March 26, 2008

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N. E.
Washington, D. C 20426

Re: Turlock and Modesto Irrigation Districts -
Project No. 2299 -- Article 58 Annual Report for 2007

Dear Secretary Bose:

Enclosed pursuant to Article 58 of the license for Project No. 2299 and Section 15 of the 1995 Don Pedro Project Settlement Agreement is the 2007 Lower Tuolumne River annual report. If you have any questions, please contact Tim Ford at 209-883-8275.

Respectfully submitted,

MODESTO IRRIGATION DISTRICT

Allen Short
General Manager

TURLOCK IRRIGATION DISTRICT

Larry Weis
General Manager

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UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

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|---|---|---|
| Turlock Irrigation District | ) | |
| and | ) | Project No. 2299 |
| Modesto Irrigation District | ) | |

# 2007 LOWER TUOLUMNE RIVER ANNUAL REPORT

2007 Annual Summary Report

Exhibits: Spawning runs, Ocean catch, rearing/outmigration data, Delta salvage and survival

Attachment A: Water, Flows, Temperature, and Flow Schedule Correspondence

Attachment B: 2007 Technical Advisory Committee Materials

Report 2007-1: 2007 Spawning Survey Report

Report 2007-2: Spawning Survey Summary Update

Report 2007-3: 2007 Seine/Snorkel Report and Summary Update

Report 2007-4: 2007 Rotary Screw Trap Report

Report 2007-5: Coded-wire Tag Summary Update

Report 2007-6: Flow, Delta Export, Weather, and Water Quality Data Report: 2003-2007

Report 2007-7: 2007 Rainbow Trout Data Summary Report

# - FERC PROJECT NO. 2299 –

# 2007 ANNUAL SUMMARY REPORT

**Turlock and Modesto Irrigation Districts**

By
Tim Ford
Aquatic Biologist

Exhibits:

1. Spawning run estimates
2. Ocean catch and harvest rate data
3. 2007 Basin flow and salmon rearing/outmigration data
4. Delta export and salmon salvage data

Attachment A: Water, Flows, Temperature, and Flow Schedule Correspondence

Attachment B: 2007 Technical Advisory Committee Materials

General List of Acronym and Abbreviations

| | |
|---|---|
| ACOE | Army Corps of Engineers |
| AF | acre-feet, a measure of water volume |
| AFRP | Anadromous Fish Restoration Program (part of USFWS) |
| AMF | Adaptive Management Forum |
| AT | air temperature |
| BAWSCA | Bay Area Water Supply and Conservation Agency |
| CALFED | now known as California Bay-Delta Authority |
| CBDA | California Bay-Delta Authority |
| CCSF | City and County of San Francisco |
| CDEC | California Data Exchange Center |
| CDRR | combined differential recovery rate |
| cfs | cubic feet per second, a measure of flow rate |
| CRRF | California Rivers Restoration Fund |
| CSPA | California Sportfishing Protection Alliance |
| CWT | coded wire tag |
| CVP | Central Valley Project |
| CY | cubic yard |
| CDFG or DFG | California Department of Fish and Game |
| DPS | distinct population segment |
| DWR | Department of Water Resources |
| ESA | Endangered Species Act |
| ESU | evolutionarily significant unit |
| FERC | Federal Energy Regulatory Commission |
| FL | fork length |
| FOT | Friends of the Tuolumne |
| FSA | Don Pedro Project 1995 FERC Settlement Agreement |
| FWS | see USFWS |
| HORB | Head of Old River Barrier |
| HRI | harvest rate index |
| IEP | Interagency Ecological Program |
| IFIM | Instream flow incremental methodology |
| mm | millimeter |
| M&T | McBain and Trush (consultants) |
| MID | Modesto Irrigation District |
| NHI | Natural Heritage Institute |
| NMFS | National Marine Fisheries Service |

| | |
|---|---|
| NOAA Fisheries | also National Marine Fisheries Service |
| NRCS | Natural Resources Conservation Service |
| NWS | National Weather Service |
| ORNL | Oak Ridge National Laboratory |
| PFMC | Pacific Fishery Management Council |
| R(letter and/or #) | specific riffle (location identifier, e.g. RA7 is Riffle A7) |
| RM | river mile |
| RST | rotary screw trap |
| SJR | San Joaquin River |
| SJRA | San Joaquin River Agreement |
| SRP | Special Run/Pool (mined area of river, usually with #, e.g. SRP 9) |
| SWP | State Water Project |
| SWS | Stillwater Sciences (consultants) |
| TID | Turlock Irrigation District |
| TRE | Tuolumne River Expeditions |
| TRPT or TRT | Tuolumne River Preservation Trust (also as Tuolumne River Trust) |
| TRTAC | Tuolumne River Technical Advisory Committee |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VAMP | Vernalis Adaptive Management Plan |
| WT | water temperature |
| WY | Water Year |

## 1 – Introduction

This is the 12th annual report to the Federal Energy Regulatory Commission (FERC) pursuant to Article 58 of the July 31,1996 Order on FERC Project License 2299 and the 1995 Don Pedro Project FERC Settlement Agreement (FSA).

This report covers the 2007 calendar year and contains:

(1) A summary of 2007 TRTAC/FSA/FERC Order activities
(2) A review of fishery and habitat conditions and related information
(3) Technical reports on monitoring and restoration, including several reports with long-term updates.

An eight volume report (20-Year Report) pursuant to Article 39 of the License issued in 1964, covering the first 20 years of Project operation which began in 1971, was filed in 1992 and included 28 technical reports. The first in the current series of Article 58 Annual Reports, the 1996 Annual Report, consisted of seven volumes with 14 technical reports that included information for the 1992-96 period as well as other material not contained in the 20-Year Report. An updated listing of Article 39 and Article 58 technical reports filed from 1992 to present is at the end of this annual report (see #11 below).

The Article 58 reporting requirement also required a summary report to be filed by 01Apr2005 and that report (2005 Ten Year Summary Report) was filed in March 2005. Since then, numerous filings have been made with FERC by various parties as part of follow-up to that report, including a July 2006 FERC Public Meeting held in Sacramento, CA. FERC staff requested in December 2006 that the Districts submit a monitoring study plan and that study plan was filed in March 2007. Another public meeting was held by FERC in August 2007.

## 2 - Tuolumne River Technical Advisory Committee (TRTAC)

The TRTAC is a key element in implementing the 1996 FERC Order and the FSA. The TRTAC meets at least quarterly and provides an important coordination function on monitoring activities, data exchange, habitat restoration, and flow operations. Four TRTAC meetings were held in 2007: 08Mar, 14Jun, 13Sep, and 13Dec.

Attachment B contains the 2007 TRTAC materials. The website (http://tuolumnerivertac.com/) is used for posting various TRTAC items (documents, reports, correspondence, meeting materials, etc.) and related information.

## 3 - Program Goals and Comparative Population Goals

FSA Section 8, the Strategy for Salmon Recovery, set forth the Tuolumne River Chinook Salmon Program goals as (1) increase naturally occurring salmon populations; (2) protect any remaining genetic distinction; and (3) increase salmon habitat in the Tuolumne River. The program is to employ flow and non-flow measures and an adaptive management strategy.

FSA Section 9 recognized that many factors affecting the Tuolumne salmon population were beyond the control of the FSA participants. Thus the FSA established narrative goals: "(1) Improvements in smolt survival and successful escapement in the Tuolumne River; (2) increase in naturally reproducing Chinook salmon in this subbasin; (3) barring events outside the control of the participants to the settlement, by 2005 the salmon population should be at levels where there is some resiliency so that some of the management measures described herein may be tested, on an experimental basis."

Longer term background in this annual report is provided in Reports 2007-2, 3, 4, and 5, and in other sections to further gauge progress of implementing the FSA strategy and meeting the FSA goals.

## 3.1 - Salmon Population

The preliminary 2007 Tuolumne fall-run Chinook population estimate by CDFG (Report 2007-1), using an adjusted Petersen formula, was 211 salmon, a decrease from the 625 estimated for the 2006 run (Exhibit 1) and the lowest number since 1992. There were no CWT salmon found in the carcass survey, suggesting that few, if any, survived to spawn as 3-year olds from the 2005 CWT study releases made at 4,000 cfs by CDFG. This is despite the CWT study result that indicated high relative survival within the Tuolumne River based on the inland smolt recoveries (Report 2007-5).

Initial run estimates were also much lower in 2007 for other SJR tributaries: the Stanislaus River was 405 (down from the 3,020 weir count in 2006) and the Merced River (river and hatchery combined) was 573 (down from 2,150 in 2006). The combined 3-river estimate was about 1,190 as compared to about 5,800 in 2006, and the lowest total since 1991.

Numbers of fall-run salmon for the entire Central Valley were likewise much lower with a preliminary estimate of just 90,400 as compared to 276,500 in 2006 (Exhibit 1). That number is less than the lower management target of 122,000 for the Sacramento River system and may lead to a total closure of commercial and sport salmon fisheries for California in 2007. In addition, very few salmon were estimated to be 2-year olds in Central Valley runs, indicating that numbers in 2008 runs will also be low, even if there is no harvest allowed.

## 3.2 - Outside Factors

The FSA (Section 10) recognized there are factors outside the control of the Districts and beyond the Tuolumne River that affect the Chinook salmon population, including juvenile survival issues in the Delta related to water export operations and other factors, and ocean salmon harvest. Other outside influences, such as overall ocean conditions and San Joaquin River/Delta water quality, including periods of low dissolved oxygen levels near Stockton during fall adult migration, can also affect the salmon populations.

### *3.2.1 - Ocean harvest*

Preliminary 2007 ocean harvest and Central Valley escapement (spawning run) data are available from the Pacific Fishery Management Council (PFMC 2008). The PFMC reported a 2007 ocean catch (combined commercial troll and sport harvest) of 111,600 Chinook salmon landed south of Pt. Arena, similar to the 124,800 in 2006. However, the estimated 2007 Central Valley total "adult" escapement (for all Chinook runs and hatchery returns) of 120,400 salmon was much lower than the 310,100 salmon estimated for 2006, leading to the present crisis for salmon management and the fishing industry.

The total 2007 Central Valley Abundance Index, comprising the sum of catch and "adult" (estimated age 3+ salmon) escapement, of 232,000 was lower than in 2006 (434,900). The 2007 catch and escapement values resulted in an estimated Central Valley "Harvest Rate Index" (HRI) of 48%, much higher than the 29% of 2006. Graphs of PFMC data are in Exhibit 2.

### *3.2.2 – Ocean conditions*

Central Valley Chinook salmon spend the majority of their lives in the eastern Pacific Ocean and the influence of ocean conditions on growth and survival is widely recognized (Williams, 2006). Temperature, upwelling, and general productivity of the Northern California Current from year to year varies considerably. Peterson et al. (2006) reported that 2004 indicators were mostly poor. Collectively, the ocean ecosystem indicators for salmon were considered uniformly poor in 2005 and poor to intermediate in 2006 (http://www.nwfsc.noaa.gov/research/divisions/fed/oeip/g-forecast.cfm).

The widespread stock collapse of California salmon populations is considered, at least in part, a direct result of the prior unfavorable ocean conditions that appear to have impacted multiple brood years. Further analysis of factors associated with the salmon decline is ongoing by researchers and agency scientists on the West Coast.

### *3.2.3 – Delta issues*

#### *3.2.3.1 - Salmon salvage and losses at Delta water export facilities*

Exhibit 4 contains the 2007 State (SWP) and Federal (CVP) delta water export facility salmon salvage and loss information. Natural/unmarked salmon salvage and losses for Jan-Jun at the facilities were much lower in 2007, with combined facility estimates for Jan-Jun of about 8,000 salmon salvaged and about 11,500 in losses (vs. about 40,000 and 58,000 respectively in 2006). The reported numbers do not include associated indirect losses within the Delta, plus the salvage loss estimates for fry (mostly in Jan-Mar) may be inherently low due to reduced screening efficiency. It is not certain how many of these salmon were from the San Joaquin basin as there is presently no attribution to specific origins. However, comparison of salmon size and timing with tributary and mainstem seine, screw trap, and trawl catch data indicate the potential interception of San Joaquin basin salmon at the facilities (Exhibit 3).

Salmon <50mm (fry) were largely absent at the facilities from January to late March. There was a dominant salvage of larger juveniles/smolts (75-110 mm) from April through mid June. Weekly density (combined salvage and loss/1000 AF) was highest in mid April at the CVP and

in mid April and early June at the SWP. Weekly salvage and loss numbers were also highest in mid April at the CVP and at the SWP at a time when exports were much higher than the flow in the SJR (Exhibit 4). None of the CWT salmon smolts released in the Merced River were recovered in the salvage sampling program.

*3.2.3.2 - Spring smolt survival conditions*

The San Joaquin River Agreement (SJRA) and the Vernalis Adaptive Management Plan (VAMP) are elements for meeting the objectives of the 1995 State Water Resources Control Board (SWRCB) Bay-Delta Water Quality Control Plan over a 12 year period beginning in 2000, pursuant to SWRCB Decision 1641. The program includes a 31-day period, usually from mid-Apr to mid-May, with an experimental combination of salmon protective measures: specified San Joaquin River flows at Vernalis, Head of Old River Barrier (HORB), and reduced State and Federal delta exports. The Tuolumne River outmigration pulse volume has been mostly scheduled to coincide with the VAMP period, accounting for a 2-day lead time for flows from La Grange to be at Vernalis, and to provide transition days to and from base flows. An additional Tuolumne River spring pulse flow volume of up to 22,000 acre-feet (AF) from TID/MID, supplemental to FERC pulse allocations, can be required under the SJRA to help meet target flows at Vernalis. Other pulse flow may be added to the Tuolumne River through a water sharing arrangement with other parties to the SJRA, as was the case in 2007.

As reported in SJRGA 2008, the 2007 VAMP implementation had a HORB installed and the designated VAMP period was 22Apr-22May. Average combined state and federal water export rate was 1,486 cfs and average Vernalis flow was 3,263 cfs, similar to 2002-2004 conditions.

The smolt evaluations used a total of about 1000 hatchery smolts with implanted acoustic transmitters. There were 2 primary study periods with about 100 smolts released at 5 locations in each. Those salmon were tracked with the use of ten stationary receivers and a mobile receiver. The study results were incomplete due to some mechanical failures, but in general indicated higher mortality at several locations, including the vicinity of the Head of Old River, near the intake of the CVP facilities, in the SWP Clifton Court Forebay, and especially near Stockton's wastewater treatment plant. Predation was likely a direct mechanism of mortality in some cases, although there may have been other factors involved near Stockton. Such details were previously not available using the CWT methodology; however overall survival through the Delta could not be obtained due to the absence of receivers at Jersey Point or Chipps Island.

*3.2.3.3 – Other Delta issues*

There are several other major recognized issues of concern for salmon in the Delta region. Water quality issues, from toxicants in general to low dissolved oxygen in the Stockton Deep Water Ship Channel, are being reviewed or addressed by various agencies. In addition, the recent years of low SJR smolt survival in VAMP studies also corresponds to a general decline reported in several other delta fish species, referred to as the Pelagic Organism Decline or POD, which continues to be extensively investigated by CALFED agencies and other researchers (Baxter et al. 2008). There are also reductions in delta exports being implemented under court order in 2008 to reduce "take" of one of the listed species, the delta smelt.

3.3 - ESA Actions

NMFS first determined "threatened" status for anadromous forms of rainbow trout (steelhead), *Oncorhynchus mykiss*, in the California Central Valley ESU in 1998. A court ruling in 2004 identified that NMFS had to reinstate a proper listing. NMFS issued the final rule of a new "threatened" determination using a DPS policy (not the former ESU policy) in Jan2006. A new legal case opposing the NMFS relisting was filed in Apr2006 - that case is still pending.

## 4 - Flow Schedules and Operations

Calendar year 2007 included Article 37 minimum flow and pulse flow requirements spanning the 2006-2007 and 2007-2008 "fish flow years", which are usually from 15Apr-14Apr. Attachment A contains the primary FERC flow schedule correspondence. The 2007-2008 "fish flow year" had the lowest annual Article 37 flow requirement (115,836 AF) and was the first Median Critical year since the 1996 Order.

The 2007 calendar year included part of the 2007 and 2008 "water years (WY)" which run from Oct-Sep. WY2007 (Oct2006-Sep2007) Tuolumne River preliminary computed natural runoff was 45% of the long-term average. The 2007 San Joaquin Basin 60-20-20 Water Supply Index was 1.958 – a Median Critical Year in the Article 37 classification. The daily average computed natural flow, actual La Grange flow, and FERC flow schedules for WY2007/2008 are graphed in Attachment A. Actual flows at other SJR basin locations, Don Pedro Reservoir storage, and snow and precipitation data are included as well.

For the first time since the 1996 Order, there was no fall (attraction) pulse flow scheduled and that was in accordance with the Median Critical year type of 2007.

## 5 - Monitoring Information

License 2299 Article 58 and FSA Section 13 listed several monitoring elements as follows:

5.1 – Salmon Spawning Escapement

The California Department of Fish and Game (CDFG) conducted the fall spawning survey. Report 2007-1 contains the CDFG 2007 report and Report 2007-2 updates the long-term summary and trends – the recent estimates are in Section 3.1 above.

5.2 - Quality and Condition of Spawning Habitat

No work was conducted in 2007.

5.3 - Relative Salmon Fry Density/Female Spawners

Tuolumne River peak salmon fry density from seining in 2007 was similar in timing (Feb) to 2002-2006, but was very low overall (Report 2007-3). Both the peak and average fry density for

the mid-Jan to mid-Mar period was typical for the low number of female spawners. It was estimated there were about 200 juvenile salmon (fry to smolts) that passed the Waterford screw trap site per female spawner (Report 2007-4).

5.4 – Salmon Fry Distribution and Survival

There was no catch of salmon fry (≤50 mm) or larger juveniles below RM 24 by seining. Highest densities of seine-caught fry were in the spawning reach down to RM 31.6 (Report 2007-3). Fry capture at the Waterford screw trap (RM 30) occurred from mid-Jan through March with an estimated passage of about 20,500 for that life stage; estimated peak passage was in mid-Feb associated with a storm event (Report 2007-4). The screw trap sampling at Grayson (RM 5) was later than the primary fry period, so no fry information is available for that site.

Exhibits 3 and 4 have information on the size and numbers of salmon captured in sampling efforts from lower stations, the SJR, and the South Delta. Those include screw trap, trawl, and export salvage sampling programs within the Jan-Jun season that spans the entire juvenile salmon (fry to smolt) rearing and migration period. There were only two salmon captured by seine in the SJR by the USFWS and none at the two SJR sites sampled by the Districts' so no graph for SJR seine catch was included. Fry density was also very low in the Mossdale trawl catch and in the export salvage.

5.5 - Juvenile Salmon Distribution and Temperature Relationships

The seine report classifies juvenile salmon as >50 mm, whereas the screw trap report distinguishes parr (50-69 mm) and smolt (> 70 mm) size ranges.

Seine sampling monitored the winter/spring distribution of juvenile salmon (>50 mm) and other fishes in the Tuolumne River (Report 2007-3). The only large catch of juveniles was on 28Feb at Waterford (Hickman Bridge RM 31.6).

Screw trap sampling at Waterford had an estimate of about 37,000 salmon ≥50 mm (about 7,500 parr and 29,500 smolts) moving past that site. The Grayson trap estimate was only about 950 smolts and the peak passage was associated with a pulse flow in late April (Report 2007-4).

The thermograph data for the Tuolumne and San Joaquin Rivers, along with other monitoring data, are posted at http://tuolumnerivertac.com/data.htm. Figures for WY 2007 daily average thermograph data are in Report 2007-6 and for the first part of WY 2008 in Attachment A.

5.6 – Salmon Smolt Survival

TRTAC smolt survival studies using CWT salmon ended in 2002 and ocean catch and adult returns from that year are complete. CDFG conducted an additional CWT survival evaluation in Apr2005 at about 4,000 cfs. Ocean and inland adult recoveries for that 2004 brood year will be mainly complete in 2008. The updated recovery data for Stanislaus, Tuolumne, and Merced River CWT releases are in Report 2007-5.

5.7 – Project-related Monitoring

No work was conducted in 2007.

5.8 - Other Monitoring Information

It is notable that the 2007 seine sampling in the SJR recorded only five fish species. That is by far the lowest species diversity recorded for the SJR from that sampling program, which had recorded from 12-21 species annually in the 1996-2006 period (Report 2007-3).

Late June and mid-September snorkel surveys were conducted due to favorable (non-flood) flows in 2007. The early survey recorded 67 juvenile Chinook salmon down to RM 47.9, while 343 rainbow trout were observed as far down as RM 35.3. The later survey recorded no salmon and 198 rainbow trout were observed down to RM 38.1, the 2nd highest number of trout for September snorkel surveys in the 2001-2007 period. Report 2007-7 is an updated data summary of the records for rainbow trout.

Aquatic invertebrate sampling was done in the summer of 2007 due to suitable flow conditions. Analysis is proceeding on those samples and an assessment with the 2005 samples may be completed by 2009.

## 6 - Non-Flow Measure Activities In 2007

The construction of the TRTAC Gasburg Creek sedimentation basin project was completed in 2007. However, revegetation and storm water monitoring was not implemented as was described by the TID Project Manager in the Dec2007 TRTAC meeting restoration update in Attachment B. That was the result of CDFG removing that proposed contract amendment from the agenda of the Nov2007 CALFED amendment meeting.

The TRTAC La Grange gravel addition project (Gravel Infusion Project) was not implemented as was described by the TID Project Manager in the Jun2007 and Sep2007 TRTAC meeting restoration updates in Attachment B. That was the result of CDFG removing the project amendment from the agenda of the May2007 CALFED amendment meeting. CDFG had indicated they were waiting to complete a restoration project review on the Tuolumne and Merced Rivers by the end of 2007, but no report was provided by CDFG as of Mar2008.

The original funding for the Ruddy Project implementation was withdrawn by the funding agencies in 2006 due to problems of the federal land appraisal process. A project redesign and request for the approved funding was submitted by TID in May2007 to CDFG that incorporated both Mining Reach Phases II-III and would use funding originally allotted for Phase III - that request was not acted on by CDFG in 2007.

## 7 - Anticipated Non-Flow Measure Activities In 2008

Of the ten identified TRTAC priority projects, four of them (SRP 9, 7-11 Mining Reach, RM 43, Gasburg Creek) have been completed. Substantial grant funding was previously approved to

implement three others that can be considered active: Ruddy and Warner-Deardorff projects (Gravel Mining Reach Phases II-III) and the Gravel Infusion Project. However, these TRTAC projects with grants being administered by CDFG will not be implemented in 2008 and their status is uncertain.

The remaining three projects are not active: SRP 10 (no funding for construction, although the design work was completed), gravel cleaning, and the Reed Project (Gravel Mining Reach Phase IV).

## 8 - Other FERC Settlement Agreement Activities

### 8.1 - Section 11 - Flood Management

No flood management releases pursuant to ACOE criteria were required in 2007 due to low reservoir storage and the dry conditions (see flow graphs and Don Pedro Reservoir storage graph in Attachment A).

### 8.2 - Section 19 – Riparian Habitat and Recreation

The East Stanislaus Resource Conservation District (ESRCD) was the public agency funded with the $500,000 from CCSF pursuant to FSA Section 19. The ESRCD receives assistance from the Natural Resources Conservation Service (NRCS). The amount has been entirely allocated.

## 9 - Program Expenses Through 2007

Overall funding obligations of FSA costs shared by the Districts and City and County of San Francisco (CCSF) were up to $1,000,000 for non-flow options (Section 12) and $1,355,000 for monitoring (Section 13). About $19,000 was unexpended under Section 12. The Section 13 allocation was reached in 2004, but the Districts and CCSF have continued providing monitoring activities, with the exception of CDFG conducting the fall spawning surveys.

CALFED notified the Districts in Sep2005 that their application for a competitive 3-year monitoring grant was approved for funding. That application was made on behalf of the TRTAC, which had developed and approved the specific river-wide and project monitoring proposal. However, CDFG as grant administrator requested repeated changes to the scope of work. After several iterations of the scope of work were developed and submitted by the Districts at considerable additional expense of time and money, the CDFG had not approved any of them as of March 2007. At that time, CDFG stated they would need to wait until Jul2007 before proceeding further, but the Districts have heard nothing formally from CDFG since about the TRTAC grant. Consequently the TRTAC monitoring grant proposal has not been funded for over two years since approval and the Districts and CCSF have continued to conduct and fund several monitoring activities that were part of the TRTAC grant proposal.

