



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 07 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 May 2019, the temperature control point was set at Balls Ferry, per the May 2019, 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 in the Sacramento River with the exception of May 1 (56.3°F), May 3 (56.6°F), May 4 (56.1°F), May 7 (56.2°F), May 8 (56.3°F), and May 9 (56.4°F). Temperature excursions May 1st and May 3rd occurred during a coincident period of low Keswick release to accommodate instream Sacramento River activities including: flashboard installation, gravel injection/habitat restoration, and flood damage repair.

As reported last month, Reclamation provided a temperature performance update to the Sacramento River Temperature Task Group meeting held on April 25, 2019. It was suggested by SRTTG team members that current fishery risk may be low due to low numbers of carcass collection/potential spawning. In the interim, Reclamation committed to consider Temperature Control Device gate adjustments if the warmer temperatures persisted and fishery risk increased. Therefore, no actions were taken in early May to avoid temperature excursions and bring temperature back into compliance. Higher Keswick Dam releases were restored beginning May 3, 2019 and the Shasta Temperature Control Device was adjusted on May 8, 2019 to access cooler water. Some directly measured information at station Shasta Dam (#2) is not available due to damage from high flood releases; Reclamation is working towards recovering these systems as quickly as possible.

During the month, the observed average monthly water temperature was 55.1°F at Balls Ferry.

Enclosed is the monitoring report for May 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
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: Ms. Alessia Siclari Melchor
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)

Mr. Vadim Demchuk
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812

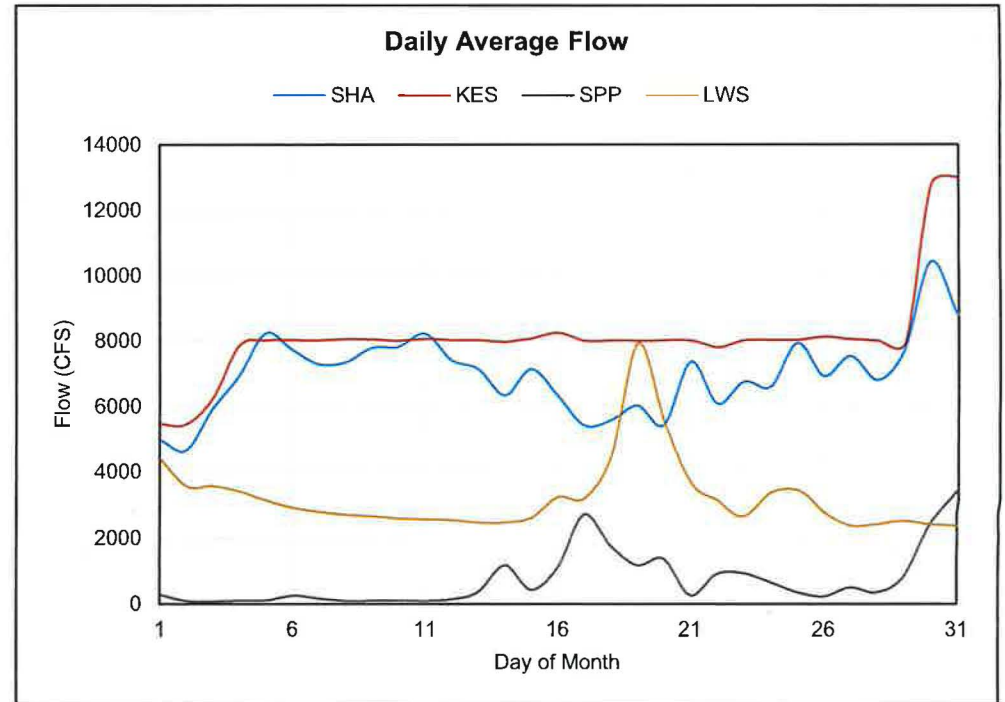
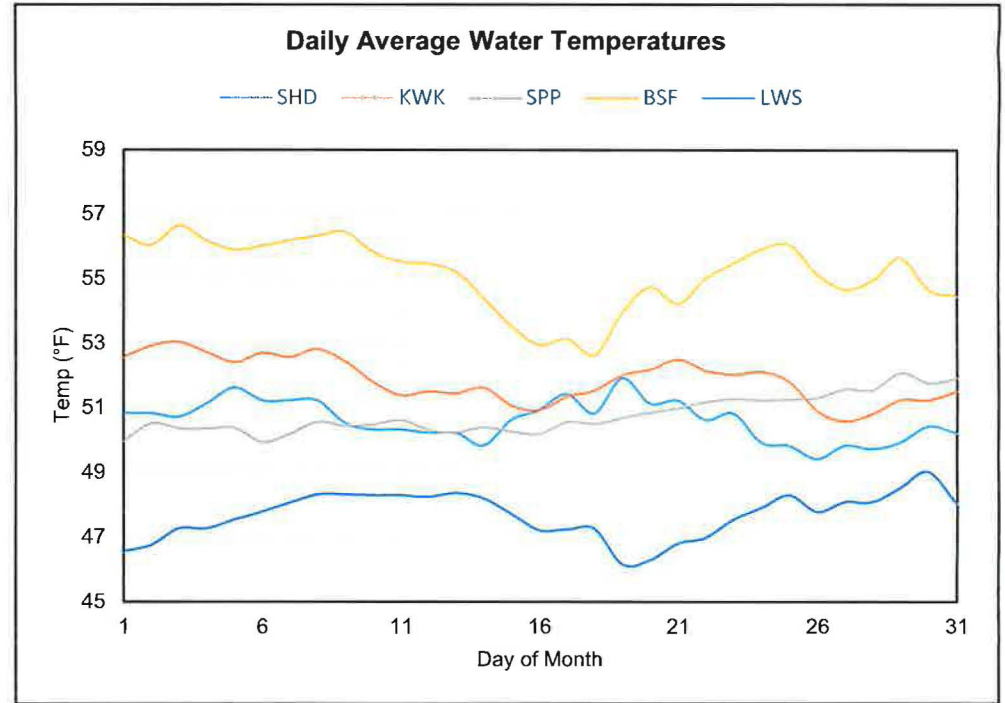
90-5 Required Water Monitoring Data

