RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

Sacramento River Temperature Task Group Meeting

February 22, 2018

Update

- Hydrology & Operations update (information is available on CVO's web-page)
    - Daily Operation
    - Summary
    - 8-Station Index and Snow Water Content Feb 2018
    - 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 Current TCD Configuration

- Next Meeting : March 22, 2018 1:00 pm – 3:00 pm, JOC Sacramento

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

Storage/Release Management Conditions:

- Very low risk of increased releases for flood control management: no increased releases anticipated in late February or early March.
- Meteorologic Uncertainty: Shorter term forecasts (8-14 day) suggest slightly above normal chances of precipitation, longer term forecasts (three-month outlook: March - May) suggest slightly below normal chances for precipitation
- The six day projection indicates Shasta Lake watershed to receive between 0.38 and 0.48 inches of precipitation (Feb 22- Feb 28)
- The 8-Station Index precipitation total to date is trending below year 2014-2015 and Snow Water Content to date is 14% for the Northern California Region
- Releases reduced to minimum, 3,250 cfs, for storage conservation
- Hydrologic runoff forecasts for March are expected to be drier than February's estimates; poorer conditions are likely to be projected

Temperature Management:

- No active temperature management
- Releases made from Upper and Middle Gates to conserve cold water pool
- Meteorologic Uncertainty: Shorter term forecasts (8-14 day) suggest below normal temperatures; longer term forecasts (three-month outlook March - May) suggest equal chances for above normal, normal, or below normal temperature.

DRAFT February 2018

90% Runoff Exceedance Outlook:

Inflow based on the DWR December 2018 B120, 70% Historical Inflows Oct and future months

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

		Feb	Mar	Apr	May	Jun	Jul
Shasta	3349	3441	3812	3803	3712	3383	2891
Elev.		1026	1041	1040	1037	1024	1003

Monthly River Releases (cfs)

Sacramento	3500	3250	7500	8500	11000	12500
Clear Creek	200	200	218	216	288	150

Trinity Diversions (TAF)

	Feb	Mar	Apr	May	Jun	Jul
Carr Power Plant	20	23	53	112	135	130
Spring Creek PP	20	30	23	105	120	120

50% Runoff Exceedance Outlook:

Inflow based on the DWR December 2018 B120, 50% Historical Inflows Oct and future montl

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

		Feb	Mar	Apr	May	Jun	Jul
Shasta	3349	3445	3985	4222	4160	3849	3325
Elev.		1026	1047	1056	1053	1042	1022

Monthly River Releases (cfs)

Sacramento	3700	3250	5000	8000	10500	13000
Clear Creek	200	200	218	216	288	150

Trinity Diversions (TAF)

	Feb	Mar	Apr	May	Jun	Jul
Carr Power Plant	22	35	36	24	71	84
Spring Creek PP	35	60	15	25	60	75

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.

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

DAILY CVP WATER SUPPLY REPORT

FEBRUARY 21, 2018

RUN DATE: February 22, 2018

RESERVOIR RELEASES IN CUBIC FEET/SECOND

RESERVOIR	DAM	WY 2017	WY 2018	15 YR MEDIAN
TRINITY	LEWISTON	335	330	304
SACRAMENTO	KESWICK	29,828	3,131	3,827
FEATHER	OROVILLE (SWP)	60,500	2,250	1,750
AMERICAN	NIMBUS	31,514	2,824	2,291
STANISLAUS	GOODWIN	1,351	1,604	495
SAN JOAQUIN	FRIANT	8,616	500	141

STORAGE IN MAJOR RESERVOIRS IN THOUSANDS OF ACRE-FEET

RESERVOIR	CAPACITY	15 YR AVG	WY 2017	WY 2018	% OF 15 YR AVG
TRINITY	2,448	1,585	1,864	1,788	113
SHASTA	4,552	3,109	4,229	3,396	109
FOLSOM	977	480	534	547	114
NEW MELONES	2,420	1,434	1,484	1,953	136
FED. SAN LUIS	966	706	877	900	128
TOTAL NORTH CVP	11,363	7,314	8,988	8,584	117
MILLERTON	520	305	449	337	110
OROVILLE (SWP)	3,538	2,110	2,846	1,459	69