## 10 - References

Baxter, R. et al. 2008. Pelagic Organism Decline Progress Report: 2007 Synthesis of Results. Interagency Ecological Program for the San Francisco Estuary (IEP). Available at: http://www.science.calwater.ca.gov/pdf/workshops/POD/IEP_POD_2007_synthesis_report_031408.pdf

Pacific Fishery Management Council. 2008. Review of 2007 Ocean Salmon Fisheries and Preseason Report 1: stock abundance analysis for 2008 ocean salmon fisheries. Portland, OR. Available at: http://www.pcouncil.org/salmon/salsafe07/salsafe07.html and http://www.pcouncil.org/salmon/salpreI08/salpreI08.html

Peterson, William T., et al. 2006. Ocean conditions and salmon survival in the Northern California Current. Fish Ecology Division, Northwest Fisheries Science Center, National Marine Fisheries Service, Newport OR, 44 pg. http://www.nwfsc.noaa.gov/research/divisions/fed/ecosysrep.pdf

San Joaquin River Group Authority (SJRGA). 2008. 2007 Annual Technical Report: On implementation and monitoring of the San Joaquin River Agreement and the Vernalis Adaptive Management Plan. Prepared for California State Water Resources Control Board in Compliance with D-1641. Available at http://www.sjrg.org/

Williams, John G. 2006. Central Valley Salmon: A Perspective on Chinook and Steelhead in the Central Valley of California. San Francisco Estuary and Watershed Science. Vol. 4, Issue 3 (December 2006), Article 2. http://repositories.cdlib.org/jmie/sfews/vol4/iss3/art2

## 11 - List of 1992-2007 Technical Reports by Topic

### Salmon Population Models

1992 Appdx. 1: Population Model Documentation
1992 Appdx. 26: Export Mortality Fraction Submodel
1992 Appdx. 2: Stock Recruitment Analysis of the Population Dynamics of San Joaquin River System Chinook salmon
Report 1996-5: Stock-Recruitment Analysis Report

### Salmon Spawning Surveys

1992 Appdx. 3: Tuolumne River Salmon Spawning Surveys 1971-88
Report 1996-1: Spawning Survey Summary Report

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| 96-1.1 | 1986 Spawning Survey Report |
| 96-1.2 | 1987 Spawning Survey Report |
| 96-1.3 | 1988 Spawning Survey Report |
| 96-1.4 | 1989 Spawning Survey Report |
| 96-1.5 | 1990 Spawning Survey Report |
| 96-1.6 | 1991 Spawning Survey Report |
| 96-1.7 | 1992 Spawning Survey Report |
| 96-1.8 | 1993 Spawning Survey Report |
| 96-1.9 | 1994 Spawning Survey Report |
| 96-1.10 | 1995 Spawning Survey Report |
| 96-1.11 | 1996 Spawning Survey Report |
| 96-1.12 | Population Estimation Methods |

1997-1: 1997 Spawning Survey Report and Summary Update
1998-1: Spawning Survey Summary Update
1999-1: 1998 Spawning Survey Report
2000-1: 1999 and 2000 Spawning Survey Reports
2000-2: Spawning Survey Summary Update
2001-1: 2001 Spawning Survey Report
2001-2: Spawning Survey Summary Update
2002-1: 2002 Spawning Survey Report
2002-2: Spawning Survey Summary Update
2003-1: Spawning Survey Summary Update
2004-1: 2003 and 2004 Spawning Survey Reports
2004-2: Spawning Survey Summary Update
2006-1: 2005 and 2006 Spawning Survey Reports
2006-2: Spawning Survey Summary Update
2007-1: 2007 Spawning Survey Report
2007-2: Spawning Survey Summary Update

**Seine, Snorkel, Fyke Reports and Various Juvenile Salmon Studies**

1992 Appdx. 10: 1987 Juvenile Chinook salmon Mark-Recapture Study
1992 Appdx. 12: Data Reports: Seining of Juvenile Chinook salmon in the Tuolumne, San Joaquin, and Stanislaus Rivers, 1986-89
1992 Appdx. 13: Report on Sampling of Chinook Salmon Fry and Smolts by Fyke Net and Seine in the Lower Tuolumne River, 1973-86
1992 Appdx. 20: Juvenile Salmon Pilot Temperature Observation Experiments
Report 1996-2: Juvenile Salmon Summary Report
- 96-2.1 1986 Snorkel Survey Report
- 96-2.2 1988-89 Pulse Flow Reports
- 96-2.3 1990 Juvenile Salmon Report
- 96-2.4 1991 Juvenile Salmon Report
- 96-2.5 1992 Juvenile Salmon Report
- 96-2.6 1993 Juvenile Salmon Report
- 96-2.7 1994 Juvenile Salmon Report
- 96-2.8 1995 Juvenile Salmon Report
- 96-2.9 1996 Juvenile Salmon Report

1997-2: 1997 Juvenile Salmon Report and Summary Update
1998-2: 1998 Juvenile Salmon Report and Summary Update
1999-4: 1999 Juvenile Salmon Report and Summary Update
2000-3: 2000 Seine/Snorkel Report and Summary Update
2001-3: 2001 Seine/Snorkel Report and Summary Update
2002-3: 2002 Seine/Snorkel Report and Summary Update
2003-2: 2003 Seine/Snorkel Report and Summary Update
2004-3: 2004 Seine/Snorkel Report and Summary Update
2005-3: 2005 Seine/Snorkel Report and Summary Update
2006-3: 2006 Seine/Snorkel Report and Summary Update
2007-3: 2007 Seine/Snorkel Report and Summary Update

**Screw Trap Monitoring**

1996-12: Screw Trap Monitoring Report: 1995-96
1997-3: 1997 Screw Trap and Smolt Monitoring Report
1998-3: 1998 Tuolumne River Outmigrant Trapping Report
1999-5: 1999 Tuolumne River Upper Rotary Screw Trap Report
2000-4: 2000 Tuolumne River Smolt Survival and Upper Screw Traps Report
2000-5: 1999-2000 Grayson Screw Trap Report
2001-4: 2001 Grayson Screw Trap Report
2004-4: 1998, 2002, and 2003 Grayson Screw Trap Reports
2004-5: 2004 Grayson Screw Trap Report
2005-4: 2005 Grayson Screw Trap Report
2005-5: Rotary Screw Trap Summary Update
2006-4: 2006 Rotary Screw Trap Report
2006-5: Rotary Screw Trap Summary Update

2007-4: 2007 Rotary Screw Trap Report

**Fluctuation Assessments**

1992 Appdx. 14: Fluctuation Flow Study Report
1992 Appdx. 15: Fluctuation Flow Study Plan: Draft
Report 2000-6: Tuolumne River Chinook Salmon Fry and Juvenile Stranding Report
2005 Ten-Year Summary Report Appdx. E: Stranding Survey Data (1996-2002)

**Predation Evaluations**

1992 Appdx. 22: Lower Tuolumne River Predation Study Report
1992 Appdx. 23: Effects of Turbidity on Bass Predation Efficiency
2006-9: Lower Tuolumne River Predation Assessment Final Report

**Smolt Monitoring and Survival Evaluations**

1992 Appdx. 21: Possible Effects of High Water Temperature on Migrating Salmon Smolts in the San Joaquin River
1996-13: Coded-wire Tag Summary Report
1998-4: 1998 Smolt Survival Peer Review Report
1998-5: CWT Summary Update
1999-7: Coded-wire Tag Summary Update
2000-4: 2000 Tuolumne River Smolt Survival and Upper Screw Traps Report
2000-8: Coded-wire Tag Summary Update
2001-5: Large CWT Smolt Survival Analysis
2001-6: Coded-wire Tag Summary Update
2002-4: Large CWT Smolt Survival Analysis
2002-5: Coded-wire Tag Summary Update
2003-3: Coded-wire Tag Summary Update
2004-7: Large CWT Smolt Survival Analysis Update
2004-8: Coded-wire Tag Summary Update
2005-6: Coded-wire Tag Summary Update
2006-6: Coded-wire Tag Summary Update
2007-5: Coded-wire Tag Summary Update

**Fish Community Assessments**

1992 Appdx. 24: Effects of Introduced Species of Fish in the San Joaquin River System
1992 Appdx. 27: Summer Flow Study Report 1988-90
Report 1996-3: Summer Flow Fish Study Annual Reports: 1991-94
- 96-3.1 1991 Report
- 96-3.2 1992 Report
- 96-3.3 1993 Report
- 96-3.4 1994 Report

2001-8: Distribution and Abundance of Fishes Publication

2002-9: Publication on the Effects of Flow on Fish Communities
2007-7: 2007 Rainbow Trout Data Summary Report

**Invertebrate Reports**

1992 Appdx. 16: Aquatic Invertebrate Studies Report
1992 Appdx. 28: Summer Flow Invertebrate Study
Report 1996-4: Summer Flow Aquatic Invertebrate Annual Reports: 1989-93
- 96-4.1 1989 Report
- 96-4.2 1990 Report
- 96-4.3 1991 Report
- 96-4.4 1992 Report
- 96-4.5 1993 Report

1996-9: Aquatic Invertebrate Report
2002-8: Aquatic Invertebrate Report
2004-9: Aquatic Invertebrate Monitoring Report (2003-2004)

**Delta Salmon Salvage**

1999-6: 1993-99 Delta Salmon Salvage Report

**Gravel, Incubation, and Redd Distribution Studies**

1992 Appdx. 6: Spawning Gravel Availability and Superimposition Report (incl. map)
1992 Appdx. 7: Salmon Redd Excavation Report
1992 Appdx. 8: Spawning Gravel Studies Report
1992 Appdx. 9: Spawning Gravel Cleaning Methodologies
1992 Appdx. 11: An Evaluation of the Effect of Gravel Ripping on Redd Distribution
1996-6: Redd Superimposition Report
1996-7: Redd Excavation Report
1996-8: Gravel Studies Report: 1987-89
1996-10: Gravel Cleaning Report: 1991-93
2000-7: Tuolumne River Substrate Permeability Assessment and Monitoring Program Report
2006-7: Survival to Emergence Study Report

**Water Temperature and Water Quality**

1992 Appdx. 17: Preliminary Tuolumne River Water Temperature Report
1992 Appdx. 18: Instream Temperature Model Documentation: Description and Calibration
1992 Appdx. 19: Modeled Effects of La Grange Releases on Instream Temperatures in the Lower Tuolumne River
1996-11: Intragravel Temperature Report: 1991
1997-5: 1987-97 Water Temperature Monitoring Data Report
2002-7: 1998-2002 Temperature and Conductivity Data Report
2004-10: 2004 Water Quality Report
2007-6: Flow, Delta Export, Weather, and Water Quality Data Report: 2003-2007

**IFIM Assessment**

1992 Appdx. 4: Instream Flow Data Processing, Tuolumne River
1992 Appdx. 5: Analysis of 1981 Lower Tuolumne River IFIM Data
1995 USFWS Report on the Relationship between Instream Flow and Physical Habitat Availability – submitted by Districts to FERC in May 2004

**Flow and Delta Exports**

1997-4: Streamflow and Delta Water Export Data Report
2002-6: 1998-2002 Streamflow and Delta Water Export Data Report
2003-4: Review of 2003 Summer Flow Operation
2007-6: Flow, Delta Export, Weather, and Water Quality Data Report: 2003-2007

**Restoration, Project Monitoring, and Mapping**

1996-14: Tuolumne River GIS Database Report and Map
1999-8: A Summary of the Habitat Restoration Plan for the Lower Tuolumne River Corridor
1999-9: Habitat Restoration Plan for the Lower Tuolumne River Corridor
1999-10: 1998 Restoration Project Monitoring Report
1999-11: 1999 Restoration Project Monitoring Report
2001-7: Adaptive Management Forum Report
2004-12: Coarse Sediment Management Plan
2004-13: Tuolumne River Floodway Restoration (Design Manual)
2005 Ten-Year Summary Report Appdx. D: Salmonid Habitat Maps
2005 Ten-Year Summary Report Appdx. F: GIS Mapping Products
2005-7: Bobcat Flat/River Mile 43: Phase 1 Project Completion Report
2006-8: Special Run Pool 9 and 7/11 Reach: Post-Project Monitoring Synthesis Report
2006-10: Tuolumne River La Grange Gravel Addition, Phase II Annual Report
2006-11: Tuolumne River La Grange Gravel Addition, Phase II Geomorphic Monitoring Report

**General Monitoring Information**

1992 Fisheries Studies Report
2002-10: 2001-2002 Annual CDFG Sportfish Restoration Report
2005 Ten-Year Summary Report

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# Exhibits

1. Spawning run estimates
2. Ocean catch and harvest rate data
3. 2007 Basin flow and salmon rearing/outmigration data
4. Delta export and salmon salvage data

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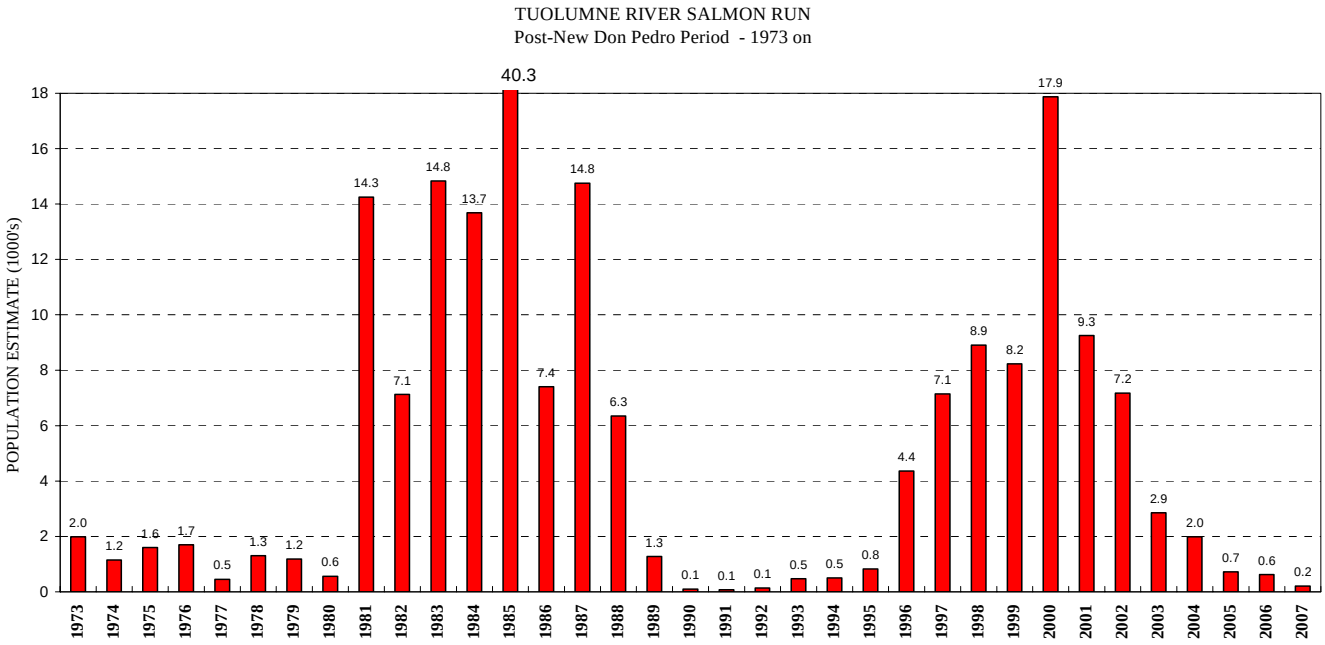
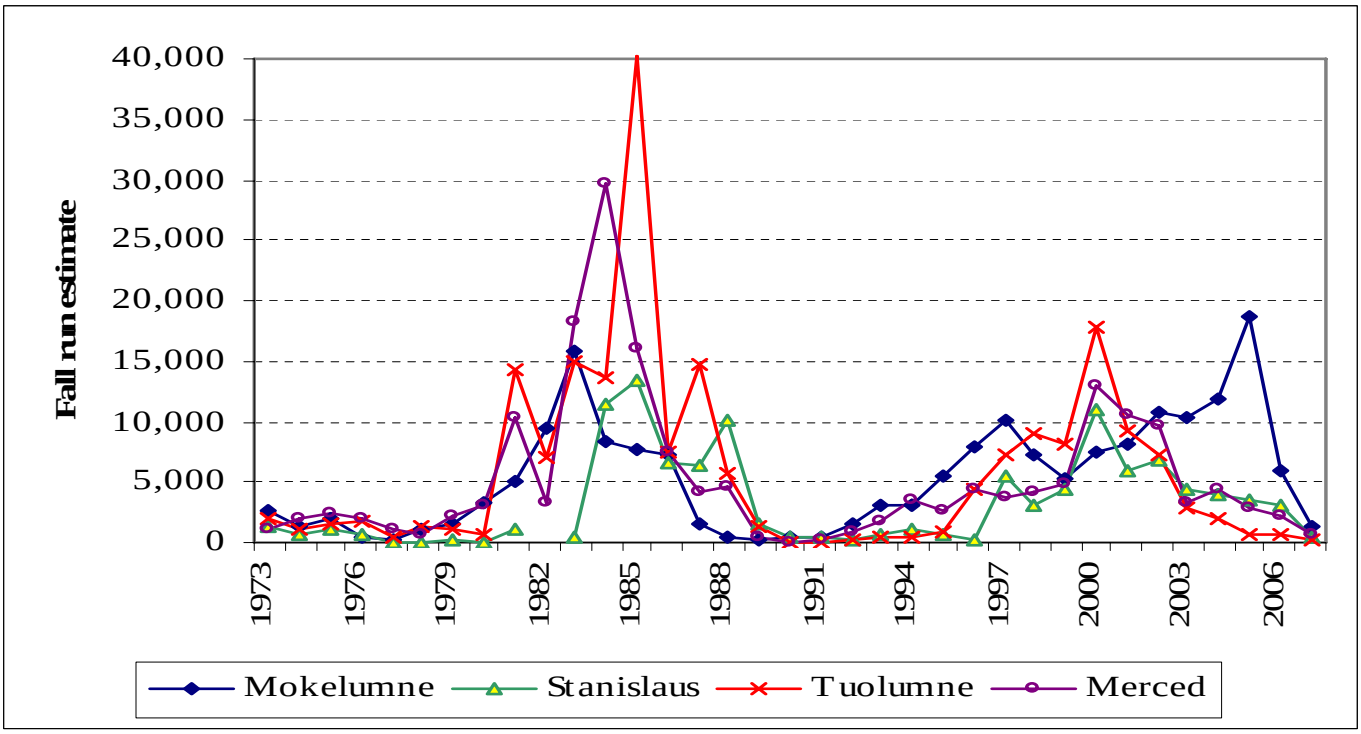
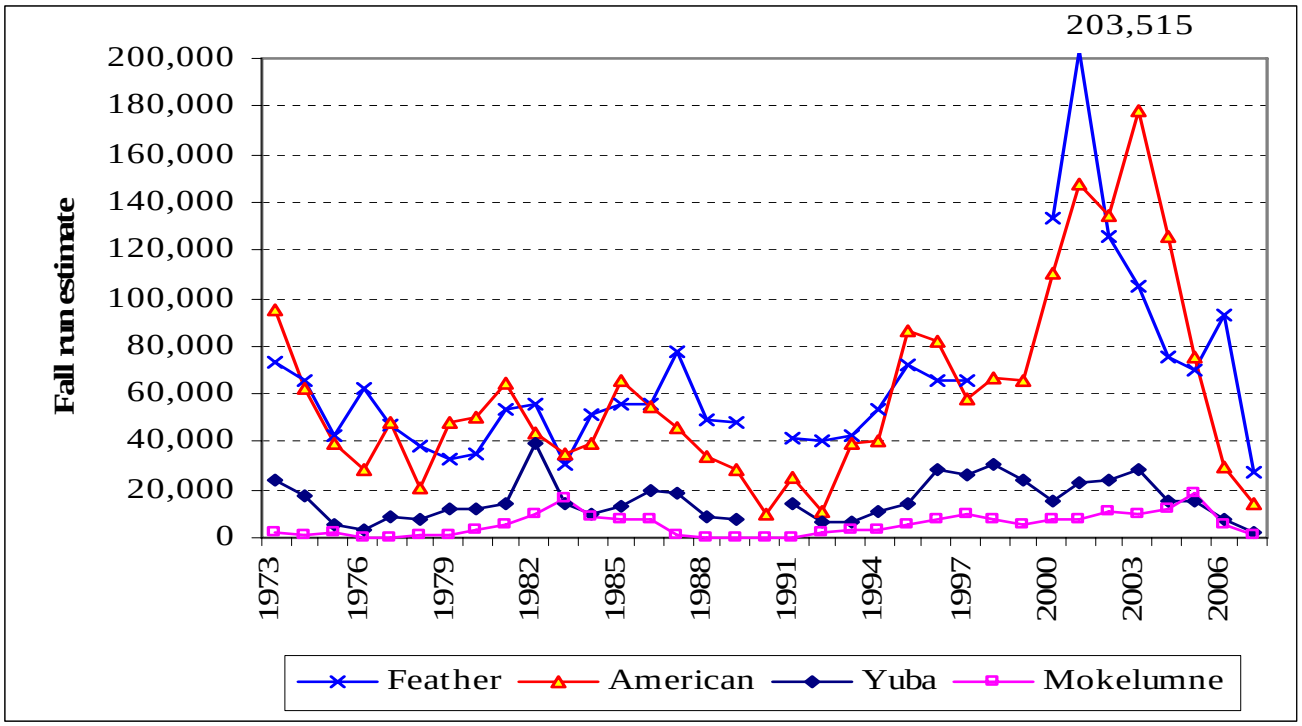
# Exhibit 1 – Spawning run estimates



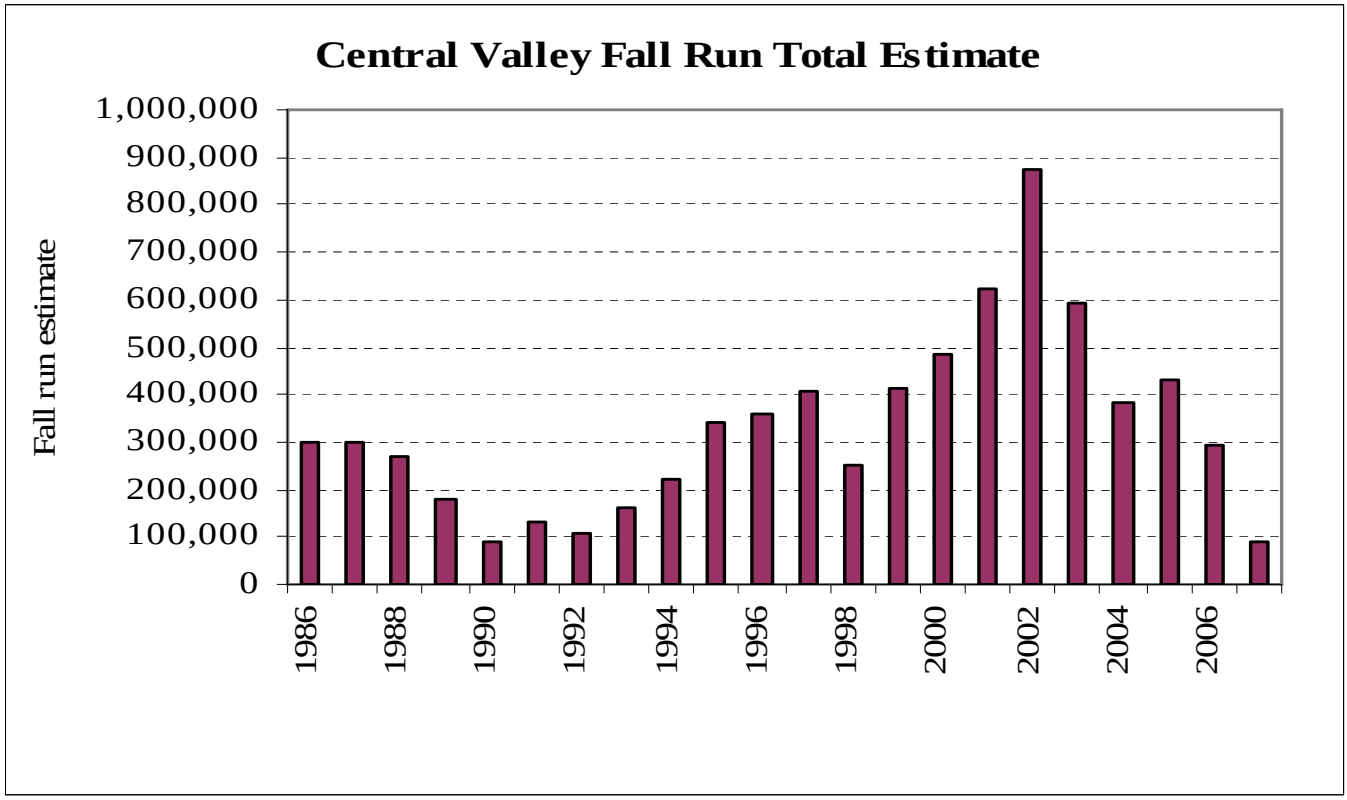

San Joaquin River Tributaries Fall-run Salmon Estimates - Hatcheries are on Merced and Mokelumne (Mokelumne is an Eastside Delta tributary)



Other Fall-run Salmon Rivers in Central Valley
(all but Yuba River have major hatcheries)

