During 2012, Reclamation continued to collect water samples from seven sites along the river, as well as within the Mendota Wildlife Management Area. About 1,176 samples were collected between September 2011 and December of 2012 to measure TSS, nutrients, TOC/DOC, bacteria (E. coli, fecal coliform, total coliform), cations, anions, and trace metals. Special samples were collected in November of 2011 and April and November of 2012 to measure carbamates, pyrethroids, organophosphate, and organochlorine pesticides. Roughly 4,673 analyses have been made of 133 constituents. No water samples were taken in December 2011 through January 2012 due to maintenance on the Mendota Dam. A majority of the water quality samples were collected in Reaches 1, 2 and 3 due to the lack of water below Sack Dam mid to late 2012. Sediment samples were collected in April of 2012 at all sites and in November of 2012 at five sites in Reaches 1, 2 and 3.

Project data indicate that there are few contaminants of concern in Reaches 1 and 2, between Friant Dam and the Mendota Pool. Despite the adjacent urban areas no pesticides were detected in all water samples. Several trace elements (e.g. nickel and selenium) have been measured in the water below Mendota Dam because of the inflow of water from the Delta-Mendota Canal and other tributaries.

Many known sources of contamination in the San Joaquin River below Mendota Dam are monitored by Reclamation and the Central Valley Regional Water Quality Control Board. Preliminary data does not show a measurable improvement in water quality in the river (Reaches 3 through 5) due to the arrival of Interim Flows water.

This appendix includes summary figures that illustrate real-time measurements of flow, temperature, and salinity, as well as results from the monthly grab samples. All data including sediment and pesticide data are available from Reclamation upon request.
Figure 1a. San Joaquin River below Friant Dam (Lost Lake Park)
Mean Daily Flow (cfs)

Figure 1b. San Joaquin River below Friant Dam (Lost Lake Park)
Temperature (deg F)
Figure 1c. San Joaquin River below Friant Dam (Lost Lake Park)
Mean Daily Electrical Conductivity (μS/cm)

Figure 1d. San Joaquin River below Friant Dam (Lost Lake Park)
Dissolved Oxygen (mg/L)
Figure 1k. San Joaquin River below Friant Dam (Lost Lake)
Trace Elements (ppb)

- Arsenic
- Boron
- Chromium
- Copper
- Lead
- Mercury
- Molybdenum
- Nickel
- Zinc

Oct-11 Nov-11 Dec-11 Jan-12 Feb-12 Mar-12 Apr-12 May-12 Jun-12 Jul-12 Aug-12 Sep-12 Oct-12 Nov-12 Dec-12
Figure 2a. San Joaquin River near HWY 99 (Camp Pashayan)
Mean Daily Flow (cfs)

Figure 2b. San Joaquin River at Hwy 99 (Camp Pashayan)
Temperature (deg F)
Figure 2e. San Joaquin River at Hwy 99 (Camp Pashayan)
Chlorophyll (µg/L)

Figure 2f. San Joaquin River at Hwy 99 (Camp Pashayan)
pH
**Figure 2i. San Joaquin River at Hwy 99 (Camp Pashayan)**
Dissolved and Total Organic Carbon (mg/L)

**Figure 2j. San Joaquin River at Hwy 99 (Camp Pashayan)**
Nutrients (mg/L)
Figure 2k. San Joaquin River at Hwy 99 (Camp Pashayan)
Trace Metals (ppb)

- Arsenic
- Boron
- Chromium
- Copper
- Mercury
- Molybdenum
- Nickel
- Zinc
Figure 3e. San Joaquin River at Gravelly Ford
Chlorophyll (µg/L)

- Chlorophyll Grab

Figure 3f. San Joaquin River at Gravelly Ford
pH

- pH Grab
Figure 3i. San Joaquin River at Gravelly Ford
Dissolved and Total Organic Carbon (mg/L)

Figure 3j. San Joaquin River at Gravelly Ford
Nutrients (mg/L)
Figure 3k. San Joaquin River at Gravelly Ford
Trace Elements (ug/L)

- Arsenic
- Boron
- Chromium
- Copper
- Lead
- Mercury
- Molybdenum
- Nickel
- Zinc
Figure 4e. Mendota Wildlife Management Area
Selenium Concentration (ug/L)

Selenium Grab
Figure 5c. CCID Main at Bass and San Joaquin River below Mendota Dam
Electrical Conductivity (uS/cm)