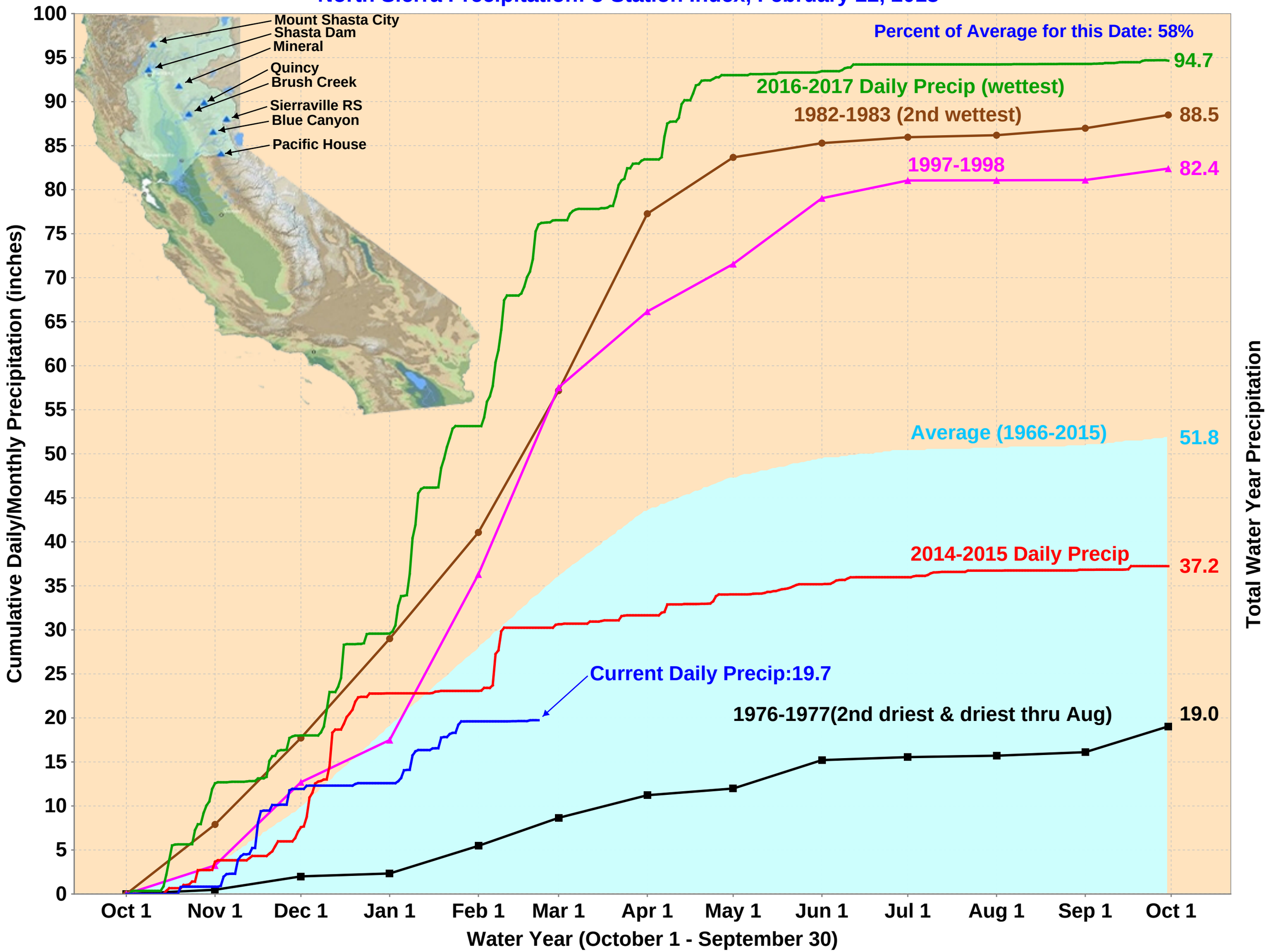
ACCUMULATED INFLOW FOR WATER YEAR TO DATE IN THOUSANDS OF ACRE-FEET

RESERVOIR	CURRENT WY 2018	DRIEST WY 1977	WETTEST WY 1983	15 YR AVG	% OF 15 YR AVG
TRINITY	179	52	679	391	46
SHASTA	1,363	1,091	3,889	2,172	63
FOLSOM	703	150	2,144	923	76
NEW MELONES	237	0	719	313	76
MILLERTON	337	95	1,061	321	105

