



# 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  
WTR-4.10

**JUN 13 2018**

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 May 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 54.9°F at Balls Ferry.

Enclosed is the monitoring report for May 2018, 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 916-979-2066, should you have any questions regarding this data.

Sincerely,



Elizabeth Kiteck  
Chief, Water Operations

Enclosures

cc: Mr. Chris Kwan  
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  
P.O. Box 2000  
Sacramento, CA 95812

Ms. Diane Riddle  
Division of Water Rights  
State Water Resources Control Board  
P.O. Box 2000  
Sacramento, CA 95812  
(w/encl)

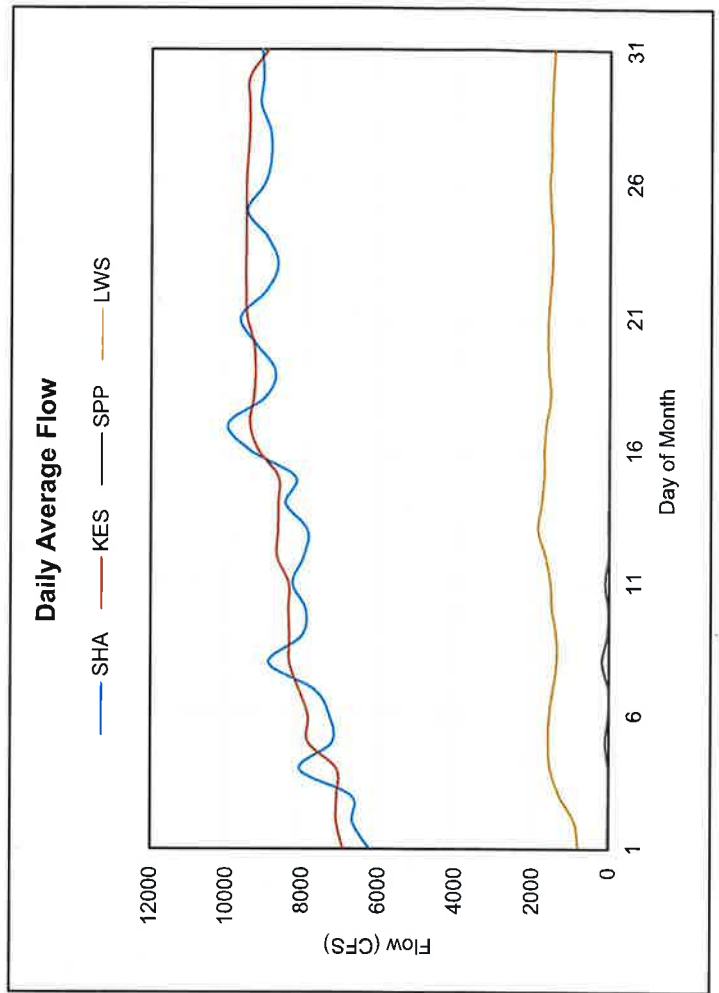
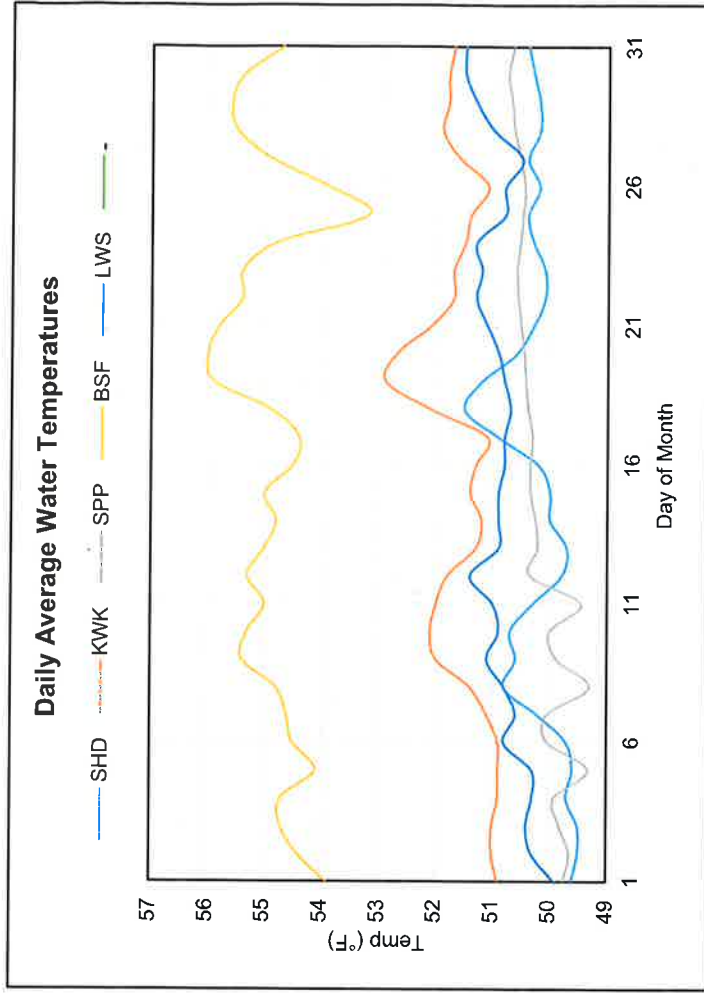
# 90-5 Required Water Monitoring Data