May 2019

Daily Averages from Hourly Automated Observations										
Parameter	Temp (°F)					Flow (CFS)				
Site	2	3	4	5	9	-	2a	3a	4	9a
	SHD	KWK	SPP	BSF ¹	LWS	-	SHA	KES	SPP	LWS
1	50.8	52.6	50.0	56.3	46.6		4986	5450	282	4407
2	50.8	52.9	50.5	56.0	46.7		4636	5438	94	3547
3	50.7	53.0	50.3	56.6	47.2		5902	6233	84	3551
4	51.1	52.7	50.3	56.1	47.2		6917	7847	97	3384
5	51.6	52.4	50.4	55.9	47.5		8218	7997	106	3121
6	51.2	52.7	49.9	56.0	47.8		7706	8014	253	2917
7	51.2	52.6	50.2	56.2	48.0		7271	7999	171	2796
8	51.2	52.8	50.5	56.3	48.3		7323	8037	95	2721
9	50.5	52.4	50.4	56.4	48.3		7767	8028	104	2680
10	50.3	51.8	50.5	55.8	48.3		7798	7983	103	2605
11	50.3	51.4	50.6	55.5	48.3		8192	8044	95	2580
12	50.2	51.5	50.3	55.4	48.2		7385	7999	147	2559
13	50.2	51.4	50.2	55.2	48.3		7122	7997	362	2480
14	49.8	51.6	50.4	54.4	48.2		6302	7945	1182	2481
15	50.6	51.0	50.2	53.5	47.7		7105	8054	436	2622
16	50.9	50.9	50.2	52.9	47.2		6292	8219	1114	3208
17	51.4	51.3	50.5	53.1	47.2		5380	7968	2723	3168
18	50.8	51.5	50.5	52.6	47.2		5529	7983	1766	4450
19	51.9	52.0	50.7	53.9	46.2		5979	7972	1178	7891
20	51.1	52.2	50.8	54.7	46.3		5387	7976	1372	5492
21	51.2	52.5	51.0	54.2	46.8		7326	7974	270	3622
22	50.6	52.1	51.2	55.0	47.0		6036	7765	911	3095
23	50.8	52.0	51.3	55.5	47.5		6710	7976	940	2665
24	49.9	52.1	51.2	55.9	47.9		6547	7980	666	3334
25	49.8	51.8	51.3	56.0	48.3		7884	7985	366	3397
26	49.4	50.9	51.3	55.1	47.8		6870	8083	227	2798
27	49.8	50.6	51.6	54.7	48.1		7485	8000	506	2387
28	49.7	50.8	51.6	54.9	48.1		6744	7948	354	2421
29	49.9	51.2	52.1	55.6	48.5		7637	7854	830	2534
30	50.4	51.2	51.8	54.6	49.0		10388	12774	2428	2424
31	50.2	51.5	51.9	54.4	48.0		8754	12998	3402	2379
						Max	10388	12998	3402	7891
						Mean	6954	8081	731	3217
						Min	4636	5438	84	2379
						Volume (TAF)	428	497	45	198