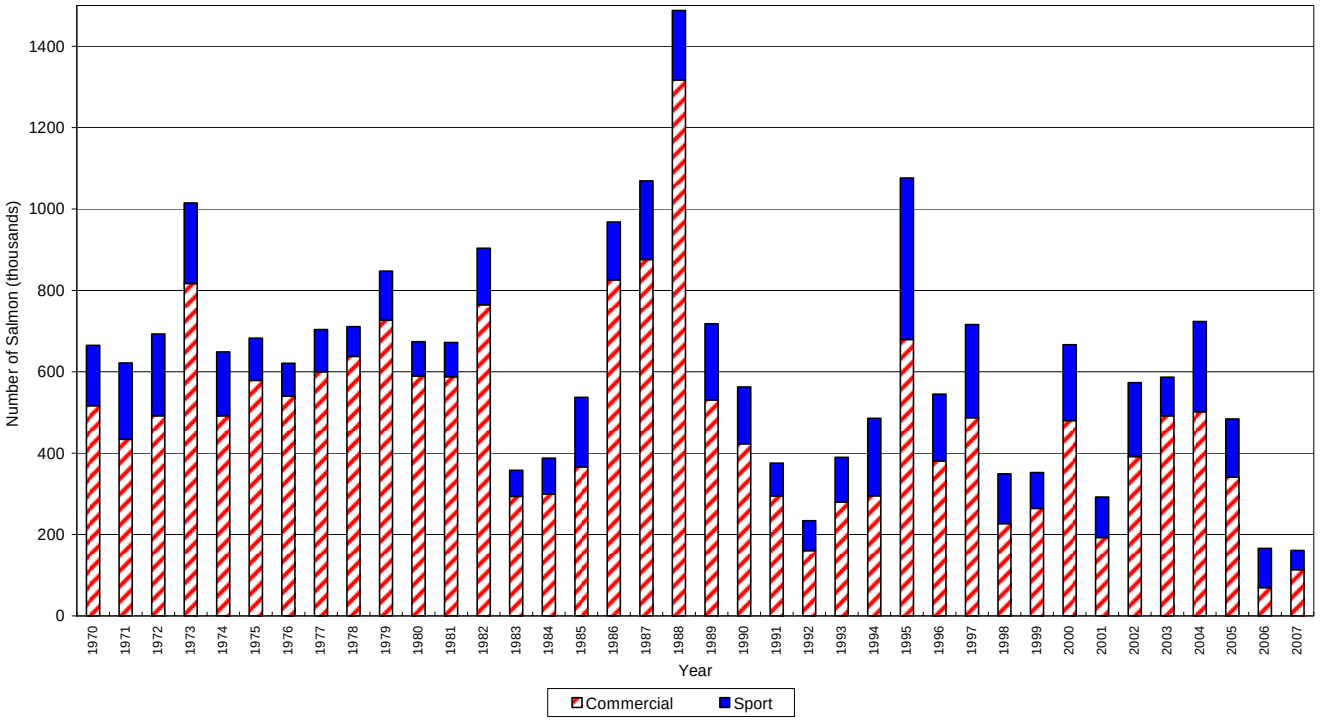



Combined Natural Spawning and Hatchery Total Since 1986

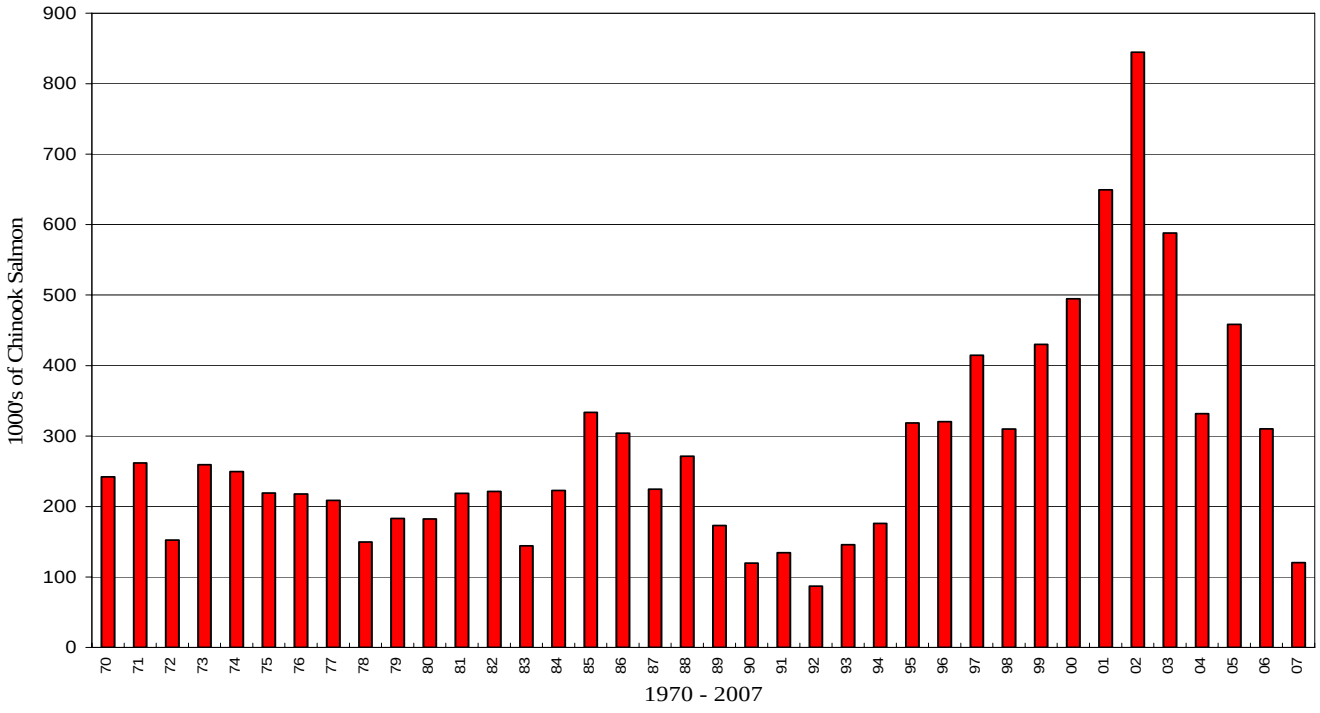


# Exhibit 2 – Ocean catch and harvest rate data

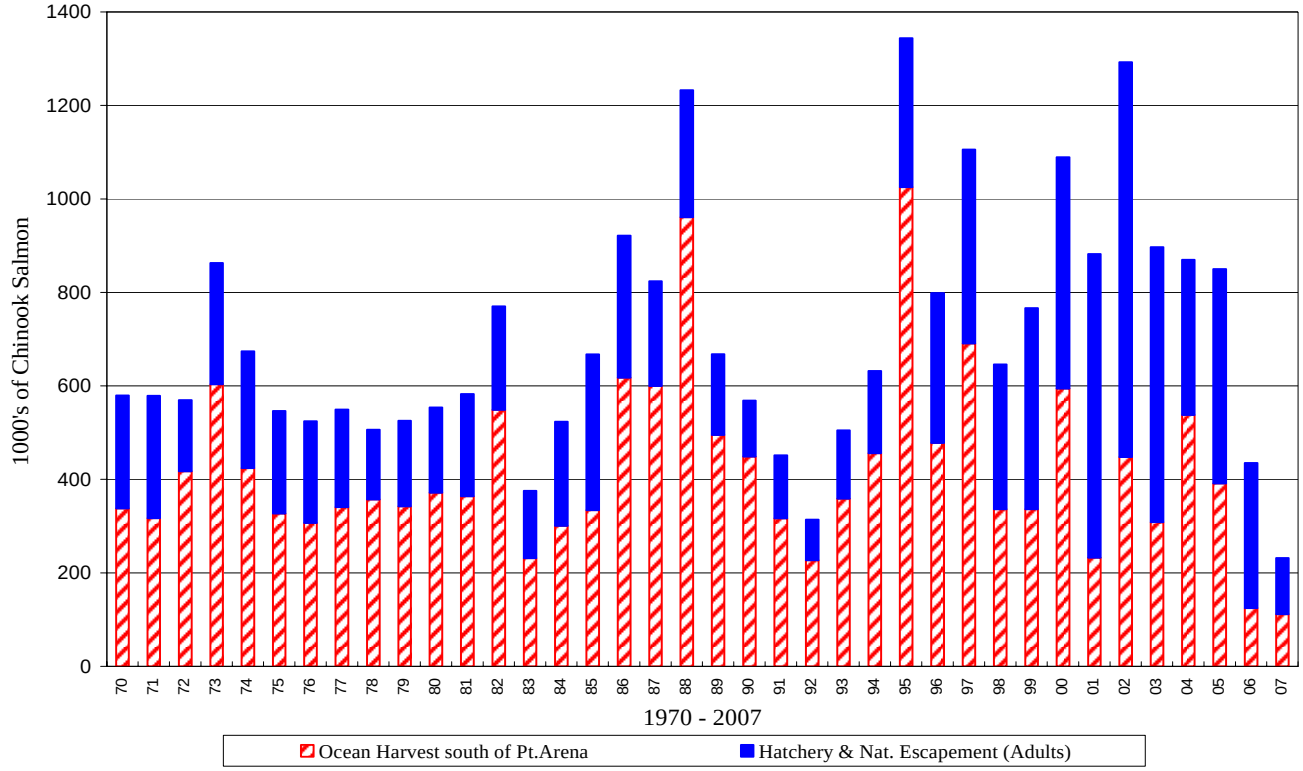
California Chinook Landings: Commercial Troll Harvest and Sport Catch



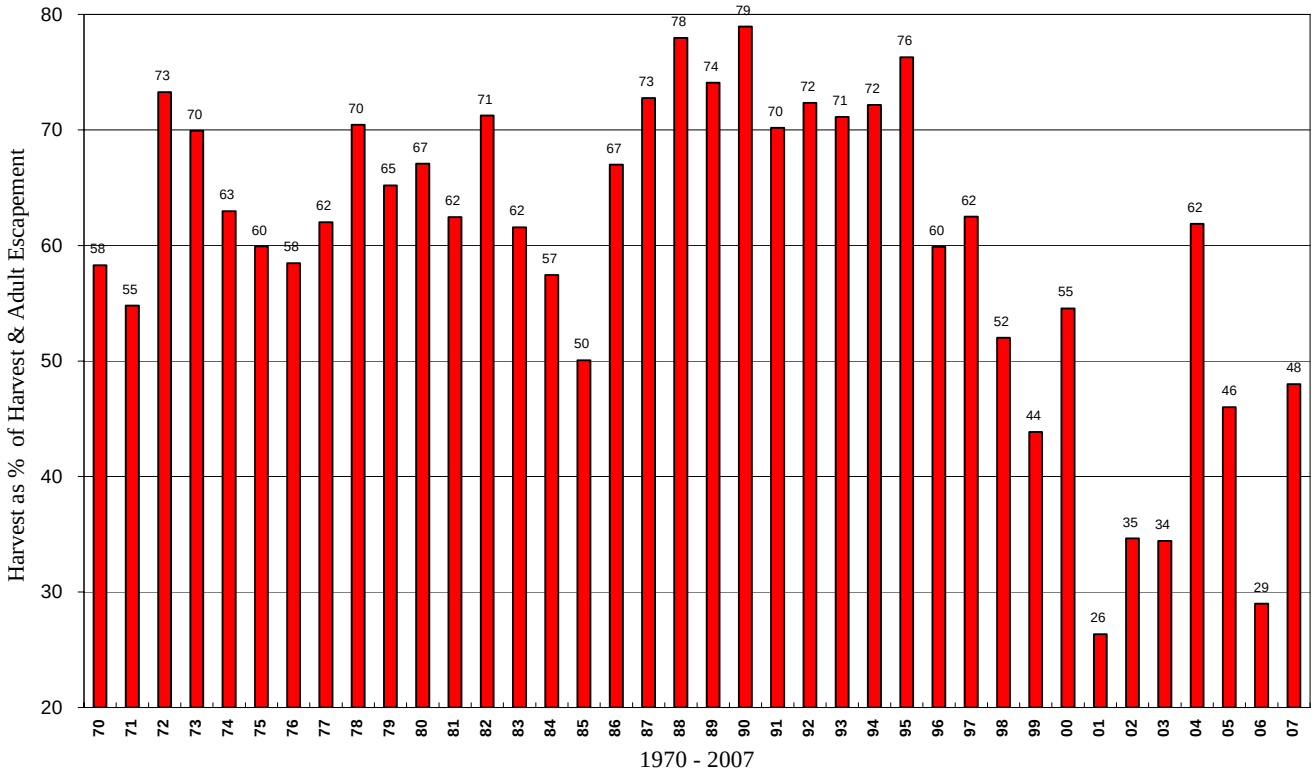

Hatchery and Natural Escapement: Central Valley Adults



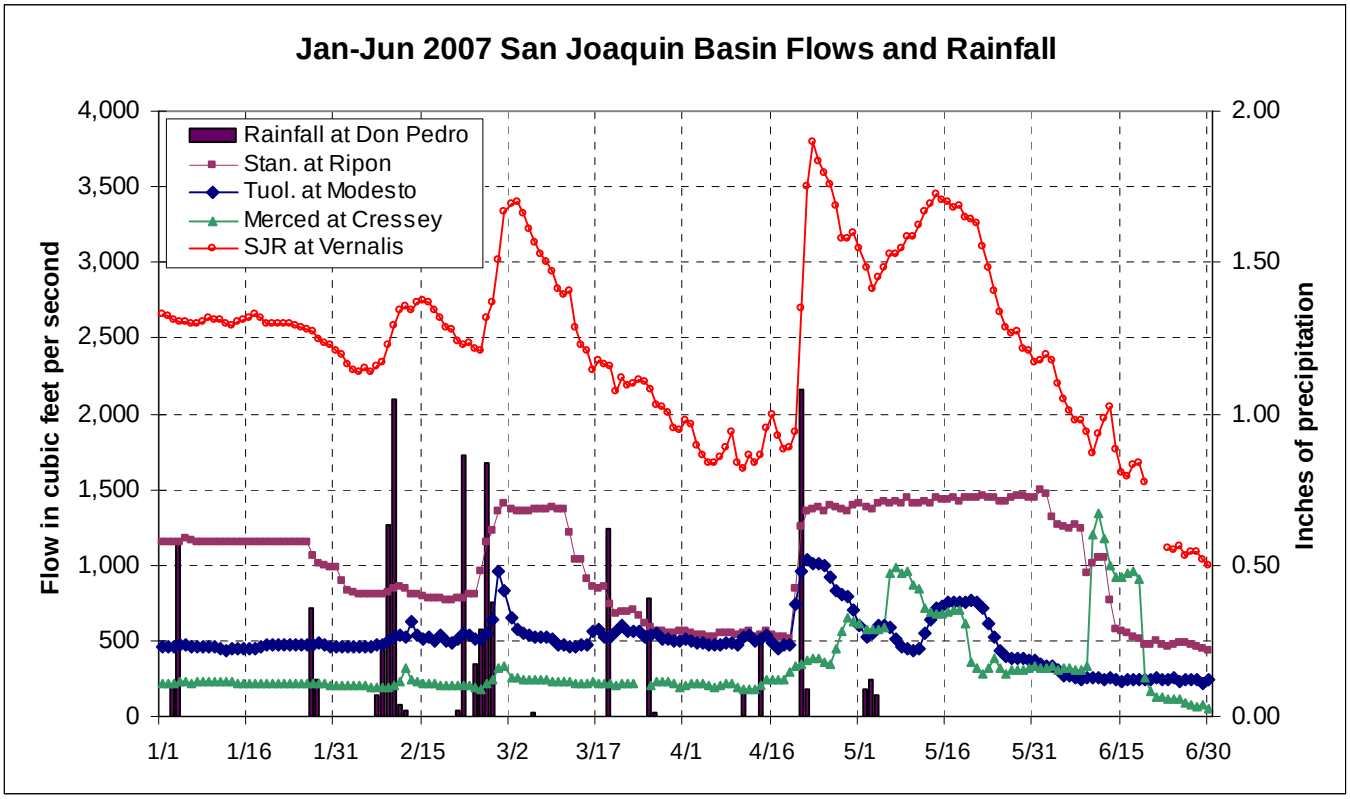
Central Valley Chinook Salmon Abundance Index: River and Ocean Totals

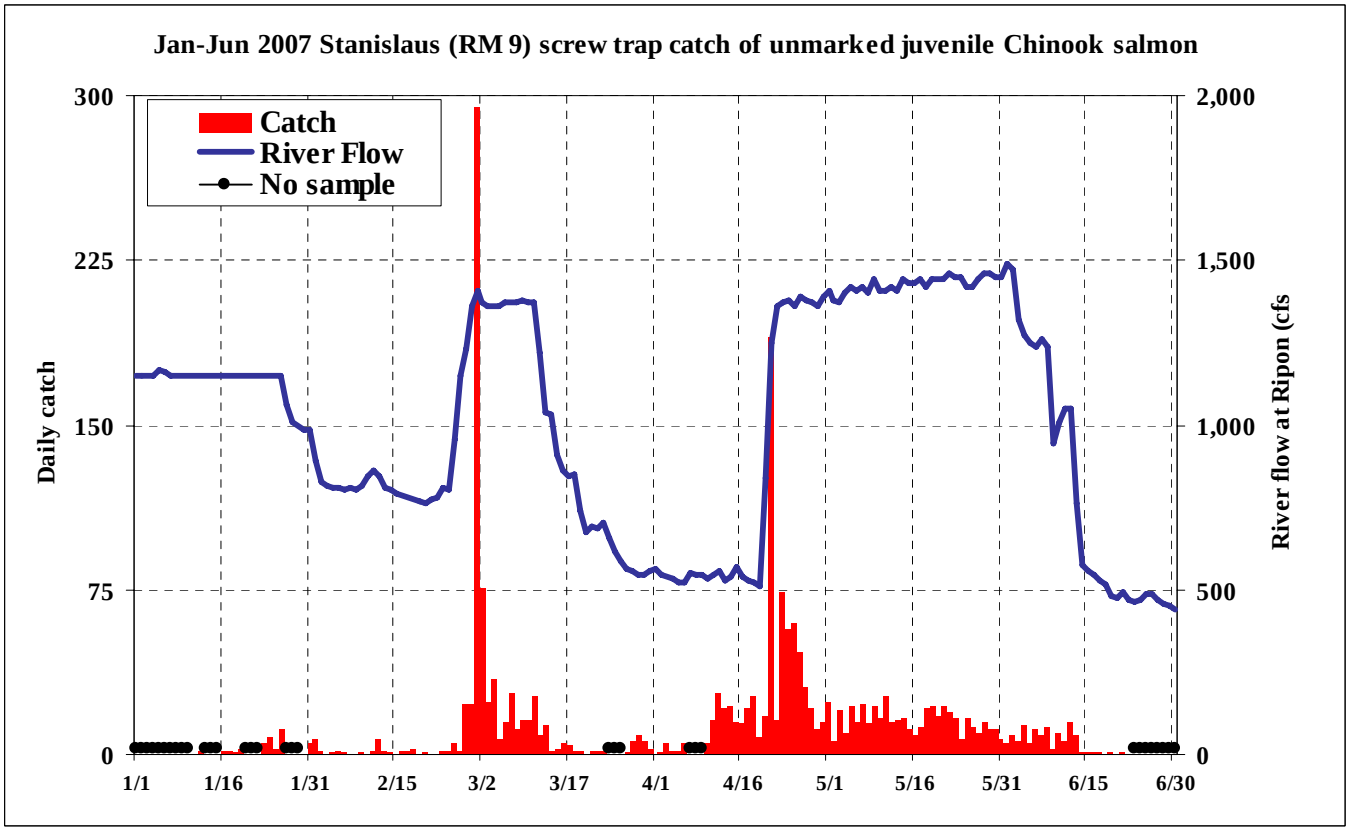


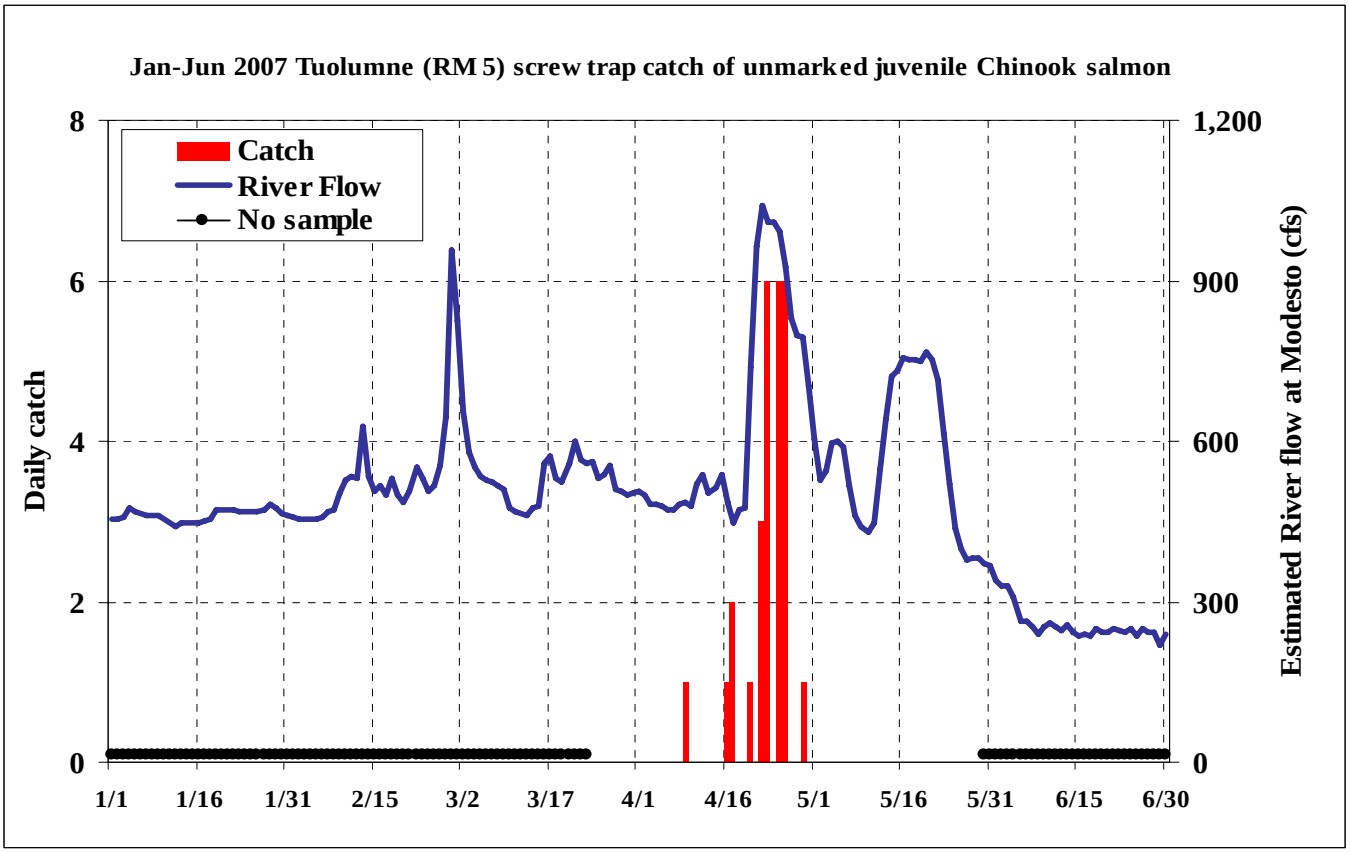

Central Valley Ocean Harvest Rate Index (south of Pt. Arena)

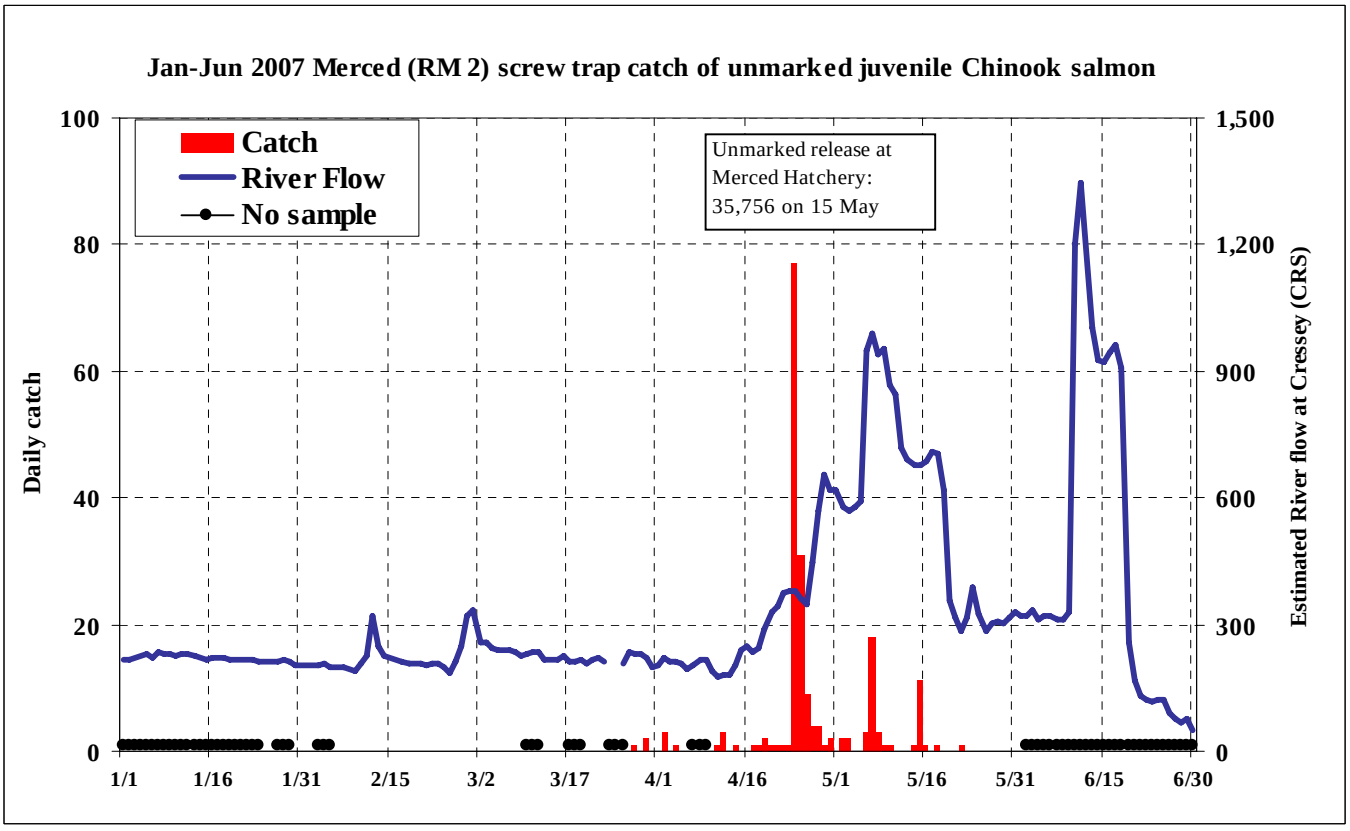


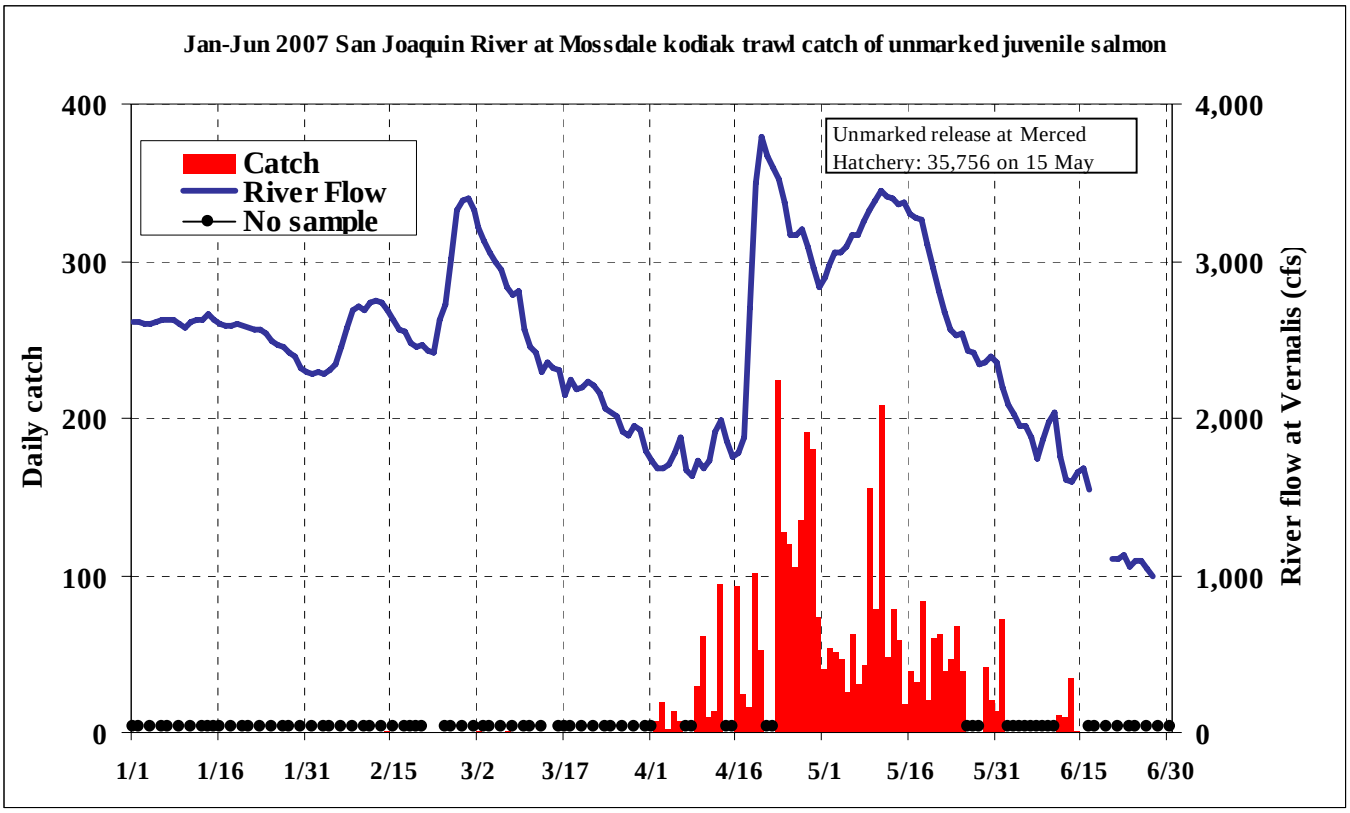
# Exhibit 3 – Basin flow and salmon rearing/outmigration data