May 2018

Daily Averages from Hourly Automated Observations										
Parameter	Temp (°F)					Flow (CFS)				
	2	3	4	5	9	-	2a	3a	4	9a
Site	SHD	KWK	SPP	BSF <sup>1</sup>	LWS	-	SHA	KES	SPP	LWS
1	49.6	50.9	49.7	53.9	49.9		6228	6924	30	802
2	49.5	51.0	49.6	54.4	50.3		6674	7099	21	898
3	49.5	51.0	49.8	54.7	50.4		6705	7094	14	1289
4	49.7	50.9	49.9	54.7	50.3		8065	7095	14	1529
5	49.6	50.9	49.3	54.1	50.3		7222	7839	98	1583
6	49.7	50.9	50.0	54.5	50.8		7277	7841	14	1559
7	50.2	51.1	50.0	54.6	50.6		7669	8085	14	1463
8	50.8	51.4	49.3	54.8	50.8		8886	8339	185	1366
9	50.6	52.0	49.9	55.4	51.1		8018	8334	43	1378
10	50.7	52.1	50.0	55.3	50.9		7898	8358	16	1498
11	50.3	52.0	49.5	55.0	51.0		8253	8357	105	1527
12	49.8	51.8	50.4	55.3	51.4		7961	8664	14	1654
13	49.7	51.3	50.2	55.0	50.9		7856	8636	19	1860
14	50.0	51.2	50.3	54.8	50.9		8434	8633	14	1769
15	50.0	51.4	50.3	55.0	50.9		8173	8634	14	1701
16	50.2	51.3	50.3	54.5	50.8		9386	9168	14	1700
17	50.9	51.1	50.3	54.4	50.8		9960	9390	14	1647
18	51.5	52.1	50.4	54.9	50.7		8980	9283	14	1531
19	51.2	52.9	50.4	55.9	50.8		8713	9243	14	1592
20	50.6	52.7	50.5	56.0	50.9		9223	9288	14	1605
21	50.3	52.1	50.5	55.8	51.1		9637	9472	14	1602
22	50.1	51.7	50.6	55.4	51.3		8960	9498	14	1549
23	50.1	51.7	50.6	55.4	51.2		8651	9502	14	1500
24	50.3	51.5	50.5	54.8	51.3		8912	9496	14	1495
25	50.4	51.4	50.5	53.2	50.8		9466	9497	14	1537
26	50.2	51.1	50.5	53.9	50.8		9006	9499	14	1573
27	50.4	51.6	50.5	54.9	50.5		8833	9452	14	1532
28	50.2	51.9	50.7	55.5	51.0		8848	9410	14	1535
29	50.2	51.8	50.7	55.6	51.3		9101	9409	14	1512
30	50.3	51.8	50.8	55.4	51.5		9031	9403	14	1491
31	50.4	51.7	50.7	54.7	51.5		9064	8917	14	1445
						Max	9960	9502	185	1860
						Mean	8422	8705	27	1507
						Min	6228	6924	14	802
						Volume (TAF)	518	535	2	93

