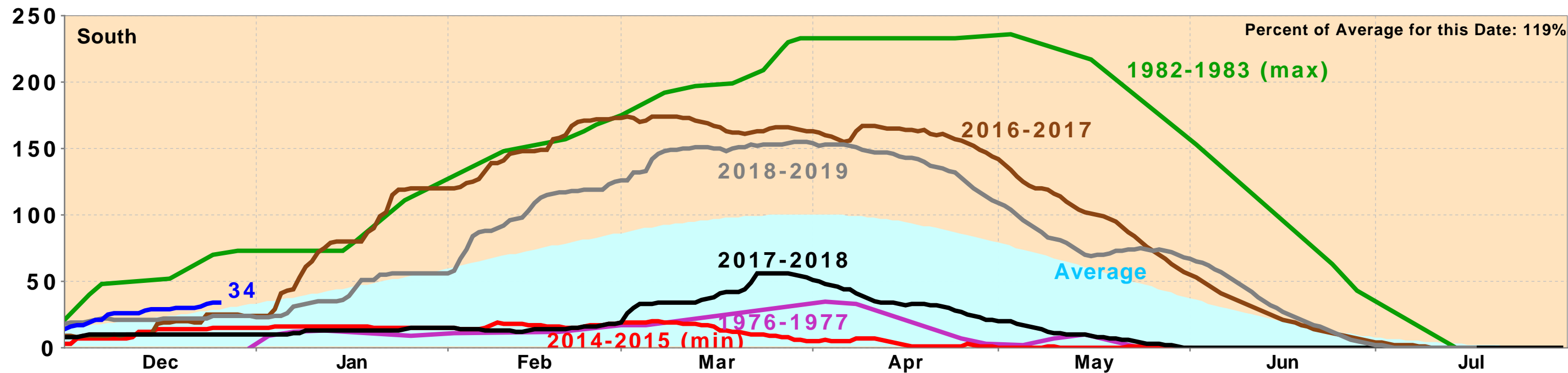
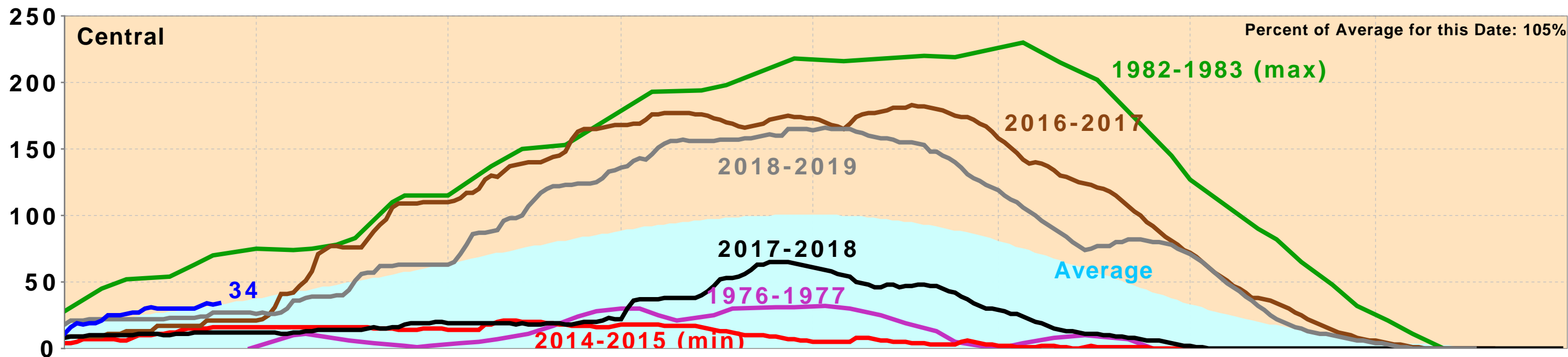
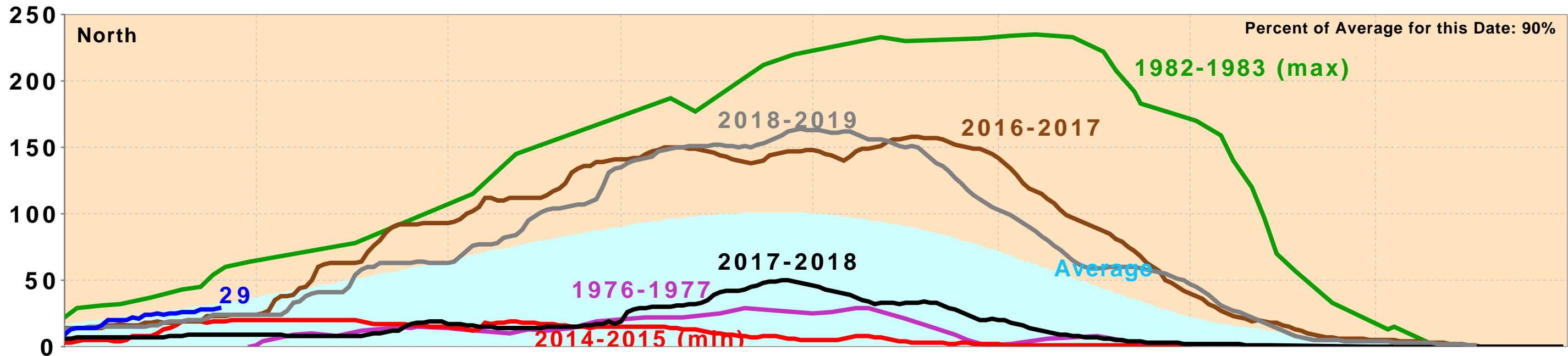
**ACCUMULATED PRECIPITATION FOR WATER YEAR TO DATE IN INCHES**

RESERVOIR	CURRENT WY 2020	WY 1977	WY 1983	AVG (N YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	7.86	1.57	18.96	12.33 ( 57)	64	0.09
SACRAMENTO AT SHASTA DAM	18.82	2.01	30.16	21.40 ( 62)	88	0.09
AMERICAN AT BLUE CANYON	10.27	3.43	40.78	23.01 ( 44)	45	0.00
STANISLAUS AT NEW MELONES	8.43	---	14.52	8.96 ( 41)	94	0.00
SAN JOAQUIN AT HUNTINGTON LK	10.88	1.80	29.20	12.64 ( 44)	86	0.00

# Northern Sierra Precipitation: 8-Station Index, December 30, 2019



# California Snow Water Content, December 26, 2019, Percent of April 1 Average



Statewide Percent of April 1: 32%

Statewide Percent of Average for Date: 102%

## Upper Sacramento River Summary Conditions – December (On-going):

### Storage/Release Management Conditions:

- Reservoir Inflow Uncertainty: Meteorological projections: Shorter term forecasts (8-14 day) suggest a chance of above normal precipitation
- Longer term forecasts (three-month outlook) suggest equal chance of below/above normal precipitation
- Current release from Keswick Dam: Ramping down to 5,000 cfs on January 3<sup>rd</sup> for storage conservation

### Temperature Management:

- Temperature management: inactive
- Selective withdrawal: Rebuilding cold-water-pool reserves. All Upper and Middle gates open, when storage elevations are sufficient, the Middle gates will be closed.
- Meteorological Uncertainty: Shorter term forecasts (8-14 day) suggest below normal temperatures
- Longer term forecasts (three-month outlook) suggest above normal chances of warmer temperatures

### Resources:

- Excellent link for short term precipitation forecasts, overlay with burn areas, debris flow potential, etc: <https://www.cnrfc.noaa.gov/>
- Comprehensive Upper Sacramento fishery information: <https://www.calfish.org/ProgramsData/ConservationandManagement/CentralValleyMonitoring/CDFWUpperSacRiverBasinSalmonidMonitoring.aspx>

# CVP Northern System Operation Outlooks

DRAFT December 2019

## 90% Runoff Exceedance Outlook:

Inflow based on DWR B120 90%; Historical Inflows Oct and future months

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

		Dec	Jan	Feb	Mar	Apr	May
Shasta	3209	3331	3556	3850	4221	4232	4116
	Elev.	1022	1031	1042	1056	1056	1052

### Monthly River Releases (cfs)

Sacramento	5500	4000	4000	4300	6600	7750
Clear Creek	200	200	200	200	218	216

### Trinity Diversions (TAF)

	Dec	Jan	Feb	Mar	Apr	May
Carr Power Plant	19	15	20	43	40	17
Spring Creek PP	12	10	20	50	10	10

## 50% Runoff Exceedance Outlook:

Inflow based on DWR B120 50%; Historical Inflows Oct and future months

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

		Dec	Jan	Feb	Mar	Apr	May
Shasta	3209	3381	3658	3850	4025	4177	4123
	Elev.	1024	1035	1042	1049	1054	1052

### Monthly River Releases (cfs)

Sacramento	5000	6000	10000	10000	6500	7000
Clear Creek	200	240	200	200	218	216

### Trinity Diversions (TAF)

	Dec	Jan	Feb	Mar	Apr	May
Carr Power Plant	7	0	67	100	81	9
Spring Creek PP	12	19.8	100	125	60	10

Please note:

CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions.

CVP operational forecasts or outlooks consider general system-wide dynamics and do not necessarily address specific watershed/tributary details.

CVP releases represent monthly averages.

CVP operations are updated monthly as new hydrology information is made available December through May.