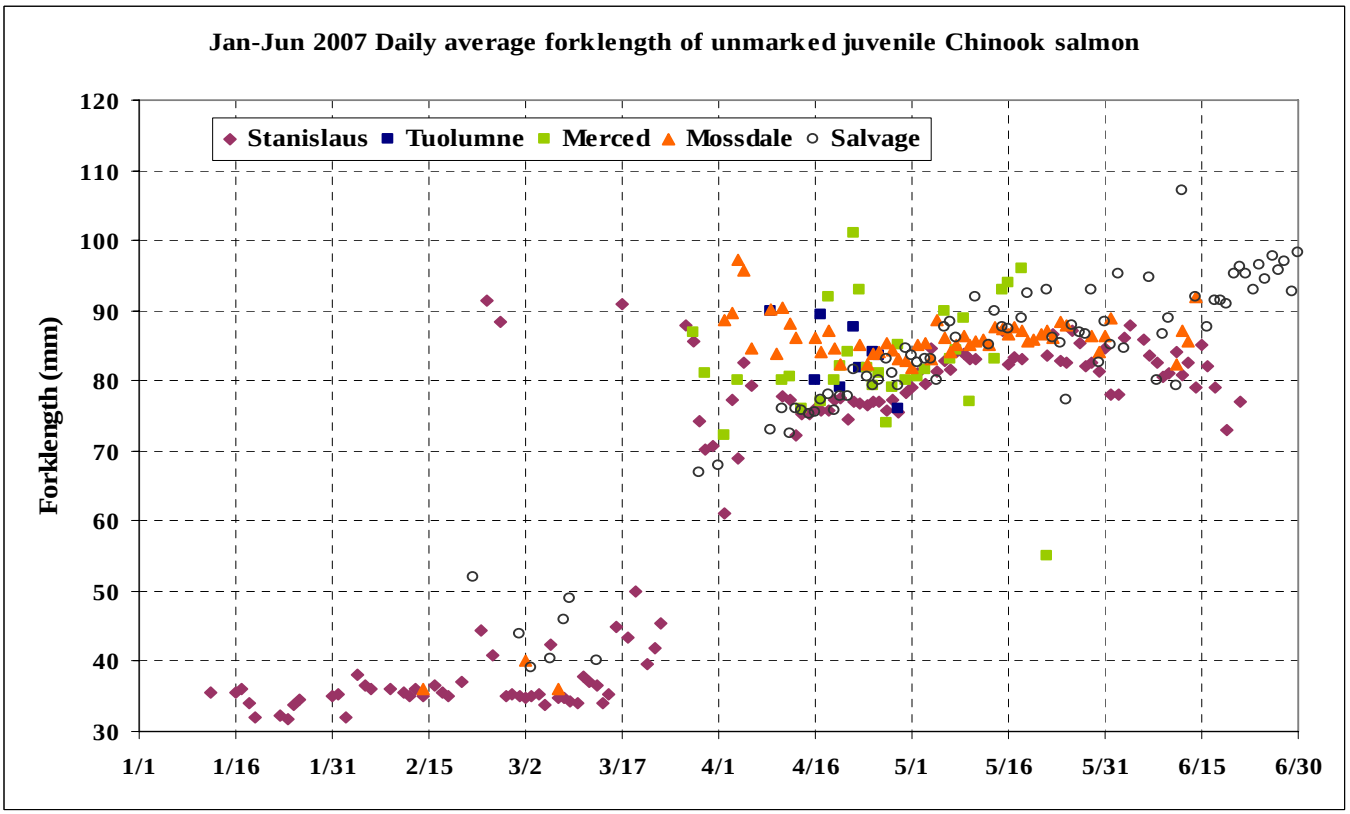


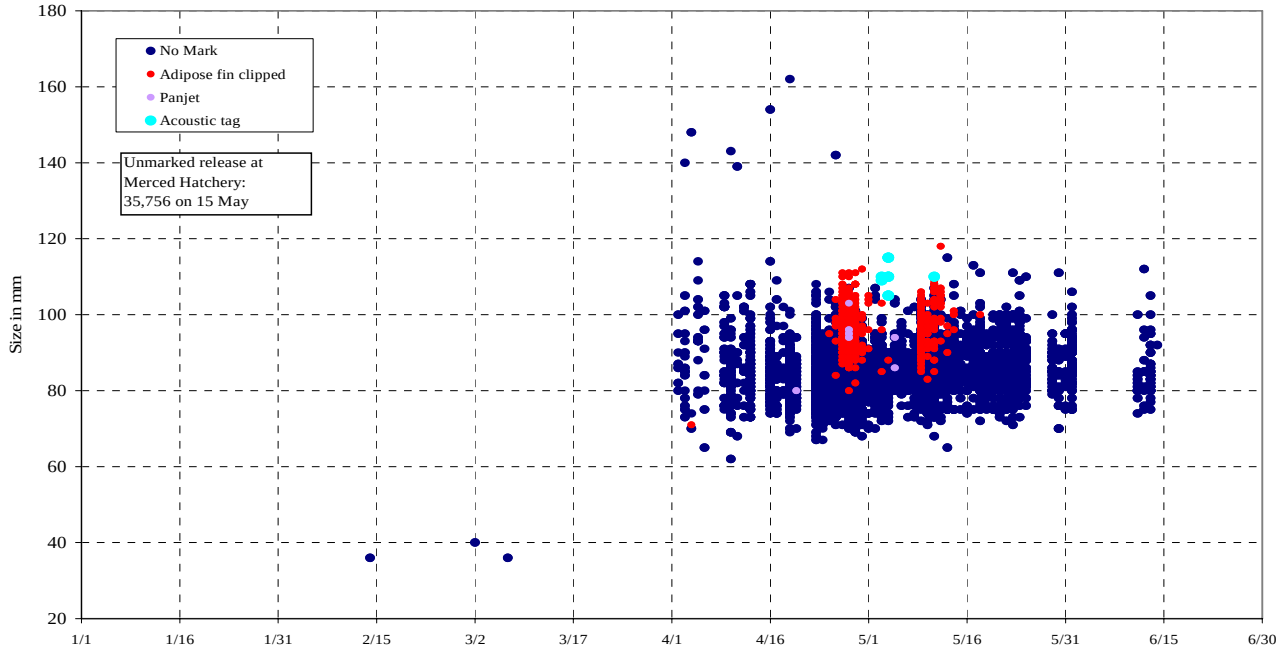

Jan-Jun 2007 Tuolumne (RM 5) screw trap catch of unmarked juvenile Chinook salmon
Catch
River Flow
No sample
Daily catch
Estimated River flow at Modesto (cfs)
0
2
4
6
8
0
300
600
900
1,200
1/1
1/16
1/31
2/15
3/2
3/17
4/1
4/16
5/1
5/16
5/31
6/15
6/30

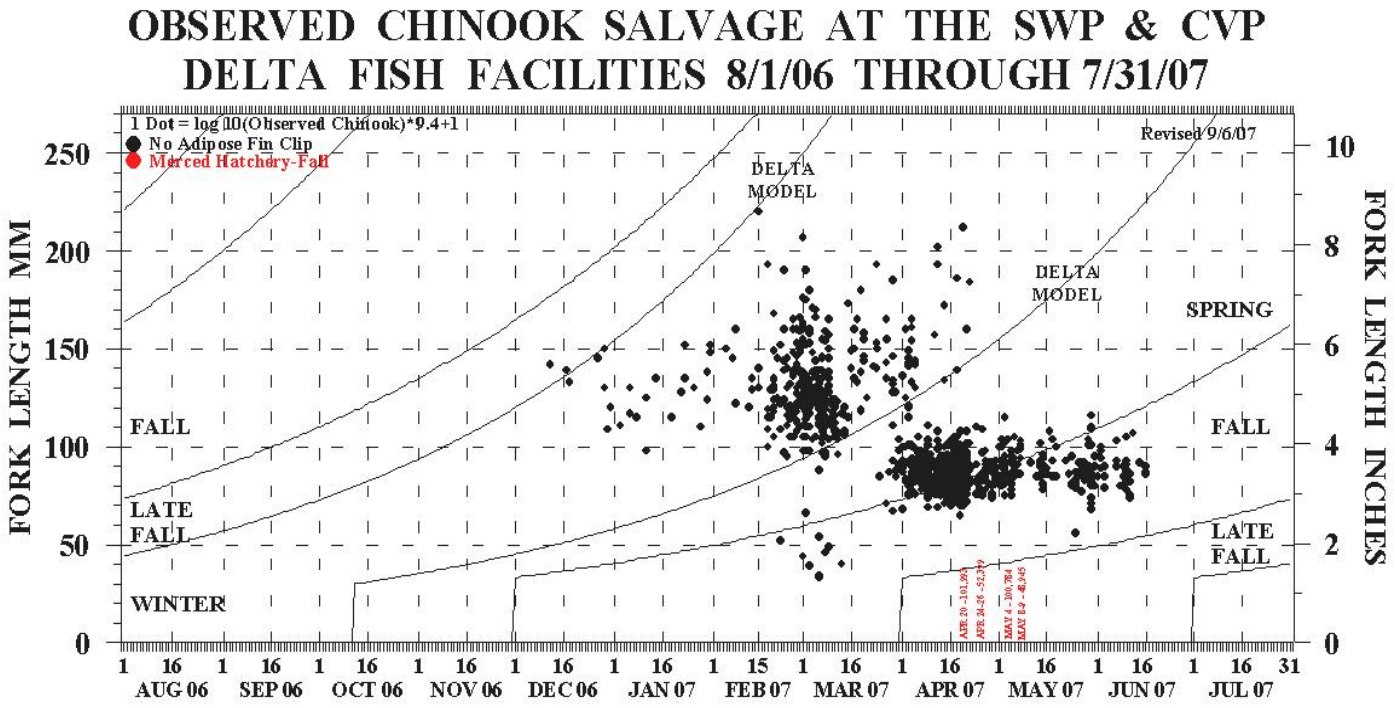

Jan-Jun 2007 Merced (RM 2) screw trap catch of unmarked juvenile Chinook salmon
Catch
River Flow
No sample
Unmarked release at
Merced Hatchery:
35,756 on 15 May
Daily catch
Estimated River flow at Cressey (CRS)
0
20
40
60
80
100
0
300
600
900
1,200
1,500
1/1
1/16
1/31
2/15
3/2
3/17
4/1
4/16
5/1
5/16
5/31
6/15
6/30


Jan-Jun 2007 San Joaquin River at Mossdale kodiak trawl catch of unmarked juvenile salmon
Catch
River Flow
No sample
Unmarked release at Merced Hatchery: 35,756 on 15 May
Daily catch
River flow at Vernalis (cfs)
400
300
200
100
0
4,000
3,000
2,000
1,000
0
1/1
1/16
1/31
2/15
3/2
3/17
4/1
4/16
5/1
5/16
5/31
6/15
6/30


Jan-Jun 2007 Daily average forklength of unmarked juvenile Chinook salmon
Stanislaus
Tuolumne
Merced
Mossdale
Salvage
Forklength (mm)
120
110
100
90
80
70
60
50
40
30
1/1
1/16
1/31
2/15
3/2
3/17
4/1
4/16
5/1
5/16
5/31
6/15
6/30

Jan-Jun 2007 Mossdale Kodiak trawl individual daily forklengths of juvenile Chinook salmon




Note: “Delta Model” size/date categories are not necessarily representative of San Joaquin salmon

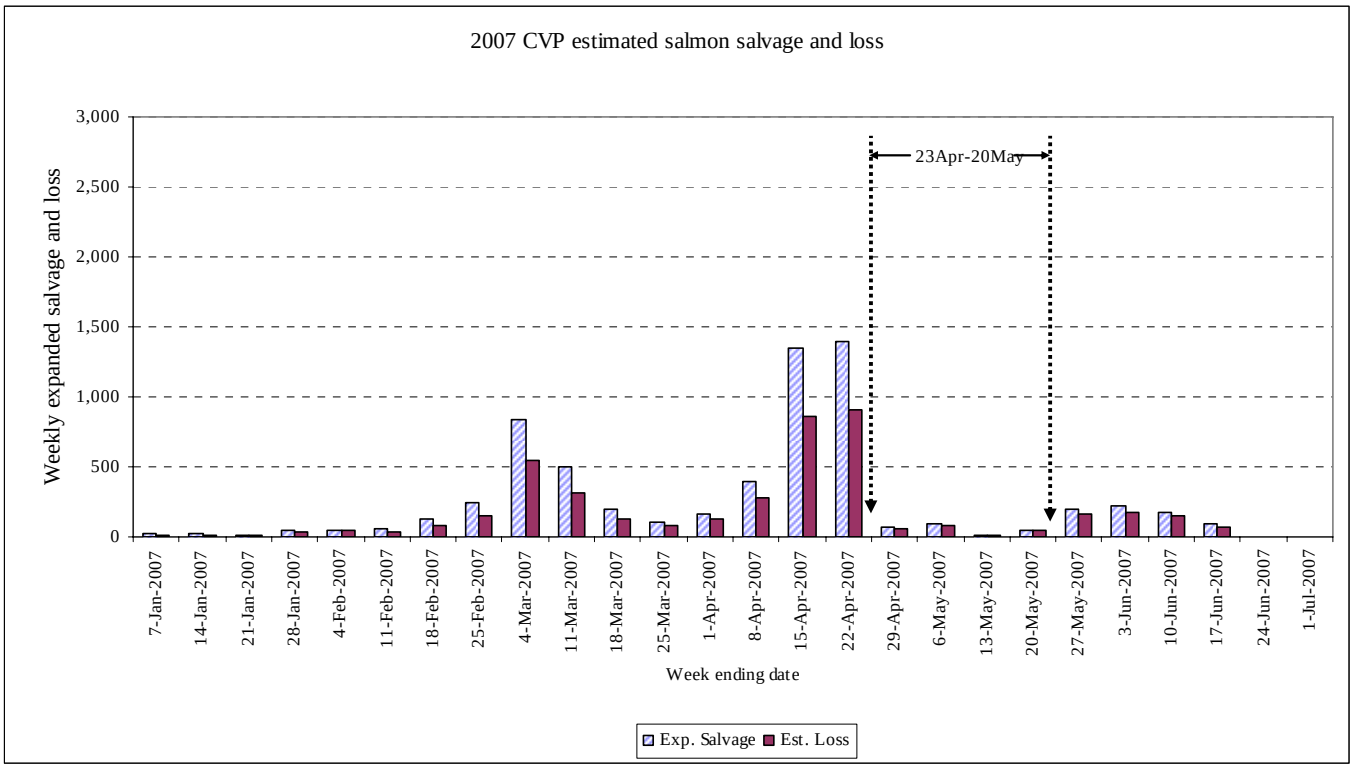
# Exhibit 4 – Delta export and salmon salvage data

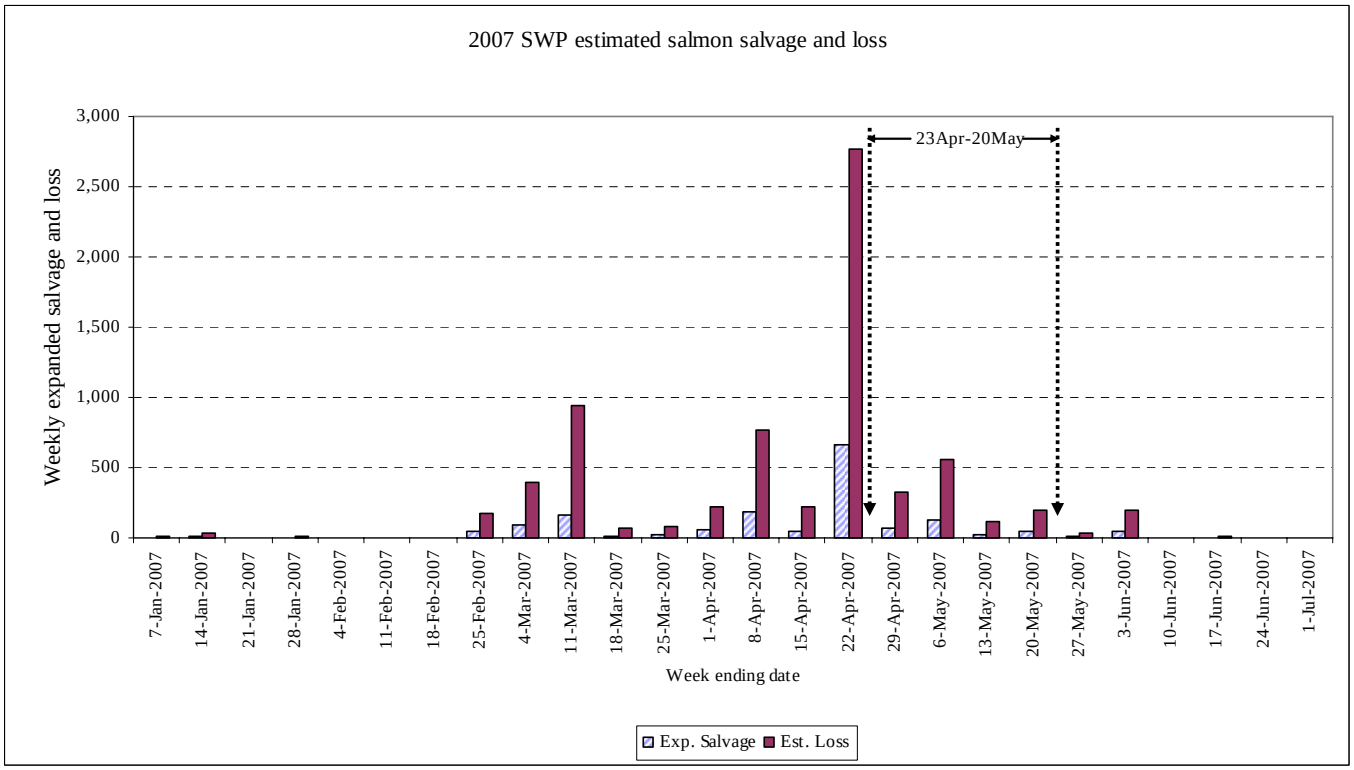
Weekly salvage and export data for Jan-Jun 2006

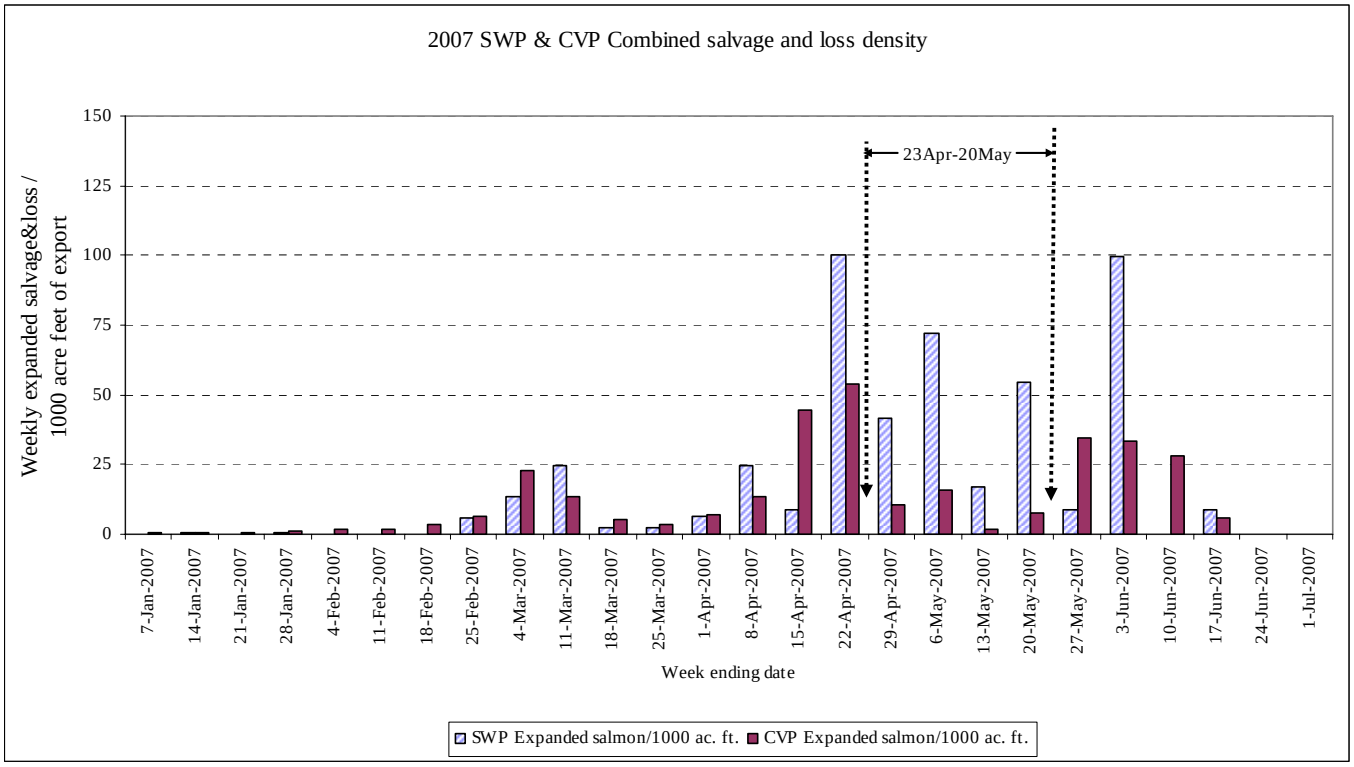
**2007** (VAMP period is shaded)

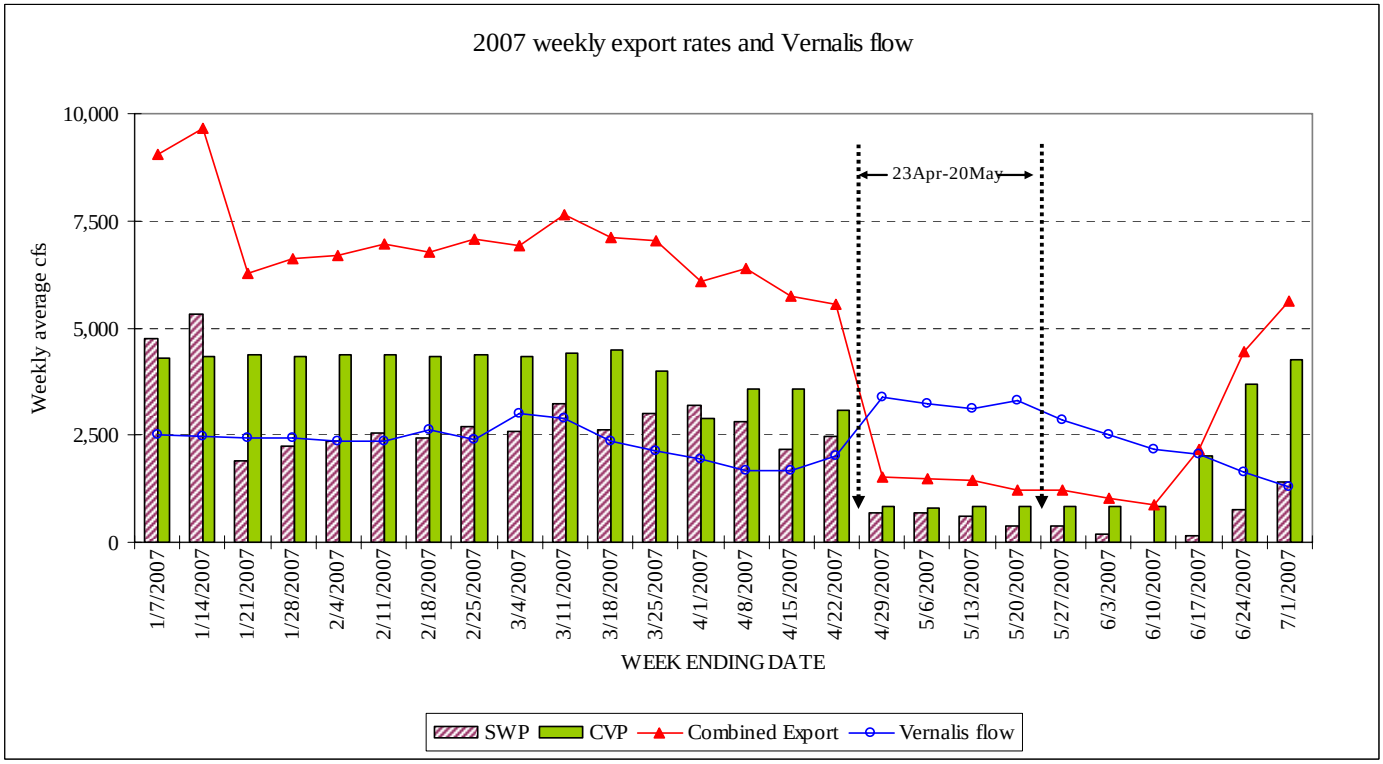
| **STATE WATER PROJECT** | | | | | | | SWP | SWP | CVP&SWP |
|---|---|---|---|---|---|---|---|---|---|
| week ending | | | | | | | Expanded | Combined | average |
| date | Total chinook salvage | | | Combined | Ave. cfs | Acre ft. | salvage / | salvage & loss | export rate |
| | Observed | Exp.Salvage | Est. Loss | salvage & loss | Export | Export | 1000 ac.ft. | per 1000 ac.ft. | (cfs) |
| 7-Jan-2007 | 1 | 2 | 9 | 11 | 4,739 | 65,782 | 0.0 | 0.2 | 9,045 |
| 14-Jan-2007 | 2 | 9 | 39 | 48 | 5,323 | 73,895 | 0.1 | 0.6 | 9,671 |
| 21-Jan-2007 | 0 | 0 | 0 | 0 | 1,901 | 26,386 | 0.0 | 0.0 | 6,272 |
| 28-Jan-2007 | 1 | 4 | 17 | 21 | 2,257 | 31,331 | 0.1 | 0.7 | 6,602 |
| 4-Feb-2007 | 0 | 0 | 0 | 0 | 2,340 | 32,476 | 0.0 | 0.0 | 6,695 |
| 11-Feb-2007 | 0 | 0 | 0 | 0 | 2,559 | 35,518 | 0.0 | 0.0 | 6,946 |
| 18-Feb-2007 | 0 | 0 | 0 | 0 | 2,433 | 33,776 | 0.0 | 0.0 | 6,768 |
| 25-Feb-2007 | 19 | 41 | 175 | 216 | 2,710 | 37,619 | 1.1 | 5.7 | 7,081 |
| 4-Mar-2007 | 35 | 91 | 398 | 489 | 2,597 | 36,053 | 2.5 | 13.6 | 6,917 |
| 11-Mar-2007 | 58 | 158 | 939 | 1,097 | 3,219 | 44,685 | 3.5 | 24.5 | 7,638 |
| 18-Mar-2007 | 4 | 16 | 70 | 86 | 2,631 | 36,525 | 0.4 | 2.4 | 7,121 |
| 25-Mar-2007 | 6 | 18 | 78 | 96 | 3,009 | 41,774 | 0.4 | 2.3 | 7,016 |
| 1-Apr-2007 | 15 | 53 | 225 | 278 | 3,179 | 44,126 | 1.2 | 6.3 | 6,072 |
| 8-Apr-2007 | 59 | 182 | 772 | 954 | 2,801 | 38,881 | 4.7 | 24.5 | 6,383 |
| 15-Apr-2007 | 22 | 51 | 216 | 267 | 2,177 | 30,215 | 1.7 | 8.8 | 5,750 |
| 22-Apr-2007 | 211 | 661 | 2762 | 3,423 | 2,461 | 34,155 | 19.4 | 100.2 | 5,541 |
| 29-Apr-2007 | 29 | 75 | 323 | 398 | 690 | 9,584 | 7.8 | 41.5 | 1,529 |
| 6-May-2007 | 41 | 130 | 562 | 692 | 690 | 9,580 | 13.6 | 72.2 | 1,498 |
| 13-May-2007 | 9 | 28 | 119 | 147 | 614 | 8,517 | 3.3 | 17.3 | 1,464 |
| 20-May-2007 | 17 | 44 | 199 | 243 | 374 | 4,455 | 9.9 | 54.5 | 1,226 |
| 27-May-2007 | 3 | 7 | 33 | 40 | 382 | 4,550 | 1.5 | 8.8 | 1,233 |
| 3-Jun-2007 | 22 | 42 | 197 | 239 | 173 | 2,403 | 17.5 | 99.4 | 1,027 |
| 10-Jun-2007 | 0 | 0 | 0 | 0 | 13 | 178 | 0.0 | 0.0 | 862 |
| 17-Jun-2007 | 1 | 3 | 15.45 | 18 | 149 | 2,074 | 1.4 | 8.9 | 2,161 |
| 24-Jun-2007 | 0 | 0 | 0 | 0 | 765 | 10,619 | 0.0 | 0.0 | 4,456 |
| 1-Jul-2007 | 0 | 0 | 0 | 0 | 1,394 | 19,350 | 0.0 | 0.0 | 5,638 |
| **Tot&avg** | **555** | **1,615** | **7,148** | **8,763** | **1,984** | **714,507** | **3.5** | **18.9** | **5,100** |
| VAMP | 96 | 277 | 1,203 | 1,480 | 592 | 32,136 | 9 | 46 | 1,429 |

| **CENTRAL VALLEY PROJECT** | | | | | | | CVP | CVP | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Expanded | Combined | Vernalis |
| week ending | Total chinook salvage | | | Combined | Ave. cfs | Acre ft. | salvage/ | salvage & loss | flow |
| date | Observed | Expanded | Est. Loss | salvage & loss | Export | Export | 1000 ac.ft. | per 1000 ac.ft. | (cfs) |
| 7-Jan-2007 | 2 | 24 | 16 | 40 | 4,306 | 59,768 | 0.4 | 0.7 | 2,506 |
| 14-Jan-2007 | 2 | 24 | 16 | 40 | 4,347 | 60,345 | 0.4 | 0.7 | 2,456 |
| 21-Jan-2007 | 1 | 12 | 8 | 20 | 4,371 | 60,674 | 0.2 | 0.3 | 2,430 |
| 28-Jan-2007 | 4 | 48 | 32 | 80 | 4,345 | 60,311 | 0.8 | 1.3 | 2,444 |
| 4-Feb-2007 | 4 | 48 | 42 | 90 | 4,356 | 60,460 | 0.8 | 1.5 | 2,365 |
| 11-Feb-2007 | 5 | 60 | 39 | 99 | 4,387 | 60,896 | 1.0 | 1.6 | 2,356 |
| 18-Feb-2007 | 11 | 132 | 85 | 217 | 4,334 | 60,164 | 2.2 | 3.6 | 2,621 |
| 25-Feb-2007 | 20 | 240 | 155 | 395 | 4,371 | 60,672 | 4.0 | 6.5 | 2,393 |
| 4-Mar-2007 | 70 | 840 | 545 | 1,385 | 4,320 | 59,966 | 14.0 | 23.1 | 3,002 |
| 11-Mar-2007 | 42 | 504 | 316 | 820 | 4,419 | 61,342 | 8.2 | 13.4 | 2,876 |
| 18-Mar-2007 | 16 | 192 | 125 | 317 | 4,490 | 62,326 | 3.1 | 5.1 | 2,345 |
| 25-Mar-2007 | 10 | 109 | 76 | 185 | 4,007 | 55,619 | 2.0 | 3.3 | 2,112 |
| 1-Apr-2007 | 14 | 168 | 125 | 293 | 2,894 | 40,166 | 4.2 | 7.3 | 1,923 |
| 8-Apr-2007 | 35 | 400 | 274 | 674 | 3,582 | 49,716 | 8.0 | 13.6 | 1,681 |
| 15-Apr-2007 | 112 | 1344 | 861 | 2,205 | 3,573 | 49,599 | 27.1 | 44.5 | 1,665 |
| 22-Apr-2007 | 116 | 1392 | 908 | 2,300 | 3,080 | 42,759 | 32.6 | 53.8 | 2,024 |
| 29-Apr-2007 | 6 | 66 | 55 | 121 | 838 | 11,636 | 5.7 | 10.4 | 3,382 |
| 6-May-2007 | 8 | 96 | 83 | 179 | 808 | 11,210 | 8.6 | 16.0 | 3,216 |
| 13-May-2007 | 1 | 12 | 10 | 22 | 850 | 11,801 | 1.0 | 1.9 | 3,103 |
| 20-May-2007 | 5 | 51 | 42 | 93 | 852 | 11,821 | 4.3 | 7.9 | 3,291 |
| 27-May-2007 | 16 | 192 | 157 | 349 | 851 | 10,120 | 19.0 | 34.5 | 2,843 |
| 3-Jun-2007 | 18 | 216 | 177.4 | 393 | 854 | 11,848 | 18.2 | 33.2 | 2,527 |
| 10-Jun-2007 | 15 | 180 | 150.71 | 331 | 849 | 11,787 | 15.3 | 28.1 | 2,161 |
| 17-Jun-2007 | 8 | 96 | 72.36 | 168 | 2,012 | 27,923 | 3.4 | 6.0 | 2,036 |
| 24-Jun-2007 | 0 | 0 | 0 | 0 | 3,691 | 51,235 | 0.0 | 0.0 | 1,627 |
| 1-Jul-2007 | 0 | 0 | 0 | 0 | 4,244 | 58,905 | 0.0 | 0.0 | 1,301 |
| **Tot&avg** | **541** | **6,446** | **4,370** | **10,816** | **3,116** | **1,123,067** | **7.1** | **12.2** | **2,411** |
| VAMP | 20 | 225 | 190 | 415 | 837 | 46,468 | 5 | 9 | 3,248 |

