

Description of Analysis Referenced in Antioch-400.

The QUAL module of DSM2 simulates fate and transport of water quality constituents, and can be used to quantify the sources of water at a given location in the Delta at a given time. This type of analysis is generally referred to as “fingerprinting.” Using the QUAL module of DSM2, San Joaquin River inflow at Vernalis for CWF Alternative 4A was “tagged” between February 1 and June 30, 1987 (a dry water year) to track its movement through the Delta (note that San Joaquin River flows before and after this time period were modeled but not tagged, as described below).

The Alternative 4A DSM2 input files were obtained from DWR on March 9, 2016, and used as received with the exception of a change to the San Joaquin River inflow file. San Joaquin River inflows during the target period were “tagged” by generating two separate San Joaquin River inflow files: one file included San Joaquin River inflows before and after the February 1 and June 30, 1987, time period (with values during that period set to zero), and the second time series input file included San Joaquin River inflow between February 1 and June 30, 1987 (with values outside that period set to zero). San Joaquin River flows that entered the Delta from February 1 to June 30, 1987, were tracked within the model, which was used to report the volume of tagged San Joaquin River inflow that reached Antioch’s intake location, was exported at Tracy Pumping Station (CVP) and Clifton Court Forebay (SWP), and diverted at Rock Slough (CCWD).

Figure 1 shows the results of the tagged San Joaquin River inflow analysis at the end of water year 1987. A cumulative total of 1.8 percent of San Joaquin River water that entered the Delta between February 1 and June 30, 1987 reached Antioch’s intake location; this is considered an upper bound. Water that remained in the Delta at the end of the water year or that was diverted as DICU in the interior Delta is not shown. These data are also summarized in Table 1. Figure 2 shows the fate of the tagged San Joaquin River inflow, the cumulative San Joaquin River inflow at Vernalis, and cumulative total tagged San Joaquin River water that was exported/diverted/detected at Antioch from February 1, 1987 through September 30, 1987.

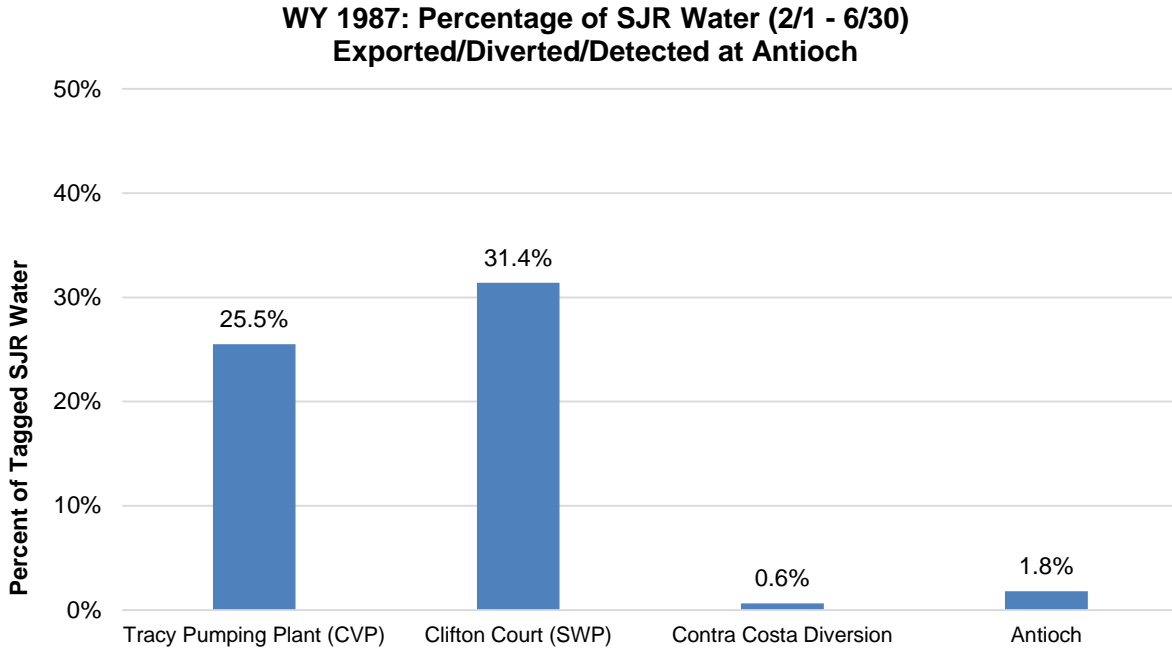


Figure 1. Fate of the San Joaquin River inflow between February 1 and June 30, 1987 at the end of water year 1987.

