



United States Department of the Interior

BUREAU OF RECLAMATION
Central Valley Operations Office
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

IN REPLY
REFER TO:

CVO-400
2.2.4.21

JAN 11 2019

VIA ELECTRONIC MAIL ONLY

Mr. Erik Ekdahl
Deputy Director, Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812

Subject: Monitoring and Reporting Program on Water Rights Order No. 90-5 (Water Rights)

Dear Mr. Ekdahl:

For the month of December 2018, the temperature control point was set at Balls Ferry, per the May 2018, Sacramento River Temperature Plan.

During the month, the average daily water temperature compliance of 56.0°F or less was met at the Balls Ferry compliance point on the Sacramento River. During the month, the observed average monthly water temperature was 51.4°F at Balls Ferry.

Enclosed is the monitoring report for December 2018, under Order No. 90-5. At present, the Bureau of Reclamation has recovered data collection; however, some directly measured information was not available in early December due to issues with the telemetry system that records and transmits data from the station (this is the same issue United States Geological Survey is experiencing with Geostationary Operational Environmental Satellite system). The report contains the following data as required:

ID #	Station	Temperature*	Turbidity*	Dissolved Oxygen*	Flow*
1	Shasta Inlets	X	X		
2	Shasta Dam	X	X	X	
2a	Shasta Dam				X
3	Sacramento River below Keswick Dam	X		X	
3a	Keswick Dam		X		X
4	Spring Creek Power Plant	X	X		X
5	Temperature Control Point	X	X	X	
6	Sacramento River at Delta	X	X		

ID #	Station	Temperature*	Turbidity*	Dissolved Oxygen*	Flow*
7	McCloud River	X	X		
8	Pit River	X	X		
9	Trinity River below Lewiston Dam	X			
9a	Lewiston Dam				X
10	Trinity River at Douglas City Bridge	X			
11	Trinity River at confluence of North Fork	X			

*Monitoring frequency, period, and units are specified in enclosures

Please contact Ms. Randi Field at rfield@usbr.gov or (916) 979-2066 should you have any questions regarding this data.

Sincerely,



Elizabeth Kiteck
Chief, Water Operations

Enclosure

cc: Ms. Alessia Siclari Melchor
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812

Mr. Vadim Demchuk
Division of Water Rights
State Water Resources Control Board
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Sacramento, CA 95812

Ms. Diane Riddle
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Sacramento, CA 95812
(w/encl to each)