## Notes

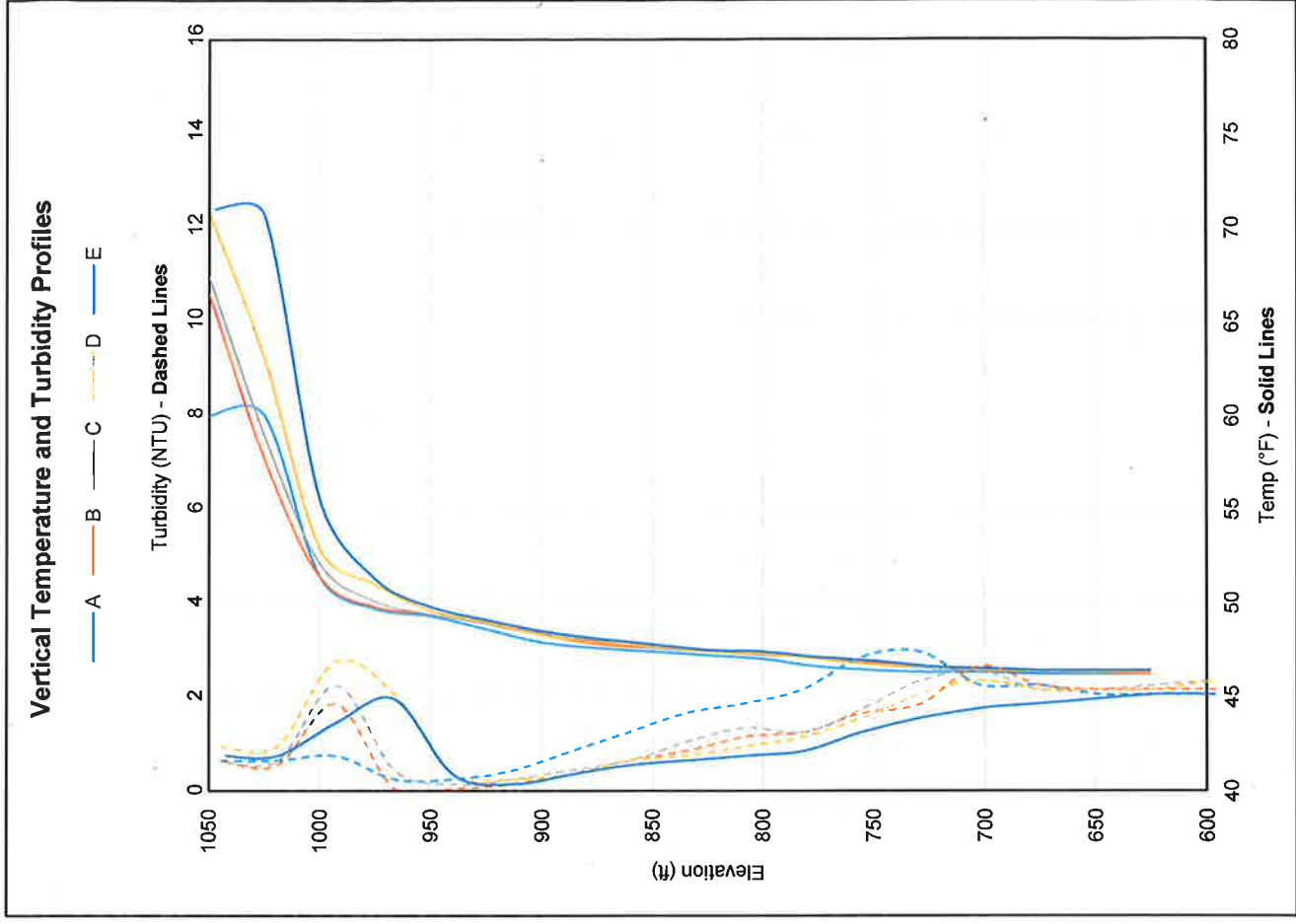
<sup>1</sup> Current temperature control point



90-5 Required Water Monitoring Data (Continued)

