

**Stockton Deep Water Ship Channel (DWSC)  
Demonstration Dissolved Oxygen Aeration Facility  
December 2010 Monthly Report**

This report includes monthly plots for the Stockton Deep Water Ship Channel (DWSC) Demonstration Dissolved Oxygen (DO) Aeration Facility remote monitoring stations (Navigation Aid (NA) 40, 42, 43 and 48), handheld instrument data, California Data Exchange Center (CDEC) Rough and Ready Island (RRI) station data, and CDEC San Joaquin River at Garwood Bridge (SJG) station data for the month of December 2010. All reported data is provisional and subject to change.

**Summary:**

The Aeration Facility has been off since September 14<sup>th</sup>, 2010. The average monthly DO levels at all monitoring stations for December were above the California Regional Water Quality Control Board (RWQCB) San Joaquin River Basin Plan minimum water quality objective for DO of 5.0 mg/L from December 1<sup>st</sup> through August 31<sup>st</sup>. Monthly average DO concentrations for December ranged from 8.70 mg/L at RRI to 9.60 mg/L at NA48.

Minimum 15-minute DO concentrations recorded for all monitoring stations were above the 5.0 mg/L minimum water quality objective (see Table 1). The monthly average remote monitoring station DO concentrations were within 0.07 to 0.90 mg/L of the RRI station data. There is no substantial difference between the DO measurements recorded with the handheld instrument and the remote stations. The monthly average handheld measured DO (at 12 foot depth) and the remote monitoring stations DO values were within -0.32 to 0.37 mg/L of each other.

The average monthly water temperature decreased 5.9° Fahrenheit (°F) from 59.0°F last month in November to 53.1°F in December.

The December monthly average SJG flow was 2,472 cubic feet per second (cfs). The monthly average flow increased 2,351 cfs from the November monthly average flow of 121 cfs.

Figures 1, 2, 3, and 4, and Tables 1 and 2 below present a summary of monthly data, and illustrates the discussion topics above.