**Estimated CVP Operations 90% Exceedance**

**Storages**

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

		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Trinity		1928	1911	1909	1926	1950	2008	2042	1940	1821	1665	1512	1475	1451
	Elev.	2335	2335	2336	2337	2342	2344	2337	2328	2316	2304	2301	2299	
Whiskeytown		207	206	206	206	206	238	238	238	238	238	206	206	
	Elev.	1199	1199	1199	1199	1199	1209	1209	1209	1209	1209	1199	1199	
Shasta		3209	3331	3556	3850	4221	4232	4116	3715	3140	2781	2619	2479	2442
	Elev.	1022	1031	1042	1056	1056	1052	1037	1014	998	990	983	981	
Folsom		493	476	432	440	480	506	490	441	380	317	286	273	265
	Elev.	413	408	409	414	417	415	409	400	390	385	382	381	
New Melones		2000	1972	1972	1977	1985	1878	1752	1663	1572	1497	1451	1402	1396
	Elev.	1050	1050	1050	1051	1041	1029	1020	1011	1003	998	992	992	
San Luis		251	368	506	528	476	400	262	105	19	37	103	163	198
	Elev.	482	500	502	491	476	453	432	414	404	415	427	432	
<b>Total</b>		8264	8580	8927	9317	9263	8901	8103	7170	6535	6210	5996	5958	

**Monthly River Releases (TAF/cfs)**

		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Trinity	TAF	18	18	17	18	36	92	47	28	53	52	23	18
	cfs	300	300	300	300	600	1,498	783	450	857	870	373	300
Clear Creek	TAF	12	12	11	12	13	13	17	9	9	9	12	12
	cfs	200	200	200	200	218	216	288	150	150	150	200	200
Sacramento	TAF	338	246	222	264	393	476	750	861	627	446	400	303
	cfs	5500	4000	4000	4300	6600	7750	12600	14000	10200	7500	6500	5100
American	TAF	154	111	94	105	77	83	89	95	95	61	49	48
	cfs	2500	1800	1700	1708	1296	1347	1500	1539	1539	1026	800	804
Stanislaus	TAF	123	22	12	12	91	76	12	12	12	12	52	30
	cfs	2000	358	221	200	1537	1243	200	200	200	200	842	500

**Trinity Diversions (TAF)**

	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Carr PP	19	15	20	43	40	17	105	100	101	100	23	26
Spring Crk. PP	12	10	20	50	10	10	90	90	90	90	45	20

**Delta Summary (TAF)**

	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Tracy	210	230	155	50	42	43	79	174	261	260	219	120
USBR Banks	0	0	0	0	0	0	0	2	2	2	0	0
Contra Costa	18.3	14.0	14.0	12.7	12.7	12.7	9.8	11.1	12.7	14.0	16.8	18.4
<b>Total USBR</b>	228	244	169	63	54	56	89	187	276	276	236	138
COA Balance	-18	-18	-18	-115	-134	-165	-86	0	0	46	70	25
Vernalis	186	85	82	92	151	156	97	103	104	92	99	95
Vernalis	3025	1383	1482	1501	2538	2543	1629	1680	1697	1545	1606	1593
Old/Middle River Std.												
Old/Middle R. calc.	-6,723	-4,991	-3,709	-1,301	-460	-452	-2,327	-3,142	-3,831	-5,176	-4,700	-2,467
Computed DOI	6621	9825	9690	9744	8959	7499	7245	4994	3497	3009	4002	4505
Excess Outflow	2115	5319	1207	0	0	0	0	0	0	0	0	0
% Export/Inflow	58%	41%	33%	14%	10%	11%	23%	31%	40%	54%	51%	36%
% Export/Inflow std.	65%	65%	45%	35%	35%	35%	35%	65%	65%	65%	65%	65%

**Hydrology**

Water Year Inflow (TAF)	Trinity	Shasta	Folsom	New Melones
Year to Date + Forecasted	595	4,111	1,058	559
% of mean	49%	74%	39%	53%

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**Estimated CVP Operations 50% Exceedance**

**Storages**

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

		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Trinity		1928	1959	2023	2068	2097	2192	2138	1975	1826	1676	1527	1491	1479
	Elev.	2338	2343	2346	2348	2354	2350	2339	2329	2317	2305	2302	2301	
Whiskeytown		207	206	206	206	238	238	238	238	238	238	206	206	
	Elev.	1199	1199	1199	1199	1199	1209	1209	1209	1209	1209	1199	1199	
Shasta		3209	3381	3658	3850	4025	4177	4123	3882	3373	3006	2819	2667	2659
	Elev.	1024	1035	1042	1049	1054	1052	1043	1024	1008	1000	992	992	
Folsom		493	483	531	539	710	871	928	898	791	707	656	608	578
	Elev.	414	420	421	440	456	462	459	449	440	435	429	426	
New Melones		2000	1969	1967	1972	2029	1974	1947	1926	1861	1800	1757	1717	1734
	Elev.	1049	1049	1050	1055	1050	1047	1046	1039	1034	1029	1026	1027	
San Luis		251	407	612	759	870	805	687	466	243	107	123	228	394
	Elev.	483	509	526	535	531	516	484	472	473	490	516	538	
<b>Total</b>		8405	8996	9393	9936	10257	10062	9385	8331	7533	7120	6917	7049	

**Monthly River Releases (TAF/cfs)**

Trinity	TAF	18	18	17	18	28	258	126	68	53	52	23	18
	cfs	300	300	300	300	477	4,189	2,120	1,102	857	870	373	300
Clear Creek	TAF	12	15	11	12	13	13	17	9	9	9	12	12
	cfs	200	240	200	200	218	216	288	150	150	150	200	200
Sacramento	TAF	307	369	555	615	387	430	595	768	615	446	430	325
	cfs	5000	6000	10000	10000	6500	7000	10000	12500	10000	7500	7000	5468
American	TAF	154	154	222	154	119	184	162	186	158	121	123	119
	cfs	2500	2500	4000	2500	2000	3000	2720	3029	2565	2038	2000	2000
Stanislaus	TAF	86	61	56	12	91	76	22	15	15	15	48	12
	cfs	1400	1000	1000	200	1537	1242	363	250	250	250	774	200

**Trinity Diversions (TAF)**

	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Carr PP	7	0	67	100	81	9	131	99	100	99	23	25
Spring Crk. PP	12	19.8	100	125	60	10	120	90	90	90	45	20

**Delta Summary (TAF)**

	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Tracy	220	265	245	265	142	183	206	266	265	265	265	250	
USBR Banks	0	0	0	0	0	0	0	24	24	24	0	0	
Contra Costa	18.3	14.0	14.0	12.7	12.7	12.7	9.8	11.1	12.7	14.0	16.8	18.4	
<b>Total USBR</b>	238	279	259	278	154	196	216	301	302	303	282	268	
<b>COA Balance</b>	-18	-18	-18	-18	-18	-18	0	9	62	168	168	168	
Vernalis	177	166	280	249	169	199	96	80	71	74	126	99	
Vernalis	2880	2708	5034	4055	2838	3243	1607	1307	1161	1242	2043	1662	
Old/Middle River Std.													
Old/Middle R. calc.	cfs	-7,414	-5,121	-4,357	-3,947	-3,144	-3,506	-4,084	-8,495	-8,769	-8,496	-7,710	-6,552
Computed DOI		11761	28419	33913	27654	13179	9679	7396	6507	4002	3009	4034	5799
Excess Outflow		7255	22416	22513	16251	1916	1334	0	0	0	0	33	1294
% Export/Inflow		46%	21%	18%	19%	25%	33%	34%	50%	58%	65%	64%	56%
% Export/Inflow std.		65%	65%	45%	35%	35%	35%	35%	65%	65%	65%	65%	65%

**Hydrology**

Water Year Inflow (TAF)	Trinity	Shasta	Folsom	New Melones
Year to Date + Forecasted	1022	4,532	2,090	909
% of mean	85%	82%	77%	86%

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# Northern CVP Water Temperature Report

## December - 2019

Page	Description
1	- Mean Daily Water Temperature, Release Flow Rates and Air Temperatures with Monthly Averages
2	- Redding 10-Day Forecasted Air Temperatures
3	- Sacramento River Mean Daily Water Temperature, Air Temperature and 10-Day Forecasted Air Temperature Plot - Water Temperature Measuring Station Details - Temperature Control Point Details
4	- Shasta Lake Isothermobaths Plot
5	- Trinity Lake Isothermobaths Plot
6	- Whiskeytown Lake Isothermobaths Plot
x	- <a href="#">TCD Configuration</a> (External Link)