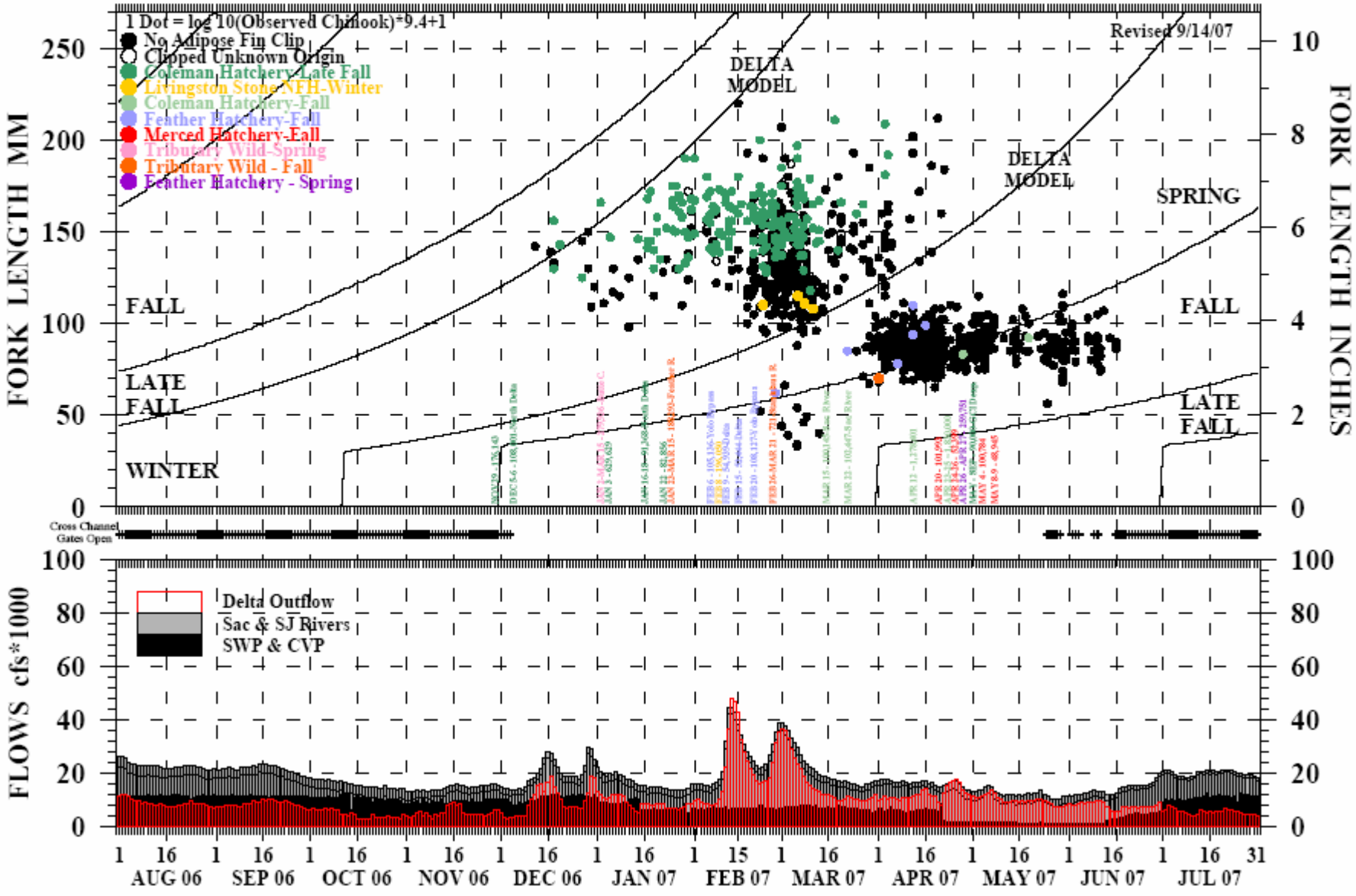

2007 CVP estimated salmon salvage and loss
Weekly expanded salvage and loss
3,000
2,500
2,000
1,500
1,000
500
0
23Apr-20May
7-Jan-2007
14-Jan-2007
21-Jan-2007
28-Jan-2007
4-Feb-2007
11-Feb-2007
18-Feb-2007
25-Feb-2007
4-Mar-2007
11-Mar-2007
18-Mar-2007
25-Mar-2007
1-Apr-2007
8-Apr-2007
15-Apr-2007
22-Apr-2007
29-Apr-2007
6-May-2007
13-May-2007
20-May-2007
27-May-2007
3-Jun-2007
10-Jun-2007
17-Jun-2007
24-Jun-2007
1-Jul-2007
Week ending date
Exp. Salvage
Est. Loss


2007 SWP estimated salmon salvage and loss
Weekly expanded salvage and loss
3,000
2,500
2,000
1,500
1,000
500
0
23Apr-20May
7-Jan-2007
14-Jan-2007
21-Jan-2007
28-Jan-2007
4-Feb-2007
11-Feb-2007
18-Feb-2007
25-Feb-2007
4-Mar-2007
11-Mar-2007
18-Mar-2007
25-Mar-2007
1-Apr-2007
8-Apr-2007
15-Apr-2007
22-Apr-2007
29-Apr-2007
6-May-2007
13-May-2007
20-May-2007
27-May-2007
3-Jun-2007
10-Jun-2007
17-Jun-2007
24-Jun-2007
1-Jul-2007
Week ending date
Exp. Salvage
Est. Loss


2007 SWP & CVP Combined salvage and loss density
Weekly expanded salvage&loss / 1000 acre feet of export
150
125
100
75
50
25
0
23Apr-20May
7-Jan-2007
14-Jan-2007
21-Jan-2007
28-Jan-2007
4-Feb-2007
11-Feb-2007
18-Feb-2007
25-Feb-2007
4-Mar-2007
11-Mar-2007
18-Mar-2007
25-Mar-2007
1-Apr-2007
8-Apr-2007
15-Apr-2007
22-Apr-2007
29-Apr-2007
6-May-2007
13-May-2007
20-May-2007
27-May-2007
3-Jun-2007
10-Jun-2007
17-Jun-2007
24-Jun-2007
1-Jul-2007
Week ending date
SWP Expanded salmon/1000 ac. ft.
CVP Expanded salmon/1000 ac. ft.


2007 weekly export rates and Vernalis flow
Weekly average cfs
10,000
7,500
5,000
2,500
0
23Apr-20May
1/7/2007
1/14/2007
1/21/2007
1/28/2007
2/4/2007
2/11/2007
2/18/2007
2/25/2007
3/4/2007
3/11/2007
3/18/2007
3/25/2007
4/1/2007
4/8/2007
4/15/2007
4/22/2007
4/29/2007
5/6/2007
5/13/2007
5/20/2007
5/27/2007
6/3/2007
6/10/2007
6/17/2007
6/24/2007
7/1/2007
WEEK ENDING DATE
SWP
CVP
Combined Export
Vernalis flow

# OBSERVED CHINOOK SALVAGE AT THE SWP & CVP DELTA FISH FACILITIES 8/1/06 THROUGH 7/31/07

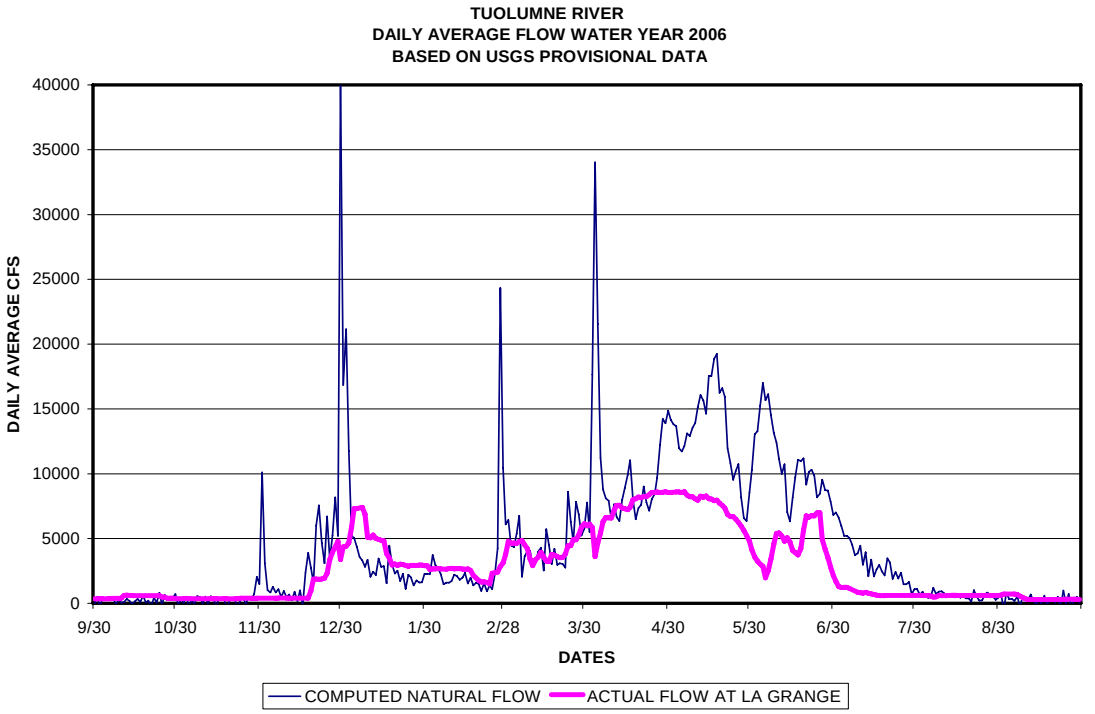


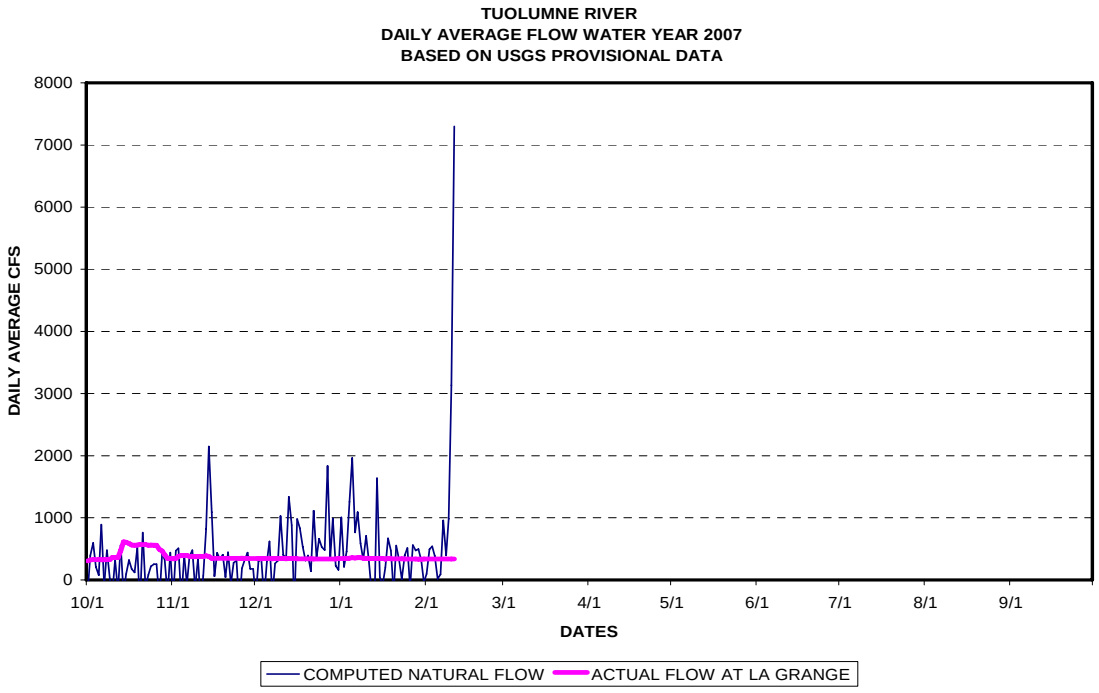
# Attachment -A-

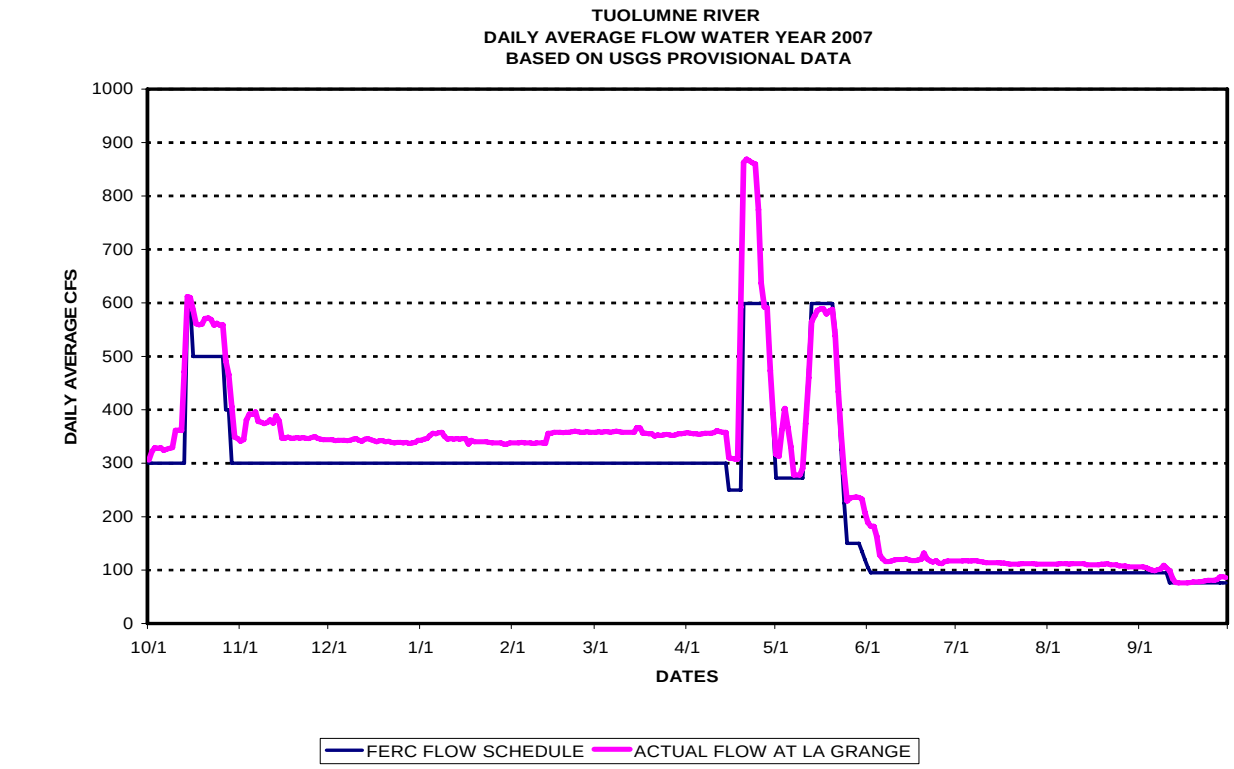
## Water, Flows, Temperature, and Flow Schedule Correspondence

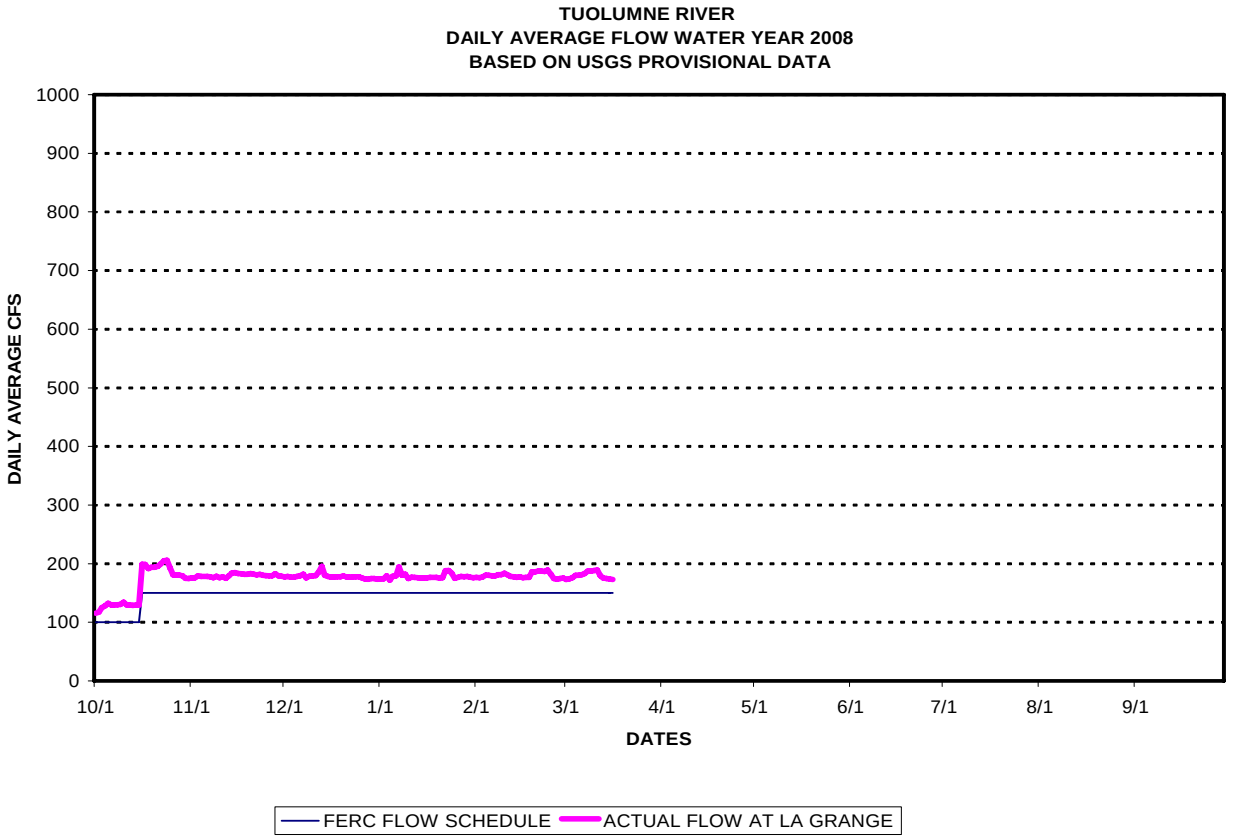
1. Graphs of flows, FERC flow schedule, reservoir status, and precipitation data
    - 2007/2008 Water Years (Oct-Sep) daily average computed natural flow, actual flow, and FERC flow schedule at La Grange
    - 2007/2008 Water Years actual flow: Tuolumne at Modesto, Stanislaus at Ripon, Merced at Cressey, San Joaquin at Stevinson and at Vernalis
    - 2007/2008 Water Years Don Pedro Reservoir storage
    - 2007/2008 Precipitation Years (Sep-Aug) watershed precipitation index and snow sensor water content index as percent of average
2. Graphs of water temperature and air temperature (WY 2007 is in Report 2007-6)
    - Water Year 2008 daily average water temperature for Tuolumne and San Joaquin Rivers
    - Modesto air temperature for Water Year 2008
3. Flow schedule correspondence for 2007
    - 18Apr – Initial 2007-2008 fish flow year schedule for 15Apr-31May period
    - 31May – Interim flow schedule starting June 1
    - 11Sep – Final flow schedule
    - 06Dec2007 – Review of 2007 fall flows, including Article 38 45-day period, and update of water year classification

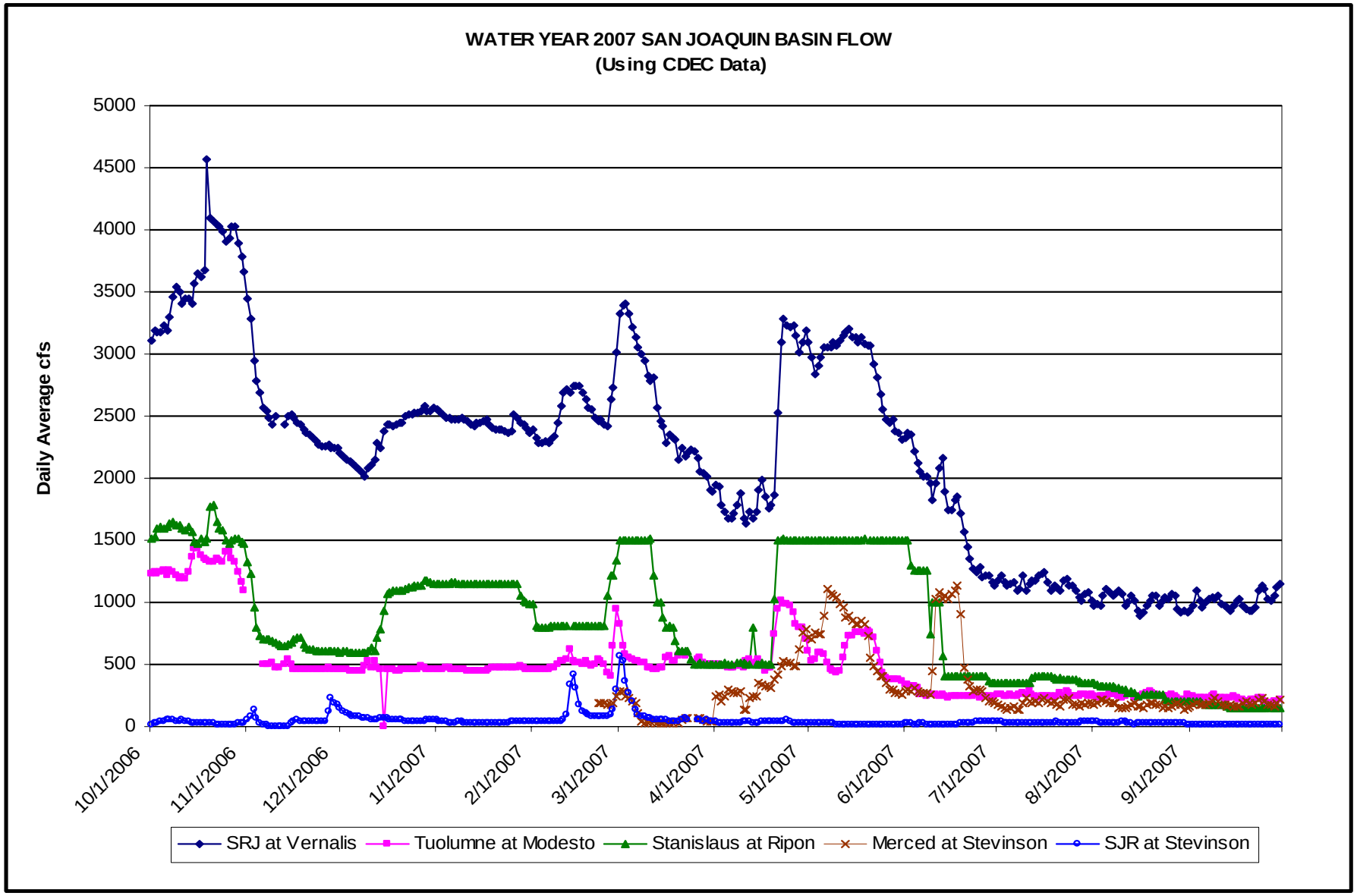
1. Graphs of flows, flow schedule, reservoir status, and precipitation data