90-5 Required Water Monitoring Data

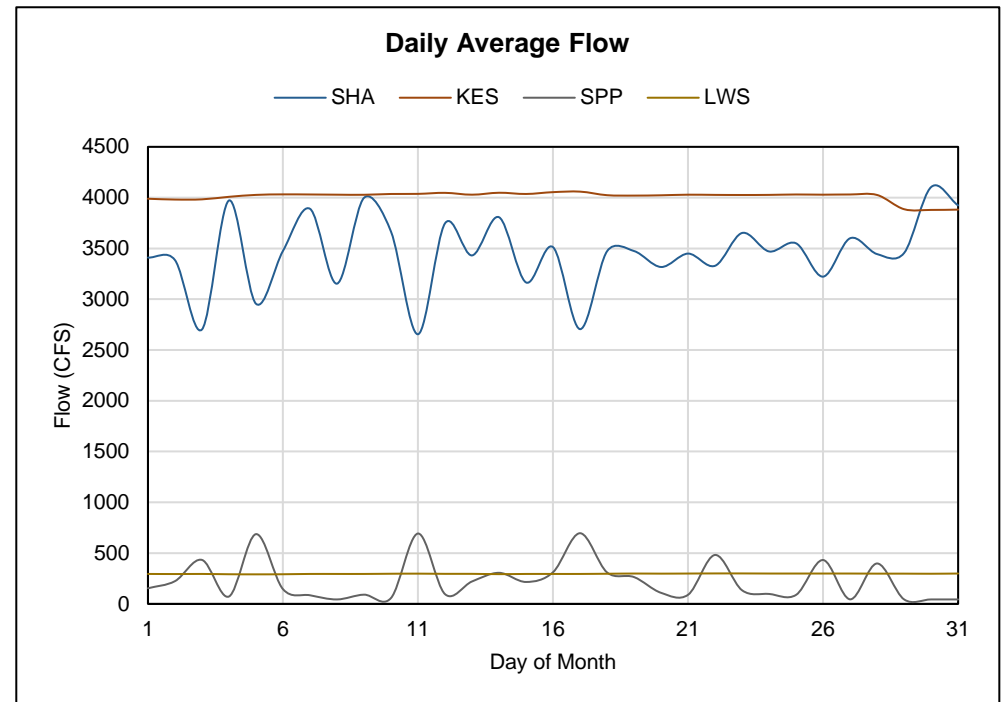
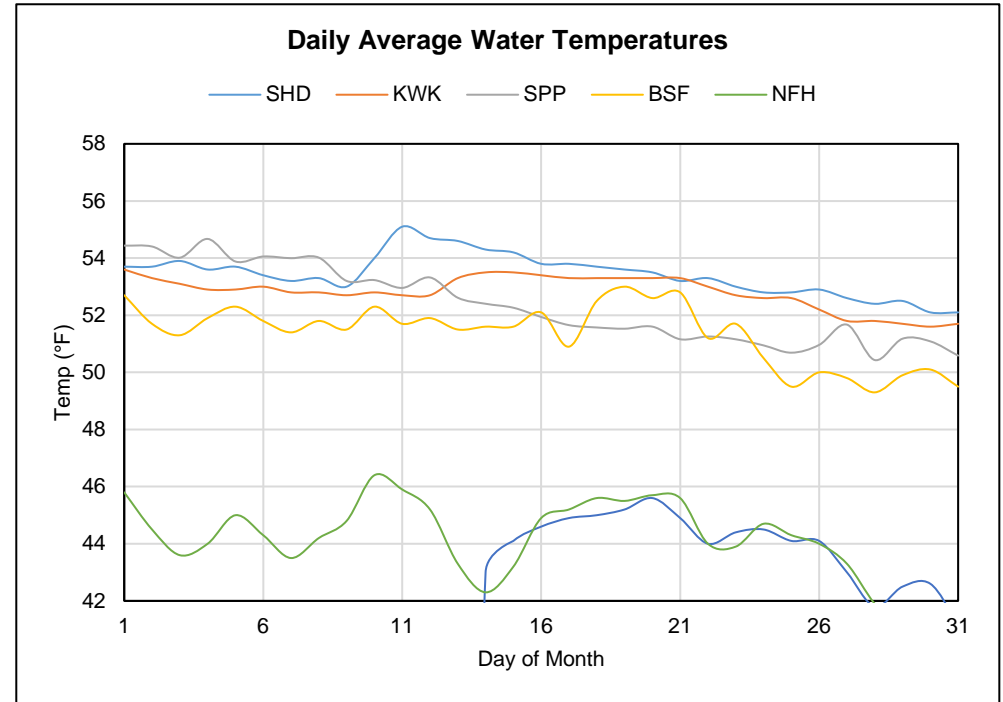
December 2018

Daily Averages from Hourly Automated Observations										
Parameter	Temp (°F)						Flow (CFS)			
Site	2	3	4	5	9	11	2a	3a	4	9a
	SHD	KWK	SPP	BSF ¹	LWS ²	NFH	SHA	KES	SPP	LWS
1	53.7	53.6	54.4	52.7	-	45.8	3410	3989	154	295
2	53.7	53.3	54.4	51.7	-	44.5	3385	3981	224	294
3	53.9	53.1	54.0	51.3	-	43.6	2702	3983	433	295
4	53.6	52.9	54.7	51.9	-	44.0	3972	4008	73	292
5	53.7	52.9	53.9	52.3	-	45.0	2955	4027	687	291
6	53.4	53.0	54.1	51.8	-	44.3	3476	4032	145	292
7	53.2	52.8	54.0	51.4	-	43.5	3890	4031	85	295
8	53.3	52.8	54.0	51.8	-	44.2	3153	4029	44	295
9	53.0	52.7	53.2	51.5	-	44.8	3998	4028	91	295
10	54.0	52.8	53.2	52.3	-	46.4	3665	4036	58	297
11	55.1	52.7	53.0	51.7	-	45.9	2655	4037	693	298
12	54.7	52.7	53.3	51.9	-	45.2	3747	4047	96	296
13	54.6	53.3	52.6	51.5	-	43.3	3431	4029	221	296
14	54.3	53.5	52.4	51.6	43.0	42.3	3807	4048	306	293
