



**SAN JOAQUIN RIVER AGREEMENT**  
 Update Report May 2005  
 Vernalis Adaptive Management Program

**2004 VAMP SUMMARY**

The 2004 VAMP represented the fifth year of formal compliance with the Water Rights Decision 1641. The experimental design for the VAMP includes two mark-recapture studies performed each year during the mid-April to mid-May juvenile salmon out migration period. Due to a relatively low return of fish to the Merced River Fish Facility in the fall of 2003 the allotment of fish for the 2004 experiment was limited to 200,000. This resulted in one mark-recapture study.

The Head of Old River Barrier was closed on April 15 with the first release of test fish at Durham Ferry on April 22. Subsequent releases of fish were made at Mossdale on April 23 and at Jersey Point on April 26. Average water temperatures throughout the experimental period were recorded between 19 to 22 C.

Final accounting for the 2004 VAMP resulted in 65,590 acre-feet of supplemental water being provided. This supported an average 31-day flow at Vernalis of 3.155cfs. an increase of 1,067 cfs from the Existing Flow that would have occurred absent the VAMP.

Final Accounting of Supplemental Water Contributions

Merced I.D.	37.68 TAF
So. San Joaquin/Oakdale I.D.	11.76 TAF
Exchange Contractors	5.00 TAF
Modesto/Turlock I.D.	11.15 TAF
Total VAMP Supplemental Water	65.59 TAF

The estimated survival of Coded Wire Tagged salmon released from Durham Ferry and Mossdale in 2004 was the second lowest measured since initiating of the VAMP. The relationship between salmon survival, Vernalis flow, and SWP/CVP exports are not statistically significant based on results of the VAMP tests thus far.

The VAMP program continues to protect out migrating salmon while providing important information that can be used to evaluate the performance and biological benefits of various management actions. It was recommended that further effort be given to adaptively refine and modify the VAMP experimental design to improve the level of protection to juvenile Chinook salmon migrating downstream in the San Joaquin River.

**2005 VAMP UNDERWAY**

Planning efforts have been ongoing since mid-February for the 2005 VAMP experiment. Initially the planning evaluated the potential of both "dry" and "wet" hydrologic conditions. With increasing water supplies in the San Joaquin River basin the planning team focus was toward the wet conditions.

The first element in planning for the VAMP was to determine the so-called Existing Flow to occur at Vernalis during the 31-day VAMP period. The Existing Flow is a theoretical determination of what flow would exist at Vernalis absent the VAMP. It is a combination of the minimum in stream flows, water quality or fishery releases, flood control releases, uncontrolled spills to the system, and local runoff. Input information is derived from State snow-survey and water supply forecasts, tributary reservoir operators, estimates of inflow from upstream, and accretions within the system between the upstream measurement points and Vernalis.

As new hydrologic information became available it was apparent that 2005 was becoming much wetter than originally anticipated.

San Joaquin Valley Water Year Type Index  
 (Million Acre-Feet)

Exceedences:	90 %	50 %
Feb 1, 2005	3.2 MAF	4.0 MAF
Mar 1, 2005	3.4 MAF	4.0 MAF
Apr 1, 2005	4.0 MAF	4.3 MAF

1951 - 2000 Average = 3.3 MAF

Source: California Cooperative Snow Surveys.

In February the projected VAMP flow was expected to be 3,200 cfs in a dry condition to as much as 5,570 cfs in a wet condition. By the time the April forecast became available it was apparent the upper limit of the VAMP flow target of 7,000 cfs would most likely be exceeded.

Over the months of March and April storms and high runoff caused both Lake McClure and New Don Pedro Reservoir to encroach into the designated flood control space. Turlock Irrigation District initiated increased releases from New Don Pedro Dam on the Tuolumne River, to be followed in a few weeks with releases being initiated by the Merced Irrigation District from Exchequer Dam on the Merced River. By the time the April VAMP operations plan was developed



Release from Tullock Dam, Stanislaus River  
(Bureau of Reclamation Photo)

the Existing Flow at Vernalis was estimated to be over 8,000 cfs. Near the end of April it was projected the Vernalis flow would be near 8,000 cfs.