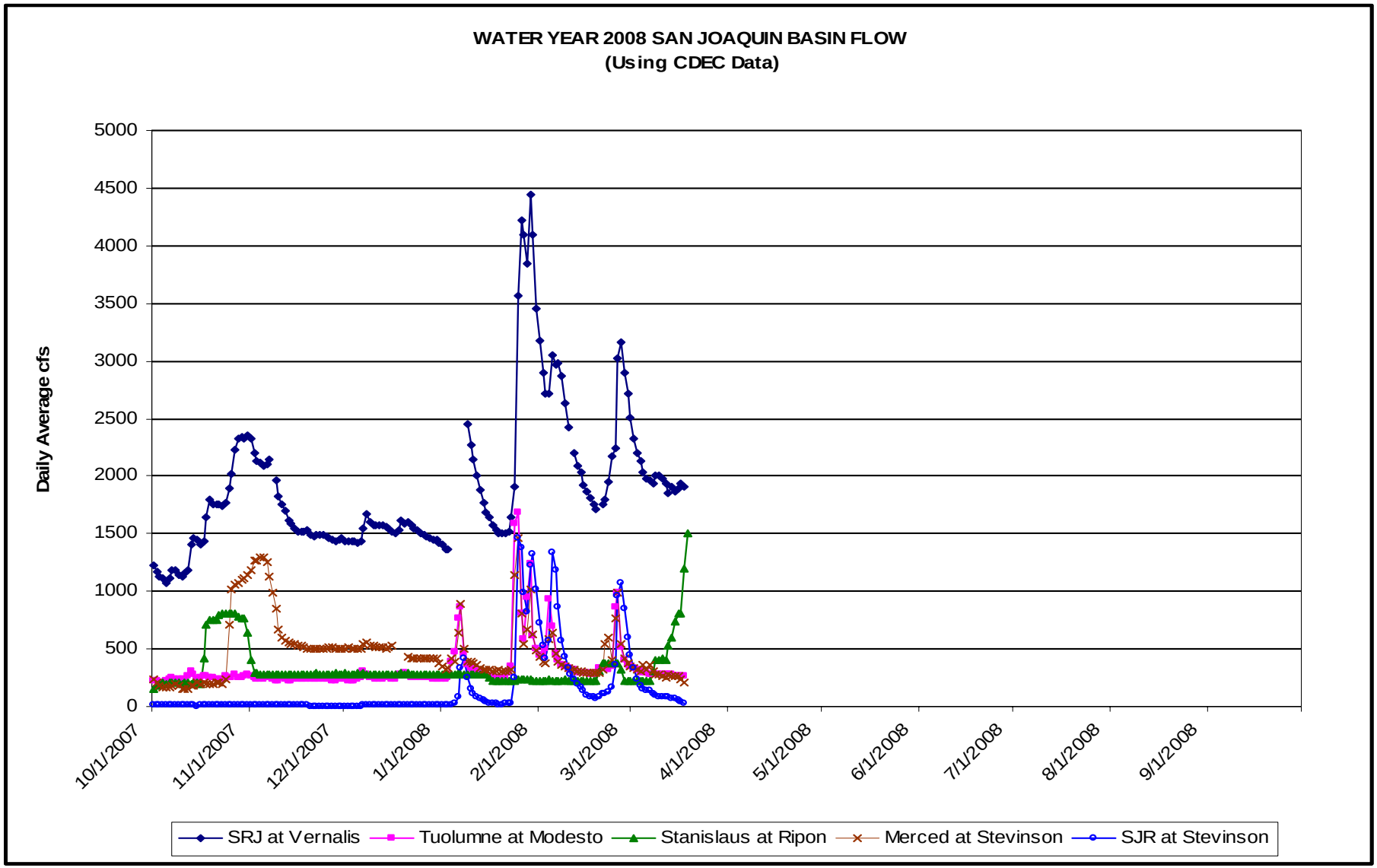


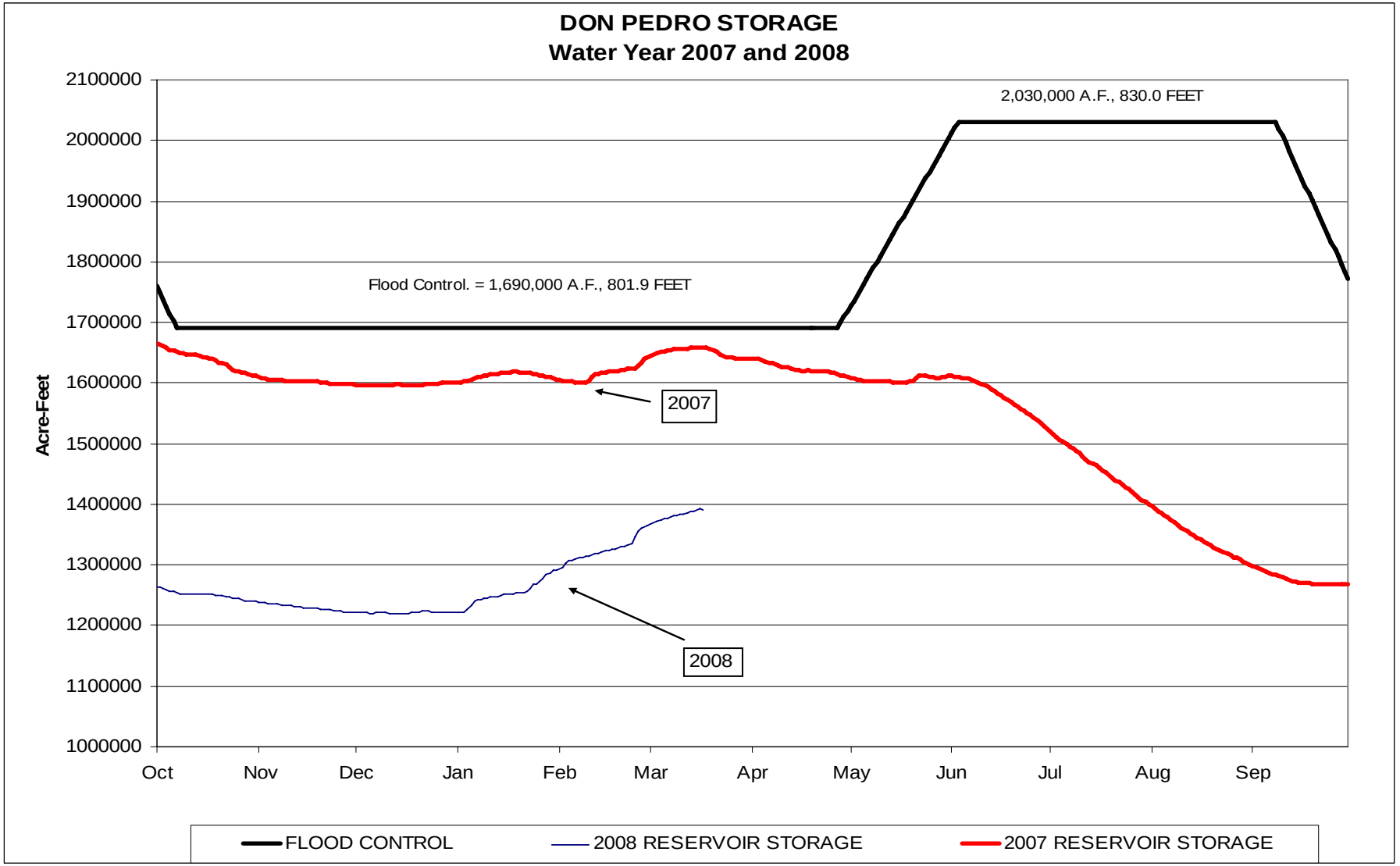



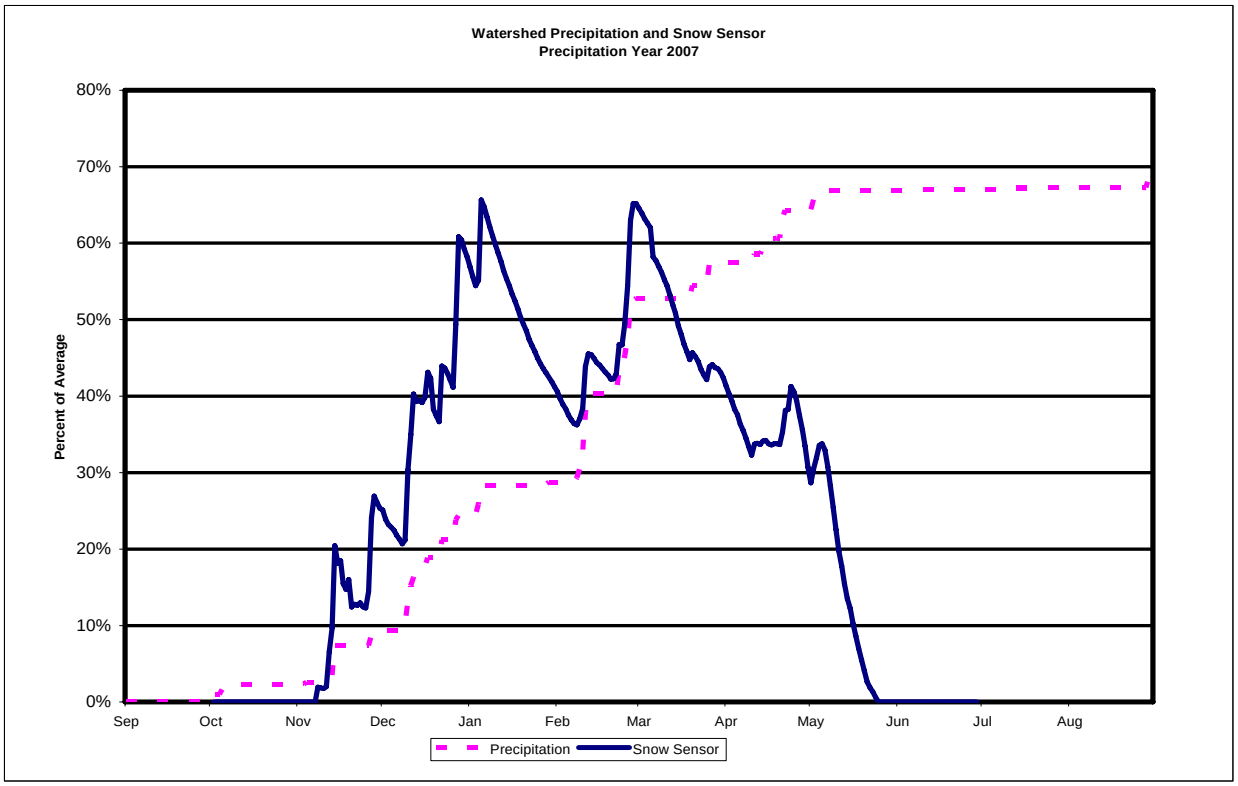

TUOLUMNE RIVER
DAILY AVERAGE FLOW WATER YEAR 2007
BASED ON USGS PROVISIONAL DATA
DAILY AVERAGE CFS
1000
900
800
700
600
500
400
300
200
100
0
10/1
11/1
12/1
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
DATES
FERC FLOW SCHEDULE
ACTUAL FLOW AT LA GRANGE

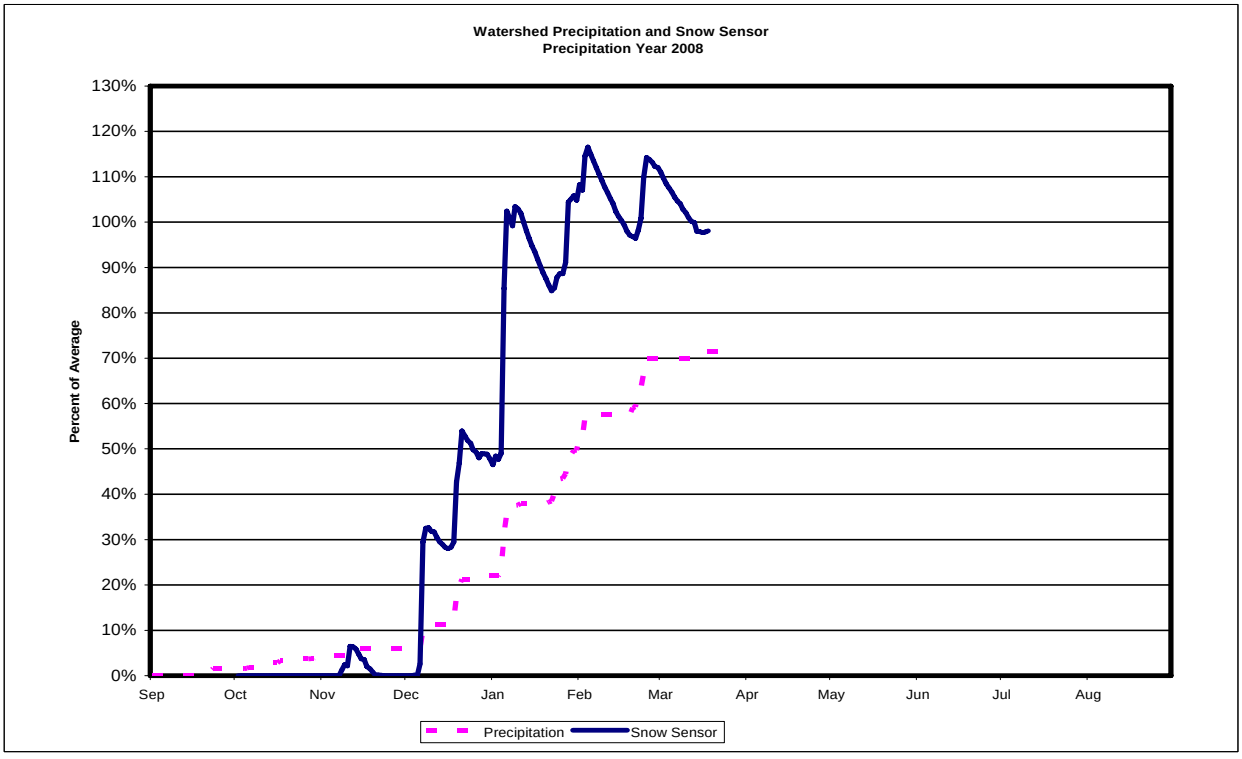

TUOLUMNE RIVER
DAILY AVERAGE FLOW WATER YEAR 2008
BASED ON USGS PROVISIONAL DATA
DAILY AVERAGE CFS
1000
900
800
700
600
500
400
300
200
100
0
10/1
11/1
12/1
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
DATES
FERC FLOW SCHEDULE
ACTUAL FLOW AT LA GRANGE


WATER YEAR 2007 SAN JOAQUIN BASIN FLOW
(Using CDEC Data)
Daily Average cfs
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
10/1/2006
11/1/2006
12/1/2006
1/1/2007
2/1/2007
3/1/2007
4/1/2007
5/1/2007
6/1/2007
7/1/2007
8/1/2007
9/1/2007
SRJ at Vernalis
Tuolumne at Modesto
Stanislaus at Ripon
Merced at Stevinson
SJR at Stevinson

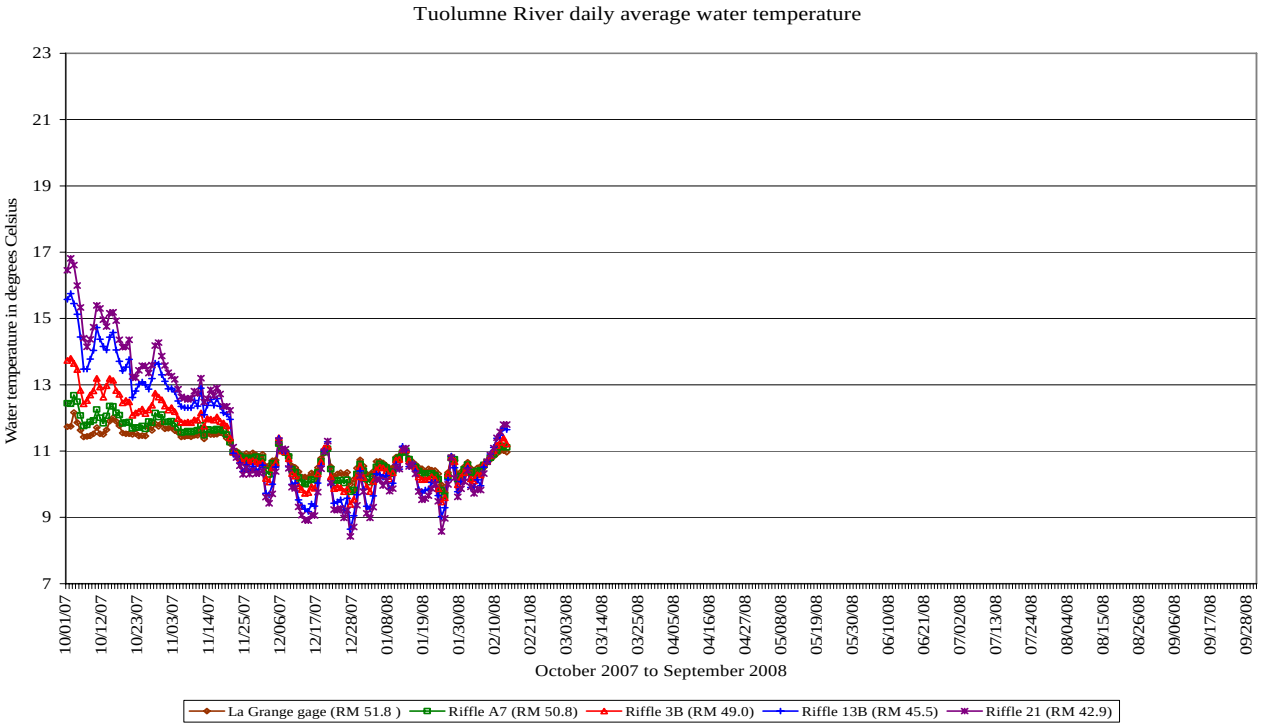

WATER YEAR 2008 SAN JOAQUIN BASIN FLOW
(Using CDEC Data)
Daily Average cfs
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
10/1/2007
11/1/2007
12/1/2007
1/1/2008
2/1/2008
3/1/2008
4/1/2008
5/1/2008
6/1/2008
7/1/2008
8/1/2008
9/1/2008
SRJ at Vernalis
Tuolumne at Modesto
Stanislaus at Ripon
Merced at Stevinson
SJR at Stevinson

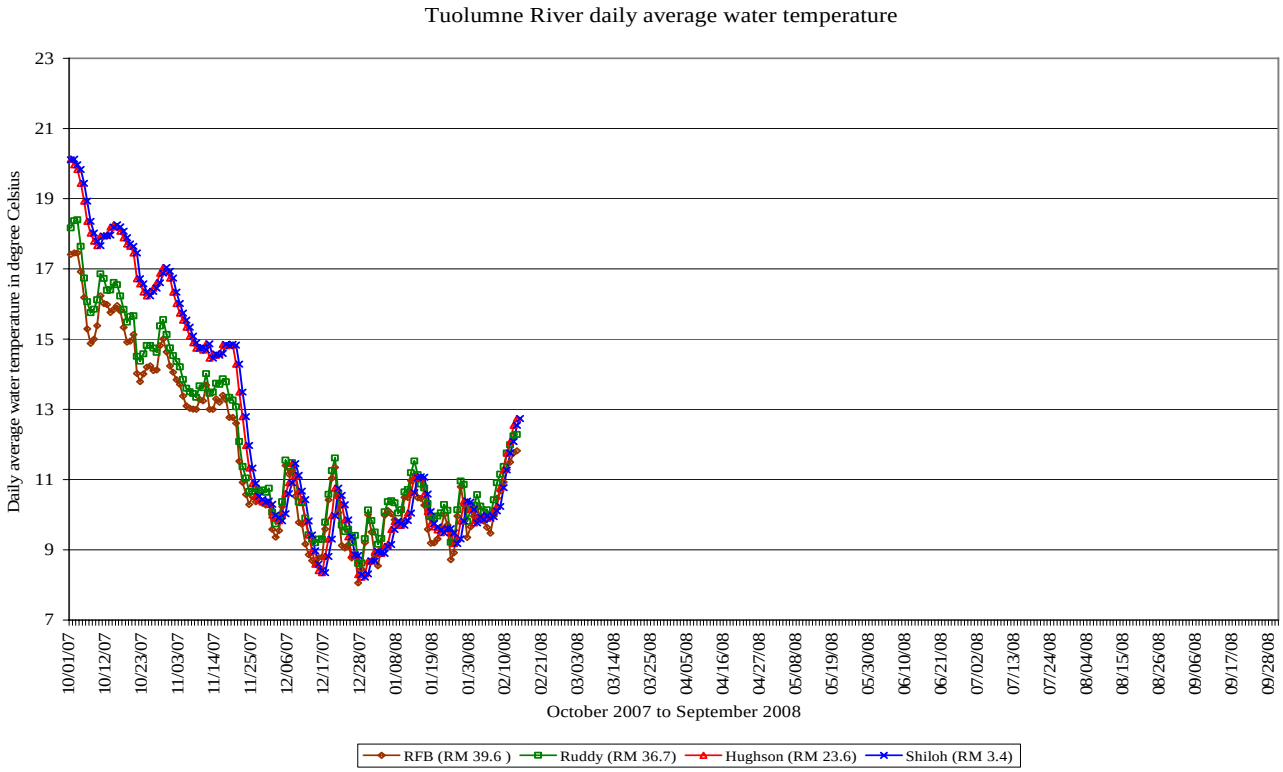

DON PEDRO STORAGE
Water Year 2007 and 2008
2100000
2000000
1900000
1800000
1700000
1600000
1500000
1400000
1300000
1200000
1100000
1000000
Acre-Feet
2,030,000 A.F., 830.0 FEET
Flood Control. = 1,690,000 A.F., 801.9 FEET
2007
2008
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
FLOOD CONTROL
2008 RESERVOIR STORAGE
2007 RESERVOIR STORAGE


Watershed Precipitation and Snow Sensor
Precipitation Year 2007
Percent of Average
80%
70%
60%
50%
40%
30%
20%
10%
0%
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Precipitation
Snow Sensor

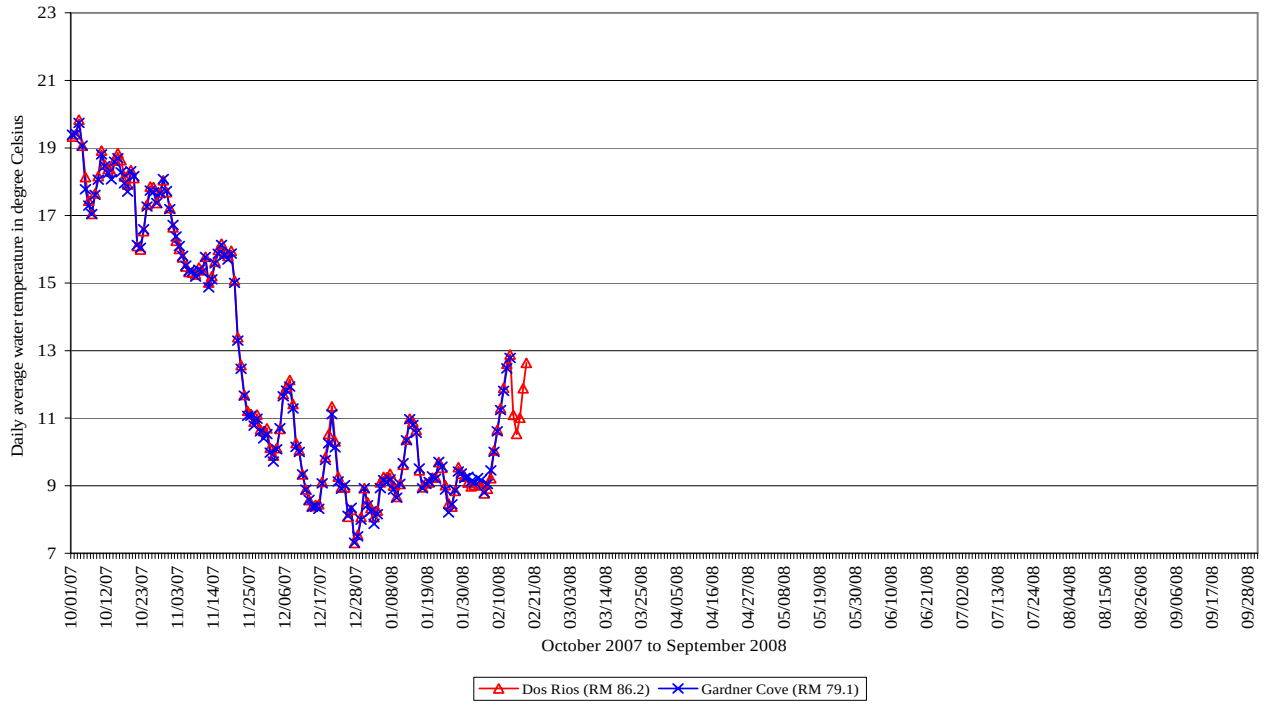

Watershed Precipitation and Snow Sensor
Precipitation Year 2008
Percent of Average
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Precipitation
Snow Sensor

# 2. Graphs of water temperature and air temperature (WY 2007 is in Report 2007-6)

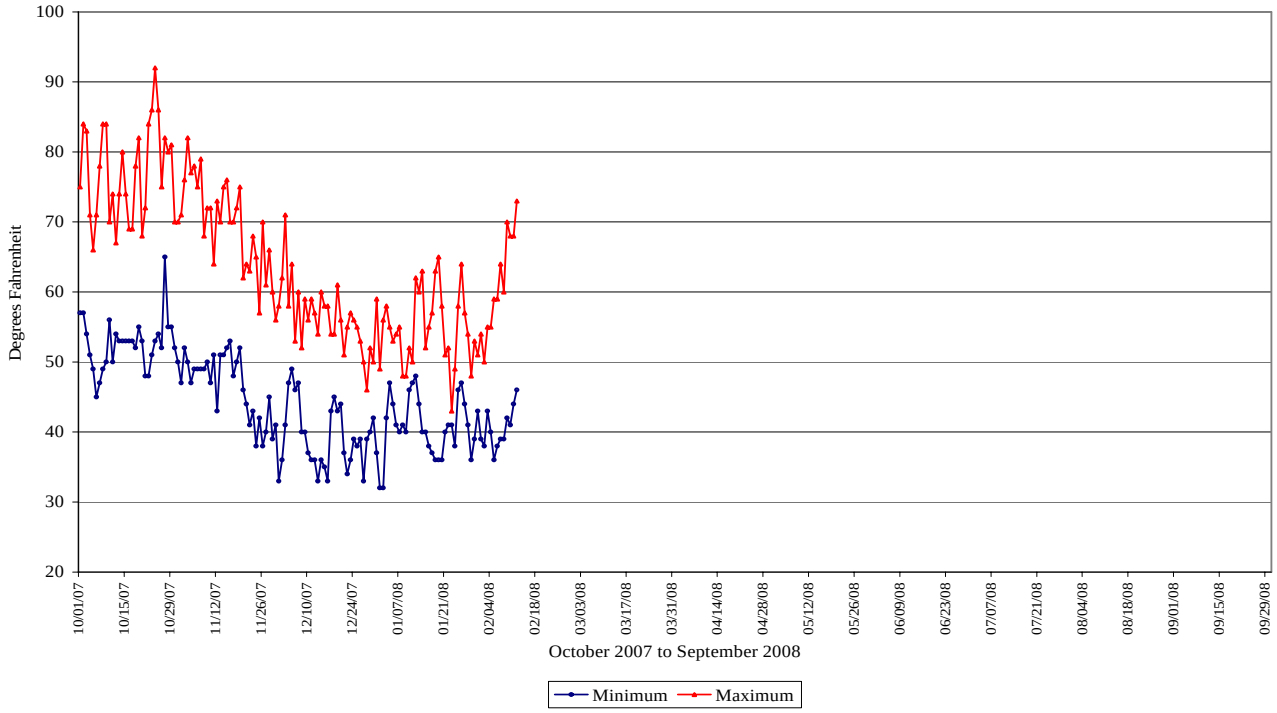


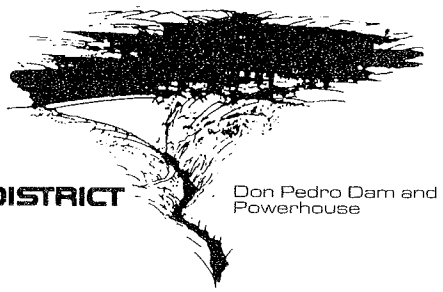
San Joaquin River daily average water temperature




Modesto Air Temperature (Modesto Irrigation District)



**TURLOCK IRRIGATION DISTRICT**
333 EAST CANAL DRIVE
POST OFFICE BOX 949
TURLOCK, CALIFORNIA 95381
(209) 883-8300




April 18, 2007 (via e-mail)

Mr. Dean Marston
California Dept. of Fish and Game
1234 E. Shaw Ave.
Fresno, CA 93710

Ms. Deborah Giglio
U.S. Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

RE: Tuolumne River 2007-2008 FERC Article 37 Flow Schedule for P-2299

Dear Fishery Agency representatives:

In a letter dated January 11, 2007, and pursuant to the 1996 FERC Order, Amended Article 37, I provided to you an updated Water Year Classification Index for determining the volume of scheduled stream flows for the fish flow year based on the San Joaquin Basin 60-20-20 Index.