15	54.2	53.5	52.3	51.6	44.1	43.2	3165	4036	216	295
16	53.8	53.4	51.9	52.1	44.6	44.9	3512	4054	312	295
17	53.8	53.3	51.7	50.9	44.9	45.2	2705	4059	696	295
18	53.7	53.3	51.6	52.5	45.0	45.6	3472	4024	310	297
19	53.6	53.3	51.5	53.0	45.2	45.5	3474	4020	264	299
20	53.5	53.3	51.6	52.6	45.6	45.7	3317	4023	109	298
21	53.2	53.3	51.2	52.8	44.9	45.6	3449	4029	90	299
22	53.3	53.0	51.3	51.2	44.0	44.0	3329	4027	482	300
23	53.0	52.7	51.2	51.7	44.4	43.9	3652	4026	134	300
24	52.8	52.6	50.9	50.5	44.5	44.7	3470	4027	98	299
25	52.8	52.6	50.7	49.5	44.1	44.3	3550	4031	89	299
26	52.9	52.2	51.0	50.0	44.1	44.0	3222	4029	432	299
27	52.6	51.8	51.7	49.8	43.0	43.3	3600	4031	45	299
28	52.4	51.8	50.4	49.3	41.8	41.9	3444	4026	398	298
29	52.5	51.7	51.2	49.9	42.5	41.0	3455	3886	44	298
30	52.1	51.6	51.1	50.1	42.6	41.8	4104	3879	44	297
31	52.1	51.7	50.6	49.5	41.2	41.6	3923	3882	44	299
Max							4104	4059	696	300
Mean							3454	4013	230	296
Min							2655	3879	44	291
Volume (TAF)							212	247	14	18