Notes

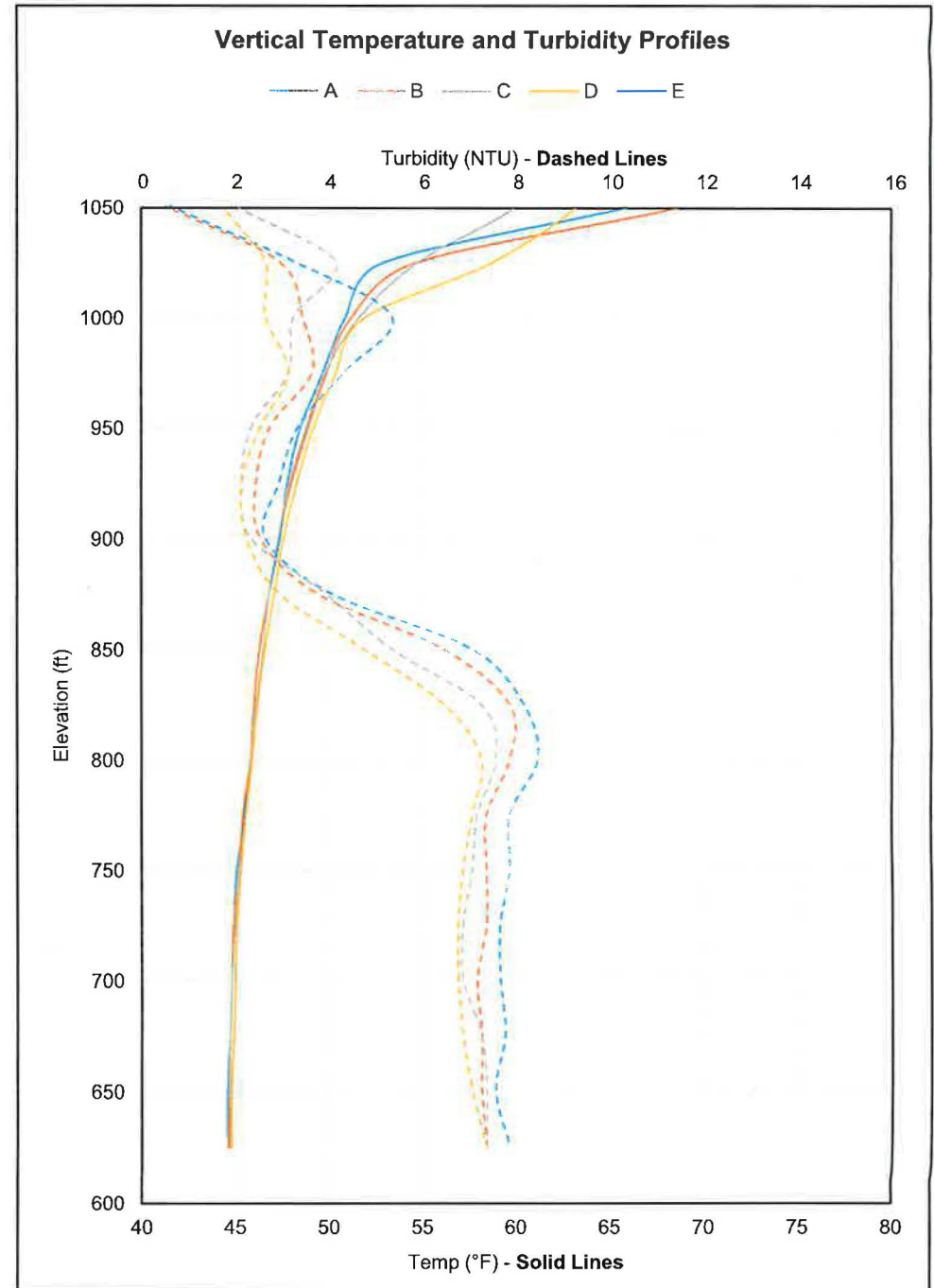
¹ Current temperature control point



Vertical Profiles Taken at Site 1 (Shasta Lake at Dam Inlets)											
Profile	A		B		C		D		E		
Day of Month	7		14		21		28		-		
Lake Elev.	1057.24		1058.13		1061.79		1064.01		-		
Parameter	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	
Elevation (ft)	L.E.	66.2	0.6	69.6	0.5	60.0	2.0	63.9	1.7	-	-
	1050	65.9	0.6	68.6	0.5	59.9	2.0	63.2	1.7	-	-
	1025	52.9	3.2	54.6	2.9	54.7	4.1	58.7	2.6	-	-
	1000	50.9	5.3	51.2	3.4	51.6	3.2	51.9	2.6	-	-
	975	49.7	4.3	49.9	3.6	49.8	3.1	50.4	3.1	-	-
	950	48.5	3.3	48.9	2.7	48.8	2.3	49.2	2.5	-	-
	925	47.8	2.9	48.0	2.4	47.9	2.1	48.3	2.1	-	-
	900	47.4	2.6	47.3	2.5	47.3	2.3	47.6	2.2	-	-
	875	46.8	4.0	46.8	3.7	46.8	3.9	47.1	2.9	-	-
	850	46.3	7.0	46.3	6.4	46.5	5.3	46.6	4.7	-	-
	825	46.0	8.1	46.0	7.8	46.1	7.2	46.2	6.4	-	-
	800	45.8	8.4	45.8	7.8	45.8	7.5	45.9	7.2	-	-
	775	45.5	7.8	45.4	7.3	45.6	7.1	45.6	7.0	-	-
