



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

APR 12 2019

VIA ELECTRONIC MAIL

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 March 2019, 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 49.3°F at Balls Ferry.

Enclosed is the monitoring report for March 2019, under Order No. 90-5. 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		
7	McCloud River	X	X		
8	Pit River	X	X		
9	Trinity River below Lewiston Dam	X			
9a	Lewiston Dam				X

ID #	Station	Temperature*	Turbidity*	Dissolved Oxygen*	Flow*
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

Enclosures

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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(w/encl to each)

90-5 Required Water Monitoring Data

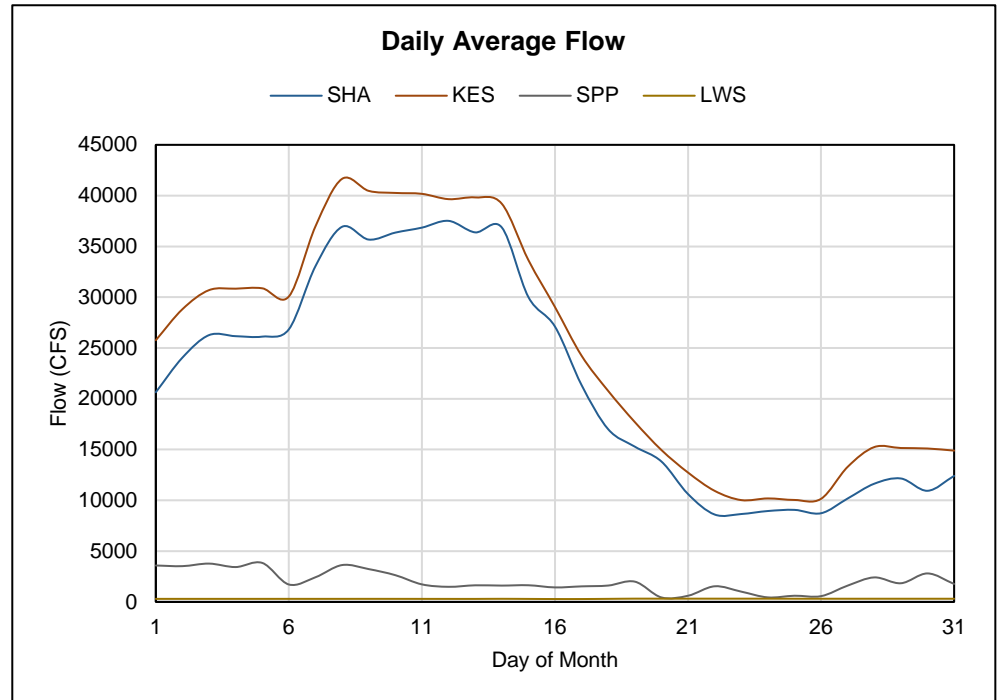
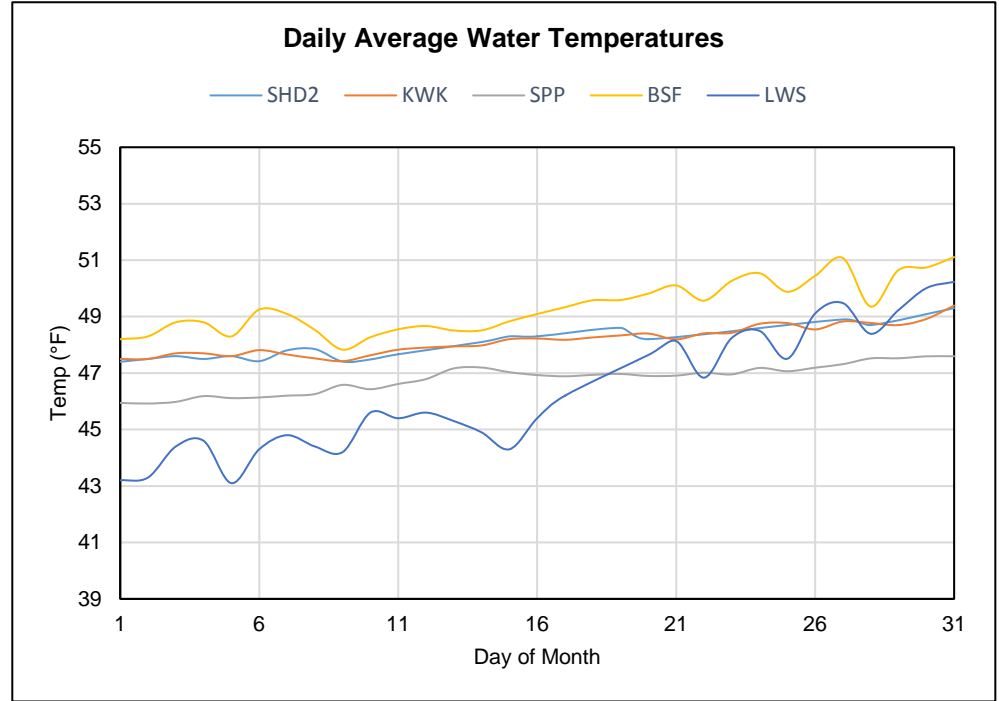
March 2019