Notes

¹ Current temperature control point

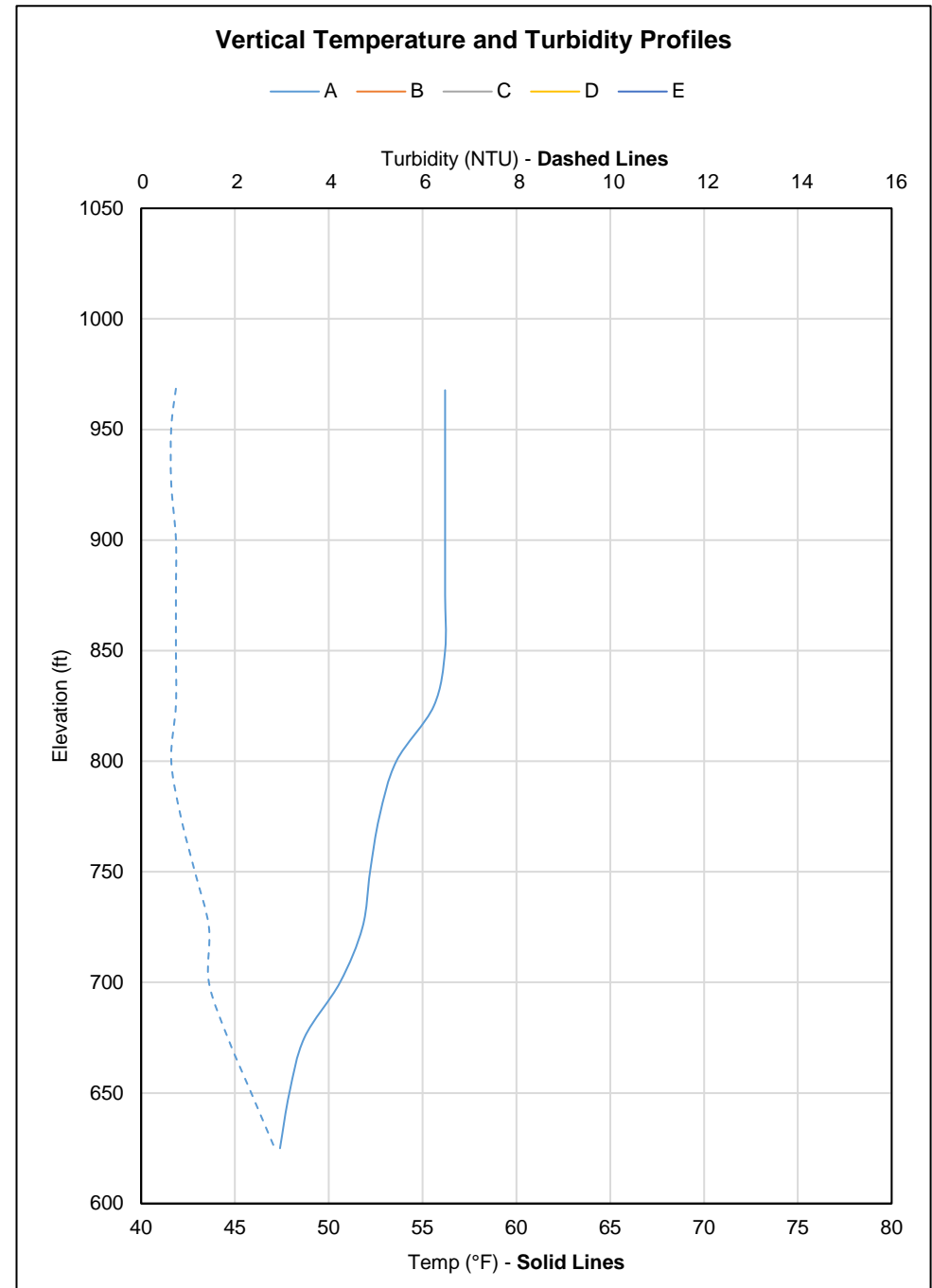
² Missing data per faulty transmitter



Vertical Profiles Taken at Site 1 (Shasta Lake at Dam Inlets)											
Profile	A		B		C		D		E		
Day of Month	11		-		-		-		-		
Lake Elev.	967.76		-		-		-		-		
Parameter	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	
Elevation (ft)	L.E.	56.2	0.7	-	-	-	-	-	-	-	
	1050	-	-	-	-	-	-	-	-	-	
	1025	-	-	-	-	-	-	-	-	-	
	1000	-	-	-	-	-	-	-	-	-	
	975	-	-	-	-	-	-	-	-	-	
	950	56.2	0.6	-	-	-	-	-	-	-	
	925	56.2	0.6	-	-	-	-	-	-	-	
	900	56.2	0.7	-	-	-	-	-	-	-	
	875	56.2	0.7	-	-	-	-	-	-	-	
	850	56.2	0.7	-	-	-	-	-	-	-	
	825	55.6	0.7	-	-	-	-	-	-	-	
	800	53.6	0.6	-	-	-	-	-	-	-	
	775	52.7	0.8	-	-	-	-	-	-	-	
	750	52.2	1.1	-	-	-	-	-	-	-	
	725	51.8	1.4	-	-	-	-	-	-	-	
	700	50.6	1.4	-	-	-	-	-	-	-	
	675	48.7	1.8	-	-	-	-	-	-	-	
650	47.9	2.3	-	-	-	-	-	-	-		
625	47.4	2.8	-	-	-	-	-	-	-		

Monthly Manual Observations										
Parameter	Temp (°F)			Turb (NTU)						
Site	6	7	8	2	3	4	5	6	7	8
	DLT	MSS	PMN	SHD	KWK	SPP	RDB	DLT	MSS	PMN
Value	47.0	40.9	45.0	1.5	1.4	13.0	5.7	1.6	0.8	2.5
Day of Month	19	13	14	20	20	4	19	19	13	14