As you know, the 2007 Water Year is likely to be the driest year since the 1996 FERC Order. The DWR April 1, 2007 60-20-20 San Joaquin Basin Index forecasts were 2,133,183 for 50% exceedence and 1,827,183 for 90% exceedence. The forecasts had dropped to 2,043,183 for 50% exceedence and 1,773,183 for 90% exceedence in the DWR April 10 update. Those latest indices correspond to annual volumes of 119,360 AF (including 32,619 AF outmigration pulse flow) and 110,919 AF (including 20,091 AF outmigration pulse flow) respectively, with additional water based on interpolation above the applicable basin index threshold.

It has been determined that the 2007 Vernalis Adaptive Management Plan (VAMP) is scheduled to begin on April 22, meaning increased La Grange flows must be scheduled to start by April 20 as two days are needed for those flows to reach Vernalis in the San Joaquin River. The Districts have been coordinating a daily flow schedule with your agencies in the VAMP process for the spring pulse flow period. Attached is the Tuolumne River flow schedule for the April 15-May 31 period, utilizing 22,564 AF in spring pulse flow due to the overall dry trend. Later DWR forecast updates will be used to determine the summer flow level starting in June, which appears now to be in the 50-75 cfs range. The annual fish flow year volume will not be available until August after the basin index is finalized.

If you have any questions, please contact Wes Monier at 209-883-8321.

Sincerely,

Robert Nees
Assistant General Manager
Water Resources and Regulatory Affairs Administration

C: Larry Weis - TID
Allen Short - MID
Phylis Posey – FERC Secretary

# TABLE 1

## Tuolumne River Flow Schedule

### SCHEDULE FOR 2007 - 2008 Fish Flow Year

| DATE | | Number of | BASE FLOW | | | PULSE FLOW | | | ADDITIONAL FLOW | | | TOTAL FERC FLOW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ACCUM. | | | ACCUM. | | | ACCUM. | | ACCUM. |
| From: | To: | DAYS | CFS | AF | A.F. | CFS | AF | A.F. | CFS | AF | A.F. | CFS | A.F. |
| 15-Apr-2007 | 15-Apr-2007 | 1 | 150 | 298 | 298 | 100 | 198 | 198 | 0 | 0 | 0 | 250 | 496 |
| 16-Apr-2007 | 16-Apr-2007 | 1 | 150 | 298 | 595 | 100 | 198 | 397 | 0 | 0 | 0 | 250 | 992 |
| 17-Apr-2007 | 17-Apr-2007 | 1 | 150 | 298 | 893 | 100 | 198 | 595 | 0 | 0 | 0 | 250 | 1,488 |
| 18-Apr-2007 | 18-Apr-2007 | 1 | 150 | 298 | 1,190 | 100 | 198 | 793 | 0 | 0 | 0 | 250 | 1,983 |
| 19-Apr-2007 | 19-Apr-2007 | 1 | 150 | 298 | 1,488 | 100 | 198 | 992 | 0 | 0 | 0 | 250 | 2,479 |
| 20-Apr-2007 | 20-Apr-2007 | 1 | 150 | 298 | 1,785 | 392 | 778 | 1,770 | 56 | 111 | 111 | 599 | 3,667 |
| 21-Apr-2007 | 21-Apr-2007 | 1 | 150 | 298 | 2,083 | 392 | 778 | 2,548 | 56 | 111 | 223 | 599 | 4,854 |
| 22-Apr-2007 | 22-Apr-2007 | 1 | 150 | 298 | 2,380 | 392 | 778 | 3,327 | 56 | 111 | 334 | 599 | 6,041 |
| 23-Apr-2007 | 23-Apr-2007 | 1 | 150 | 298 | 2,678 | 392 | 778 | 4,105 | 56 | 111 | 446 | 599 | 7,229 |
| 24-Apr-2007 | 24-Apr-2007 | 1 | 150 | 298 | 2,975 | 392 | 778 | 4,883 | 56 | 111 | 557 | 599 | 8,416 |
| 25-Apr-2007 | 25-Apr-2007 | 1 | 150 | 298 | 3,273 | 392 | 778 | 5,662 | 56 | 111 | 669 | 599 | 9,603 |
| 26-Apr-2007 | 26-Apr-2007 | 1 | 150 | 298 | 3,570 | 392 | 778 | 6,440 | 56 | 111 | 780 | 599 | 10,791 |
| 27-Apr-2007 | 27-Apr-2007 | 1 | 150 | 298 | 3,868 | 392 | 778 | 7,218 | 56 | 111 | 892 | 599 | 11,978 |
| 28-Apr-2007 | 28-Apr-2007 | 1 | 150 | 298 | 4,165 | 392 | 778 | 7,997 | 56 | 111 | 1003 | 599 | 13,165 |
| 29-Apr-2007 | 29-Apr-2007 | 1 | 150 | 298 | 4,463 | 285 | 566 | 8,563 | 41 | 81 | 1084 | 476 | 14,110 |
| 30-Apr-2007 | 30-Apr-2007 | 1 | 150 | 298 | 4,760 | 196 | 389 | 8,952 | 28 | 56 | 1140 | 374 | 14,853 |
| 01-May-2007 | 01-May-2007 | 1 | 150 | 298 | 5,058 | 107 | 212 | 9,164 | 15 | 30 | 1171 | 272 | 15,393 |
| 02-May-2007 | 02-May-2007 | 1 | 150 | 298 | 5,355 | 107 | 212 | 9,377 | 15 | 30 | 1201 | 272 | 15,933 |
| 03-May-2007 | 03-May-2007 | 1 | 150 | 298 | 5,653 | 107 | 212 | 9,589 | 15 | 30 | 1231 | 272 | 16,473 |
| 04-May-2007 | 04-May-2007 | 1 | 150 | 298 | 5,950 | 107 | 212 | 9,801 | 15 | 30 | 1262 | 272 | 17,013 |
| 05-May-2007 | 05-May-2007 | 1 | 150 | 298 | 6,248 | 107 | 212 | 10,013 | 15 | 30 | 1292 | 272 | 17,554 |
| 06-May-2007 | 06-May-2007 | 1 | 150 | 298 | 6,545 | 107 | 212 | 10,226 | 15 | 30 | 1323 | 272 | 18,094 |
| 07-May-2007 | 07-May-2007 | 1 | 150 | 298 | 6,843 | 107 | 212 | 10,438 | 15 | 30 | 1353 | 272 | 18,634 |
| 08-May-2007 | 08-May-2007 | 1 | 150 | 298 | 7,140 | 107 | 212 | 10,650 | 15 | 30 | 1383 | 272 | 19,174 |
| 09-May-2007 | 09-May-2007 | 1 | 150 | 298 | 7,438 | 107 | 212 | 10,863 | 15 | 30 | 1414 | 272 | 19,714 |
| 10-May-2007 | 10-May-2007 | 1 | 150 | 298 | 7,736 | 107 | 212 | 11,075 | 15 | 30 | 1444 | 272 | 20,255 |
| 11-May-2007 | 11-May-2007 | 1 | 150 | 298 | 8,033 | 196 | 389 | 11,464 | 28 | 56 | 1500 | 374 | 20,997 |
| 12-May-2007 | 12-May-2007 | 1 | 150 | 298 | 8,331 | 285 | 566 | 12,030 | 41 | 81 | 1581 | 476 | 21,942 |
| 13-May-2007 | 13-May-2007 | 1 | 150 | 298 | 8,628 | 392 | 778 | 12,808 | 56 | 111 | 1693 | 599 | 23,129 |
| 14-May-2007 | 14-May-2007 | 1 | 150 | 298 | 8,926 | 392 | 778 | 13,587 | 56 | 111 | 1804 | 599 | 24,316 |
| 15-May-2007 | 15-May-2007 | 1 | 150 | 298 | 9,223 | 392 | 778 | 14,365 | 56 | 111 | 1916 | 599 | 25,504 |
| 16-May-2007 | 16-May-2007 | 1 | 150 | 298 | 9,521 | 392 | 778 | 15,143 | 56 | 111 | 2027 | 599 | 26,691 |
| 17-May-2007 | 17-May-2007 | 1 | 150 | 298 | 9,818 | 392 | 778 | 15,922 | 56 | 111 | 2139 | 599 | 27,878 |
| 18-May-2007 | 18-May-2007 | 1 | 150 | 298 | 10,116 | 392 | 778 | 16,700 | 56 | 111 | 2250 | 599 | 29,066 |
| 19-May-2007 | 19-May-2007 | 1 | 150 | 298 | 10,413 | 392 | 778 | 17,478 | 56 | 111 | 2362 | 599 | 30,253 |
| 20-May-2007 | 20-May-2007 | 1 | 150 | 298 | 10,711 | 392 | 778 | 18,257 | 56 | 111 | 2473 | 599 | 31,440 |
| 21-May-2007 | 21-May-2007 | 1 | 150 | 298 | 11,008 | 400 | 793 | 19,050 | 0 | 0 | 2,473 | 550 | 32,531 |
| 22-May-2007 | 22-May-2007 | 1 | 150 | 298 | 11,306 | 275 | 545 | 19,596 | 0 | 0 | 2,473 | 425 | 33,374 |
| 23-May-2007 | 23-May-2007 | 1 | 150 | 298 | 11,603 | 175 | 347 | 19,943 | 0 | 0 | 2,473 | 325 | 34,019 |
| 24-May-2007 | 24-May-2007 | 1 | 150 | 298 | 11,901 | 75 | 149 | 20,091 | 0 | 0 | 2,473 | 225 | 34,465 |
| 25-May-2007 | 25-May-2007 | 1 | 150 | 298 | 12,198 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 34,763 |
| 26-May-2007 | 26-May-2007 | 1 | 150 | 298 | 12,496 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,060 |
| 27-May-2007 | 27-May-2007 | 1 | 150 | 298 | 12,793 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,358 |
| 28-May-2007 | 28-May-2007 | 1 | 150 | 298 | 13,091 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,655 |
| 29-May-2007 | 29-May-2007 | 1 | 150 | 298 | 13,388 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,953 |
| 30-May-2007 | 30-May-2007 | 1 | 135 | 268 | 13,656 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 135 | 36,221 |
| 31-May-2007 | 31-May-2007 | 1 | 120 | 238 | 13,894 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 120 | 36,459 |

TURLOCK IRRIGATION DISTRICT
333 EAST CANAL DRIVE
POST OFFICE BOX 949
TURLOCK, CALIFORNIA 95381
(209) 883-8300

May 31, 2007 (via e-mail)

Mr. Bill Loudermilk
California Dept. of Fish and Game
1234 E. Shaw Ave.
Fresno, CA 93710

Ms. Deborah Giglio
U.S. Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

RE: Tuolumne River 2007-2008 FERC Article 37 Flow Schedule for P-2299

Dear Fishery Agency representatives:

A letter dated April 18, 2007, and pursuant to the 1996 FERC Order, Amended Article 37, contained the initial flow schedule for the April 15 through May 31 period of the current Fish Flow Year, encompassing the spring pulse flow period. That schedule was established using the April 10 DWR forecast update for the San Joaquin Basin 60-20-20 Index.

The DWR May 22, 2007 60-20-20 San Joaquin Basin Index forecasts were 2.025183 for 50% exceedence and 1.908183 for 90% exceedence. Those latest indices correspond to annual volumes of 118,339 AF and 114,518 AF respectively, based on interpolation above the applicable basin index threshold.

An interim flow schedule for the remainder of the fish flow year using 117,335 AF (attached) was provided to you by e-mail from Wes Monier on May 18 and we will proceed to use that schedule as of June 1. We will see if further schedule adjustments become necessary as the forecasts and runoff continue. The final annual fish flow year volume will not be available until August when the basin index is finalized.

If you have any questions, please contact Wes Monier at 209-883-8321.

Sincerely,

Robert Nees
Assistant General Manager
Water Resources and Regulatory Affairs Administration

C: Larry Weis - TID
Allen Short - MID
Phylis Posey – FERC Secretary

# TABLE 1

## Tuolumne River Flow Schedule

### SCHEDULE FOR 2007 - 2008 Fish Flow Year

| DATE | | Number of | BASE FLOW | | | PULSE FLOW | | | ADDITIONAL FLOW | | | TOTAL FERC FLOW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| From: | To: | DAYS | CFS | AF | ACCUM. A.F. | CFS | AF | ACCUM. A.F. | CFS | AF | ACCUM. A.F. | CFS | ACCUM. A.F. |
| 15-Apr-2007 | 15-Apr-2007 | 1 | 150 | 298 | 298 | 100 | 198 | 198 | 0 | 0 | 0 | 250 | 496 |
| 16-Apr-2007 | 16-Apr-2007 | 1 | 150 | 298 | 595 | 100 | 198 | 397 | 0 | 0 | 0 | 250 | 992 |
| 17-Apr-2007 | 17-Apr-2007 | 1 | 150 | 298 | 893 | 100 | 198 | 595 | 0 | 0 | 0 | 250 | 1,488 |
| 18-Apr-2007 | 18-Apr-2007 | 1 | 150 | 298 | 1,190 | 100 | 198 | 793 | 0 | 0 | 0 | 250 | 1,983 |
| 19-Apr-2007 | 19-Apr-2007 | 1 | 150 | 298 | 1,488 | 100 | 198 | 992 | 0 | 0 | 0 | 250 | 2,479 |
| 20-Apr-2007 | 20-Apr-2007 | 1 | 150 | 298 | 1,785 | 392 | 778 | 1,770 | 56 | 111 | 111 | 599 | 3,667 |
| 21-Apr-2007 | 21-Apr-2007 | 1 | 150 | 298 | 2,083 | 392 | 778 | 2,548 | 56 | 111 | 223 | 599 | 4,854 |
| 22-Apr-2007 | 22-Apr-2007 | 1 | 150 | 298 | 2,380 | 392 | 778 | 3,327 | 56 | 111 | 334 | 599 | 6,041 |
| 23-Apr-2007 | 23-Apr-2007 | 1 | 150 | 298 | 2,678 | 392 | 778 | 4,105 | 56 | 111 | 446 | 599 | 7,229 |
| 24-Apr-2007 | 24-Apr-2007 | 1 | 150 | 298 | 2,975 | 392 | 778 | 4,883 | 56 | 111 | 557 | 599 | 8,416 |
| 25-Apr-2007 | 25-Apr-2007 | 1 | 150 | 298 | 3,273 | 392 | 778 | 5,662 | 56 | 111 | 669 | 599 | 9,603 |
| 26-Apr-2007 | 26-Apr-2007 | 1 | 150 | 298 | 3,570 | 392 | 778 | 6,440 | 56 | 111 | 780 | 599 | 10,791 |
| 27-Apr-2007 | 27-Apr-2007 | 1 | 150 | 298 | 3,868 | 392 | 778 | 7,218 | 56 | 111 | 892 | 599 | 11,978 |
| 28-Apr-2007 | 28-Apr-2007 | 1 | 150 | 298 | 4,165 | 392 | 778 | 7,997 | 56 | 111 | 1003 | 599 | 13,165 |
| 29-Apr-2007 | 29-Apr-2007 | 1 | 150 | 298 | 4,463 | 285 | 566 | 8,563 | 41 | 81 | 1084 | 476 | 14,110 |
| 30-Apr-2007 | 30-Apr-2007 | 1 | 150 | 298 | 4,760 | 196 | 389 | 8,952 | 28 | 56 | 1140 | 374 | 14,853 |
| 01-May-2007 | 01-May-2007 | 1 | 150 | 298 | 5,058 | 107 | 212 | 9,164 | 15 | 30 | 1171 | 272 | 15,393 |
| 02-May-2007 | 02-May-2007 | 1 | 150 | 298 | 5,355 | 107 | 212 | 9,377 | 15 | 30 | 1201 | 272 | 15,933 |
| 03-May-2007 | 03-May-2007 | 1 | 150 | 298 | 5,653 | 107 | 212 | 9,589 | 15 | 30 | 1231 | 272 | 16,473 |
| 04-May-2007 | 04-May-2007 | 1 | 150 | 298 | 5,950 | 107 | 212 | 9,801 | 15 | 30 | 1262 | 272 | 17,013 |
| 05-May-2007 | 05-May-2007 | 1 | 150 | 298 | 6,248 | 107 | 212 | 10,013 | 15 | 30 | 1292 | 272 | 17,554 |
| 06-May-2007 | 06-May-2007 | 1 | 150 | 298 | 6,545 | 107 | 212 | 10,226 | 15 | 30 | 1323 | 272 | 18,094 |
| 07-May-2007 | 07-May-2007 | 1 | 150 | 298 | 6,843 | 107 | 212 | 10,438 | 15 | 30 | 1353 | 272 | 18,634 |
| 08-May-2007 | 08-May-2007 | 1 | 150 | 298 | 7,140 | 107 | 212 | 10,650 | 15 | 30 | 1383 | 272 | 19,174 |
| 09-May-2007 | 09-May-2007 | 1 | 150 | 298 | 7,438 | 107 | 212 | 10,863 | 15 | 30 | 1414 | 272 | 19,714 |
| 10-May-2007 | 10-May-2007 | 1 | 150 | 298 | 7,736 | 107 | 212 | 11,075 | 15 | 30 | 1444 | 272 | 20,255 |
| 11-May-2007 | 11-May-2007 | 1 | 150 | 298 | 8,033 | 196 | 389 | 11,464 | 28 | 56 | 1500 | 374 | 20,997 |
| 12-May-2007 | 12-May-2007 | 1 | 150 | 298 | 8,331 | 285 | 566 | 12,030 | 41 | 81 | 1581 | 476 | 21,942 |
| 13-May-2007 | 13-May-2007 | 1 | 150 | 298 | 8,628 | 392 | 778 | 12,808 | 56 | 111 | 1693 | 599 | 23,129 |
| 14-May-2007 | 14-May-2007 | 1 | 150 | 298 | 8,926 | 392 | 778 | 13,587 | 56 | 111 | 1804 | 599 | 24,316 |
| 15-May-2007 | 15-May-2007 | 1 | 150 | 298 | 9,223 | 392 | 778 | 14,365 | 56 | 111 | 1916 | 599 | 25,504 |
| 16-May-2007 | 16-May-2007 | 1 | 150 | 298 | 9,521 | 392 | 778 | 15,143 | 56 | 111 | 2027 | 599 | 26,691 |
| 17-May-2007 | 17-May-2007 | 1 | 150 | 298 | 9,818 | 392 | 778 | 15,922 | 56 | 111 | 2139 | 599 | 27,878 |
| 18-May-2007 | 18-May-2007 | 1 | 150 | 298 | 10,116 | 392 | 778 | 16,700 | 56 | 111 | 2250 | 599 | 29,066 |
| 19-May-2007 | 19-May-2007 | 1 | 150 | 298 | 10,413 | 392 | 778 | 17,478 | 56 | 111 | 2362 | 599 | 30,253 |
| 20-May-2007 | 20-May-2007 | 1 | 150 | 298 | 10,711 | 392 | 778 | 18,257 | 56 | 111 | 2473 | 599 | 31,440 |
| 21-May-2007 | 21-May-2007 | 1 | 150 | 298 | 11,008 | 400 | 793 | 19,050 | 0 | 0 | 2,473 | 550 | 32,531 |
| 22-May-2007 | 22-May-2007 | 1 | 150 | 298 | 11,306 | 275 | 545 | 19,596 | 0 | 0 | 2,473 | 425 | 33,374 |
| 23-May-2007 | 23-May-2007 | 1 | 150 | 298 | 11,603 | 175 | 347 | 19,943 | 0 | 0 | 2,473 | 325 | 34,019 |
| 24-May-2007 | 24-May-2007 | 1 | 150 | 298 | 11,901 | 75 | 149 | 20,091 | 0 | 0 | 2,473 | 225 | 34,465 |
| 25-May-2007 | 25-May-2007 | 1 | 150 | 298 | 12,198 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 34,763 |
| 26-May-2007 | 26-May-2007 | 1 | 150 | 298 | 12,496 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,060 |
| 27-May-2007 | 27-May-2007 | 1 | 150 | 298 | 12,793 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,358 |
| 28-May-2007 | 28-May-2007 | 1 | 150 | 298 | 13,091 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,655 |
| 29-May-2007 | 29-May-2007 | 1 | 150 | 298 | 13,388 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,953 |
| 30-May-2007 | 30-May-2007 | 1 | 135 | 268 | 13,656 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 135 | 36,221 |
| 31-May-2007 | 31-May-2007 | 1 | 100 | 198 | 13,855 | 0 | 0 | 20,091 | 20 | 40 | 2,513 | 120 | 36,459 |
| 01-Jun-2007 | 01-Jun-2007 | 1 | 80 | 159 | 14,013 | 0 | 0 | 20,091 | 25 | 50 | 2,562 | 105 | 36,667 |
| 02-Jun-2007 | 02-Jun-2007 | 1 | 75 | 149 | 14,162 | 0 | 0 | 20,091 | 20 | 40 | 2,602 | 95 | 36,855 |
| 03-Jun-2007 | 03-Jun-2007 | 1 | 60 | 119 | 14,281 | 0 | 0 | 20,091 | 35 | 69 | 2,671 | 95 | 37,044 |
| 04-Jun-2007 | 04-Jun-2007 | 1 | 50 | 99 | 14,380 | 0 | 0 | 20,091 | 45 | 89 | 2,761 | 95 | 37,232 |
| 05-Jun-2007 | 30-Jun-2007 | 26 | 50 | 2,579 | 16,959 | 0 | 0 | 20,091 | 45 | 2,321 | 5,081 | 95 | 42,131 |
| 01-Jul-2007 | 31-Jul-2007 | 31 | 50 | 3,074 | 20,033 | 0 | 0 | 20,091 | 45 | 2,767 | 7,848 | 95 | 47,973 |
| 01-Aug-2007 | 31-Aug-2007 | 31 | 50 | 3,074 | 23,107 | 0 | 0 | 20,091 | 45 | 2,767 | 10,615 | 95 | 53,814 |
| 01-Sep-2007 | 30-Sep-2007 | 30 | 50 | 2,975 | 26,083 | 0 | 0 | 20,091 | 45 | 2,678 | 13,293 | 95 | 59,467 |
| 01-Oct-2007 | 13-Oct-2007 | 13 | 100 | 2,579 | 28,661 | 0 | 0 | 20,091 | 35 | 645 | 13,937 | 125 | 62,690 |
| 14-Oct-2007 | 15-Oct-2007 | 2 | 100 | 397 | 29,058 | 0 | 0 | 20,091 | 35 | 99 | 14,037 | 125 | 63,186 |
| 16-Oct-2007 | 26-Oct-2007 | 11 | 150 | 3,273 | 32,331 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 66,459 |
| 27-Oct-2007 | 28-Oct-2007 | 2 | 150 | 595 | 32,926 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 67,054 |
| 29-Oct-2007 | 29-Oct-2007 | 1 | 150 | 298 | 33,223 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 67,351 |
| 30-Oct-2007 | 30-Oct-2007 | 1 | 150 | 298 | 33,521 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 67,649 |
| 31-Oct-2007 | 31-Oct-2007 | 1 | 150 | 298 | 33,818 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 67,946 |
| 01-Nov-2007 | 16-Nov-2007 | 16 | 150 | 4,760 | 38,579 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 72,707 |
| 17-Nov-2007 | 30-Nov-2007 | 14 | 150 | 4,165 | 42,744 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 76,872 |
| 01-Dec-2007 | 31-Dec-2007 | 31 | 150 | 9,223 | 51,967 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 86,095 |
| 01-Jan-2008 | 31-Jan-2008 | 31 | 150 | 9,223 | 61,190 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 95,318 |
| 01-Feb-2008 | 29-Feb-2008 | 29 | 150 | 8,628 | 69,818 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 103,946 |
| 01-Mar-2008 | 31-Mar-2008 | 31 | 150 | 9,223 | 79,041 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 113,169 |
| 01-Apr-2008 | 14-Apr-2008 | 14 | 150 | 4,165 | 83,207 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 117,335 |
| No. of days | | 366 | (April 15 through April 14) | | | | | | | | | | |

1 cfs day = 1.983471 acre-feet (af)

Notes: 1. Based on 60-20-20 Index is 2,043,183 July 31, 1996 FERC Order Flow Interpolated as 119,360 AF fish flow year requirement.

2. The pulse flows are a target that represents a daily average.

**TURLOCK IRRIGATION DISTRICT**
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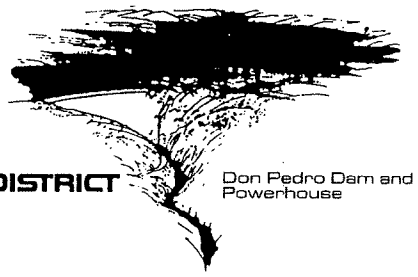



September 11, 2007 (via e-mail)

Mr. Bill Loudermilk
California Dept. of Fish and Game
1234 E. Shaw Ave.
Fresno, CA 93710

Ms. Deborah Giglio
U.S. Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

Bruce Oppenheim
National Marine Fisheries Service
650 Capitol Mall, Suite 8-300
Sacramento, CA 95814-4708

RE: Tuolumne River 2007-2008 FERC Article 37 Flow Schedule for P-2299

Dear Fishery Agency representatives:

A letter, dated May 31, 2007, attached for your reference, contained a revised flow schedule for the current Fish Flow Year based on the May 22 Department of Water Resources (DWR) forecast update for the San Joaquin Basin 60-20-20 Index. That interim schedule used 117,335 acre-feet of annual volume.

As you know, the final 60-20-20 San Joaquin Basin Index is not available until August of each year. Therefore, all flows prior to August are based upon index estimates when the 60-20-20 San Joaquin Basin Index is below average. TID notified the California Department of Fish and Game (CDFG), the U.S. Fish and Wildlife Service (FWS), and the National Marine Fisheries Service (NMFS) on July 26 that the estimated final 60-20-20 San Joaquin Basin Index would result in a reduction of an approximate 1,500 acre-feet in the annual volume and a revised schedule was proposed. A similar notification and schedule was also provided on July 31 and another notification and request for input was sent by TID on August 1. TID provided the fishery agencies with notification on August 13 of the final annual flow volume of 115,836 acre-feet based on the final 2007 60-20-20 San Joaquin Basin Index of 1,957,604 (Median Critical Year) using DWR runoff data through July.