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	BSF <sup>2</sup>	JLF	BND	RDB	IGO	LWS	NFH	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB	LWS	
Nov	52.1	51.3	53.4	51.4	51.7	51.9	51.8	52.0	52.0	51.8	52.1	44.5	45.7	4479	323	5142	56.4	51.9	54.1	-	
12/01	52.8	52.0	52.1	51.2	51.1	50.8	50.0	49.7	49.5	48.9	48.9	41.6	41.0	4407	217	5016	41.0	41.6	41.3	-	
12/02	53.0	52.0	51.9	51.1	51.3	51.2	50.5	50.3	50.2	49.7	49.4	42.7	42.3	4011	854	5061	48.5	48.4	48.6	-	
12/03	#	51.9	52.1	51.5	51.7	51.9	51.5	51.4	51.4	51.0	50.0	43.5	44.2	4434	65	5017	56.5	51.5	54.3	-	
12/04	#	51.7	52.0	51.7	51.8	51.8	51.7	51.7	51.8	51.7	49.6	44.0	44.8	4361	37	5034	50.0	49.8	50.2	-	
12/05	#	51.6	51.8	51.8	52.0	52.0	52.2	52.3	52.4	52.1	49.8	44.5	45.5	4383	22	5037	53.5	52.0	52.8	-	
12/06	#	51.7	#	51.7	51.9	52.0	52.2	52.5	52.6	52.6	50.9	44.6	46.1	4725	0	5033	53.5	53.2	54.8	-	
12/07	#	51.5	#	51.7	52.2	52.2	52.6	52.9	53.1	53.0	51.1	44.4	45.4	4352	0	5034	54.5	56.8	56.4	-	
12/08	#	51.8	#	51.8	52.2	52.2	52.7	52.8	53.0	53.1	51.1	45.1	45.9	3933	0	5037	51.0	53.9	54.7	-	
12/09	#	51.7	#	51.5	51.8	51.7	51.4	51.4	51.5	51.9	49.9	45.3	46.0	4442	0	5036	49.0	44.5	48.8	-	
12/10	#	51.3	#	51.5	51.5	51.3	50.9	50.7	50.8	50.7	49.7	45.1	45.4	4909	0	5037	45.0	45.0	47.0	-	
12/11	#	51.1	#	51.6	51.6	51.5	51.4	51.4	51.6	51.1	50.2	45.2	45.4	4491	0	5033	49.5	49.7	50.5	-	
12/12	#	51.1	#	51.5	51.6	51.6	51.5	51.7	51.9	51.6	50.7	45.7	45.9	4133	0	5033	53.0	52.6	52.8	-	
12/13	#	51.1	#	51.4	51.5	51.5	51.9	52.2	52.5	52.1	50.6	45.7	46.0	3960	0	5032	52.5	53.5	54.1	-	
12/14	#	51.0	#	51.3	51.3	51.3	51.4	51.6	51.9	51.8	49.9	45.0	45.0	2943	0	5053	47.0	47.4	48.5	-	
12/15	#	51.1	#	51.1	50.9	50.7	50.2	50.0	50.2	50.3	49.0	44.4	44.0	4609	0	5122	42.5	39.7	42.7	-	
12/16	#	51.0	#	50.8	50.7	50.4	49.6	49.2	49.2	48.9	48.9	43.8	43.9	5250	0	5058	45.0	39.8	43.1	-	
12/17	#	50.7	#	50.7	50.4	50.1	49.2	48.7	48.7	48.2	48.7	43.6	42.1	4611	0	4963	42.5	38.0	40.0	-	
12/18	#	50.7	#	50.6	50.4	50.0	49.0	48.5	48.5	47.8	48.9	43.6	42.1	4627	0	5019	38.0	38.6	40.0	-	
12/19	#	51.8	51.4	50.5	50.5	50.3	49.6	49.5	49.5	48.7	49.5	44.0	43.4	3984	17	5097	46.0	45.5	46.3	-	
12/20	#	52.8	51.2	50.7	50.6	50.5	50.0	50.0	50.2	49.7	49.8	44.9	44.6	4724	37	5122	49.0	48.3	49.4	-	
12/21	#	52.8	50.2	51.9	51.5	51.1	50.4	50.3	50.4	50.0	49.5	45.0	45.4	5745	419	7017	46.5	43.8	45.5	-	
12/22	#	52.6	50.1	52.4	52.0	51.7	51.0	50.8	50.8	50.0	48.8	44.4	44.7	5862	437	7060	45.0	44.9	46.0	-	
12/23	#	52.6	50.0	52.2	52.0	51.8	50.7	50.5	50.7	50.3	48.1	43.4	43.7	5597	436	7055	45.0	44.4	45.5	-	
12/24	#	52.4	49.8	51.9	51.7	51.3	50.3	49.8	50.0	49.5	48.1	43.5	42.6	6086	439	7063	39.0	39.5	40.8	-	
12/25	#	? 52.3	49.7	52.0	51.7	51.4	50.7	50.4	50.5	49.8	48.5	43.7	42.7	5686	524	7004	41.0	41.9	42.8	-	
12/26	#	? 52.1	49.6	51.8	51.6	51.4	50.3	49.8	49.8	49.3	48.0	42.7	42.6	5608	460	6951	49.0	41.5	44.8	-	
12/27	#	52.0	49.2	51.4	51.3	51.1	50.2	49.6	49.6	49.0	47.6	42.5	41.7	5154	1330	6979	48.0	41.6	46.0	-	
12/28	#	? 51.8	49.0	51.2	51.1	51.0	50.3	49.8	49.9	49.2	47.9	42.7	41.5	4635	1340	6928	53.5	45.7	47.7	-	
12/29	#	? 51.7	49.0	51.2	51.1	50.9	50.5	50.3	50.5	50.0	48.2	43.2	41.9	5076	1343	6086	47.0	45.5	46.0	-	
12/30																					
12/31																					
Dec	52.9	51.7	50.6	51.4	51.4	51.3	50.8	50.7	50.8	50.4	49.3	44.1	44.0	4715	275	5621	47.6	46.2	47.6	-	
														Total CFS	136738	7977	163017				
														Total AF	271214	15822	323338				

Legend

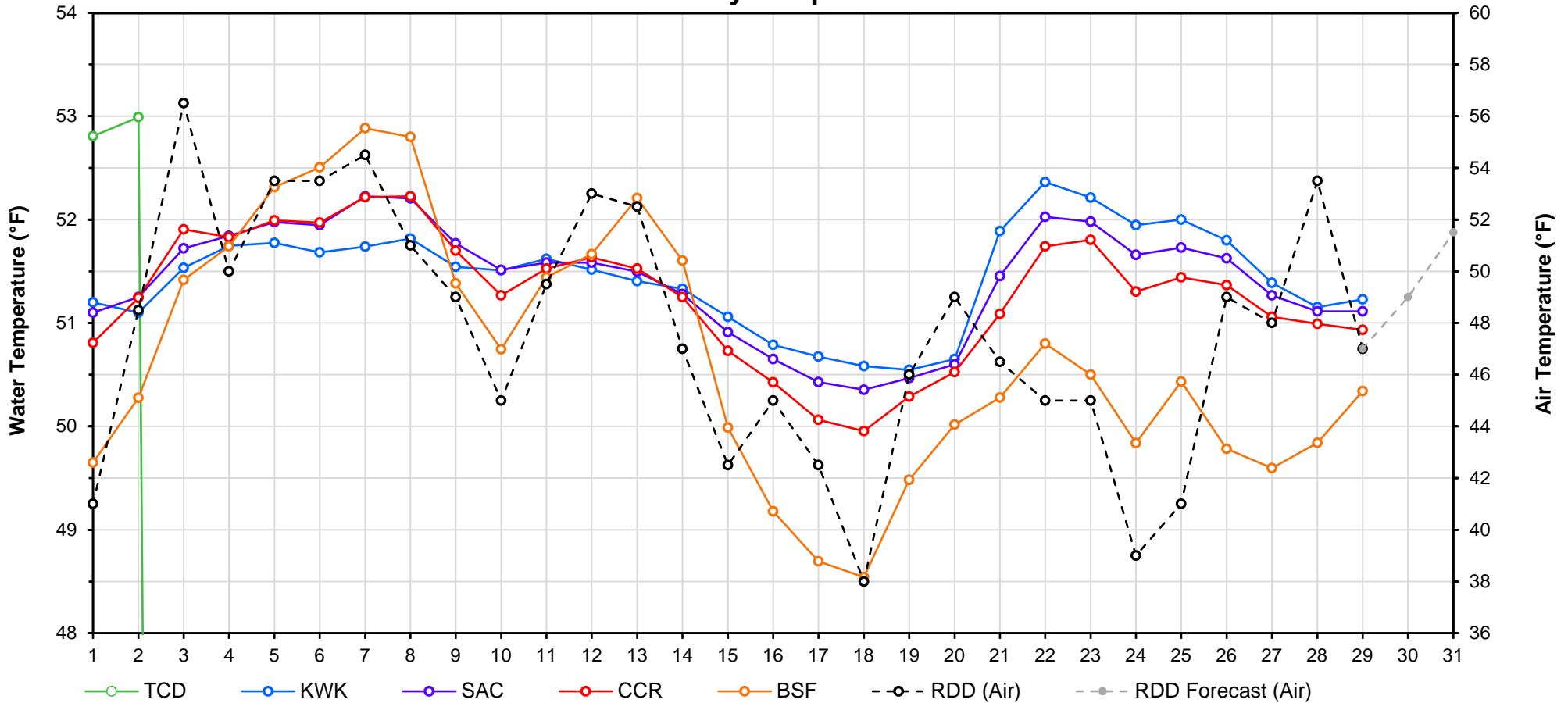
- ? = 1-9 hours of data missing (Average includes estimations)
- ! = 10 or more hours of data missing (Average not calculated)
- # = Station out of service
- ↑ = Record high air temperature
- ↓ = Record low air temperature
- = Monthly Averages

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 control point (see page 3 for more details)
- <sup>3</sup> NFH is only reported in October, November and December



# Mean Daily Temperatures



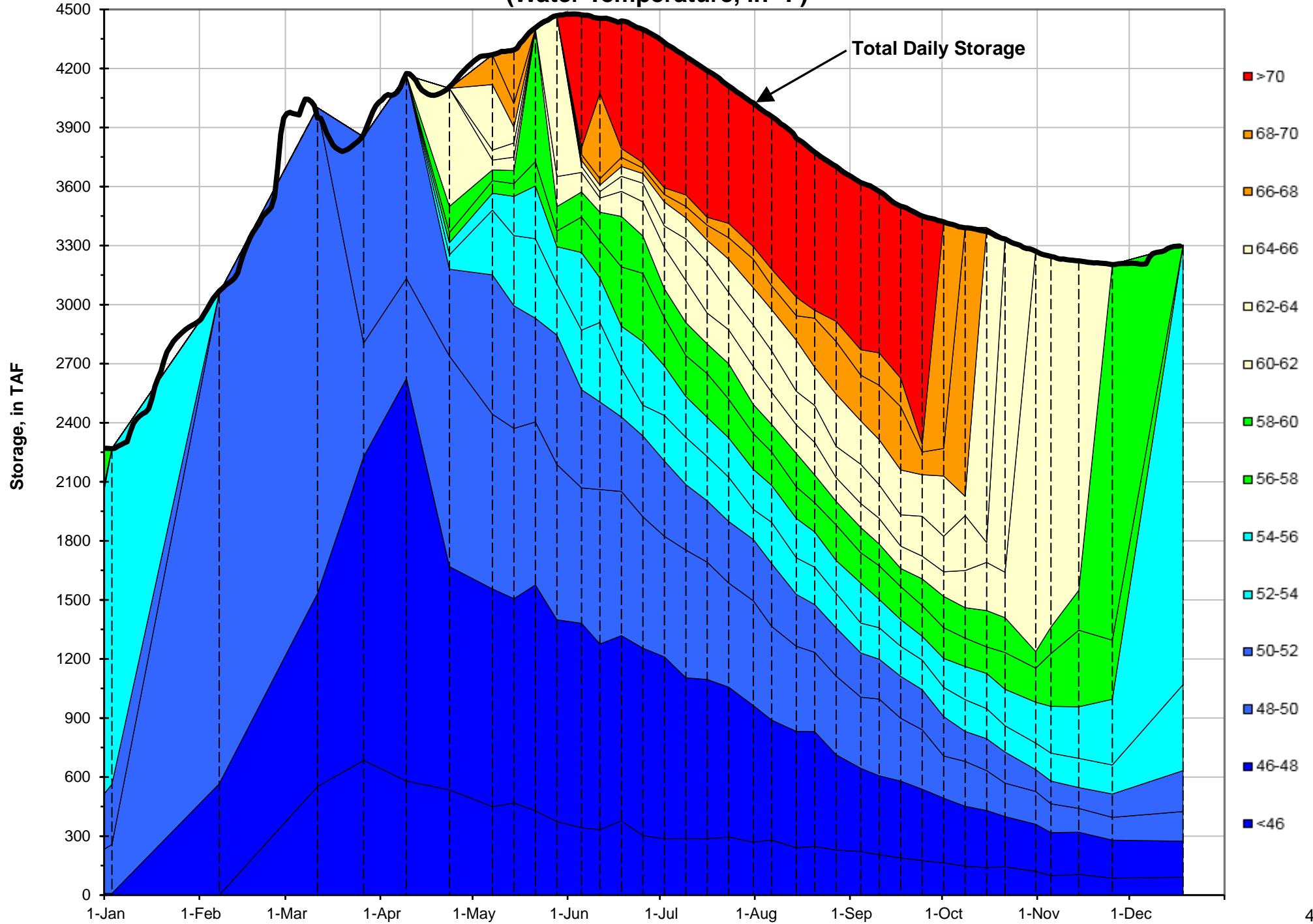
Station Details			
Code	Body of Water	Location <sup>1</sup>	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	<a href="#">Click Here</a>
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	<a href="#">Click 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 <sup>2</sup>	Trinity River	19 miles downstream of Lewiston Dam	<a href="#">Click Here</a>
NFH <sup>3</sup>	Trinity River	38 miles downstream of Lewiston Dam	<a href="#">Click Here</a>