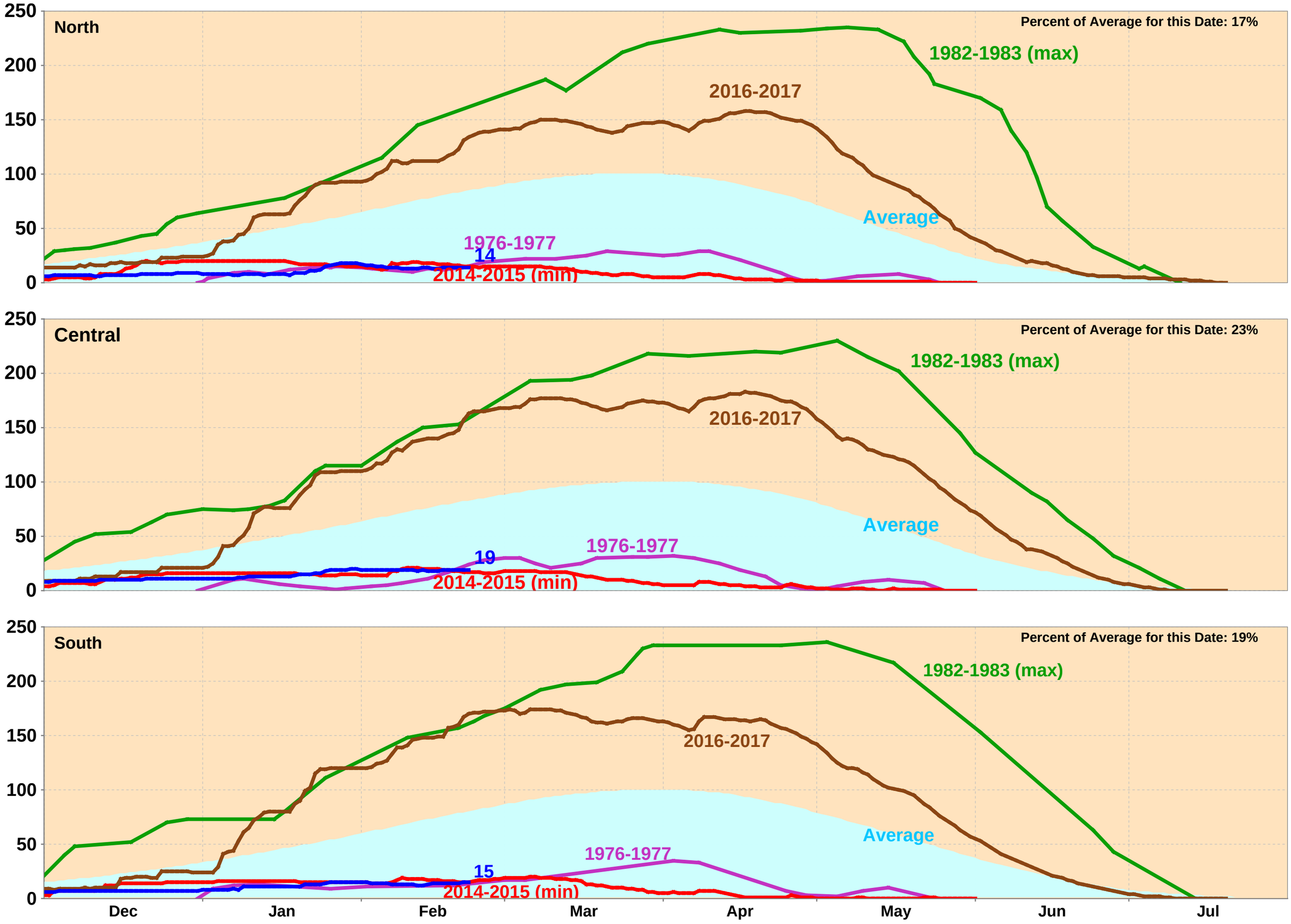
ACCUMULATED PRECIPITATION FOR WATER YEAR TO DATE IN INCHES

RESERVOIR	CURRENT WY 2018	DRIEST WY 1977	WETTEST WY 1983	AVG (N YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	10.79	5.33	31.63	21.94 (56)	49	0.00
SACRAMENTO AT SHASTA DAM	18.25	7.06	61.46	41.42 (61)	44	0.00
AMERICAN AT BLUE CANYON	31.25	8.46	65.39	43.28 (43)	72	0.00
STANISLAUS AT NEW MELONES	9.06	0.00	27.75	17.77 (40)	51	0.00
SAN JOAQUIN AT HUNTINGTON LK	8.41	6.60	52.30	26.46 (43)	32	0.00

North Sierra Precipitation: 8-Station Index, February 22, 2018



California Snow Water Content, February 22, 2018, Percent of April 1 Average



Statewide Percent of April 1: 16%

Statewide Percent of Average for Date: 19%

Northern CVP Water Temperature Report

February - 2018

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	- Lake Shasta Isothermalbaths Plot
5	- Daily Maximum and 7DADM
x	- TCD Configuration (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[1]	SHD	SPP[1]	KWK	SAC	CCR	BSF[2]	JLF	BND	RDB	IGO	LWS	-----[3]	Shasta Generation	Spring Creek P.P.	Keswick Total	RDD	BSF	RDB	LWS
Jan	51.8	51.2	48.9	51.2	51.1	51.2	50.7	50.5	50.7	50.6	47.7	44.8	-	3484	107	3733	50.0	47.9	49.4	42.2
02/01	51.3	50.5	48.9	50.6	50.8	51.2	**51.2**	51.0	51.0	50.7	48.0	45.3	-	3432	14	3875	↑ 62.5	55.6	59.4	44.3
02/02	51.0	50.5	49.0	50.6	50.8	51.3	**51.7**	51.7	51.9	52.0	48.0	45.5	-	3340	14	3875	↑ 63.5	58.6	64.2	44.7
02/03	50.9	50.4	49.0	50.9	51.0	51.5	**52.2**	52.5	52.8	52.9	48.0	45.7	-	3468	14	3850	↑ 69.0	65.0	67.6	46.1
02/04	51.0	! -	49.1	51.0	51.3	51.9	**52.6**	52.9	53.2	53.5	48.3	45.9	-	3121	14	3842	↑ 66.5	61.1	63.2	46.7
02/05	51.1	? 50.3	49.1	51.0	51.2	51.8	**52.5**	52.8	53.2	53.6	48.2	46.1	-	3986	45	3843	↑ 64.0	57.3	62.6	46.9
02/06	50.9	? 50.3	48.9	50.8	50.9	51.3	**51.7**	51.9	52.3	52.8	47.5	45.4	-	3801	49	3843	61.5	57.2	61.0	42.0
02/07	51.0	50.5	49.2	50.7	50.9	51.3	**51.7**	51.7	51.9	52.2	48.1	45.2	-	3875	17	3843	↑ 62.5	54.8	59.0	43.8