Figure 1

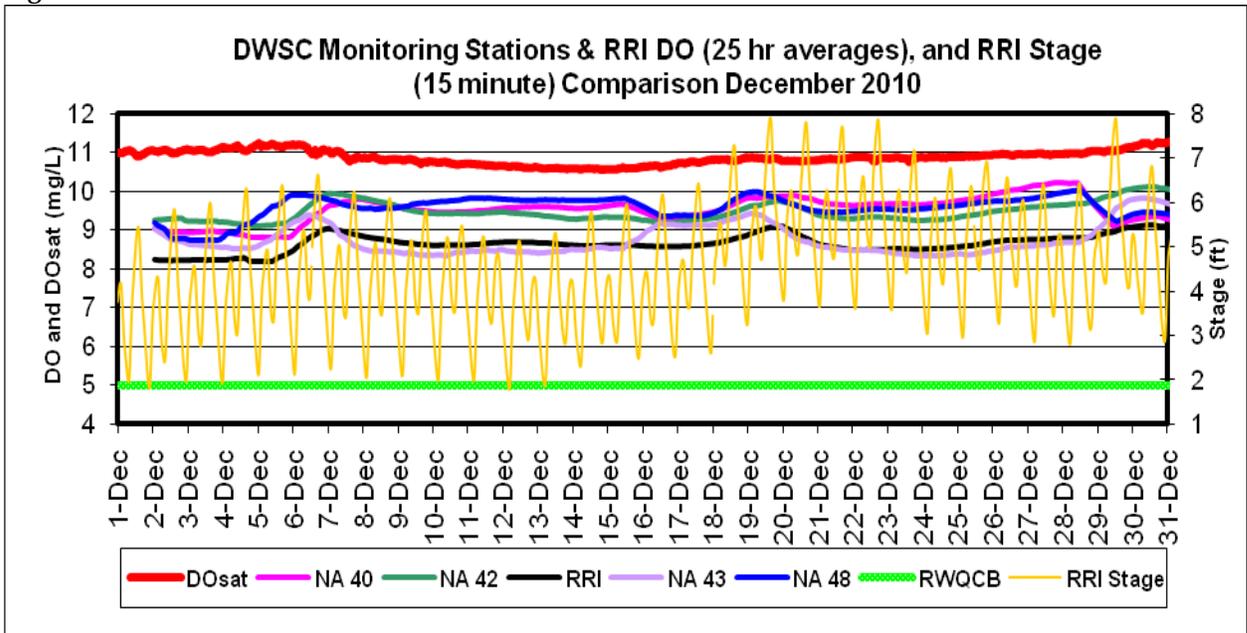


Figure 2

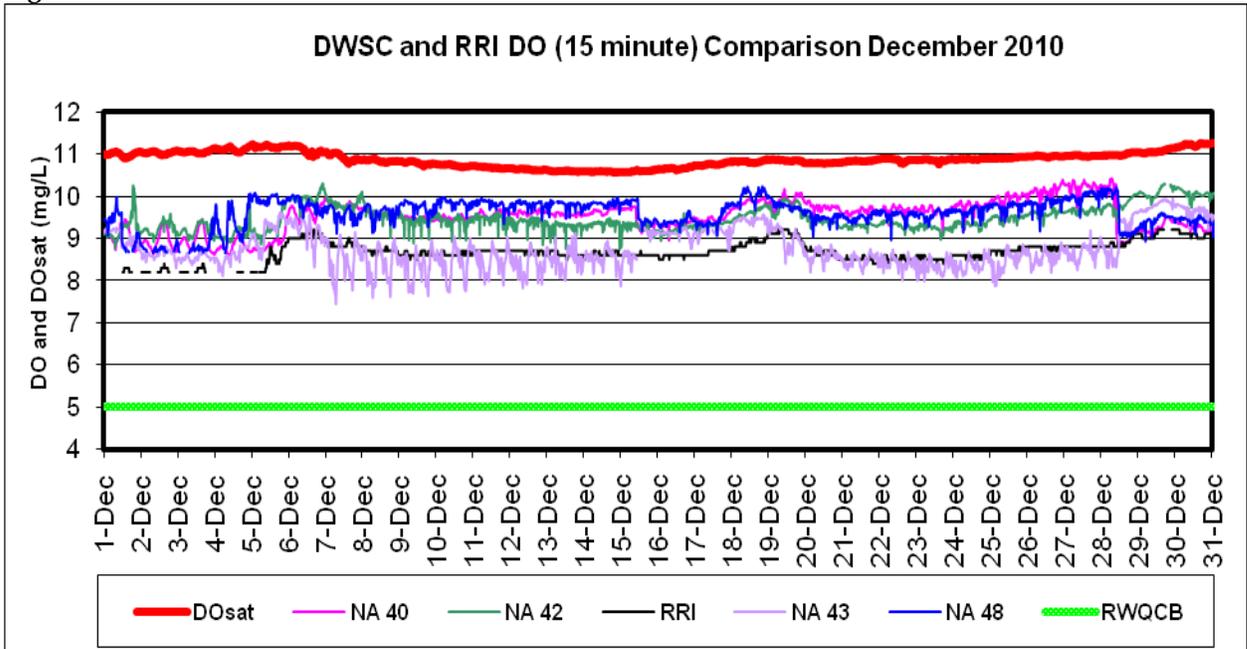


Figure 3

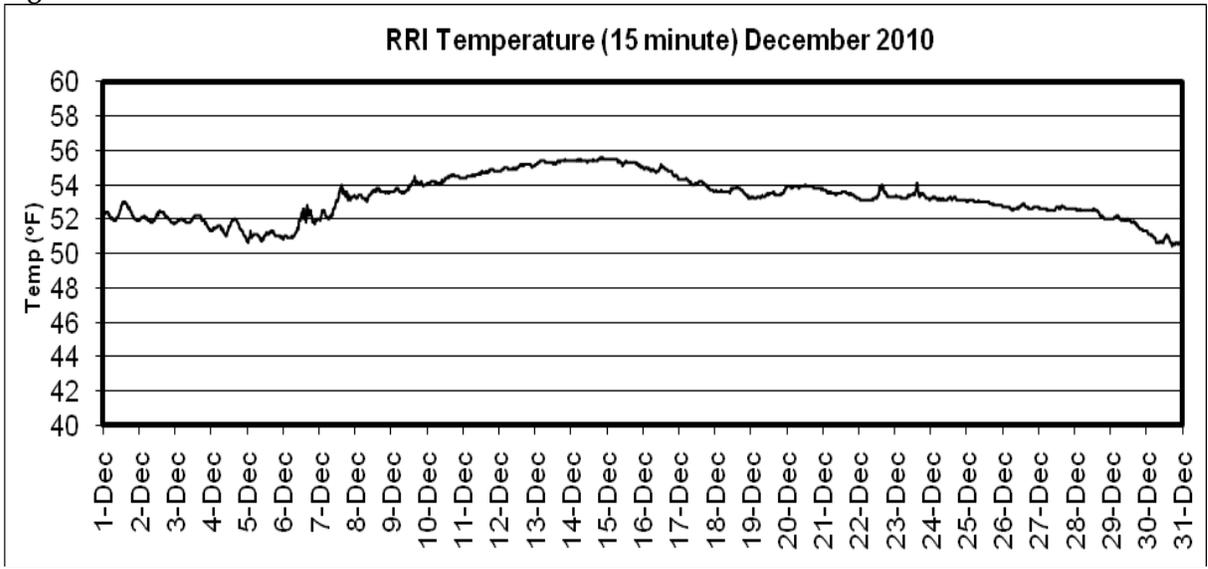


Figure 4

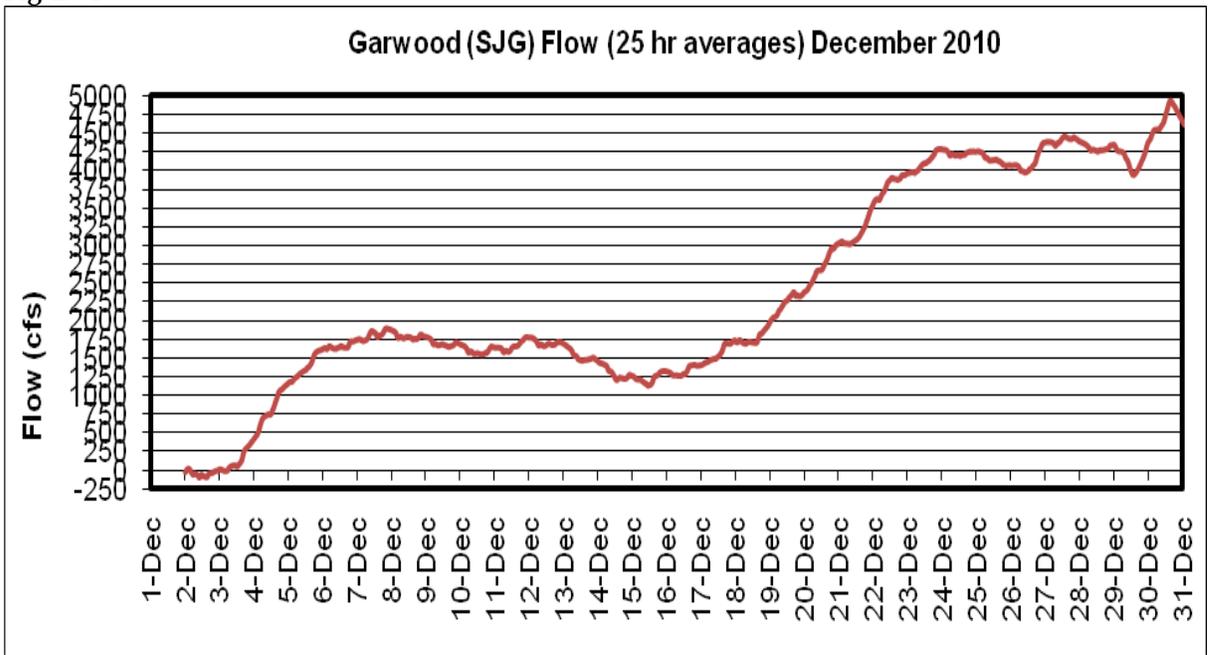


Table 1

YSI Remote Stations and RRI DO <sup>1</sup> (mg/L) & Temp <sup>1</sup> (°F)						
Dec-2010						
	RRI <sup>2</sup> DO (mg/L)	NA40 DO (mg/L)	NA42 DO (mg/L)	NA43 DO (mg/L)	NA48 DO (mg/L)	RRI Temp (°F)
Monthly DO & Temp Averages	8.70	9.51	9.48	8.78	9.60	53.1
NA Stations and RRI Monthly Average Difference		0.81	0.78	0.07	0.90	
Monthly Min DO	8.20	8.60	8.74	7.43	8.66	
Monthly Max DO	9.20	10.41	10.29	9.95	10.22	
Monthly DO STDEV	0.22	0.38	0.29	0.48	0.31	
Monthly DO Median	8.70	9.57	9.41	8.65	9.65	

<sup>1</sup>Z-Score outlier test was applied to remove anomalous recorded values.

<sup>2</sup>RRI DO data is from 3 foot depth. NA DO data is from 12 foot depth except NA48. NA48 DO data is from 9 foot depth starting December 24<sup>th</sup>, 2010.

Table 2

Handheld DO Measurements @ 12 ft Depth and YSI DO Measurements Comparison					
Dec-2010					
		NA40 DO (mg/L)	NA42 DO (mg/L)	NA43 DO (mg/L)	NA48 DO (mg/L)
Handheld Monthly <sup>3</sup> Averages		9.21	9.19	9.10	9.23
NA Stations and Handheld Monthly Average Difference		0.31	0.30	-0.32	0.37