Temperature Control Point		
Point	Temp. (°F)	Begin Date
<b>BSF</b>	<b>56.0</b>	<b>05/25/2018</b>

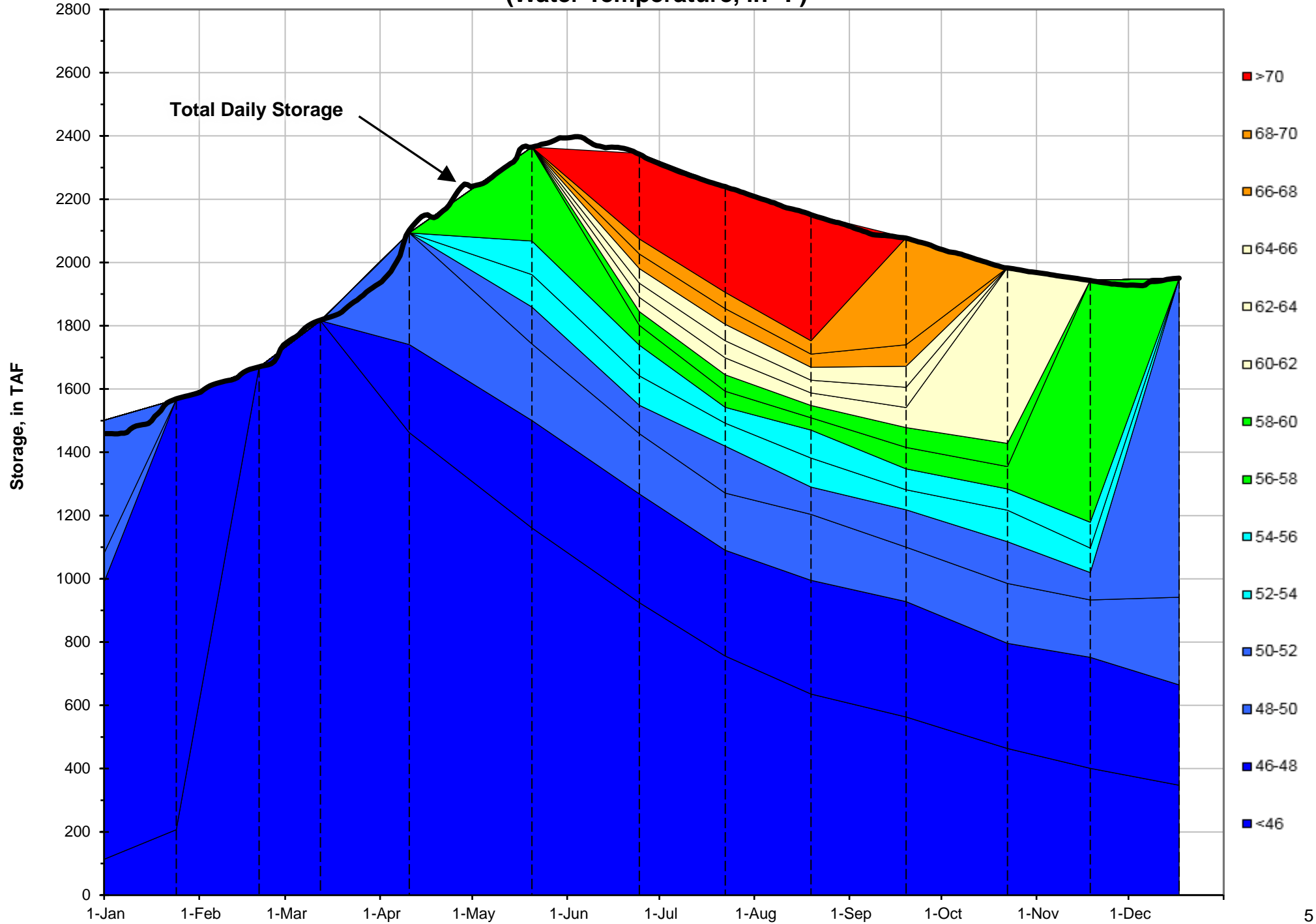
### Notes

- <sup>1</sup> Distances are approximate
- <sup>2</sup> DGC is only reported in September
- <sup>3</sup> NFH is only reported in October, November and December

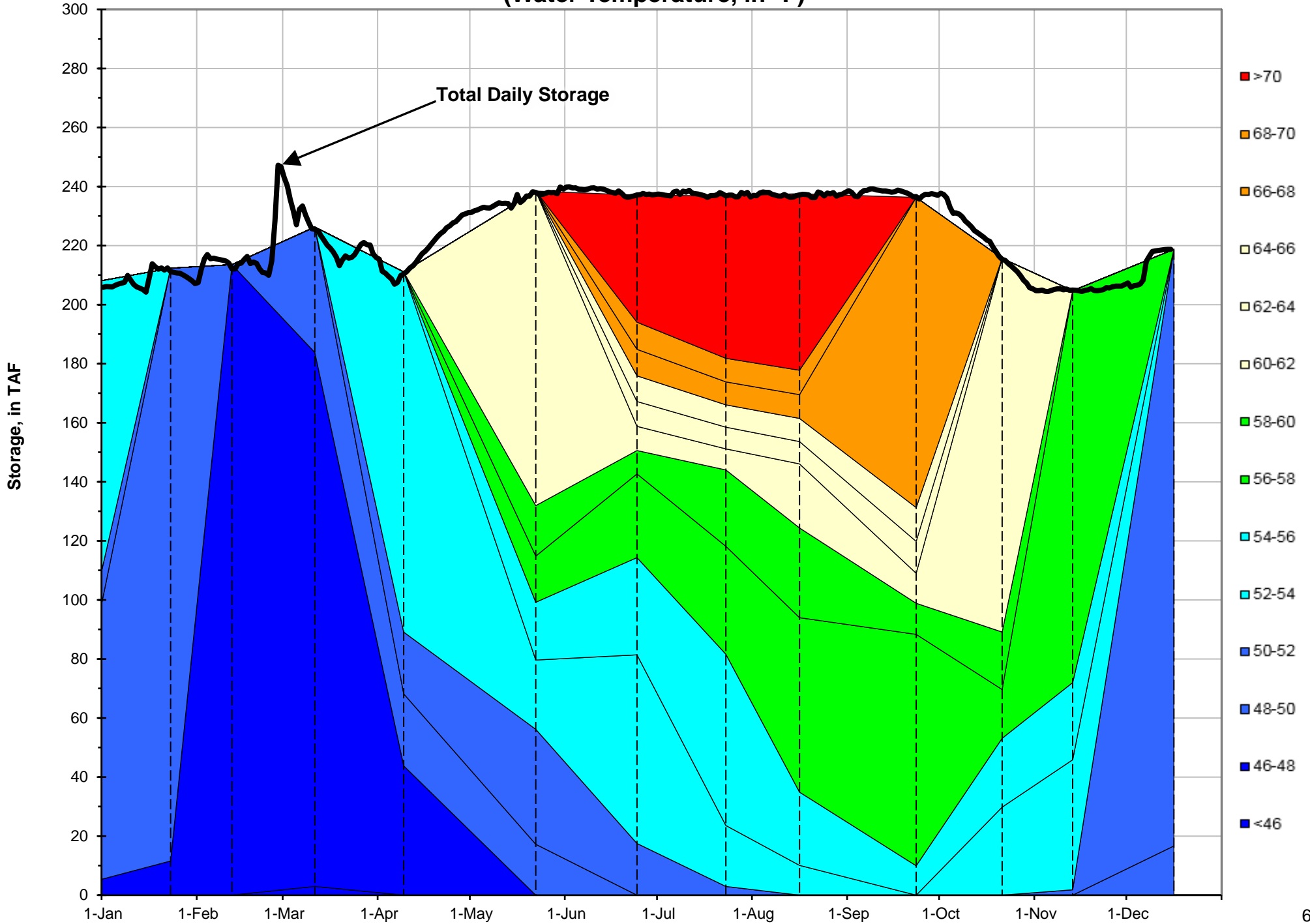
### Shasta Lake Isothermobaths - 2019 (Water Temperature, in °F)