May 2018

Vertical Profiles Taken at Site 1 (Shasta Lake at Dam Inlets)											
Profile	A		B		C		D		E		
Day of Month	1		8		15		22		30		
Lake Elev.	1054.72		1053.52		1051.81		1049.15		1046.86		
Parameter	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	
L.E.	60.0	0.6	66.8	0.6	67.8	0.6	70.6	0.9	71.0	0.7	
1050	60.0	0.6	66.5	0.6	67.4	0.6	-	-	-	-	
1025	60.0	0.6	57.7	0.5	58.9	0.6	63.1	0.9	70.7	0.7	
1000	51.4	0.7	51.4	1.8	52.1	2.2	52.9	2.7	55.5	1.4	
975	49.7	0.2	49.8	0.0	50.1	0.4	51.0	2.0	51.3	1.9	
950	49.3	0.2	49.4	0.0	49.4	0.1	49.6	0.3	49.8	0.3	
925	48.6	0.4	48.9	0.1	48.9	0.2	49.0	0.2	49.1	0.1	
900	47.9	0.8	48.3	0.3	48.4	0.4	48.3	0.3	48.5	0.3	
875	47.6	1.2	47.8	0.6	48.0	0.6	47.9	0.6	48.1	0.5	
850	47.4	1.6	47.6	0.8	47.6	1.0	47.7	0.7	47.8	0.6	
825	47.2	1.8	47.4	1.1	47.4	1.3	47.4	0.9	47.5	0.7	
800	47.0	2.1	47.3	1.2	47.2	1.2	47.3	1.1	47.4	0.8	
775	46.6	2.8	47.1	1.6	47.1	1.7	47.0	1.5	47.1	1.2	
750	46.4	2.9	46.8	1.8	46.7	2.3	46.7	2.0	46.9	1.5	
725	46.3	2.2	46.5	2.6	46.5	2.5	46.6	2.3	46.6	1.7	
700	46.3	2.2	46.4	2.2	46.4	2.1	46.4	2.1	46.5	1.8	
675	46.2	2.0	46.3	2.1	46.3	2.1	46.4	2.1	46.4	1.9	
650	46.2	2.0	46.3	2.1	46.3	2.2	46.3	2.1	46.4	2.0	
625	46.2	2.0	46.2	2.1	46.3	2.3	46.3	2.3	46.4	2.0	



Notes <sup>1</sup> PMN not visited this month

Monthly Manual Observations												
Parameter	Temp (°F)						Turb (NTU)					
	6	7	8	2	3	4	5	6	7	8		
Site	DLT	MSS	PMN <sup>1</sup>	SHD	KWK	SPP	RDB	DLT	MSS	PMN <sup>1</sup>		
Value	57.9	55.8	-	1.2	1.3	1.4	4.1	0.9	0.8	-		
Day of Month	9	9	-	16	7	3	4	9	9	-		

Monthly Manual** & Bi-Monthly Automated Observations											
Parameter	DO (mg/L)										
	2		3			5					
Site	SHD		KWK			RDB					
Value	11.6	10.4**	10.2	11.5**	12.0	12.1	11.5**	11.4	11.2	11.2	
Day of Month	6	16	26	7	17	27	4	14	24		
Time	9:00	10:35	9:00	12:30	9:00	9:00	9:26	9:00	9:00	9:00	