Table 1. Fate of San Joaquin River inflow between February 1 and June 30, 1987 by mass and by percentage.

Fate of San Joaquin River Inflow between Feb.1 and Jun.30 (Mass Basis, TAF)							
Unit: (TAF)	Year Type	Total Inflow	Exported: Central Valley Project	Diverted: State Water Project	Exported: Contra Costa Canal	Arrived at Antioch	CVP+SWP+CCWD+Antioch
WY 1987	Dry	612.19	156.24	192.28	3.83	11.01	363.37

Fate of San Joaquin River Inflow between Feb.1 and Jun.30 (Percentage)							
Unit: (%)	Year Type	Total Inflow	Exported: Central Valley Project	Diverted: State Water Project	Exported: Contra Costa Canal	Arrived at Antioch	CVP+SWP+CCWD+Antioch
WY 1987	Dry	100%	25.52%	31.41%	0.63%	1.80%	59.35%

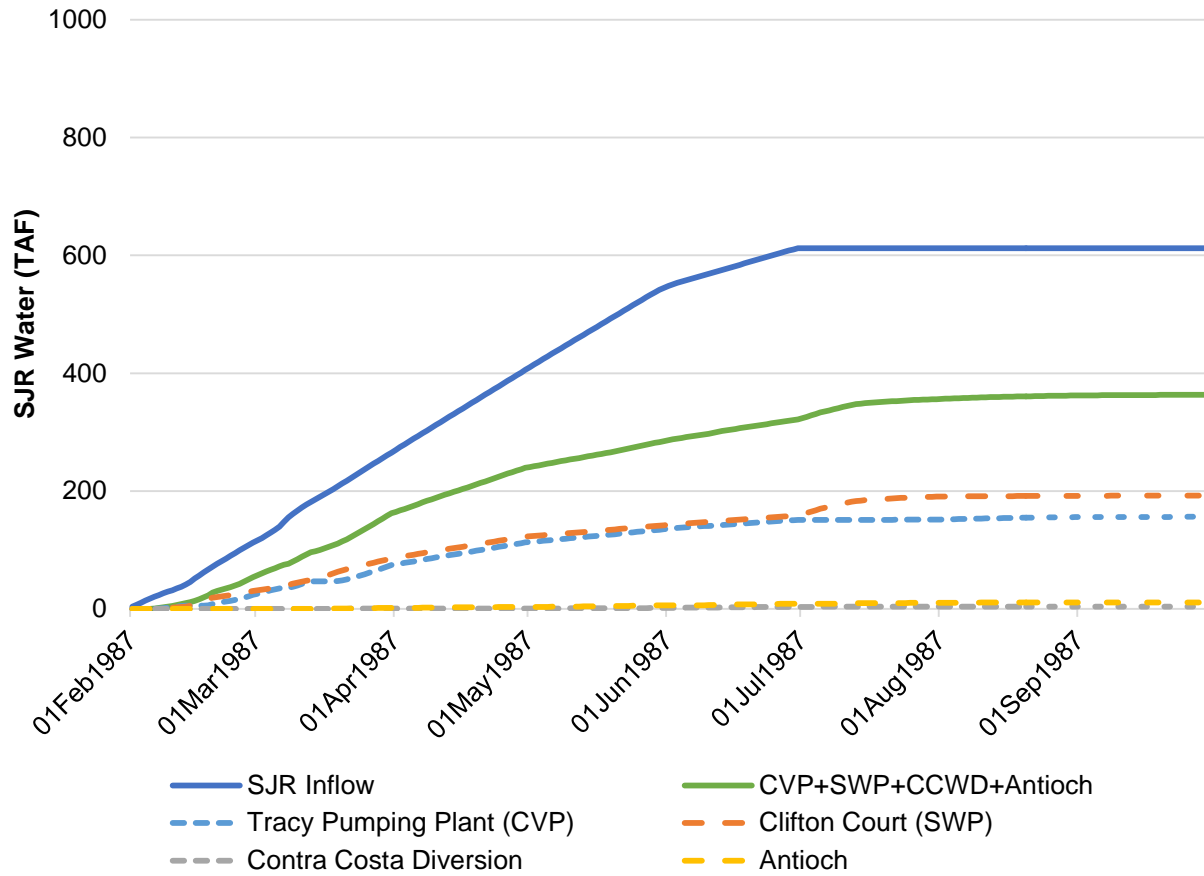


Figure 2. Cumulative total volume of tagged San Joaquin River inflow at Vernalis between February 1 and June 30, 1987, and the cumulative fate of tagged San Joaquin River water.