02/08	51.1	50.4	49.2	50.6	50.8	51.3	**51.7**	51.8	52.1	52.4	48.4	45.5	-	3494	14	3845	58.0	52.8	58.4	45.5
02/09	51.3	50.4	49.1	50.7	50.7	50.9	**51.3**	51.5	51.8	52.4	48.2	46.1	-	3448	14	3842	56.0	51.4	58.6	43.8
02/10	51.4	? 50.7	49.2	50.5	50.5	50.7	**50.7**	50.6	50.8	51.4	47.8	46.0	-	3297	14	3844	51.5	49.2	54.2	43.0
02/11	51.2	! -	49.1	50.3	50.1	50.3	**49.8**	49.4	49.5	49.9	47.2	45.0	-	2994	14	3844	47.5	41.8	46.3	35.3
02/12	51.2	? 50.5	49.1	50.4	50.2	50.3	**49.8**	49.4	49.3	49.3	47.3	44.9	-	4338	14	3742	47.5	46.9	48.6	39.2
02/13	51.4	? 50.2	49.1	50.4	50.3	50.4	**49.8**	49.3	49.2	49.3	47.2	44.5	-	3804	21	3640	50.5	47.0	49.7	37.7
02/14	50.9	50.2	49.1	50.3	50.1	50.3	**49.9**	49.5	? 49.6	49.6	47.1	44.6	-	3649	15	3552	45.5	43.1	45.3	38.5
02/15	50.9	50.3	49.0	50.4	50.2	50.3	**49.8**	49.5	49.5	49.6	47.2	44.2	-	3502	26	3422	53.0	49.4	51.3	35.8
02/16	50.9	50.2	49.2	50.4	50.4	50.7	**50.4**	49.9	49.8	49.9	47.6	44.2	-	3390	23	3344	52.5	48.6	52.2	39.4
02/17	50.7	50.1	49.2	50.3	50.5	51.0	**51.1**	50.9	51.0	51.0	48.2	44.8	-	2717	14	3269	53.5	50.6	53.3	43.4
02/18	50.4	49.4	49.1	50.4	50.1	50.5	**51.0**	51.0	51.2	51.3	47.6	44.9	-	2850	14	3180	46.0	49.0	49.6	40.8
02/19	50.6	49.4	49.2	50.2	49.9	49.8	**49.2**	48.8	48.9	49.8	46.6	43.9	-	2562	38	3130	↓ 39.0	38.0	40.7	32.2
02/20	50.5	49.7	49.0	49.8	49.4	49.3	**48.5**	47.9	47.8	48.1	46.4	43.5	-	2925	14	3130	39.0	35.5	38.2	29.1
02/21	50.5	49.7	48.9	49.3	49.2	49.3	**48.6**	47.9	47.7	47.8	46.8	43.9	-	3062	23	3131	↓ 41.0	40.1	42.5	35.1
02/22																				
02/23																				
02/24																				
02/25																				
02/26																				
02/27																				
02/28																				
-																				
-																				
-																				
Feb	51.0	50.2	49.1	50.5	50.4	50.7	50.7	50.6	50.7	50.9	47.6	45.0	-	3384	20	3614	53.8	50.1	53.6	40.6
												Total CFS		71055	425	75886				
												Total AF		140935	843	150517				