## 90-5 Required Water Monitoring Details

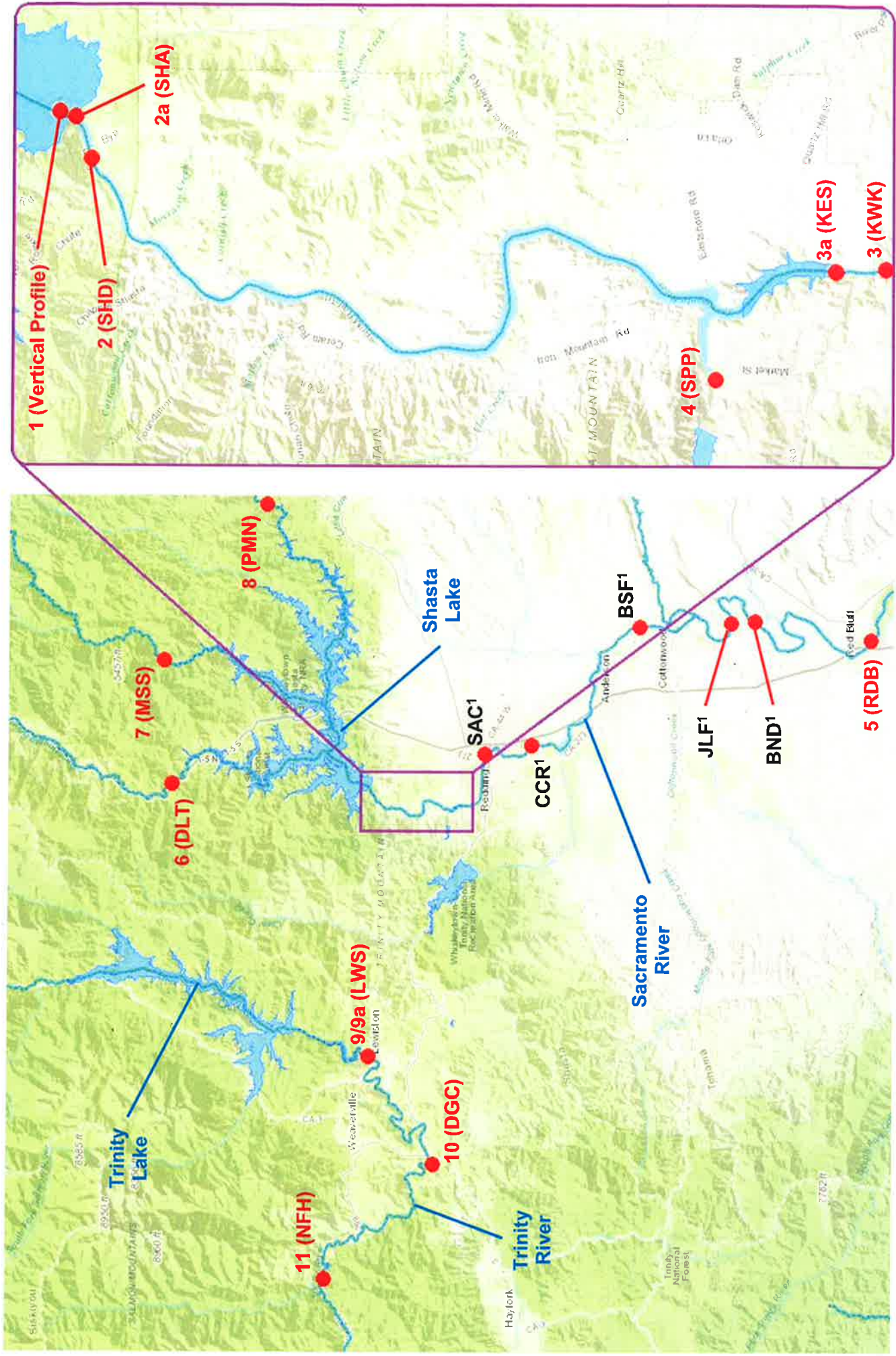
Site	CDEC ID	Description
1	-	Shasta Dam inlets or lake adjacent to the dam face. <sup>1</sup>
2	SHD	Shasta Dam release immediately downstream from the power plant.
2a	SHA	Shasta Dam release.
3	KWK	Sacramento River immediately downstream from Keswick Dam.
3a	KES	Keswick Dam release.
4	SPP	Spring Creek Power Plant release.
5	RDB	Sacramento River downstream from Red Bluff Diversion Dam.
6	DLT <sup>2</sup>	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 <sup>3</sup>		Dissolved Oxygen <sup>4</sup>		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 <sup>5</sup>	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

- <sup>1</sup> Take sufficient collection points to characterize the vertical profile for temperature and turbidity.
- <sup>2</sup> Site 6 (DLT) is not accessible year round making it unsuitable for real-time Dissolved Oxygen monitoring do to calibration requirements.
- <sup>3</sup> 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.
- <sup>4</sup> To be taken before 10:00 am.
- <sup>5</sup> 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

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