<sup>3</sup>Handheld monthly averages are based on the average weekly readings for the month

## **Additional Aeration Facility Associated Information:**

### **DWSC Aeration Facility Operation**

The Aeration Facility was briefly operated without oxygen for a routine monthly system inspection on December 14<sup>th</sup>.

### **DWSC Water Quality Stations Maintenance/Calibration**

The North Central Region Office (NCRO) Water Quality Evaluation Section serviced the four remote monitoring stations (NA40, 42, 43, and 48) in the DWSC on December 1<sup>st</sup>, 15<sup>th</sup>, and 28<sup>th</sup>.

### **Head of Old River Barrier Status**

Not installed

### **Port of Stockton Dredging Activity**

Maintenance dredging occurred upstream of river mile 36 (near NA 40) from December 1<sup>st</sup> through December 3<sup>rd</sup>.

### **San Joaquin River Flow Changes**

The average monthly flow at SJG increased from approximately 0 cfs at the beginning of the month to approximately 4,500 cfs at the end of the month due to large releases from Don Pedro on the Tuolumne and increased precipitation.

### **Port of Stockton Dock 19/20 Ship Activity**

Total Days	Arrival	Departure
4	12/06/10	12/09/10
3	12/10/10	12/12/10
2	12/30/10	12/31/10

Please provide your feedback concerning our observations as well as your independent observations.