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 control point (see page 3 for more details)

[3] Column not used this month

DATE	Redding (RDD) Daily Air Temperatures (°F)																																			
	Actual			Forecasted																																
	Previous Day			Current Day			1 Day			2 Days			3 Days			4 Days			5 Days			6 Days			7 Days			8 Days			9 Days			10 Days		
	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg	↓	↑	Avg
02/01	37	67	52.0	50	69	59.5	45	72	58.5	47	74	60.5	47	73	60.0	45	75	60.0	45	75	60.0	47	76	61.5	49	76	62.5	47	73	60.0	47	71	59.0	46	70	58.0
02/02	47	**78**	62.5	49	79	64.0	46	78	62.0	46	78	62.0	46	76	61.0	45	73	59.0	45	76	60.5	47	76	61.5	48	71	59.5	43	70	56.5	42	69	55.5	41	70	55.5
02/03	49	**78**	63.5	59	79	69.0	50	77	63.5	45	73	59.0	42	73	57.5	43	75	59.0	45	74	59.5	44	72	58.0	43	67	55.0	38	69	53.5	37	66	51.5	37	68	52.5
02/04	59	**79**	69.0	52	78	65.0	49	74	61.5	45	73	59.0	46	76	61.0	46	76	61.0	45	74	59.5	44	72	58.0	43	68	55.5	40	64	52.0	46	67	56.5	44	68	56.0
02/05	52	**81**	66.5	50	75	62.5	43	73	58.0	44	76	60.0	46	77	61.5	45	75	60.0	44	70	57.0	45	70	57.5	39	64	51.5	36	64	50.0	38	66	52.0	40	69	54.5
02/06	50	**78**	64.0	44	76	60.0	46	78	62.0	46	80	63.0	46	76	61.0	44	70	57.0	44	72	58.0	41	69	55.0	44	67	55.5	39	65	52.0	40	65	52.5	39	71	55.0
02/07	49	74	61.5	45	76	60.5	47	79	63.0	47	77	62.0	44	70	57.0	41	69	55.0	39	70	54.5	40	70	55.0	41	68	54.5	40	70	55.0	40	70	55.0	42	72	57.0
02/08	45	**80**	62.5	42	79	60.5	47	77	62.0	44	68	56.0	40	69	54.5	41	66	53.5	40	68	54.0	40	71	55.5	47	72	59.5	43	70	56.5	40	66	53.0	41	69	55.0
02/09	40	76	58.0	42	76	59.0	43	66	54.5	39	65	52.0	39	64	51.5	40	69	54.5	39	69	54.0	41	70	55.5	43	73	58.0	43	72	57.5	42	72	57.0	44	71	57.5
02/10	42	70	56.0	40	65	52.5	38	63	50.5	38	62	50.0	39	67	53.0	38	70	54.0	40	72	56.0	42	73	57.5	47	73	60.0	44	73	58.5	43	71	57.0	44	69	56.5
02/11	39	64	51.5	35	61	48.0	37	62	49.5	35	69	52.0	36	67	51.5	38	69	53.5	39	73	56.0	42	72	57.0	49	70	59.5	40	70	55.0	41	67	54.0	41	70	55.5
02/12	35	60	47.5	39	60	49.5	36	65	50.5	36	60	48.0	35	66	50.5	36	71	53.5	39	70	54.5	40	65	52.5	36	59	47.5	32	60	46.0	32	61	46.5	38	65	51.5
02/13	37	58	47.5	44	65	54.5	35	58	46.5	34	64	49.0	37	71	54.0	41	69	55.0	39	63	51.0	37	57	47.0	38	63	50.5	32	58	45.0	29	56	42.5	33	65	49.0
02/14	35	66	50.5	32	59	45.5	34	63	48.5	36	68	52.0	39	70	54.5	39	61	50.0	33	55	44.0	26	57	41.5	35	64	49.5	37	65	51.0	37	61	49.0	41	63	52.0
02/15	31	60	45.5	43	64	53.5	35	69	52.0	38	70	54.0	38	59	48.5	29	55	42.0	25	56	40.5	27	59	43.0	33	63	48.0	33	63	48.0	35	62	48.5	39	60	49.5
02/16	43	63	53.0	38	69	53.5	39	69	54.0	39	56	47.5	28	53	40.5	26	58	42.0	29	60	44.5	34	64	49.0	40	63	51.5	39	64	51.5	36	61	48.5	40	63	51.5
02/17	35	70	52.5	39	68	53.5	39	55	47.0	28	52	40.0	25	55	40.0	28	61	44.5	33	61	47.0	35	59	47.0	42	61	51.5	36	61	48.5	40	60	50.0	40	62	51.0
02/18	39	68	53.5	35	54	44.5	28	52	40.0	24	53	38.5	29	56	42.5	33	57	45.0	33	60	46.5	34	58	46.0	39	57	48.0	38	58	48.0	38	59	48.5	40	60	50.0
02/19	34	58	46.0	28	52	40.0	24	52	38.0	27	53	40.0	32	53	42.5	30	58	44.0	30	56	43.0	34	57	45.5	39	55	47.0	37	55	46.0	35	55	45.0	39	61	50.0
02/20	**25**	53	39.0	32	52	42.0	27	53	40.0	30	53	41.5	29	58	43.5	32	57	44.5	34	57	45.5	35	57	46.0	40	56	48.0	37	56	46.5	37	59	48.0	40	64	52.0
02/21	28	50	39.0	29	55	42.0	32	53	42.5	28	57	42.5	33	58	45.5	35	59	47.0	35	55	45.0	32	55	43.5	36	57	46.5	34	56	45.0	36	61	48.5	41	59	50.0
02/22	**27**	55	41.0	26	51	38.5	26	56	41.0	30	56	43.0	32	58	45.0	35	53	44.0	31	57	44.0	32	56	44.0	38	57	47.5	39	55	47.0	35	58	46.5	41	63	52.0
02/23																																				
02/24																																				
02/25																																				
02/26																																				
02/27																																				
02/28																																				
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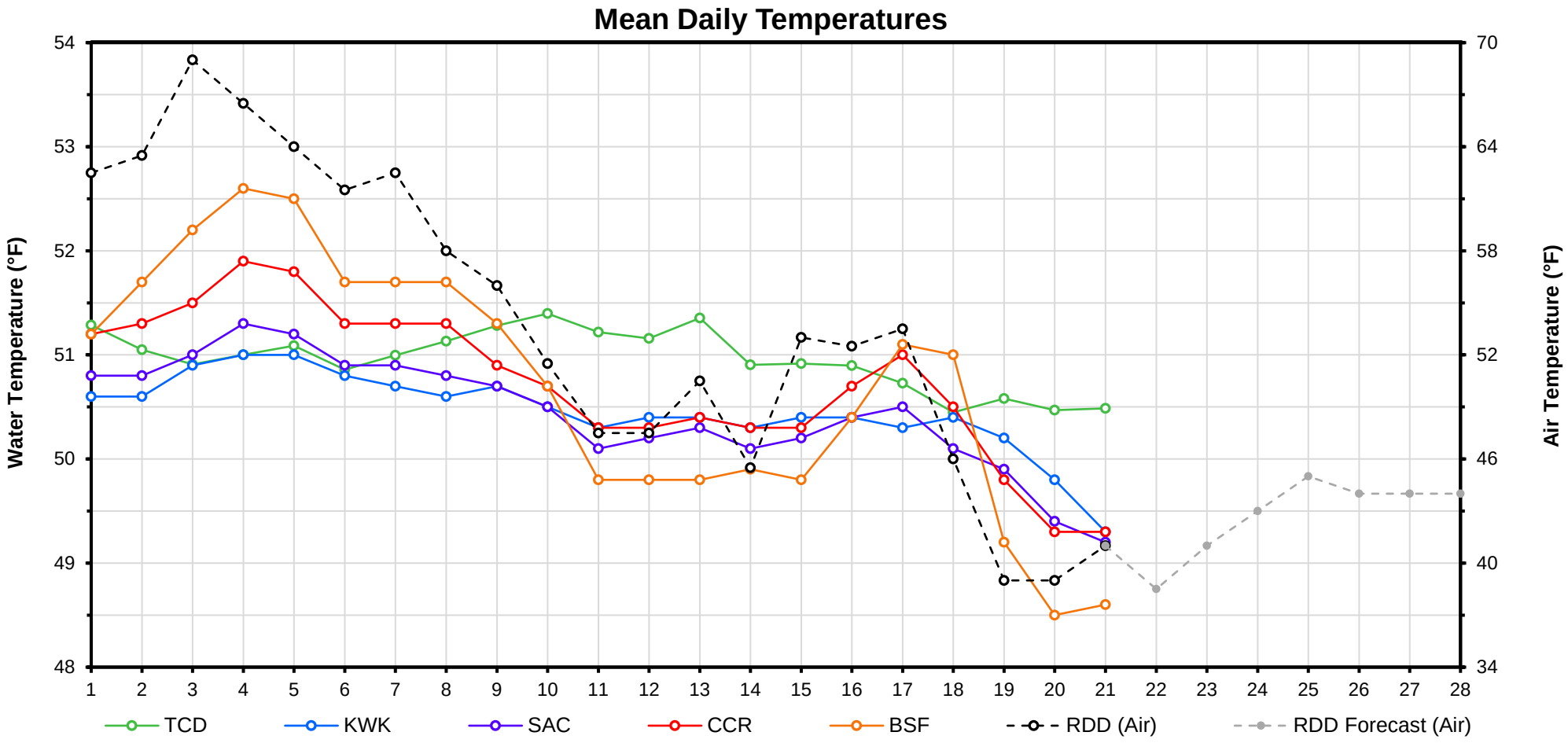
Web Links

10-Day Min/Max Forecast
Previous Days Min/Max Actuals

Legend

NR = Forecasted temperatures not recorded
100 = Previous day actual temperatures in red and bolded indicate a record temperature for that date



