

CONTRA COSTA WATER DISTRICT  
Interoffice Memorandum

DATE: March 22, 2000  
TO: Richard A. Denton  
FROM: Lisa M. Holm  
SUBJECT: 1999 Old River Fish Screen Effectiveness

The purpose of this memo is to present the fish salvage and abundance data in Old River together with the pumping operations and monitoring near CCWD's Old River intake during the spring/summer of 1999. This period corresponds to a high level of take of Delta smelt, splittail, and salmon at the export facilities in the south Delta.

The SWP Banks and USBR Tracy Pumping Plants and CCWD's Old River Pumping Plant have fish screening facilities constructed under the direction of the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and the California Department of Fish and Game (DFG). Independent monitoring of the efficacy of these fish screens focuses on the "take" of protected species as directed by Endangered Species Act Section 7 consultations. The DFG "Fish Facilities Unit" directs this monitoring effort, which focuses on the fishery impacts of water facilities and the improvement of fish screening facilities.

In addition to the monitoring at the pumping plants, several monitoring efforts occur within the Delta. "Real Time Monitoring" is one of these efforts, directed by the CALFED Operations Group, with the purpose of providing timely fishery data for consideration in water project operations. The 1999 program was developed by the Interagency Ecological Program's (IEP) Real Time Monitoring Project Work Team (PWT). This effort collects fish from "strategically selected" locations and surveys the Delta for small juvenile fish. It also quantifies salvage at the Banks and Tracy Pumping Plants.

The attached figures show pumping and monitoring data during the spring of 1999 for Delta smelt and salmon. The Delta smelt plots show data from April 15 to July 15; a period when significant numbers of Delta smelt were present in Old River. The salmon monitoring plots show data from March 15 to June 15, 1999.

The top figure displays the salvage data and the in-channel surveys that were performed along with the monitoring occurring at CCWD's Old River intake. These data cannot be directly compared for various reasons<sup>1</sup>, so the focus should be on the data trends. The middle figure shows the pumping levels at the Banks and Tracy Pumping Plants and at

<sup>1</sup> Due to differences in sampling time periods, methods and accounting.

CCWD's Old River intake in cfs. CCWD's pumping rate at the Old River intake peaked at 250 cfs for much of the early June period. The Banks Pumping Plant was limited to 750 cfs for most of June.

The lower figure shows the flow in the Old River channel for the relevant periods. The mean flow is also shown. Even though significant exports are occurring during this period, the channel remains tidally dominated until July.

Monitoring Methodologies:

*Real Time Monitoring:* Fish are collected using midwater trawls, Kodiak trawls and a 20 mm net from 14 sites throughout the Delta. Data from the sites labeled "Palm Tract", "Bacon Island", and "Little Mandeville West" were compiled as representative of fish abundance in Old River. These sites were sampled using Kodiak trawls, 5 days/week, 2 trawls per day, from April 1, 1999 to June 30, 1999 at each of the sites. Data from the site labeled "State Water Project" is also displayed as a separate set.

Fish densities are standardized to a catch per unit effort (CPUE) where the units are fish per 10,000 m<sup>3</sup>. Tagged salmon have been deleted from the effort corrected catch numbers to remove any bias the capture of experimentally released fish may have on the effort corrected catch at any one recovery site.<sup>2</sup>

*Old River Intake Monitoring:* The maximum diversion rate at this facility through its series of 3/32" vertical wedge wire screen panels is 250 cfs. Fish entrainment monitoring is conducted with a large sieve-net, deployed on the downstream side of the fish screens. The mouth of the net has an opening of 14' x 15' and is attached to a steel net frame by a velcro collar. The net is 45' long and is made of 1/8" knotless nylon mesh net with a single fyke inserted in the middle of the net and a soft cod-end to retrieve fish at the back end of the net. Sampling is always in a bay preceding an operating pump, downstream of the fish screens. In general sampling is done 3 times per week from March through June, and once a week from July through December. Samples are collected over a 6-hour period and occasionally over a 12-hour period. Some sampling was schedule to capture diurnal and tidal variations.<sup>3</sup>

<sup>2</sup> All information on Real Time Monitoring is taken directly (unedited) from the Interagency Ecological Program website.

<sup>3</sup> Further details of this sampling can be obtained from Jerry Morinaka at DFG.