Notes



90-5 Required Water Monitoring Details

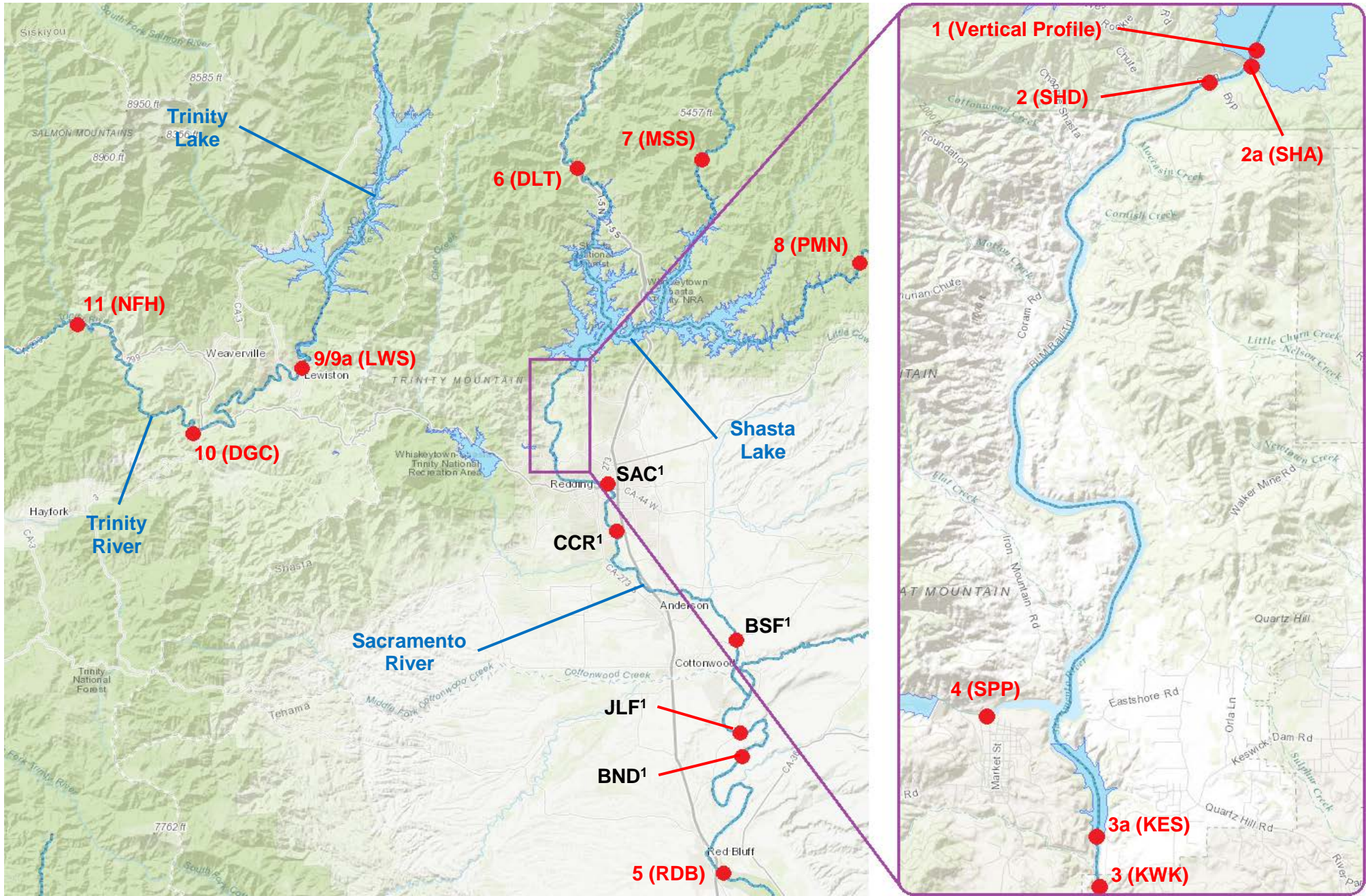
Site	CDEC ID	Description
1	-	Shasta Dam inlets or lake adjacent to the dam face. ¹
2	SHD	Shasta Dam release immediately downstream from the power plant.
2a	SHA	Shasta Dam release.
3	KWK	Sacramento River immediately downstream from Keswick Dam.
3a	KES	Keswick Dam release.
4	SPP	Spring Creek Power Plant release.
5	RDB	Sacramento River downstream from Red Bluff Diversion Dam.
6	DLT ²	Sacramento River (above Shasta Dam).
7	MSS	McCloud River (above Shasta Dam).
8	PMN	Pit River (above Shasta Dam).
9	LWS	Trinity River immediately downstream from Lewiston Dam.
9a	LWS	Lewiston Dam release.
10	DGC	Trinity River at the Douglas City Bridge.
11	NFH	Trinity River at the confluence of the North Fork Trinity River.

	Temperature		Turbidity ³		Dissolved Oxygen ⁴		Flow	
	Frequency	Period	Frequency	Period	Frequency	Period	Frequency	Period
1	Every 2 weeks	5/1 to 11/30	Monthly	All Year	-	-	-	-
2	Average Daily	All Year	Monthly	All Year	Every 2 weeks	5/1 to 9/30	-	-
2a	-	-	-	-	-	-	Average Daily	All Year
3	Average Daily	All Year	-	-	Every 2 weeks	5/1 to 9/30	-	-
3a	-	-	Monthly	All Year	-	-	Average Daily	All Year
4	Average Daily	All Year	Monthly	All Year	-	-	Average Daily	All Year
5	Average Daily ⁵	All Year	Monthly	All Year	Every 2 weeks	5/1 to 9/30	-	-
6	Monthly	All Year	Monthly	All Year	-	-	-	-
7	Monthly	All Year	Monthly	All Year	-	-	-	-
8	Monthly	All Year	Monthly	All Year	-	-	-	-
9	Average Daily	All Year	-	-	-	-	-	-
9a	-	-	-	-	-	-	Average Daily	All Year
10	Average Daily	9/15 to 10/1	-	-	-	-	-	-
11	Average Daily	10/1 to 12/31	-	-	-	-	-	-

Notes

- ¹ Take sufficient collection points to characterize the vertical profile for temperature and turbidity.
- ² Site 6 (DLT) is not accessible year round making it unsuitable for real-time Dissolved Oxygen monitoring do to calibration requirements.
- ³ From 5/1 to 9/30 if turbidity at site 2 is greater than or equal to 10 ntu's then frequency must be weekly.
- ⁴ To be taken before 10:00 am.
- ⁵ If the temperature control point is moved upstream from site 5, then temperature monitoring shall continue at the new site.

90-5 Required Water Monitoring Site Map



Notes

¹ SAC, CCR, BSF, JLF and BND are alternative upstream temperature control points to RDB