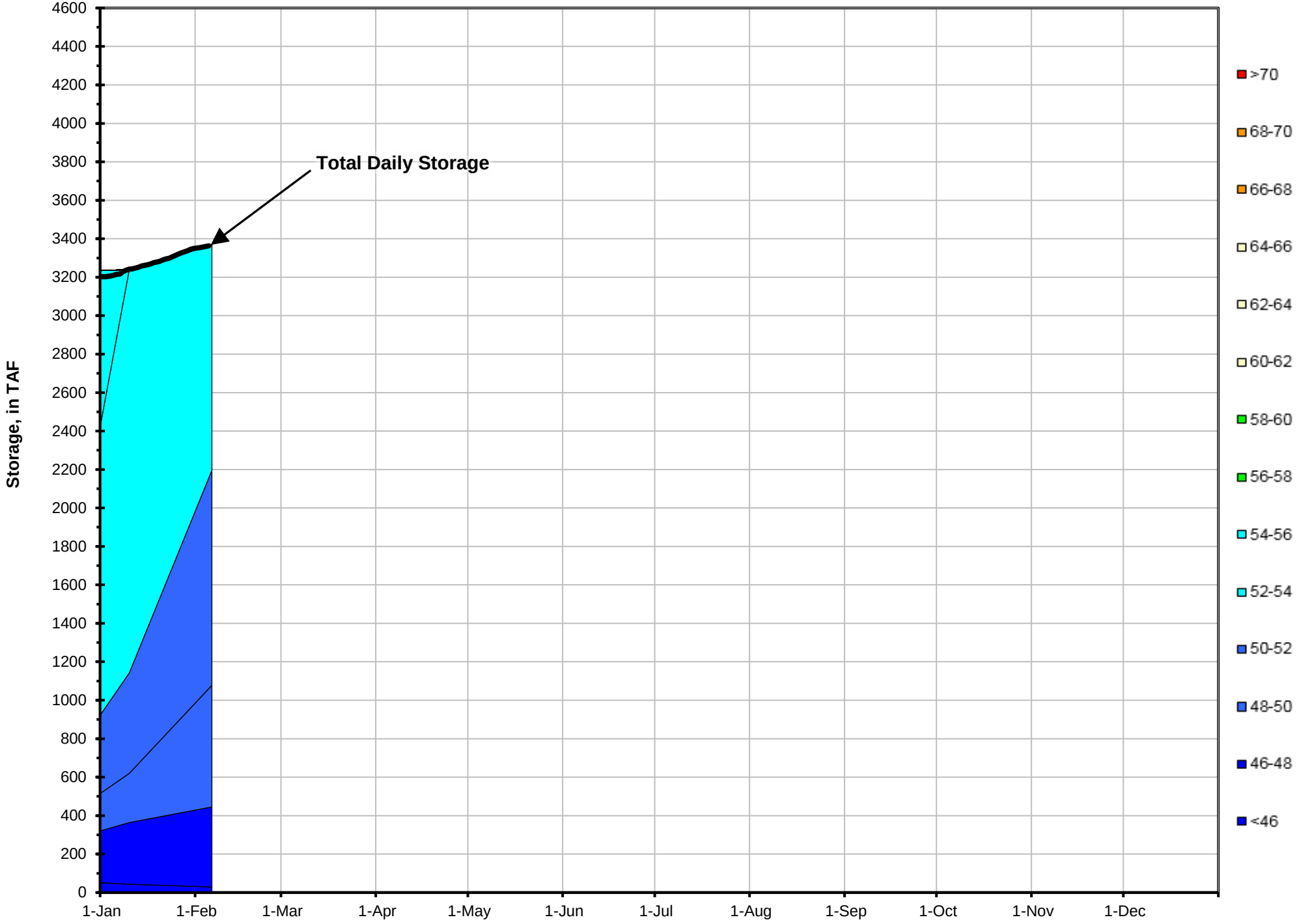
Station Details			
Code	Body of Water	Location[1]	CDEC Link
TCD	N/A	Shasta Power Plant	N/A
SHD	Sacramento River	0.3 miles downstream of Shasta Power Plant	Click Here
SPP	N/A	Spring Creek Power Plant	N/A
KWK	Sacramento River	0.8 miles downstream of Keswick Dam	Click Here
SAC	Sacramento River	4.8 miles 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[2]	Trinity River	19 miles downstream of Lewiston Dam	Click Here
NFH[3]	Trinity River	38 miles downstream of Lewiston Dam	Click Here

Temperature Control Point		
Point	Temp. (°F)	Date Range
BSF	56.0	06/01/17 - Current

Notes

[1] Distances are approximate
[2] DGC is only reported in September
[3] NFH is only reported in October, November and December

Lake Shasta Isothermalbaths - 2018
(Water Temperature, in °F)