	750	45.1	7.8	45.2	7.3	45.2	7.0	45.3	6.8	-	-
	725	44.9	7.6	44.9	7.3	45.0	6.8	45.1	6.7	-	-
	700	44.8	7.6	44.8	7.1	44.8	6.8	45.0	6.7	-	-
675	44.7	7.7	44.7	7.2	44.7	7.2	44.9	6.8	-	-	
650	44.6	7.5	44.7	7.2	44.7	7.3	44.8	7.0	-	-	
625	44.6	7.8	44.6	7.3	44.7	7.3	44.8	7.3	-	-	

Monthly Manual Observations										
Parameter	Temp (°F)			Turb (NTU)						
	6	7	8	2	3	4	5	6	7	8
Site	DLT	MSS	PMN	SHD	KWK	SPP	RDB	DLT	MSS	PMN
Value	50.4	53.6	58.4	4.3	3.2	1.8	4.5	1.7	0.4	4.5
Day of Month	10	30	9	23	29	15	7	10	30	9

Monthly Manual** & Bi-Monthly Automated Observations									
Parameter	DO (mg/L)								
	2			3			5		
Site	SHD ¹			KWK			RDB		
Value	11.5**	-	-	12.8	12.2	11.3**	11.6**	11.1	11.0
Day of Month	1	-	-	9	19	29	7	17	27
Time	10:15	-	-	9:00	9:00	9:40	10:29	9:00	9:00



Notes

¹ SHD automated equipment inoperable. DO measurement frequency not met.

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.