### Trinity Lake Isothermobaths - 2019 (Water Temperature, in °F)



### Whiskeytown Lake Isothermobaths - 2019 (Water Temperature, in °F)

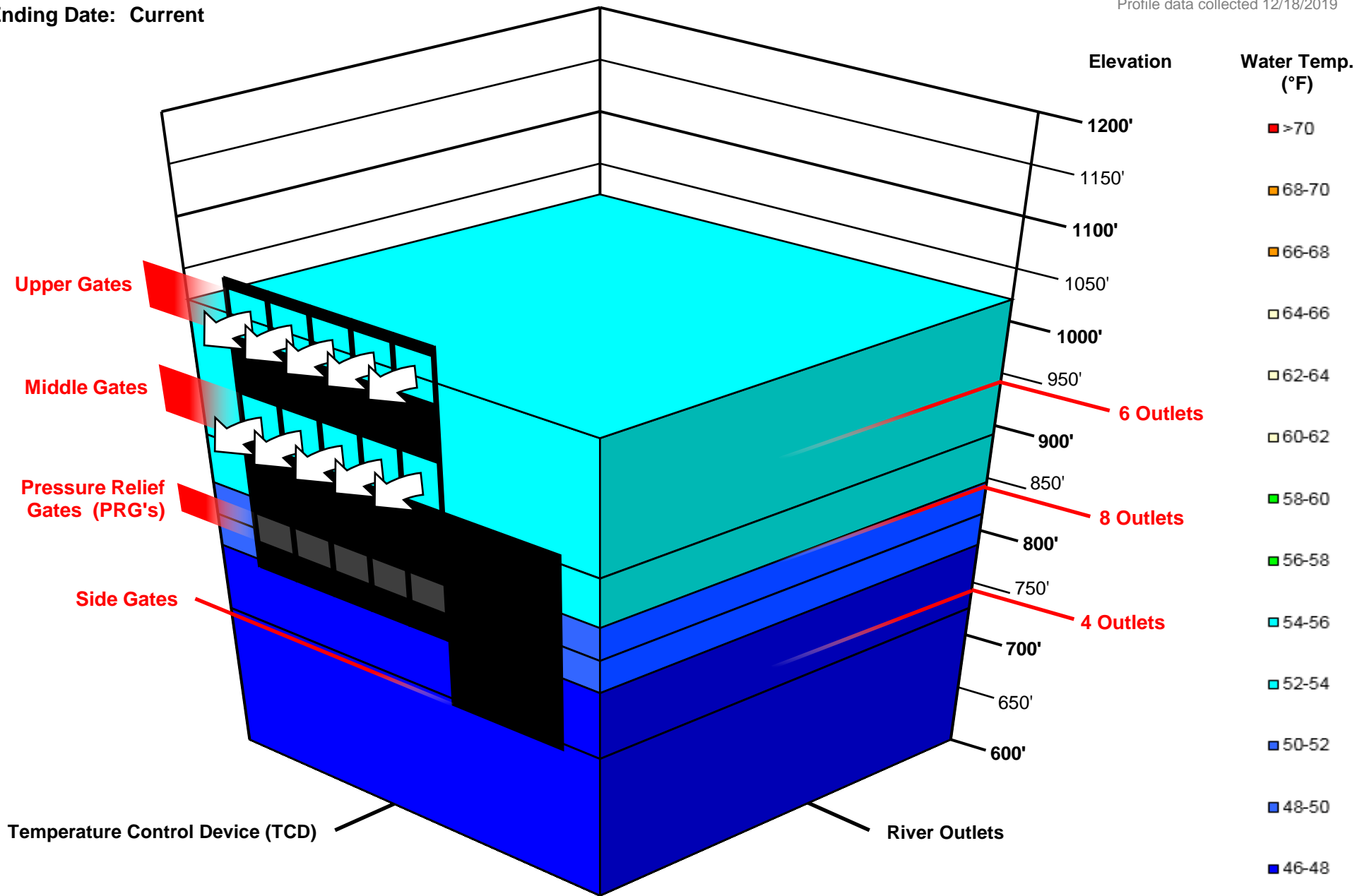


# Shasta TCD Configuration

Starting Date: 12/19/2019

Ending Date: Current

Profile data collected 12/18/2019



Temperature Control Device (TCD)

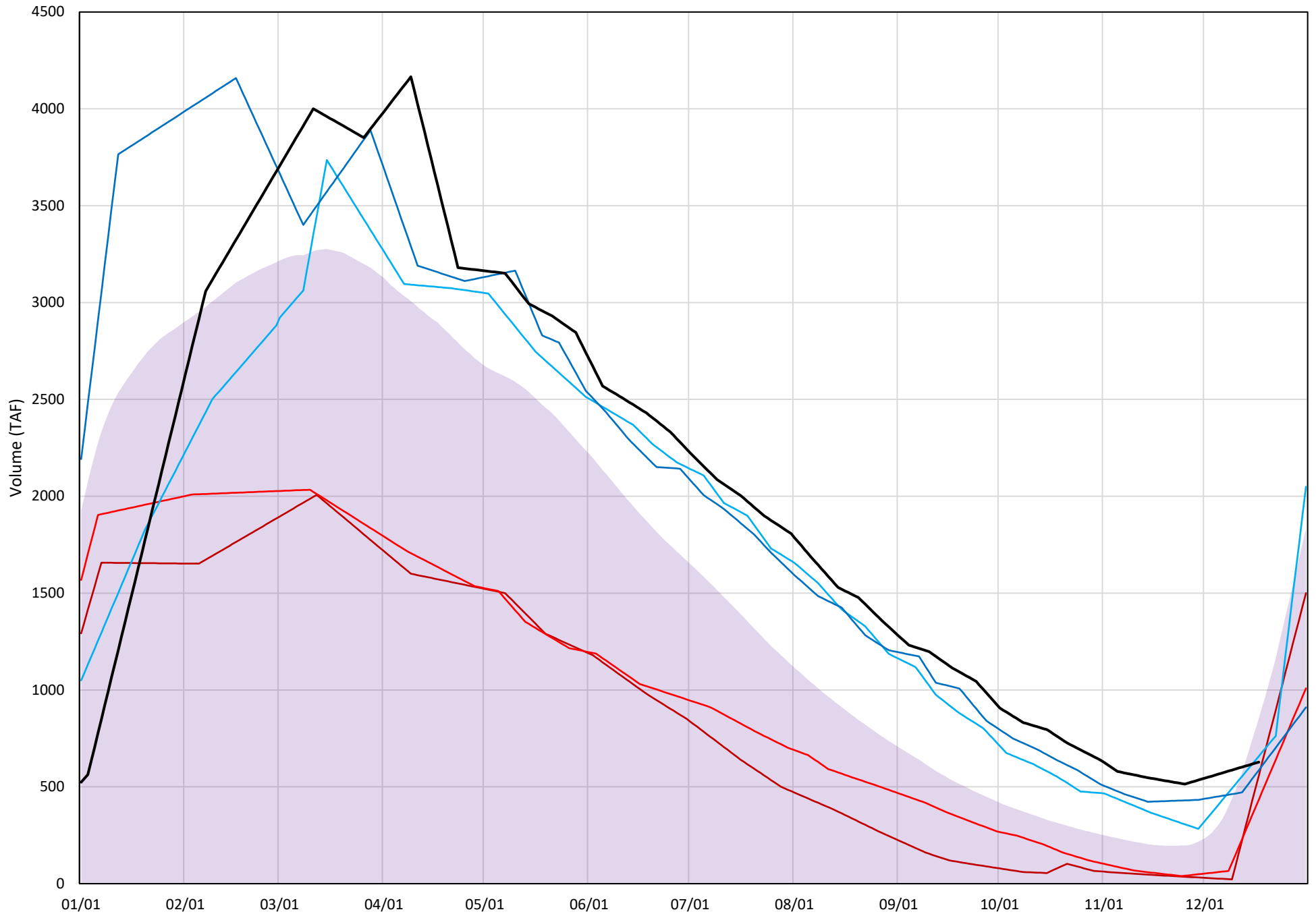
River Outlets

Arrows indicate open Gate or Outlet (i.e. Water flowing from this location)