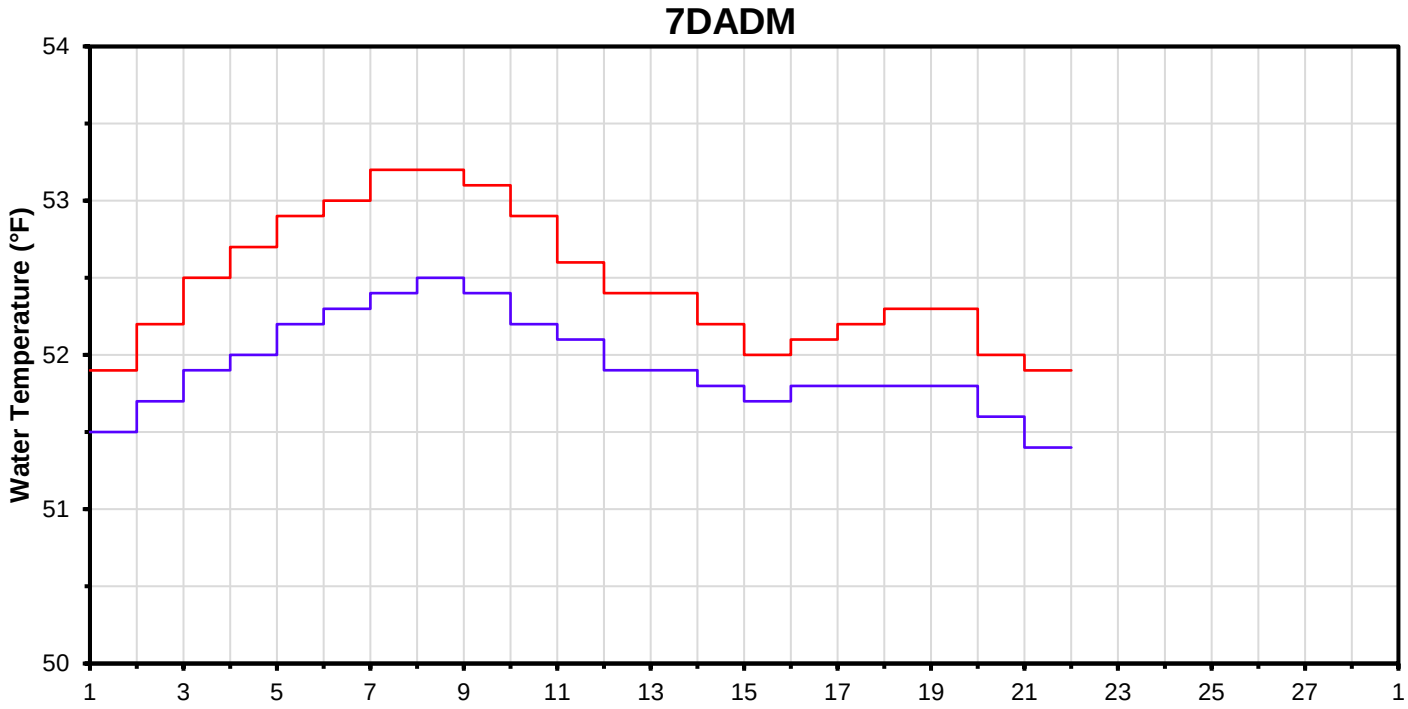


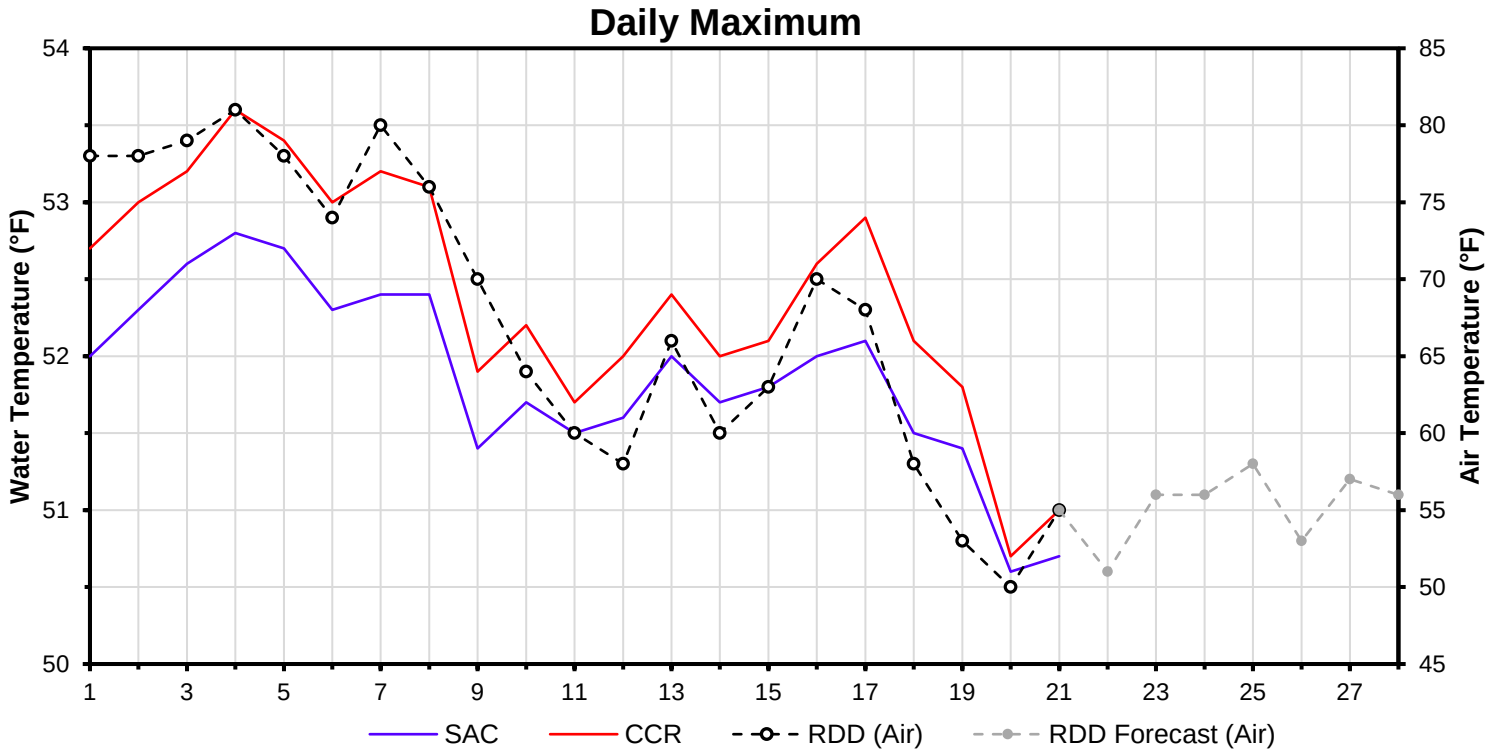
DATE	Daily Max		7DADM[1]		DAT[2]
	SAC	CCR	SAC	CCR	BSF
02/01	52.0	52.7	51.5	51.9	51.2
02/02	52.3	53.0	51.7	52.2	51.7
02/03	52.6	53.2	51.9	52.5	52.2
02/04	52.8	53.6	52.0	52.7	52.6
02/05	52.7	53.4	52.2	52.9	52.5
02/06	52.3	53.0	52.3	53.0	51.7
02/07	52.4	53.2	52.4	53.2	51.7
02/08	52.4	53.1	52.5	53.2	51.7
02/09	51.4	51.9	52.4	53.1	51.3
02/10	51.7	52.2	52.2	52.9	50.7
02/11	51.5	51.7	52.1	52.6	49.8
02/12	51.6	52.0	51.9	52.4	49.8
02/13	52.0	52.4	51.9	52.4	49.8
02/14	51.7	52.0	51.8	52.2	49.9
02/15	51.8	52.1	51.7	52.0	49.8
02/16	52.0	52.6	51.8	52.1	50.4
02/17	52.1	52.9	51.8	52.2	51.1
02/18	51.5	52.1	51.8	52.3	51.0
02/19	51.4	51.8	51.8	52.3	49.2
02/20	50.6	50.7	51.6	52.0	48.5
02/21	50.7	51.0	51.4	51.9	48.6
02/22					
02/23					
02/24					
02/25					
02/26					
02/27					
02/28					
-					
-					
-					