Figure 5d. San Joaquin River below Mendota Dam
Dissolved Oxygen (mg/L)
Figure 5e. San Joaquin River below Mendota Dam
Chlorophyll (ug/L)

Figure 5f. San Joaquin River below Mendota Dam
pH
Figure 5g. San Joaquin River below Mendota Dam
Anions (mg/L)

Figure 5h. San Joaquin River below Mendota Dam
Cations (mg/L)
Figure 5i. San Joaquin River below Mendota Dam
Dissolved & Total Organic Carbon (mg/L)

Figure 5j. San Joaquin River below Mendota Dam
Nutrients (mg/L)
Figure 5k. San Joaquin River below Mendota Dam
Trace Metals (ug/L)

- Arsenic
- Boron
- Chromium
- Copper
- Lead
- Mercury
- Molybdenum
- Nickel
- Selenium
- Zinc
Figure 6c. San Joaquin River at Washington Road
Mean Daily Electrical Conductivity (uS/cm)

Figure 6d. San Joaquin River at Washington Road
Dissolved Oxygen (mg/L)
**Figure 6e. San Joaquin River at Washington Road**

**Chlorophyll (ug/L)**

**Figure 6f. San Joaquin River at Washington Road**

**pH**
Figure 6g. San Joaquin River at HWY 152
Anions (mg/L)

Figure 6h. San Joaquin River at HWY 152
Cations (mg/L)
**Figure 6i. San Joaquin River at HWY 152**

Dissolved and Total Organic Carbon (mg/L)

- Total Organic Carbon
- Dissolved Organic Carbon

**Figure 6j. San Joaquin River at HWY 152**

Nutrients (mg/L)

- Chlorophyll A
- Phosphorus Total as P
- Total Kjeldal Nitrogen
- Ammonia as N
- Nitrate as N
- Nitrite as N
Figure 6k. San Joaquin River at HWY 152
Trace Elements (μg/L)

Arsenic
Boron
Chromium
Copper
Lead
Mercury
Molybdenum
Nickel
Selenium
Zinc
Figure 7a. San Joaquin River at Fremont Ford
Mean Daily Flow (cfs)

Figure 7b. San Joaquin River at Fremont Ford
Temperature (Deg F)
Figure 7c. San Joaquin River at Fremont Ford
Mean Daily Electrical Conductivity (μS/cm)

Figure 7d. San Joaquin River at Fremont Ford
Dissolved Oxygen (mg/L)
Figure 7e. San Joaquin River at Fremont Ford
Chlorophyll (ug/L)

Figure 7f. San Joaquin River at Fremont Ford
pH
Figure 7g. San Joaquin River at Fremont Ford
Anions (mg/L)

- Alkalinity
- Bicarbonate alkalinity
- Hydroxide alkalinity
- Carbonate alkalinity
- Chloride
- Sulfate

Figure 7h. San Joaquin River at Fremont Ford
Cations (mg/L)

- Alkalinity
- Bicarbonate alkalinity
- Hydroxide alkalinity
- Carbonate alkalinity
- Chloride
- Sulfate
Figure 7i. San Joaquin River at Fremont Ford
Dissolved & Total Organic Carbon (mg/L)

Figure 7j. San Joaquin River at Fremont Ford
Nutrients (mg/L)
Figure 7k. San Joaquin River at Fremont Ford
Trace Metals (ug/L)

Arcentic  
Boron  
Chromium  
Copper  
Lead  
Mercury  
Molybdenum  
Nickel  
Selenium  
Zinc
Figure 8a. San Joaquin River at Hills Ferry
Mean Daily Flow (cfs)

Figure 8b. San Joaquin River at Hills Ferry
Temperature (Deg C)
Figure 8c. San Joaquin River at Hills Ferry
Mean Daily Electrical Conductivity (μS/cm)

Figure 8d. San Joaquin River at Hills Ferry
Mean Daily Dissolved Oxygen (mg/L)
Figure 8g. San Joaquin River at Hills Ferry
Anions (mg/L)

Figure 8h. San Joaquin River at Hills Ferry
Cations (mg/L)
Figure 8k. San Joaquin River at Hills Ferry
Trace Elements (ug/L)

- Arsenic
- Boron
- Chromium
- Copper
- Lead
- Mercury
- Molybdenum
- Nickel
- Selenium
- Zinc