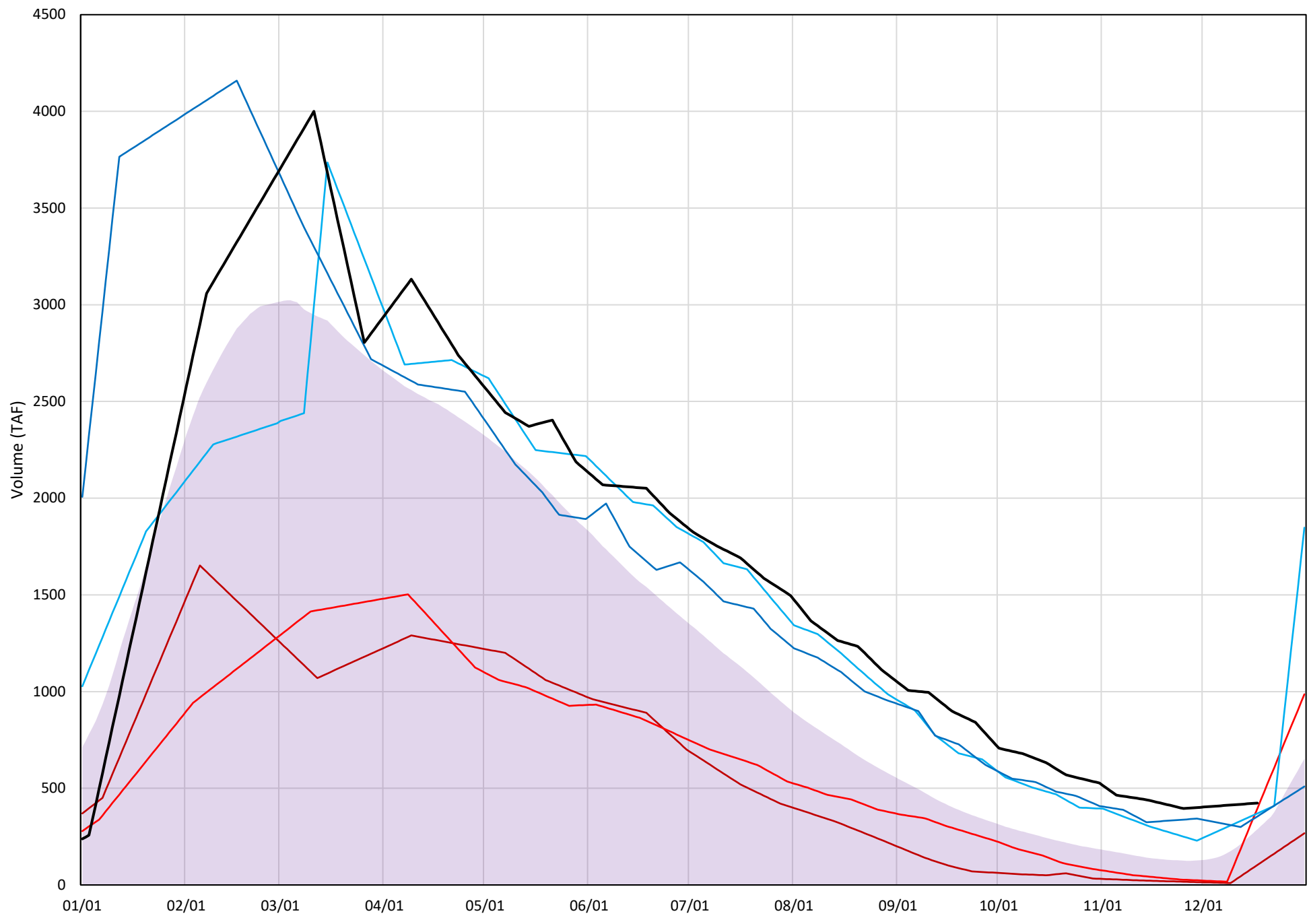
# ≤52°F - Shasta Cold Water Pool Volume

Avg (1998-2018) 2014 2015 2016 2017 2019



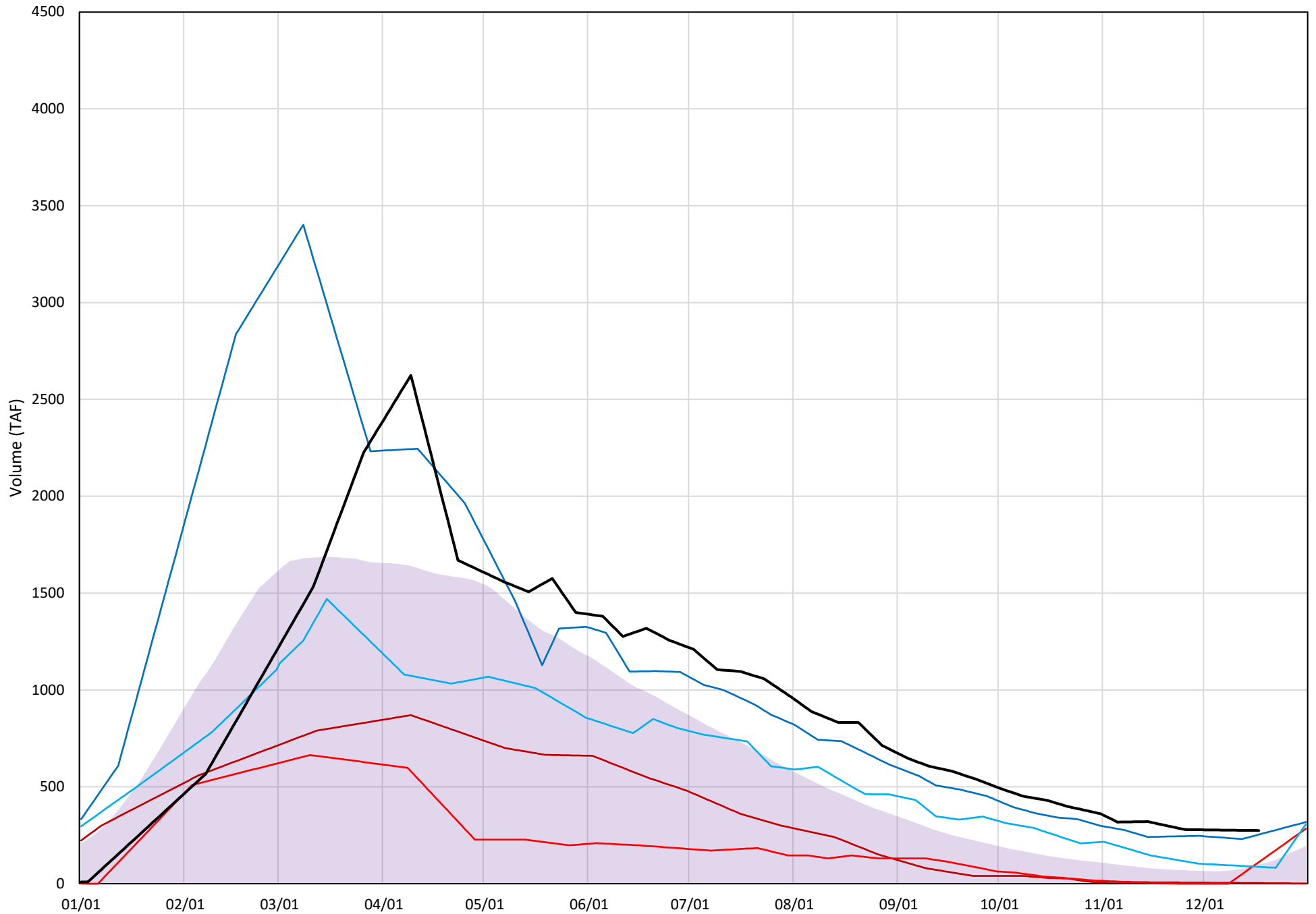
# ≤50°F - Shasta Cold Water Pool Volume

Avg (1998-2018) 2014 2015 2016 2017 2019



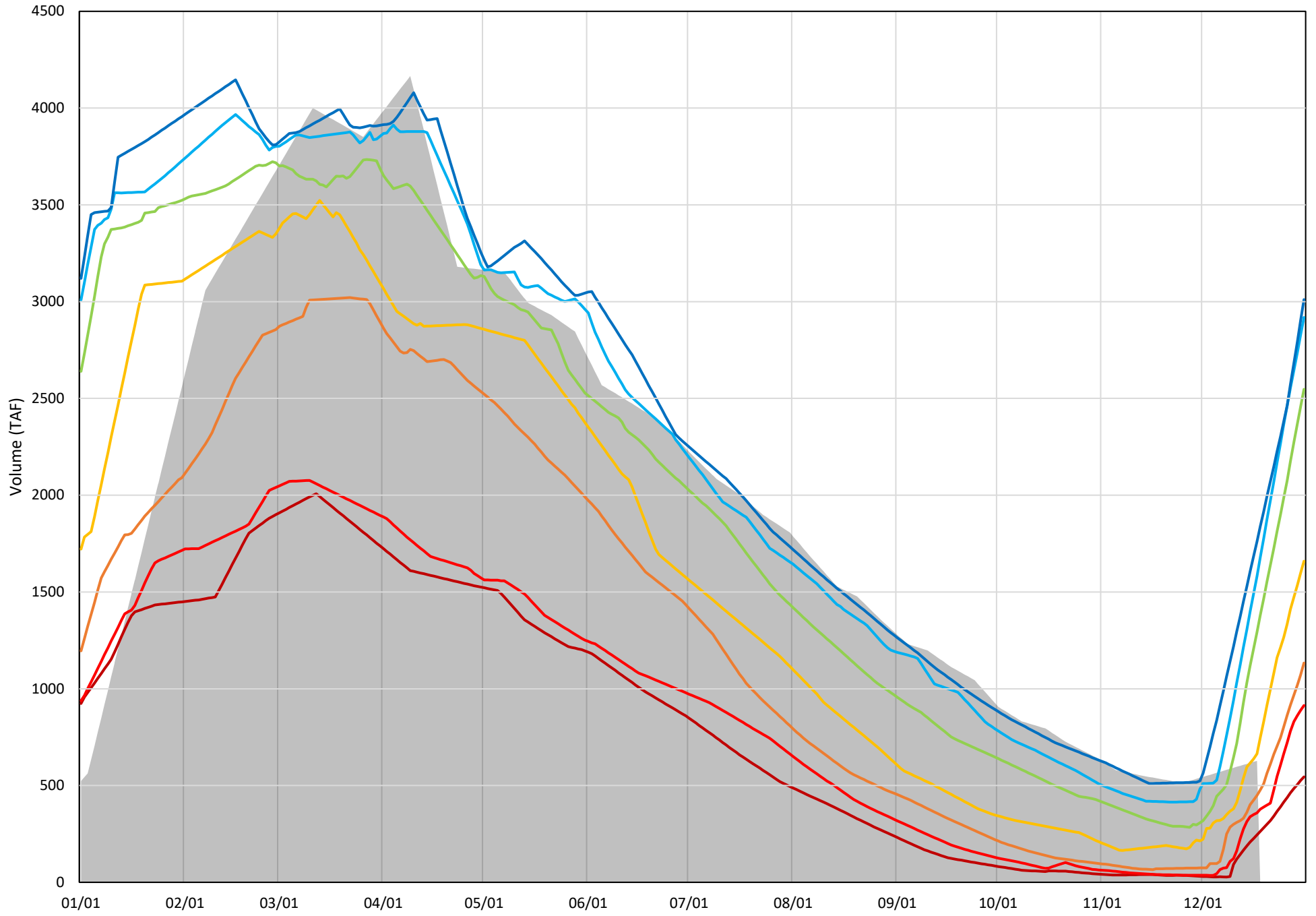