Notes

[1] 7DADM = 7-Day Average Daily Maximum

[2] DAT = Daily Average Temperature



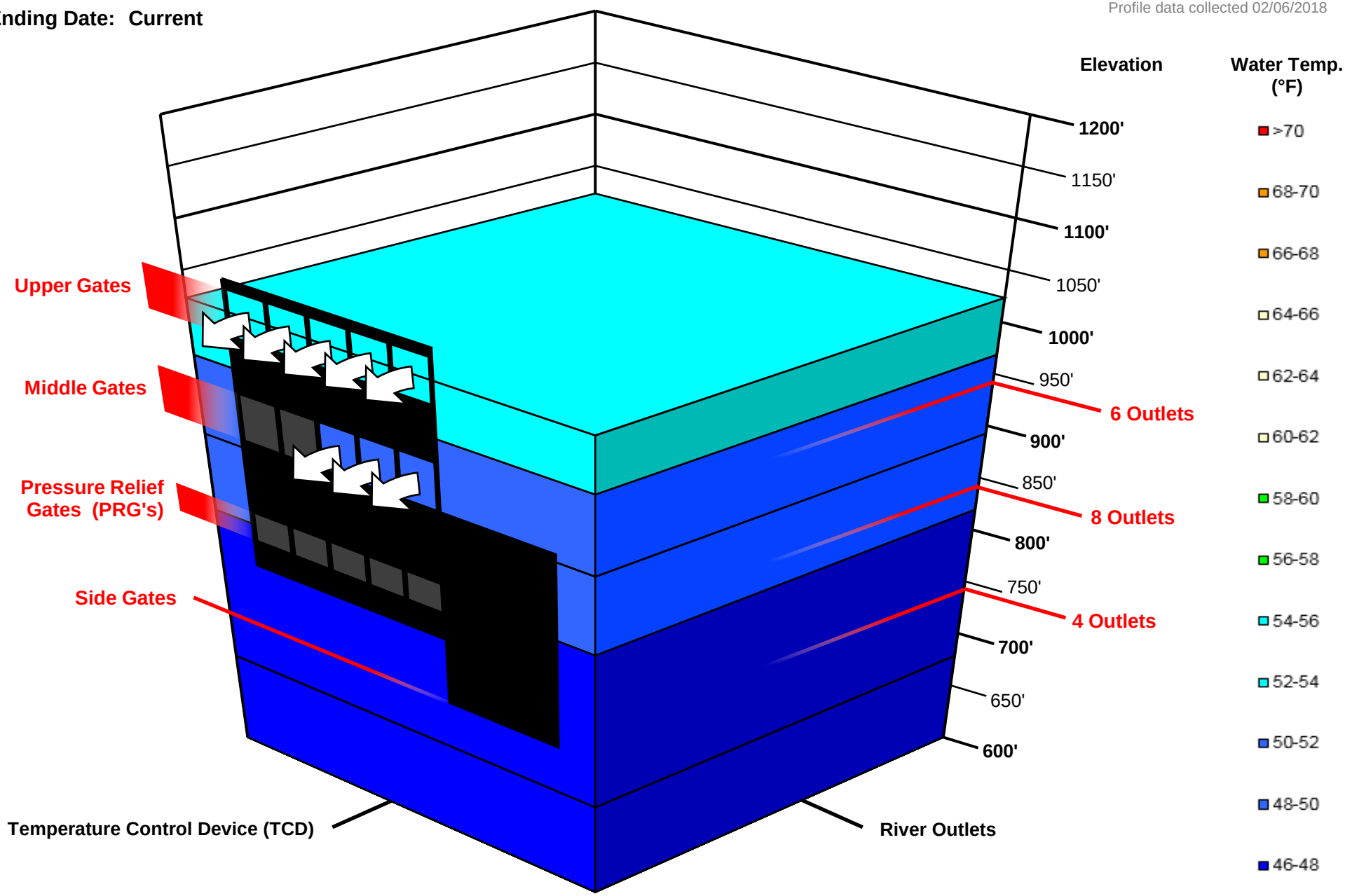


Shasta TCD Configuration

Starting Date: 02/08/2018

Ending Date: Current

Profile data collected 02/06/2018



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