Daily Averages from Hourly Automated Observations										
Parameter	Temp (°F)						Flow (CFS)			
Site	2	3	4	5	9	-	2a	3a	4	9a
	SHD ²	KWK	SPP	BSF ¹	LWS	-	SHA	KES	SPP	LWS
1	47.4	47.5	45.9	48.2	43.2		20643	25767	3585	299
2	47.5	47.5	45.9	48.3	43.3		24053	28819	3521	299
3	47.6	47.7	46.0	48.8	44.4		26268	30696	3771	299
4	47.5	47.7	46.2	48.8	44.6		26162	30839	3431	299
5	47.6	47.6	46.1	48.3	43.1		26118	30875	3837	299
6	47.4	47.8	46.1	49.3	44.3		26839	30073	1713	300
7	47.8	47.7	46.2	49.1	44.8		33060	36980	2429	299
8	47.9	47.5	46.3	48.5	44.4		36933	41654	3628	300
9	47.4	47.4	46.6	47.8	44.2		35673	40467	3230	301
10	47.5	47.6	46.4	48.3	45.6		36359	40265	2632	300
11	47.7	47.8	46.6	48.6	45.4		36849	40176	1725	298
12	#N/A	47.9	46.8	48.7	45.6		37516	39653	1486	296
13	#N/A	47.9	47.2	48.5	45.3		36382	39824	1634	295
14	48.1	48.0	47.2	48.5	44.9		36873	39207	1606	305
15	48.3	48.2	47.0	48.8	44.3		30018	33658	1639	294
16	48.3	48.2	46.9	49.1	45.4		27104	29031	1427	283
17	#N/A	48.2	46.9	49.3	46.2		21345	24238	1530	283
18	#N/A	48.3	46.9	49.6	#N/A		16999	20769	1610	300
19	48.6	48.3	47.0	49.6	#N/A		15286	17706	1995	320
20	48.2	48.4	46.9	49.8	47.6		13822	14954	439	317
21	#N/A	48.2	46.9	50.1	48.1		10616	12734	607	318
22	#N/A	48.4	47.0	49.6	46.8		8603	10934	1538	319
23	#N/A	48.4	47.0	50.3	48.2		8652	10023	1011	318
24	#N/A	48.7	47.2	50.5	48.5		8948	10188	444	318
25	#N/A	48.8	47.1	49.9	47.5		9061	10037	606	314
26	#N/A	48.5	47.2	50.4	49.1		8730	10151	567	312
27	48.9	48.8	47.3	51.1	49.5		10183	13300	1605	311
28	48.7	48.8	47.5	49.4	48.4		11638	15245	2412	312
29	#N/A	48.7	47.5	50.7	49.2		12151	15150	1837	311
30	#N/A	48.9	47.6	50.7	50.0		10940	15103	2804	311
31	49.3	49.4	47.6	51.1	50.2		12409	14894	1765	311
						Max	37516	41654	3837	320
						Mean	21814	24949	2002	305
						Min	8603	10023	439	283
						Volume (TAF)	1341	1534	123	19