# ≤48°F - Shasta Cold Water Pool Volume

Avg (1998-2018) 2014 2015 2016 2017 2019



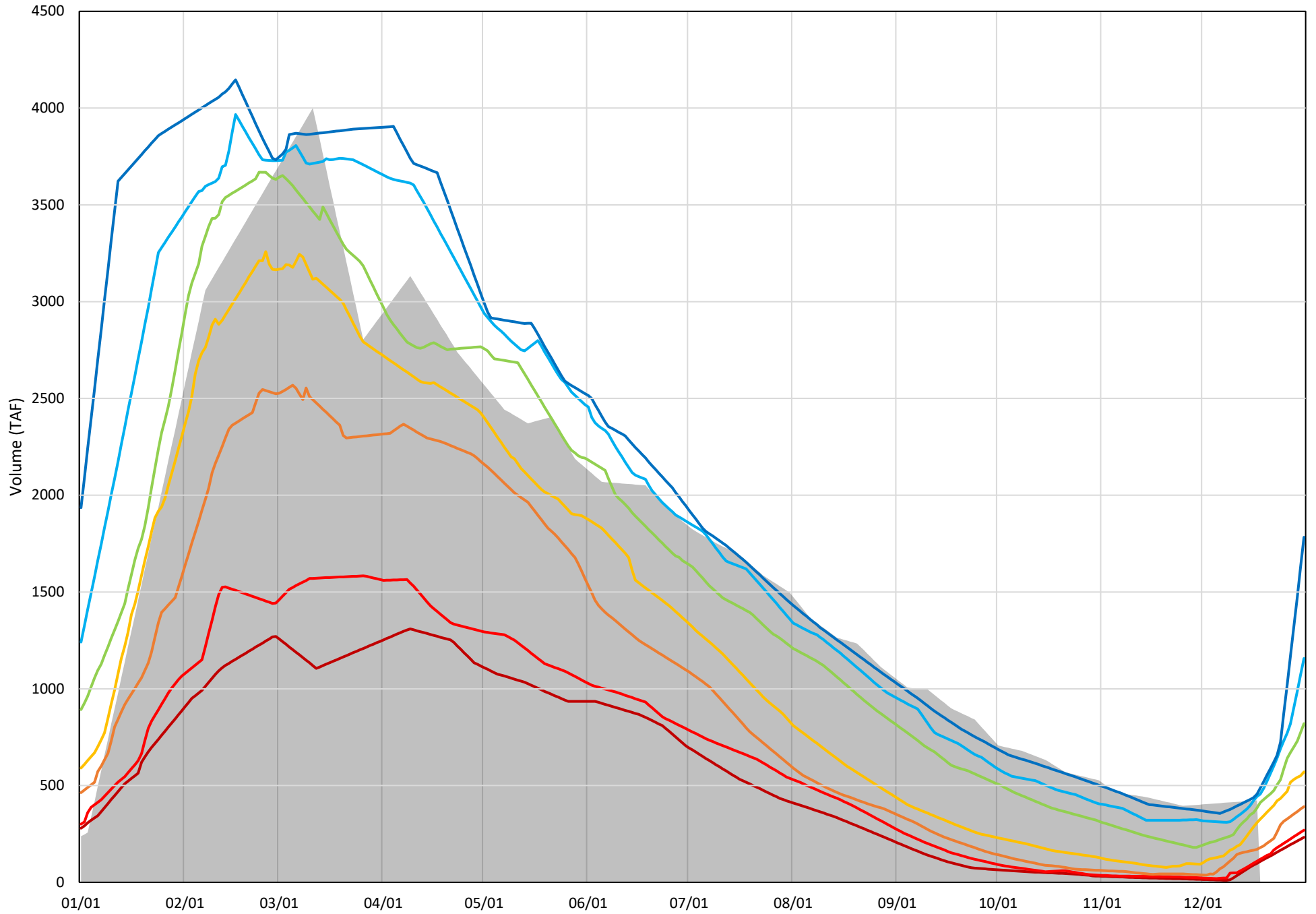
≤52°F - Shasta Cold Water Pool Volume Percent Exceedances (1998-2018)

2019 95 90 75 50 25 10 5



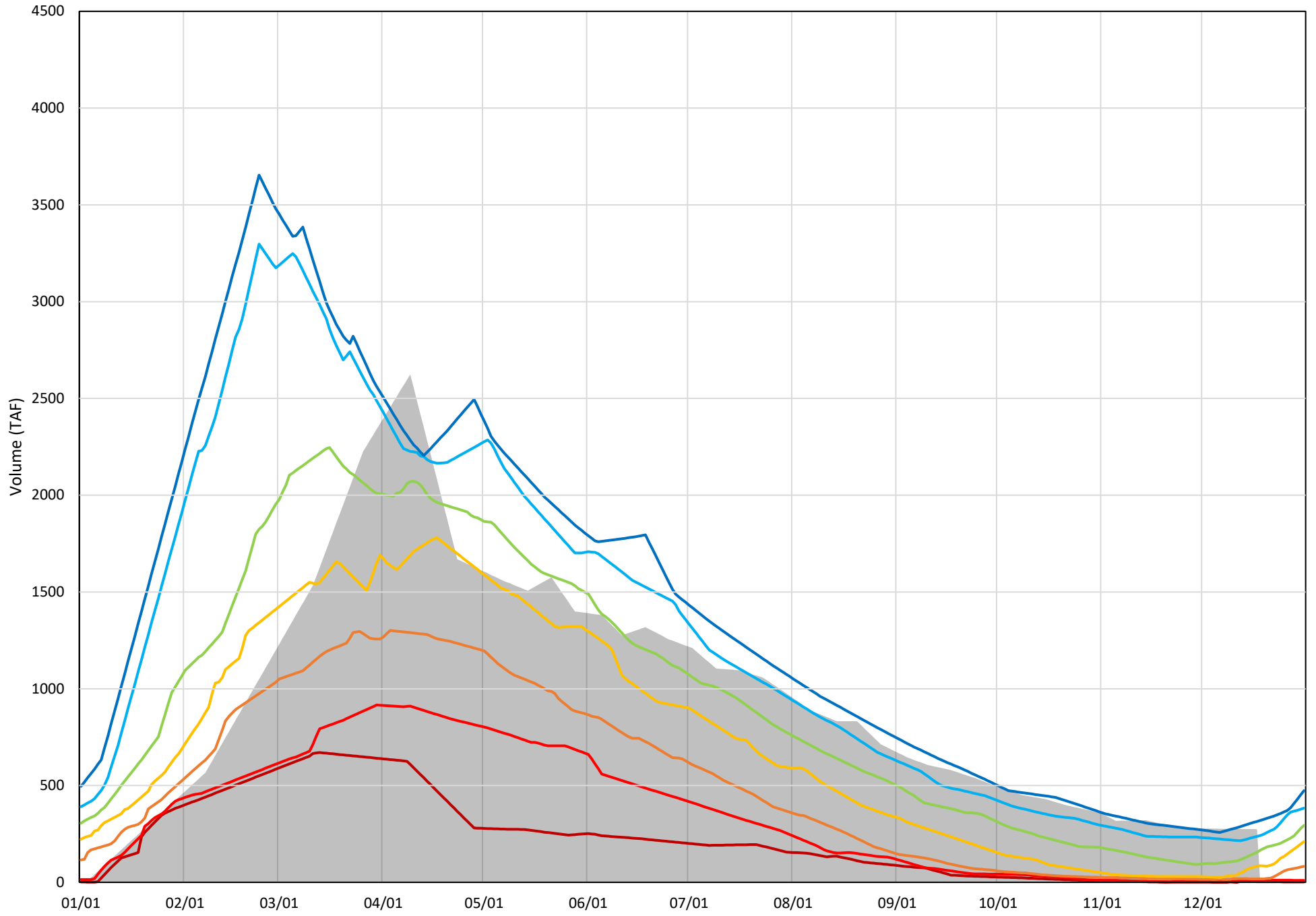
≤50°F - Shasta Cold Water Pool Volume Percent Exceedances (1998-2018)