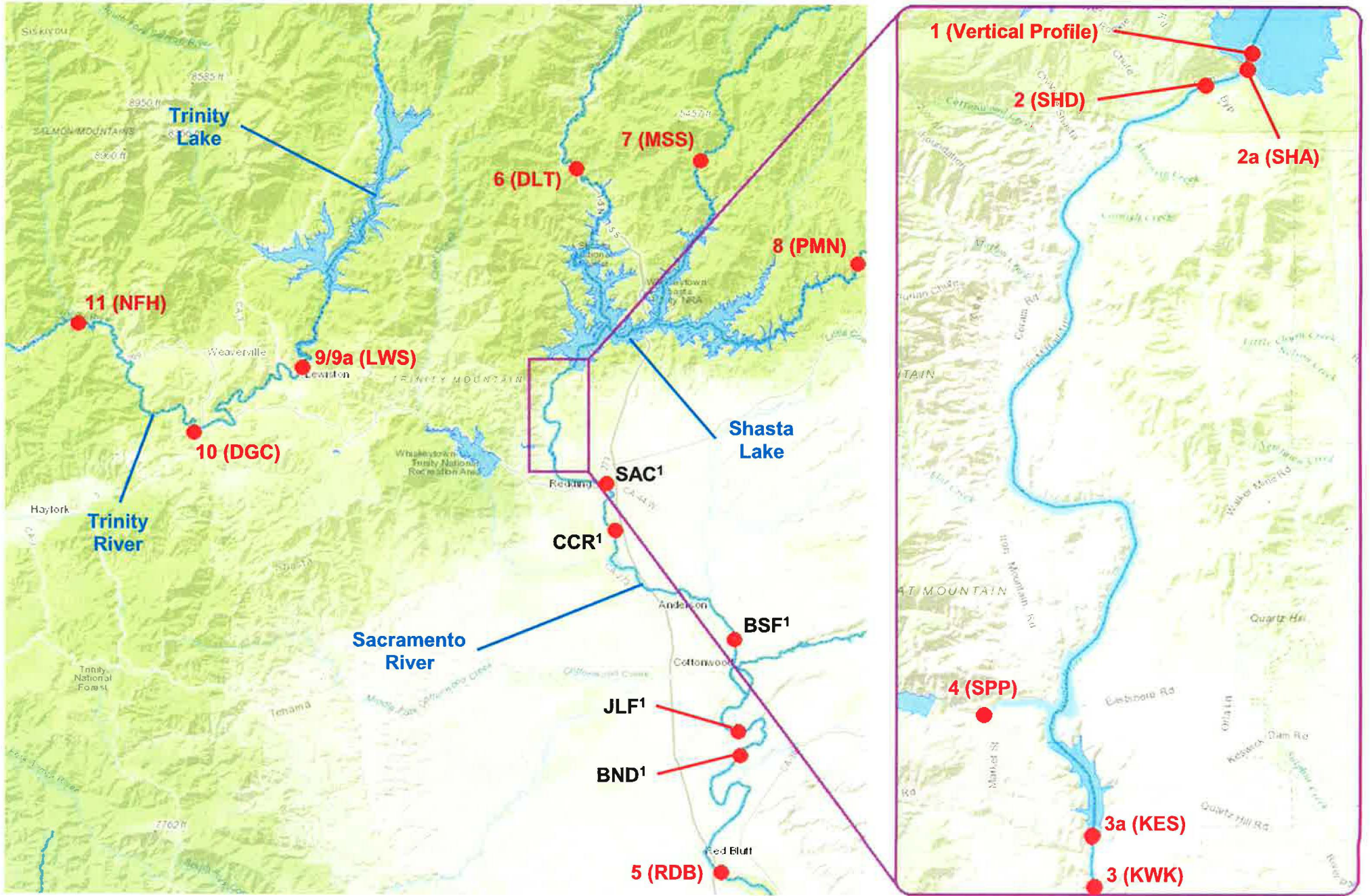
² Site 6 (DLT) is not accessible year round making it unsuitable for real-time Dissolved Oxygen monitoring do to calibration requirements.

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