In accordance with the San Joaquin River Agreement (SJRA) anytime the Existing Flow exceeds 7,000 cfs the Parties to the SJRA will exert their best efforts to maintain a steady flow rate during the 31-day pulse flow period. The SJRA Technical Committee of hydrologist and biologist concluded at their March planning meeting that the best opportunity for providing stable flows would be to postpone the start of the pulse flow period until May 1. This would allow the reservoir operators the necessary time to evaluate the volume and rate of inflow and develop a stable release schedule on each tributary.

Based on the latest water supply estimates the flow at Vernalis will be approximately 7,940 cfs. No VAMP supplemental water will be provided in 2005.

#### Summary of Forecasted VAMP Period (Mean Flows)

Existing Flow	1,600 cfs
Existing Flow	3,750 cfs
Existing Flow	1,500 cfs
Ungaged flow above Vernalis (3)	400 cfs
San Joaquin River above Merced River (3)	693 cfs
Existing Flow San Joaquin R. near Vernalis(4)	7,943 cfs
VAMP Flow	7,943 cfs
CVP/SWP Delta Export	2,250 cfs

- (1) Provided by MIDITID, defined by FERC Settlement Agreement.
- (2) Provided by USSR, defined by New Melones Interim Plan of Operations.
- (3) Estimated based on historical record and current conditions.
- (4) Calculated

**No Head of Old River Barrier.** With the knowledge that flows would exceed the upper VAMP target flow it became obvious to the technical committee that the Head of Old River Barrier could not be installed. Without the barrier the

opportunity exists to implement an additional recovery operation within the Old River downstream of the barrier location. This added recovery, along with the Mossdale mid-water trawl will provide for the additional analysis of the number of salmon smolts entering the Old River.

**Smolt Releases.** For the 2005 experiment the California Department of Fish and Game will be allocating 400,000 salmon smolts from the Merced River Fish Facility. These fish have been coded wire tagged in order to trace their recovery and survival. Two marked recovery tests will be conducted in 2005.

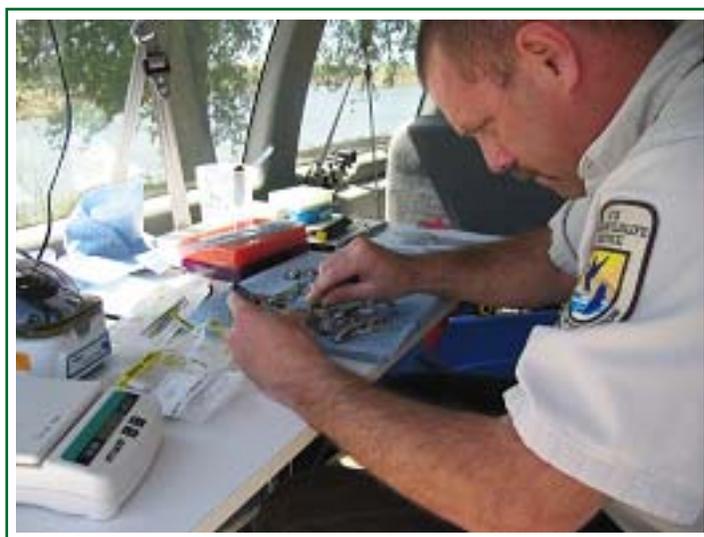
#### Smolt Release Schedule

Durham Ferry	May 2 & 9	100,000 smolts
Dos Reis	May 3 & 10	75,000 smolts
Jersey Point	May 6 & 13	25,000 smolts

Timing of the releases will take advantage of the tidal movement in the Delta. As in previous years recovery operations will take place at Antioch, Chips Island, and at the south Delta export facilities.

**Supporting Studies.** Each year the experiment includes monitoring of water temperatures along the migration path, net pen studies, coded wire tag quality control, and health and physiology studies. Beginning in 2005 the California-Nevada Fish Health Center will conduct an applied research project to examine the performance effects of Proliferative Kidney Disease on salmon from the VAMP marked groups over an extended time period.

**2005 Technical Report.** The SJRA Technical Committee will begin analyzing the recovery and flow data shortly following the VAMP period. Preparation of the 2005 annual VAMP technical report will begin in August.



Field Sampling by CA-NV Fish Health Center (2004 VAMP Photo)