2019 95 90 75 50 25 10 5

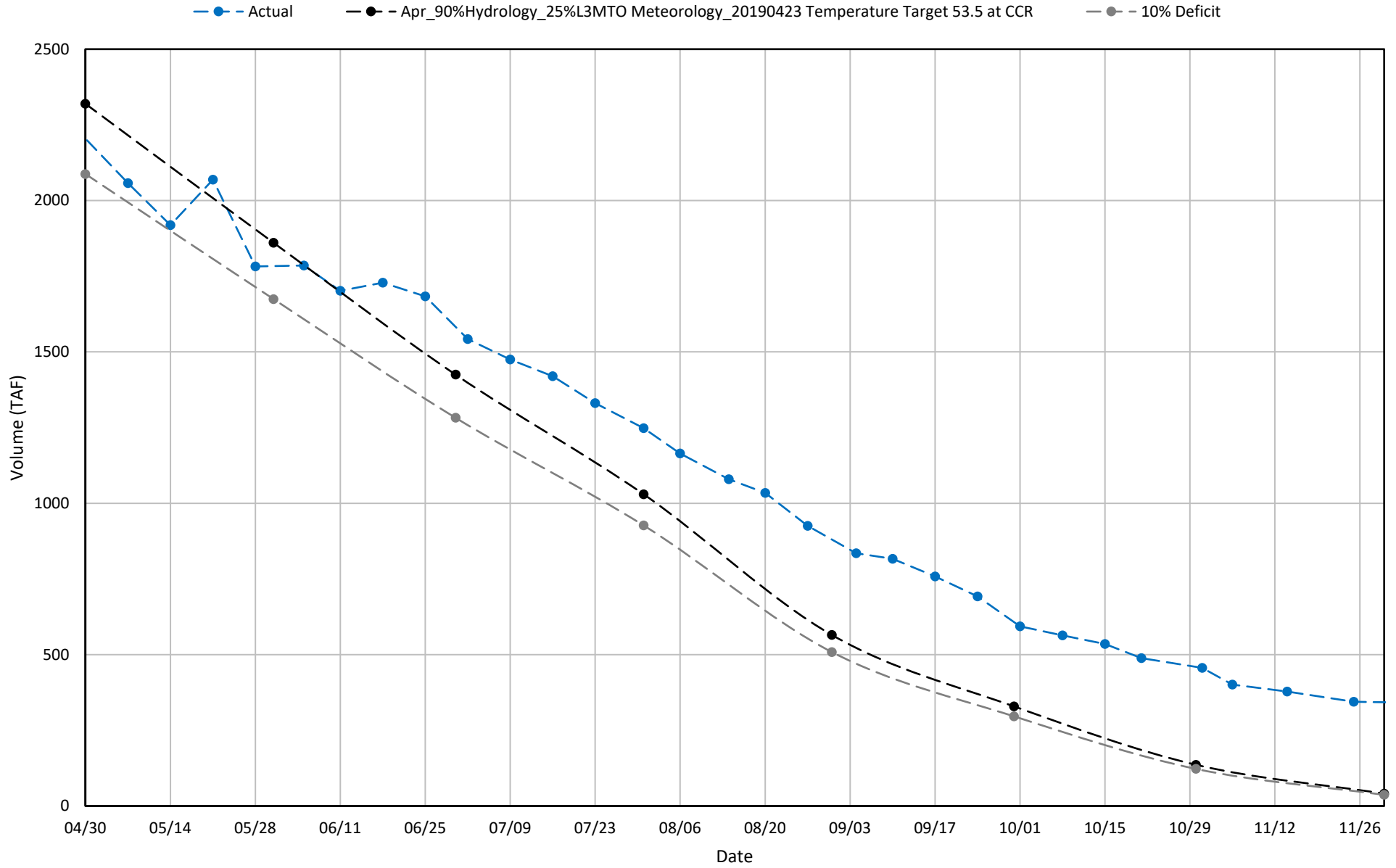


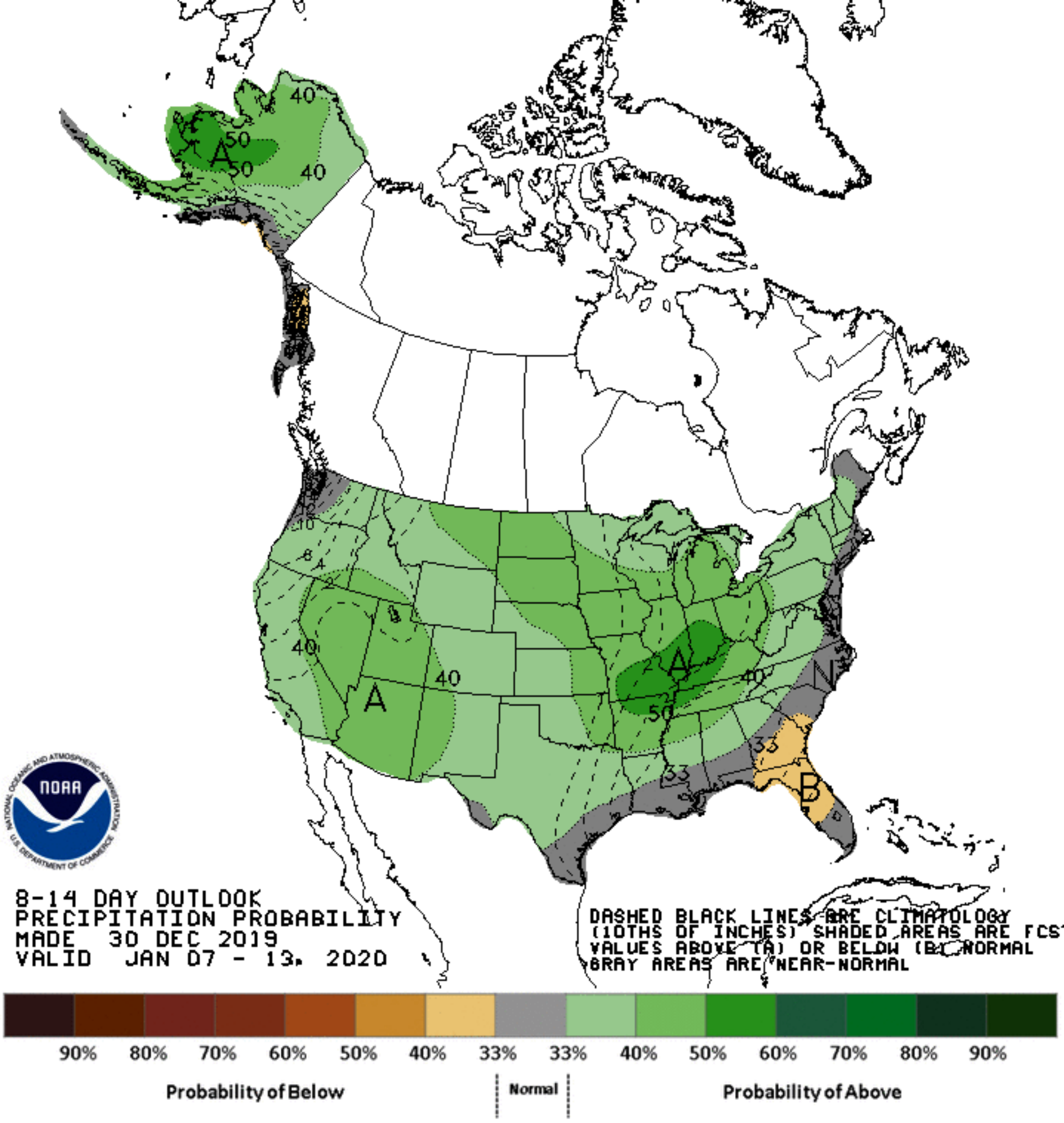
≤48°F - Shasta Cold Water Pool Volume Percent Exceedances (1998-2018)

2019 95 90 75 50 25 10 5



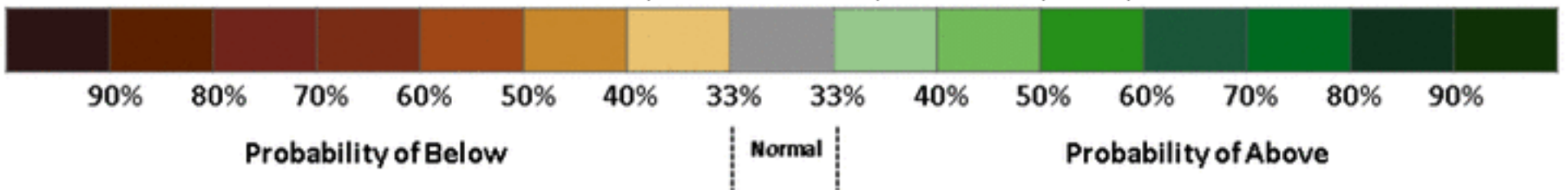
### 2019 Shasta Cold Water Pool Volume $\leq 49^{\circ}\text{F}$



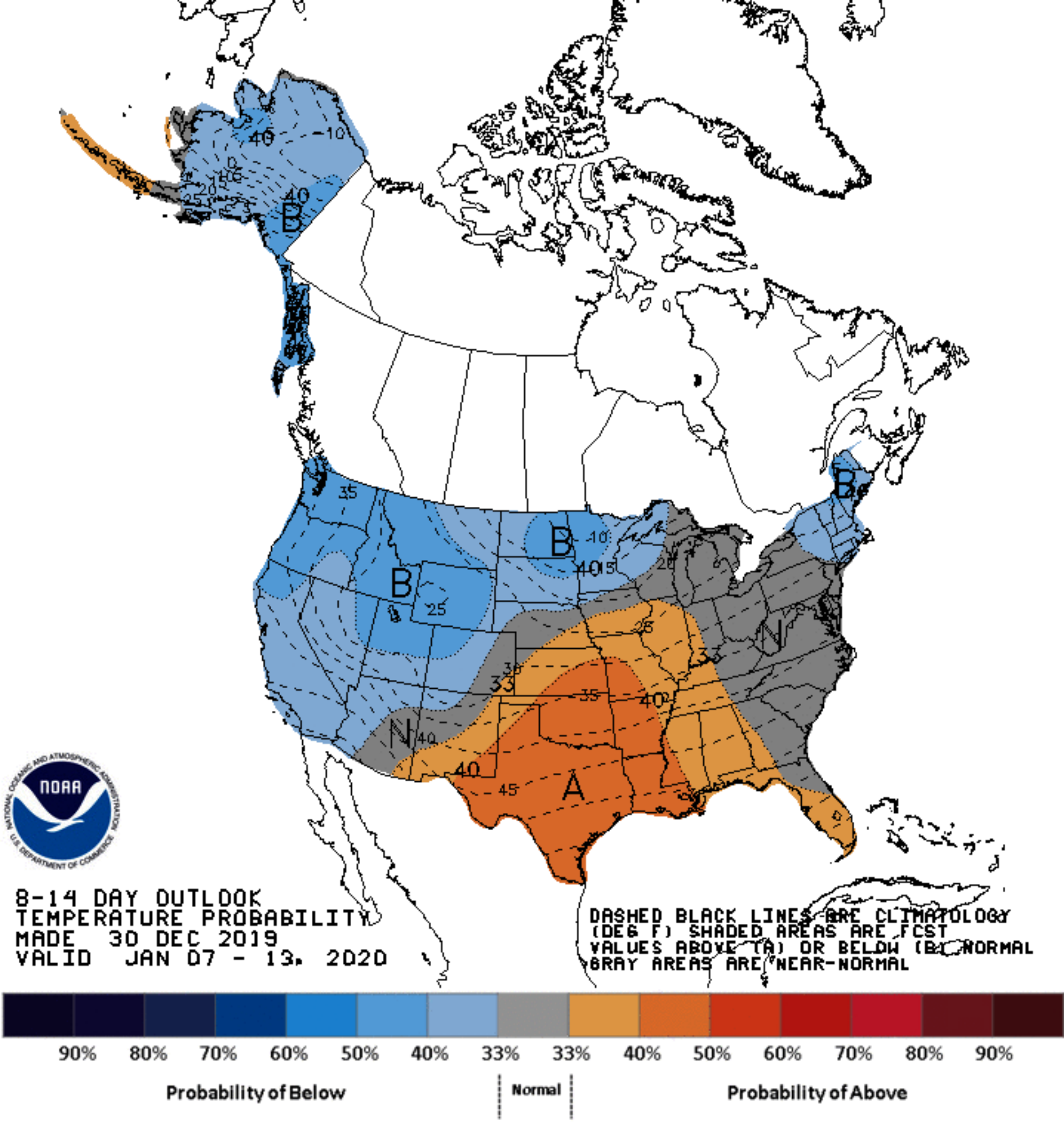


8-14 DAY OUTLOOK  
 PRECIPITATION PROBABILITY  
 MADE 30 DEC 2019  
 VALID JAN 07 - 13, 2020

DASHED BLACK LINES ARE CLIMATOLOGY  
 (10THS OF INCHES) SHADED AREAS ARE FCS  
 VALUES ABOVE (A) OR BELOW (B) NORMAL  
 GRAY AREAS ARE NEAR-NORMAL

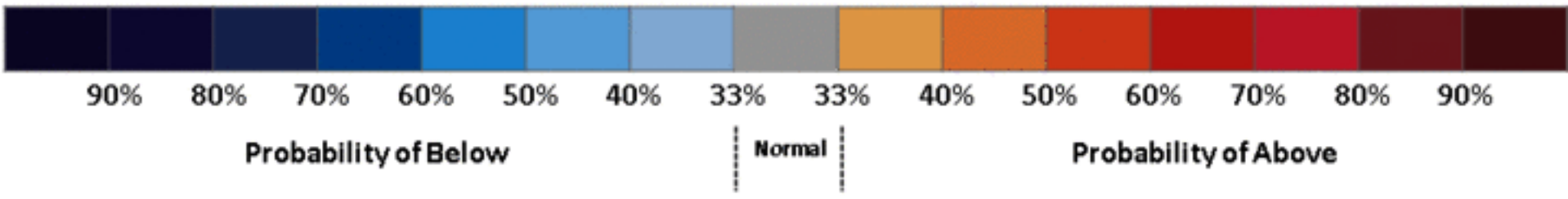






8-14 DAY OUTLOOK  
 TEMPERATURE PROBABILITY  
 MADE 30 DEC 2019  
 VALID JAN 07 - 13, 2020

DASHED BLACK LINES ARE CLIMATOLOGY (DEG F) SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL GRAY AREAS ARE NEAR-NORMAL



90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%

Probability of Below Normal Probability of Above