Notes

¹ Current temperature control point

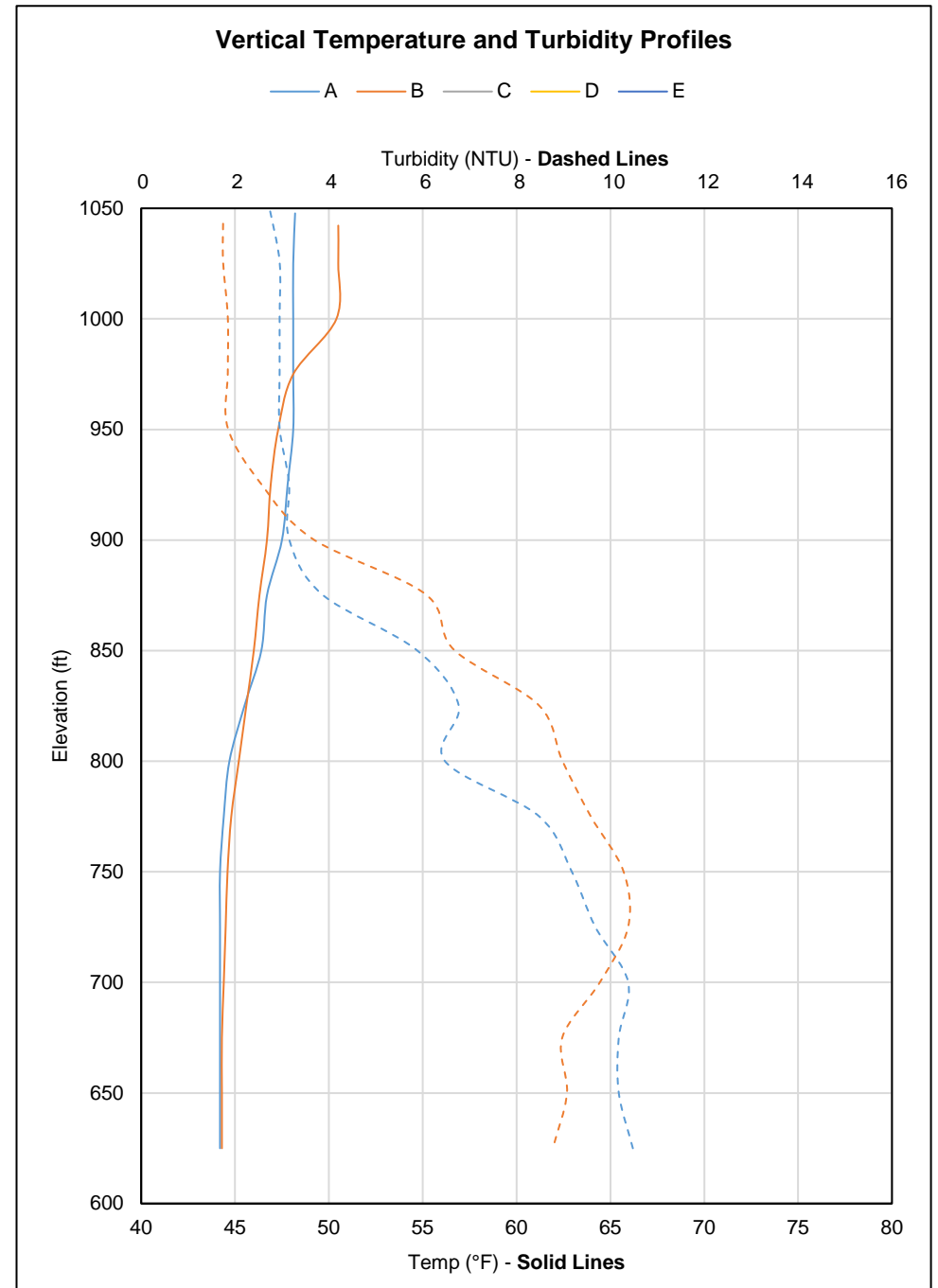
² SHD gauge damaged on 03/11



Vertical Profiles Taken at Site 1 (Shasta Lake at Dam Inlets)											
Profile	A		B		C		D		E		
Day of Month	11		26		-		-		-		
Lake Elev.	1047.72		1042.19		-		-		-		
Parameter	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	
Elevation (ft)	L.E.	48.2	2.7	50.5	1.7	-	-	-	-	-	-
	1050	-	-	-	-	-	-	-	-	-	-
	1025	48.1	2.9	50.5	1.7	-	-	-	-	-	-
	1000	48.1	2.9	50.4	1.8	-	-	-	-	-	-
	975	48.1	2.9	48.1	1.8	-	-	-	-	-	-
	950	48.1	2.9	47.3	1.8	-	-	-	-	-	-
	925	47.8	3.1	46.9	2.5	-	-	-	-	-	-
	900	47.5	3.1	46.7	3.6	-	-	-	-	-	-
	875	46.7	3.8	46.3	6.0	-	-	-	-	-	-
	850	46.4	5.8	46.0	6.6	-	-	-	-	-	-
	825	45.5	6.7	45.6	8.4	-	-	-	-	-	-
	800	44.7	6.4	45.2	8.9	-	-	-	-	-	-
	775	44.4	8.4	44.8	9.5	-	-	-	-	-	-
	750	44.2	9.1	44.6	10.2	-	-	-	-	-	-
	725	44.2	9.6	44.5	10.3	-	-	-	-	-	-
	700	44.2	10.3	44.4	9.7	-	-	-	-	-	-
675	44.2	10.1	44.3	8.9	-	-	-	-	-	-	
650	44.2	10.1	44.3	9.0	-	-	-	-	-	-	
625	44.2	10.4	44.3	8.7	-	-	-	-	-	-	

