



# *SAN JOAQUIN RIVER AGREEMENT*

## *Update Report*

### *Vernalis Adaptive Management Program*

#### *April 2004*

## **2004 VAMP UNDERWAY**

With the planning activities completed the 2004 VAMP is underway for the fifth year under the San Joaquin River Agreement (SJRA). On April 9 the SJRA technical committee met to finalize the water operations plan to support this year's VAMP. A week earlier the biologist met to complete the design of the fishery portion of the study. Between April 15 and May 15 the operators of the water projects located on the east-side tributaries will manage the reservoirs to provide a uniform flow in the San Joaquin River at Vernalis. Water released down each tributary will also provide separate pulses in each respective tributary to assist in the outmigration of the juvenile Salmon. Over the same time period biologists from the California Department of Fish and Game, U.S. Fish and Wildlife Service, and San Joaquin River Group Authority consultants will be conducting studies on salmon smolt response and survival. The goal of the 2004 VAMP, as in previous years, will be to evaluate the survival of salmon smolt outmigrating the San Joaquin River watershed in relationship to flow and export conditions with the Head of Old River Barrier in place. 2004 represents the third year of the VAMP with a target flow of 3,200 CFS. Delta export pumping by the State and federal water projects will be maintained at an average of 1,500 CFS throughout the 31-day period. This is the third year of the experiment under these flow and export conditions. Important in 2004 will be to confirm or refute the 2003 findings when smolt survival rates were the lowest since the VAMP started in 2000.

## **Summary of Forecasted VAMP Period Mean Flows and Total Volumes**

Existing Flow, Merced River near Cressey	250 cfs
Existing Flow, Tuolumne River near LaGrange [1]	702 cfs
Existing Flow, Stanislaus River below Goodwin [2]	647 cfs
Ungaged flow at Vernalis [3]	500 cfs
San Joaquin River flow above Merced River [3]	254 cfs
Existing Flow, San Joaquin River nr. Vernalis [4]	2,353 cfs
VAMP Target Flow	3,200 cfs

Merced I.D.	27.07 TAF
So. San Joaquin/Oakdale I.D.s.	10.00 TAF
Exchange Contractors	5.00 TAF
Modesto/Turlock I.D.s.	10.00 TAF
Total VAMP Supplemental Water	52.07 TAF

[1] Provided by MID/TID. Defined by FERC Settlement Agreement.

[2] Provided by USBR. Defined by New Melones Interim Operation Plan.

[3] Estimated based on historical record and current conditions.

[4] Calculated by MBK Engineers 4/9/2004

## **Head of Old River Barrier**

Placement of the HORB culvert structure was completed on April 9 and the structure immediately secured with rock fill material. Barrier closure took place on April 15 with work continuing after the 15th to complete the barrier, final grading, and cleanup. The six culverts will be operated based on modeling in order to provide for the minimum number to be open while still protecting downstream water levels.



**Agricultural Barriers (Old River near DMC, Middle River, Grant Line Canal):**

Work on the Middle River (MR) and DMC barriers started April 9 and completed April 12 or 15. Full operation of the MR and DMC barriers (flap gates operating tidally) began April 15. All but the center portion of the Grant Line Canal (GLC) barrier has been completed. Modeling will be used to determine if full closure of the GLC barrier is necessary to protect water levels. The DMC and GLC boat ramps were both constructed to the water's edge.

**Modeling:**

Modeling was completed in early April to estimate the water levels in the south Delta that can be expected once the barriers are operated. Two scenarios were modeled, one with all the culverts at the HORB closed, and one with three culverts open. The analysis using a San Joaquin River flow at Vernalis of 3,200 CFS, with three culverts open at the HORB projects water levels in the south Delta will be at or above 0.0 Feet MSL. Further monitoring and model runs will be conducted throughout the VAMP study period to adjust the barrier operations as needed.

**Smolt Releases**

The SJRA biologists relied on the 200,000 coded wire tagged (CWT) salmon smolt provided by the CDFG to design a study of single releases at two locations in the lower San Joaquin River to be followed by a single release in the western Delta. The release of salmon smolt will begin about one week following closure of the HORB. This lapse in time will allow for flow and substrata conditions near the HORB to stabilize prior to initiating the fishery portion of the study. With the limited number of fish available the study design calls for 100,000 smolt to be released at Durham Ferry and 75,000 smolt to be released at Mossdale. This will take place on April 22 and 23 respectively. Both locations are on the lower San Joaquin River a short distance upstream of the HORB. An additional 25,000 smolt will be released on April 26 at Jersey Point, located in the western Delta. Trawl operations will take place over the weeks following in an effort to recover as many study fish as possible for determining the survival rate of smolt emigration from the San Joaquin River through the estuary. The reading of CWTs, data analysis, and reporting will take place in the months following the study.

