

Water Quality Study **SUMMARY**

Consistent with Section 6.0 of the *Water Quality Study Plan* (Plan) that was filed with FERC on January 9, 2017,¹ the SSWD provides the following summary for the *Water Quality Study* (Study). The summary includes a description of work completed to date, key findings, variances, and remaining work. Links to associated data files are also included. SSWD considers these data to be public.

Work Completed as of 3/1/18:

SSWD completed the Study. Water quality samples were collected at seven sampling locations: one in the Bear River upstream of Camp Far West Reservoir; two in Camp Far West Reservoir near the dam (surface and bottom) and four downstream of Camp Far West Dam. Samples were collected once in June, August, and November 2017. Dissolved oxygen (DO) loggers were deployed at three sampling locations in September and November 2017: downstream of Camp Far West Dam and powerhouse, downstream of the non-Project diversion dam, and downstream of the Highway 65 Bridge. All laboratory samples were analyzed by a California certified lab and the data have been QA/QC'ed. Results were compared to Basin Plan Water Quality Objectives (WQO) and benchmarks.

Key Findings:

Some water quality samples exceeded Basin Plan WQO for dissolved oxygen (DO), alkalinity, iron and total aluminum. Water samples collected in June 2017 exceeded Basin Plan benchmarks for DO (1 out of 7 samples), alkalinity (7 out of 7 samples) and iron (1 out of 7 samples). Water samples collected in August 2017 exceeded Basin Plan benchmarks for DO (3 out of 7 samples), alkalinity (7 out of 7 samples), total aluminum (3 out of 7 samples) and total iron (1 out of 7 samples). Samples collected in November 2017 exceeded Basin Plan benchmarks for DO (1 out of 7 samples), alkalinity (7 out of 7 samples), total aluminum (3 out of 7 samples) and total iron (3 out of 7 samples). Table 1 shows which locations exceeded Basin Plan WQO or benchmarks for each analyte.

Table 1. Location and timing of samples that exceeded at least one WQO.

Sampling Locations	June 2017				August 2017				November 2017			
	DO	Alk	Fe	Al	DO	Alk	Fe	Al	DO	Alk	Fe	Al
Bear River upstream of Camp Far West Reservoir		X				X				X		
Camp Far West Reservoir; near Dam, surface		X				X			X	X		
Camp Far West Reservoir; near Dam, bottom	X	X			X	X				X		
Bear River below Camp Far West Dam		X			X	X		X		X	X	X

¹ The Plan is available on SSWD's public relicensing website (www.sswdrelicensing.com) under 'Study Plans.'

Bear River below non-Project Diversion Dam		X				X		X		X	X	X
Bear River near Pleasant Grove Road Bridge		X				X				X		
Bear River below Highway 70 Bridge		X	X		X	X	X	X		X	X	X

Key:
Alk – Alkalinity
Fe – Iron
Al - Aluminum

DO loggers were maintained at three locations in the Bear River from September 1 to 14, 2017, during a period when the Camp Far West Powerhouse was operating (249-390 cfs) and diversions were being made at the non-Project diversion dam (199-381 cfs). DO concentrations below the powerhouse ranged from about 4 mg/L to 7 mg/L. Immediately downstream of the diversion dam, DO concentrations ranged between 7.5 mg/L and 8.5 mg/L with a consistent diurnal fluctuation of about 1 mg/L. DO concentrations at the Highway 65 Bridge showed much more daily variation, sometimes by as much as 2.5 mg/L and ranged between 6.5 mg/L and 9.5 mg/L.

Similarly, DO loggers were maintained at three locations from November 1 to 14, 2017, during a period when the powerhouse was not operating, no diversions were being made at the non-Project diversion dam, and all flow was being delivered via the Camp Far West Dam low-level outlet. DO concentrations below the powerhouse ranged from about 9 mg/L to 10.6 mg/L and showed little daily variation. Immediately downstream of the diversion dam, DO concentrations were consistently about 10 mg/L. DO concentrations at the Highway 65 Bridge showed much more daily variation, sometimes by as much as 1.0 mg/L and ranged between 8.7 mg/L and 10.6 mg/L.

Associated Data Files:

The three data files listed in Table 2 below are available on SSWD’s public relicensing website (www.sswdrelicensing.com).

Table 2. Data files associated with Study summary.

File Name	Data Description	File Type and Size
SSWD_WQ_Results.xls	In situ and laboratory water quality results	Microsoft Excel, 73 KB
SSWD_DO_TEMP.dss	Dissolved oxygen and water temperature data for each two-week logger deployment	DSS, 61 KB
SSWD_DO_Plots.pdf	Dissolved oxygen plots for each two-week logger deployment	Adobe PDF, 1,167 KB

Variations from Study:

There were two variances to the Plan. The first variance was that SSWD moved the sampling location described in the Plan as “Bear River upstream of Feather River confluence” to be downstream of the Highway 70 Bridge, about 3 miles upstream of the Feather River. The change was made because the Bear River near the confluence is often backwatered by the Feather River

and it is difficult to pinpoint where the influence of the Feather River begins. By moving the sampling location to the Highway 70 Bridge, each of the three samples were collected at the same location without any potential influence from the Feather River. The location at Highway 70 is also downstream of Dry Creek, the only larger tributary in the lower Bear River.

The second variance was that a standalone report was not prepared as described in step 7. The results of the Study will be provided in the SSWD's license application.

Neither variance affects the ability of the Study to characterize water quality in the Project Area.

Remaining Work:

None.

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