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	46.2	45.6	45.1	4.5	4.6	10.0	8.4	17.6	3.4	33.7
Day of Month	7	28	6	8	22	20	20	7	28	6

Notes



90-5 Required Water Monitoring Details

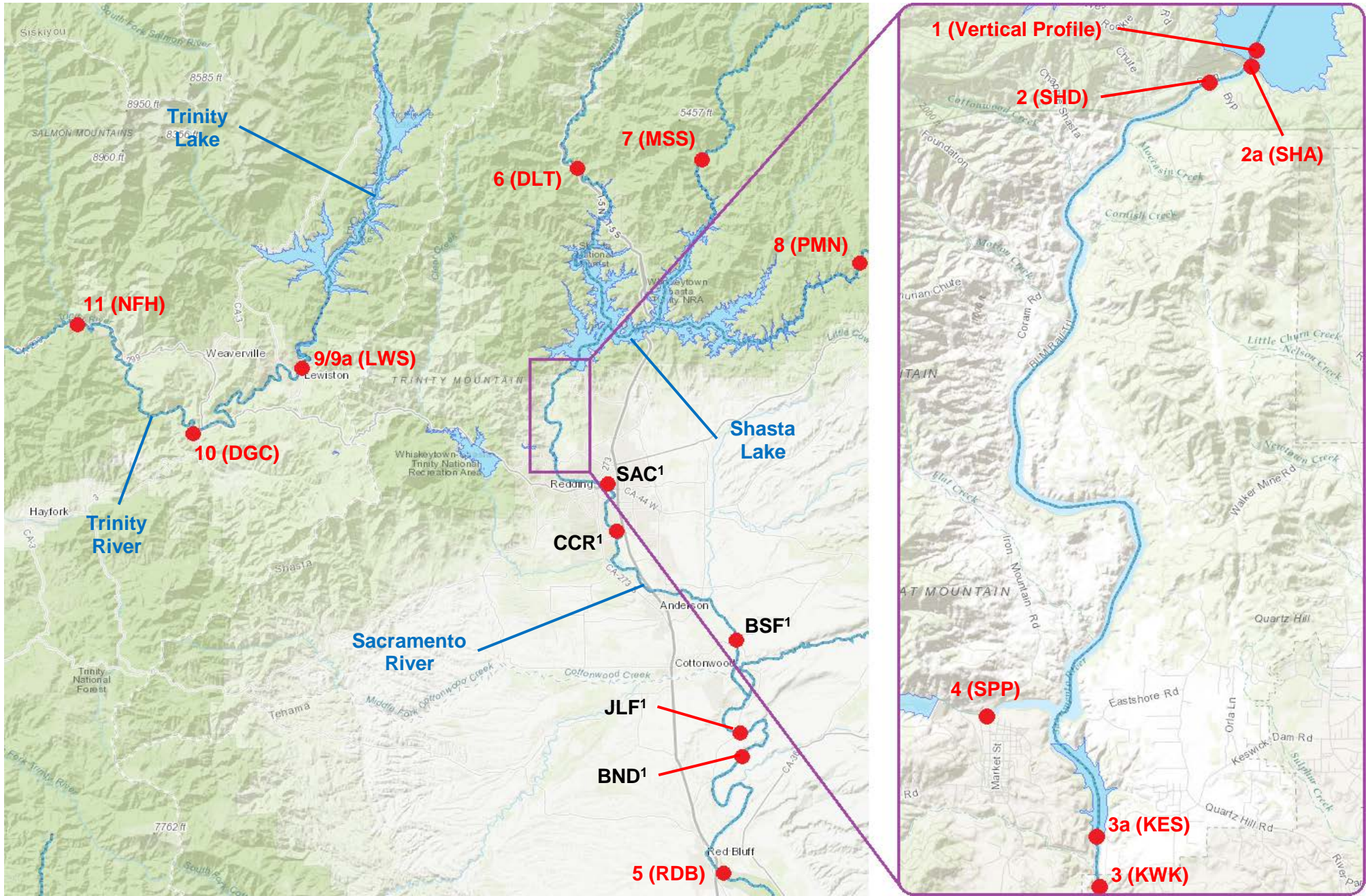
Site	CDEC ID	Description
1	-	Shasta Dam inlets or lake adjacent to the dam face. ¹
2	SHD	Shasta Dam release immediately downstream from the power plant.
2a	SHA	Shasta Dam release.
3	KWK	Sacramento River immediately downstream from Keswick Dam.
3a	KES	Keswick Dam release.
4	SPP	Spring Creek Power Plant 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