CDFG, FWS, and NMFS staff have been in communication about the flow schedule with Mr. Monier at TID and, based on that communication, the flow schedule which started June 1st has remained in place. NMFS requested the existing rate of flow continue, with FWS deferring to NMFS (confirmed on August 9th). It is our understanding that CDFG requested that any flows above the base flow be moved to outside of the summer period.

Based on the lower final index, a revised flow schedule using the 115,836 AF was provided for comment, by e-mail, from Mr. Monier on August 29. Mr. Monier also indicated in the email that winter flows could be further adjusted to provide a fall pulse flow, should the fishery agencies

desire to do so. In transmitting the proposed modifications, Mr. Monier indicated that if no comments were received, the proposed schedule would be implemented. NMFS has agreed by phone today with the revised schedule (attached). In addition the NMFS is in favor of developing a fall pulse flow by adjusting the base flows after October 15. NMFS will discuss the concept with the FWS and CDFG. No additional comments were received from CDFG, so that proposed schedule (Table 2 attached) is now in effect. Note that the only changes from the prior schedule in effect since the beginning of June, are 76 cfs (instead of 95 cfs) for the September 11-30 period and 100 cfs (instead of 125 cfs) for the period of October 1-15 to adjust to the lower annual volume.

If you have any questions, please contact Wes Monier at 209-883-8321.

Sincerely,

Rod C Bg

Randy C. Baysinger, P.E.
Assistant General Manager
Power Supply Administration

C: Larry Weis - TID
Allen Short - MID
FERC Secretary
Stacy Li – NMFS

# TABLE 2

## Tuolumne River Flow Schedule

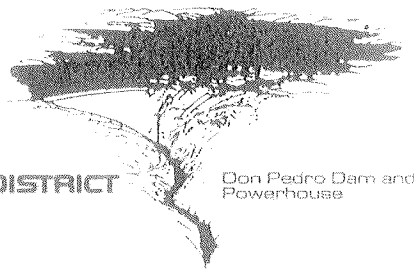
## SCHEDULE FOR 2007 - 2008 Fish Flow Year

| DATE | | Number of | Flow for Median Critical | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Flow | | | Outmigration Flow | | | Other Adjusted Flow | | | Total FERC Flow | | |
| From: | To: | DAYS | CFS | AF | ACCUM. A.F. | CFS | AF | ACCUM. A.F. | CFS | AF | ACCUM. A.F. | CFS | ACCUM. A.F. |
| 15-Apr-2007 | 15-Apr-2007 | 1 | 150 | 298 | 298 | 100 | 198 | 198 | 0 | 0 | 0 | 250 | 496 |
| 16-Apr-2007 | 16-Apr-2007 | 1 | 150 | 298 | 595 | 100 | 198 | 397 | 0 | 0 | 0 | 250 | 992 |
| 17-Apr-2007 | 17-Apr-2007 | 1 | 150 | 298 | 893 | 100 | 198 | 595 | 0 | 0 | 0 | 250 | 1,488 |
| 18-Apr-2007 | 18-Apr-2007 | 1 | 150 | 298 | 1,190 | 100 | 198 | 793 | 0 | 0 | 0 | 250 | 1,983 |
| 19-Apr-2007 | 19-Apr-2007 | 1 | 150 | 298 | 1,488 | 100 | 198 | 992 | 0 | 0 | 0 | 250 | 2,479 |
| 20-Apr-2007 | 20-Apr-2007 | 1 | 150 | 298 | 1,785 | 392 | 778 | 1,770 | 56 | 111 | 111 | 599 | 3,667 |
| 21-Apr-2007 | 21-Apr-2007 | 1 | 150 | 298 | 2,083 | 392 | 778 | 2,548 | 56 | 111 | 223 | 599 | 4,854 |
| 22-Apr-2007 | 22-Apr-2007 | 1 | 150 | 298 | 2,380 | 392 | 778 | 3,327 | 56 | 111 | 334 | 599 | 6,041 |
| 23-Apr-2007 | 23-Apr-2007 | 1 | 150 | 298 | 2,678 | 392 | 778 | 4,105 | 56 | 111 | 446 | 599 | 7,229 |
| 24-Apr-2007 | 24-Apr-2007 | 1 | 150 | 298 | 2,975 | 392 | 778 | 4,883 | 56 | 111 | 557 | 599 | 8,416 |
| 25-Apr-2007 | 25-Apr-2007 | 1 | 150 | 298 | 3,273 | 392 | 778 | 5,662 | 56 | 111 | 669 | 599 | 9,603 |
| 26-Apr-2007 | 26-Apr-2007 | 1 | 150 | 298 | 3,570 | 392 | 778 | 6,440 | 56 | 111 | 780 | 599 | 10,791 |
| 27-Apr-2007 | 27-Apr-2007 | 1 | 150 | 298 | 3,868 | 392 | 778 | 7,218 | 56 | 111 | 892 | 599 | 11,978 |
| 28-Apr-2007 | 28-Apr-2007 | 1 | 150 | 298 | 4,165 | 392 | 778 | 7,997 | 56 | 111 | 1003 | 599 | 13,165 |
| 29-Apr-2007 | 29-Apr-2007 | 1 | 150 | 298 | 4,463 | 285 | 566 | 8,563 | 41 | 81 | 1084 | 476 | 14,110 |
| 30-Apr-2007 | 30-Apr-2007 | 1 | 150 | 298 | 4,760 | 196 | 389 | 8,952 | 28 | 56 | 1140 | 374 | 14,853 |
| 01-May-2007 | 01-May-2007 | 1 | 150 | 298 | 5,058 | 107 | 212 | 9,164 | 15 | 30 | 1171 | 272 | 15,393 |
| 02-May-2007 | 02-May-2007 | 1 | 150 | 298 | 5,355 | 107 | 212 | 9,377 | 15 | 30 | 1201 | 272 | 15,933 |
| 03-May-2007 | 03-May-2007 | 1 | 150 | 298 | 5,653 | 107 | 212 | 9,589 | 15 | 30 | 1231 | 272 | 16,473 |
| 04-May-2007 | 04-May-2007 | 1 | 150 | 298 | 5,950 | 107 | 212 | 9,801 | 15 | 30 | 1262 | 272 | 17,013 |
| 05-May-2007 | 05-May-2007 | 1 | 150 | 298 | 6,248 | 107 | 212 | 10,013 | 15 | 30 | 1292 | 272 | 17,554 |
| 06-May-2007 | 06-May-2007 | 1 | 150 | 298 | 6,545 | 107 | 212 | 10,226 | 15 | 30 | 1323 | 272 | 18,094 |
| 07-May-2007 | 07-May-2007 | 1 | 150 | 298 | 6,843 | 107 | 212 | 10,438 | 15 | 30 | 1353 | 272 | 18,634 |
| 08-May-2007 | 08-May-2007 | 1 | 150 | 298 | 7,140 | 107 | 212 | 10,650 | 15 | 30 | 1383 | 272 | 19,174 |
| 09-May-2007 | 09-May-2007 | 1 | 150 | 298 | 7,438 | 107 | 212 | 10,863 | 15 | 30 | 1414 | 272 | 19,714 |
| 10-May-2007 | 10-May-2007 | 1 | 150 | 298 | 7,736 | 107 | 212 | 11,075 | 15 | 30 | 1444 | 272 | 20,255 |
| 11-May-2007 | 11-May-2007 | 1 | 150 | 298 | 8,033 | 196 | 389 | 11,464 | 28 | 56 | 1500 | 374 | 20,997 |
| 12-May-2007 | 12-May-2007 | 1 | 150 | 298 | 8,331 | 285 | 566 | 12,030 | 41 | 81 | 1581 | 476 | 21,942 |
| 13-May-2007 | 13-May-2007 | 1 | 150 | 298 | 8,628 | 392 | 778 | 12,808 | 56 | 111 | 1693 | 599 | 23,129 |
| 14-May-2007 | 14-May-2007 | 1 | 150 | 298 | 8,926 | 392 | 778 | 13,587 | 56 | 111 | 1804 | 599 | 24,316 |
| 15-May-2007 | 15-May-2007 | 1 | 150 | 298 | 9,223 | 392 | 778 | 14,365 | 56 | 111 | 1916 | 599 | 25,504 |
| 16-May-2007 | 16-May-2007 | 1 | 150 | 298 | 9,521 | 392 | 778 | 15,143 | 56 | 111 | 2027 | 599 | 26,691 |
| 17-May-2007 | 17-May-2007 | 1 | 150 | 298 | 9,818 | 392 | 778 | 15,922 | 56 | 111 | 2139 | 599 | 27,878 |
| 18-May-2007 | 18-May-2007 | 1 | 150 | 298 | 10,116 | 392 | 778 | 16,700 | 56 | 111 | 2250 | 599 | 29,066 |
| 19-May-2007 | 19-May-2007 | 1 | 150 | 298 | 10,413 | 392 | 778 | 17,478 | 56 | 111 | 2362 | 599 | 30,253 |
| 20-May-2007 | 20-May-2007 | 1 | 150 | 298 | 10,711 | 392 | 778 | 18,257 | 56 | 111 | 2473 | 599 | 31,440 |
| 21-May-2007 | 21-May-2007 | 1 | 150 | 298 | 11,008 | 400 | 793 | 19,050 | 0 | 0 | 2,473 | 550 | 32,531 |
| 22-May-2007 | 22-May-2007 | 1 | 150 | 298 | 11,306 | 275 | 545 | 19,596 | 0 | 0 | 2,473 | 425 | 33,374 |
| 23-May-2007 | 23-May-2007 | 1 | 150 | 298 | 11,603 | 175 | 347 | 19,943 | 0 | 0 | 2,473 | 325 | 34,019 |
| 24-May-2007 | 24-May-2007 | 1 | 150 | 298 | 11,901 | 75 | 149 | 20,091 | 0 | 0 | 2,473 | 225 | 34,465 |
| 25-May-2007 | 25-May-2007 | 1 | 150 | 298 | 12,198 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 34,763 |
| 26-May-2007 | 26-May-2007 | 1 | 150 | 298 | 12,496 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,060 |
| 27-May-2007 | 27-May-2007 | 1 | 150 | 298 | 12,793 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,358 |
| 28-May-2007 | 28-May-2007 | 1 | 150 | 298 | 13,091 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,655 |
| 29-May-2007 | 29-May-2007 | 1 | 150 | 298 | 13,388 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,953 |
| 30-May-2007 | 30-May-2007 | 1 | 150 | 298 | 13,686 | 0 | 0 | 20,091 | -15 | (30) | 2,443 | 135 | 36,221 |
| 31-May-2007 | 31-May-2007 | 1 | 150 | 298 | 13,983 | 0 | 0 | 20,091 | -30 | (60) | 2,384 | 120 | 36,459 |
| 01-Jun-2007 | 01-Jun-2007 | 1 | 50 | 99 | 14,083 | 0 | 0 | 20,091 | 55 | 109 | 2,493 | 105 | 36,667 |
| 02-Jun-2007 | 02-Jun-2007 | 1 | 50 | 99 | 14,182 | 0 | 0 | 20,091 | 45 | 89 | 2,582 | 95 | 36,855 |
| 03-Jun-2007 | 03-Jun-2007 | 1 | 50 | 99 | 14,281 | 0 | 0 | 20,091 | 45 | 89 | 2,671 | 95 | 37,044 |
| 04-Jun-2007 | 04-Jun-2007 | 1 | 50 | 99 | 14,380 | 0 | 0 | 20,091 | 45 | 89 | 2,761 | 95 | 37,232 |
| 05-Jun-2007 | 30-Jun-2007 | 26 | 50 | 2,579 | 16,959 | 0 | 0 | 20,091 | 45 | 2,321 | 5,081 | 95 | 42,131 |
| 01-Jul-2007 | 31-Jul-2007 | 31 | 50 | 3,074 | 20,033 | 0 | 0 | 20,091 | 45 | 2,767 | 7,848 | 95 | 47,973 |
| 01-Aug-2007 | 31-Aug-2007 | 31 | 50 | 3,074 | 23,107 | 0 | 0 | 20,091 | 45 | 2,767 | 10,615 | 95 | 53,814 |
| 01-Sep-2007 | 10-Sep-2007 | 10 | 50 | 992 | 24,099 | 0 | 0 | 20,091 | 45 | 893 | 11,508 | 95 | 55,698 |
| 11-Sep-2007 | 13-Sep-2007 | 3 | 50 | 298 | 24,397 | 0 | 0 | 20,091 | 26 | 155 | 11,662 | 76 | 56,151 |
| 14-Sep-2007 | 30-Sep-2007 | 17 | 50 | 1,686 | 26,083 | 0 | 0 | 20,091 | 26 | 877 | 12,539 | 76 | 58,713 |
| 01-Oct-2007 | 13-Oct-2007 | 13 | 100 | 2,579 | 28,661 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 100 | 61,292 |
| 14-Oct-2007 | 15-Oct-2007 | 2 | 100 | 397 | 29,058 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 100 | 61,688 |
| 16-Oct-2007 | 26-Oct-2007 | 11 | 150 | 3,273 | 32,331 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 64,961 |
| 27-Oct-2007 | 28-Oct-2007 | 2 | 150 | 595 | 32,926 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 65,556 |
| 29-Oct-2007 | 29-Oct-2007 | 1 | 150 | 298 | 33,223 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 65,854 |
| 30-Oct-2007 | 30-Oct-2007 | 1 | 150 | 298 | 33,521 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 66,151 |
| 31-Oct-2007 | 31-Oct-2007 | 1 | 150 | 298 | 33,818 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 66,449 |
| 01-Nov-2007 | 16-Nov-2007 | 16 | 150 | 4,760 | 38,579 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 71,209 |
| 17-Nov-2007 | 30-Nov-2007 | 14 | 150 | 4,165 | 42,744 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 75,374 |
| 01-Dec-2007 | 31-Dec-2007 | 31 | 150 | 9,223 | 51,967 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 84,598 |
| 01-Jan-2008 | 31-Jan-2008 | 31 | 150 | 9,223 | 61,190 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 93,821 |
| 01-Feb-2008 | 29-Feb-2008 | 29 | 150 | 8,628 | 69,818 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 102,449 |
| 01-Mar-2008 | 31-Mar-2008 | 31 | 150 | 9,223 | 79,041 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 111,672 |
| 01-Apr-2008 | 14-Apr-2008 | 14 | 150 | 4,165 | 83,207 | 0 | 0 | 20,091 | 0 | 0 | 12,539 | 150 | 115,837 |
| No. of days | | 366 (April 15 through April 14) | | | | | | | | | | | |

1 cfs day = 1.983471 acre-feet (af)

Notes: 1. Based on 60-20-20 Index is 1,957,604 July 31, 1996 FERC Order Flow Interpolated as 115,836 AF fish flow year requirement.

2. The pulse flows are a target that represents a daily average.




TURLOCK IRRIGATION DISTRICT
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(209) 883-8300

December 6, 2007

Tim Heyne
California Dept. of Fish and Game
P.O. Box 10
La Grange, CA 95329

Deborah Giglio
U.S. Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

Bruce Oppenheim
National Marine Fisheries Service
650 Capitol Mall, Suite 8-300
Sacramento, CA 95814-4708

RE: Project 2299 - Water Year Classification Index, Article 38 45-Day Period, and Fall Pulse Flow

Dear Fishery Agency representatives:

The 1996 FERC Order, Amended Article 37, contained a Water Year Classification Index for determining the volume of scheduled stream flows for each fish flow year. The classifications were based on the San Joaquin Basin 60-20-20 Indices for water years 1906-1995. The order stated, "60-20-20 index numbers used each year shall be updated to incorporate subsequent water years pursuant to standard Water Resources Department procedures so as to maintain approximately the same frequency distribution of water year types." The index is now updated to incorporate water years through 2007 (Table 1). While the frequency distribution remains the same, some index numbers may change slightly with each annual update to maintain the frequency distribution.

The Article 38 '45-Day Period' in fall 2007 began October 17 and ended November 30, as has been the standard practice for many years since being established by the California Department of Fish and Game as the default period. In accordance with Article 38, reduction in river height between the end of the 45-day period and March 31 shall not exceed four inches (0.33 feet) below the average height established during the 45-day period (as measured at Old La Grange Bridge). Using provisional daily flow data from the USGS gage at La Grange, the calculated average flow was 170.6 cfs for the 2007 45-day period, which corresponds to a river height of 169.60 feet at the Old La Grange Bridge based on the USGS 1996 rating table. A gage elevation of 169.27 feet is 4 inches below that average and corresponds to 76.7 cfs as shown on Table 2. The current minimum flow requirement exceeds 76.7 cfs through March 31 as the present schedule is 150 cfs through April 14, so there is no effect on minimum flow requirements resulting from Article 38.

There is no fall pulse flow allocation required in the current 2007-2008 fish flow year type (Median Critical) per Amended Article 37. There was also none requested by the fishery agencies following our last flow schedule letter of September 11, 2007.

If you have any questions, please contact Wes Monier at 209-883-8321.

Sincerely,

Robert Nees
Assistant General Manager
Water Resources and Regulatory Affairs Administration

C: Larry Weis - TID
Allen Short - MID
FERC Secretary

TABLE 1
DETERMINATION OF WATER YEAR CLASSIFICATION THRESHOLDS
Water Year Classification

| Water Year Classification | Cumulative Occurrence | | | | 602020 INDEX (x 1000) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Settlement Agreement | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| Critical Water Year and Below | 0.0% | - | 5.4% | < | 1500 | 1,441 | 1,441 | 1,441 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 |
| Median Critical Water Year | 5.4% | -< | 14.4% | >= | 1500 | 1,441 | 1,441 | 1,441 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 | 1,476 |
| Intermediate Critical Dry Water Year | 14.4% | -< | 20.5% | >= | 2000 | 1,964 | 1,964 | 1,964 | 1,964 | 1,964 | 1,964 | 1,964 | 2,002 | 2,002 | 2,002 | 2,002 | 1,964 |
| Median Dry | 20.5% | -< | 31.3% | >= | 2200 | 2,159 | 2,159 | 2,183 | 2,183 | 2,183 | 2,183 | 2,183 | 2,187 | 2,187 | 2,187 | 2,187 | 2,183 |
| Intermediate Dry-Below Normal | 31.3% | -< | 40.4% | >= | 2400 | 2,441 | 2,441 | 2,442 | 2,442 | 2,442 | 2,442 | 2,441 | 2,441 | 2,403 | 2,441 | 2,441 | 2,403 |
| Median Below Normal | 40.4% | -< | 50.7% | >= | 2700 | 2,698 | 2,720 | 2,720 | 2,720 | 2,763 | 2,720 | 2,720 | 2,720 | 2,698 | 2,720 | 2,720 | 2,720 |
| * Intermediate Below Normal-Above Normal | 50.7% | -< | 66.2% | >= | 3100 | 3,139 | 3,139 | 3,183 | 3,183 | 3,225 | 3,183 | 3,183 | 3,139 | 3,139 | 3,139 | 3,183 | 3,139 |
| Median Above Normal | 66.2% | -< | 71.3% | >= | 3100 | 3,689 | 3,689 | 3,740 | 3,740 | 3,689 | 3,689 | 3,689 | 3,659 | 3,669 | 3,689 | 3,689 | 3,669 |
| Intermediate Above Normal-Wet | 71.3% | -< | 86.7% | >= | 3100 | 3,898 | 3,903 | 4,028 | 4,028 | 3,903 | 3,903 | 3,903 | 3,898 | 3,898 | 3,903 | 4,028 | 3,903 |
| Median Wet/Maximum | 86.7% | -< | 100.0% | >= | 3100 | 4,593 | 4,593 | 4,653 | 4,653 | 4,653 | 4,653 | 4,653 | 4,593 | 4,593 | 4,653 | 4,730 | 4,730 |

* Maximum index value for fish flow year is not to go above value shown in this row
** The index in the Settlement Agreement was based on Water Years 1906-1995

TURLOCK IRRIGATION DISTRICT

October 17 - November 30, 2007 Average Flow

Tuolumne River Below La Grange Dam Near La Grange

ACTUAL FLOWS (Provisional USGS Numbers)

| DATE | FLOW CFS | DATE | FLOW CFS |
|---|---|---|---|
| 17-Oct | 170 | 08-Nov | 168 |
| 18-Oct | 165 | 09-Nov | 169 |
| 19-Oct | 166 | 10-Nov | 168 |
| 20-Oct | 167 | 11-Nov | 166 |
| 21-Oct | 168 | 12-Nov | 164 |
| 22-Oct | 171 | 13-Nov | 168 |
| 23-Oct | 175 | 14-Nov | 174 |
| 24-Oct | 176 | 15-Nov | 174 |
| 25-Oct | 175 | 16-Nov | 173 |
| 26-Oct | 177 | 17-Nov | 173 |
| 27-Oct | 176 | 18-Nov | 171 |
| 28-Oct | 175 | 19-Nov | 172 |
| 29-Oct | 173 | 20-Nov | 173 |
| 30-Oct | 168 | 21-Nov | 172 |
| 31-Oct | 168 | 22-Nov | 172 |
| 01-Nov | 169 | 23-Nov | 172 |
| 02-Nov | 169 | 24-Nov | 169 |
| 03-Nov | 172 | 25-Nov | 169 |
| 04-Nov | 170 | 26-Nov | 169 |
| 05-Nov | 170 | 27-Nov | 169 |
| 06-Nov | 170 | 28-Nov | 175 |
| 07-Nov | 170 | 29-Nov | 169 |
| | | 30-Nov | 168 |
| | | TOTAL RELEASE= | 7,677 |

| | | | |
|---|---|---|---|
| 45 day average = | 170.6 cfs = | 169.60 ft elevation * | |
| Less 4 inches | | -0.33 | |
| Minimum Flow = | 76.7 CFS = | 169.27 ft elevation * | |

*

From U.S.G.S. table 22; for old La Grange Bridge (station not in use)

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# Attachment -B-

2007 Tuolumne River
Technical Advisory Committee Materials:

- List of 2007 TRTAC Activities/Materials
- March Meeting
- June Meeting
- September Meeting
- December Meeting

# 2007 TRTAC Activities & Materials

(underlined items are designated for inclusion in the FERC Report)

[For filings with FERC in their e-library, go to
http://elibrary.ferc.gov/idmws/search/fercgensearch.asp
indicate date range of interest, enter P-2299 as Docket Number, and submit]

## Activities/Materials 01Jan-08Mar2007

* 11Jan: TID letter on fall flows and Water Year classification
* 18Jan, 01Feb, 15Feb, 01Mar: Seine summaries (Kirihara)
* 02Feb: Draft study plan proposal requested by FERC
* 02Mar: Draft meeting agenda and current materials list (Ford)
* 05Mar: Conservation Groups' Comments on Districts' Draft Fisheries Study Plan
* Other postings to TRTAC website http://tuolumnerivertac.com/
    - Dec2006 TRTAC meeting summary
    - Final 2006 TRTAC materials list
    - 2006 screw trap data report
    - Aug2006-Feb2007 thermograph summary
    - 12Jan-18Feb2007 Waterford screw trap summary

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**Select FERC filings available from FERC online e-library (listed by doc. date):**

- 14Feb: The Tuolumne River Preservation Trust et al provides comments regarding Modesto & Turlock Irrigation District's preparation of a Study Plan and schedule for additional monitoring under Article 58 of the license under P-2299
- 22Feb: Modesto Irrigation District et al inform Natural Heritage Institute that they will be discussing the proposed fisheries plan during the 3/8/07 regular meeting of the Tuolumne River Technical Advisory Committee under P-2299.
- 07Mar: US Fish & Wildlife Service submits comments in response to the Modesto and Turlock Irrigation District's Draft Fisheries Study Plan under P-2299.

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## Activities/Materials 09Mar-14Jun2007

* 07Jun: Letters from CSPA and FOT in response to DFG letter of 23May to FERC
* 08Jun: Draft meeting agenda (Ford)
* 12Jun: Notice of Boucher's relocation to Oregon (Boucher)

* Other postings to TRTAC website http://tuolumnerivertac.com/
    - Mar2007 TRTAC meeting summary
    - Update of material list
    - 2007 flow schedule letters of 18Apr and 31May
    - 2007 periodic San Joaquin basin (and Tuolumne) monitoring updates
    - 2006 VAMP report and 2007 VAMP operation information

- 2006 Annual Report and technical reports

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**Select FERC filings available from FERC online e-library (listed by doc. date):**

- 20Mar: Modesto Irrigation District's Article 58 Tuolumne River Fisheries Study Plan (3-20-07) and responses to comments received on February 2, 2007 Draft under P-2299.
- 27Mar: Modesto Irrigation District & Turlock Irrigation District's CD containing its 2006 Lower Tuolumne River Annual Report under P-2299.
- 04Apr: City and County of San Francisco's Comments on Modesto and Turlock Irrigation Districts' Tuolumne River Fisheries Study Plan City under P-2299.
- 18Apr: Turlock Irrigation District, CA submits the Tuolumne River Flow Schedule for the April 15 - May 31 period, utilizing 22,564 AF in spring pulse flow due to the overall dry trend under P-2299.
- 23May: California Department of Fish and Game's re-iterate and clarifies various comments provided to FERC since 7/25/05 re the 20 year fishery monitoring program stipulated in Articles 57 and 58 of the New Don Pedro Proj-2299.
- 30May: Letter requesting Turlock Irrigation District et al to advise FERC within 30 days of a modification to the flow determination process has occurred, and if so, when the change has occurred re Don Pedro Proj-2299.

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## Activities/Materials 15Jun-13Sep2007

Postings to TRTAC website http://tuolumnerivertac.com/

- Meetings
  - June 2007 TRTAC meeting summary and handouts
  - September 2007 TRTAC meeting agenda and material list

- Correspondence
  - Filings about flow schedules
  - Filings about study plan
  - Filings about August FERC public meeting

- Documents
  - 2007 Tuolumne Screw Trap Data Report

- Data
  - 2007 Feb-Aug thermograph data
  - 2007 Jun/Jul snorkel data
  - Final 2007 screw trap update
  - Update of basin monitoring newsletter

- Participants
  - List has been updated

## Activities/Materials 14Sep-13Dec2007

Postings to TRTAC website http://tuolumnerivertac.com/

- Meetings
  - September 2007 TRTAC meeting summary and handouts
  - December 2007 TRTAC meeting agenda, restoration update, and material list

- Correspondence
  - Filings about flow schedules
  - Filings about monitoring study plan

- Documents
  - Draft 2007 Seine and Snorkel Report

- Data/Monitoring
  - Sep2007 snorkel data
  - Updates of basin monitoring newsletter

# TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

## DON PEDRO PROJECT - FERC LICENSE 2299

MODESTO IRRIGATION DISTRICT
TURLOCK IRRIGATION DISTRICT
CITY & COUNTY OF SAN FRANCISCO
CALIFORNIA DEPARTMENT OF FISH & GAME
U. S. FISH & WILDLIFE SERVICE

333 East Canal Drive
Turlock, CA 95381-0949
Phone: (209) 883-8275
Fax: (209) 656-2180
Email: tjford@tid.org

## TECHNICAL ADVISORY COMMITTEE MEETING

08 March 2007
9:30 AM
Turlock Irrigation District, Lunch Room (2nd floor)

*DRAFT AGENDA*

1. Introduction - Comments on draft agenda and prior meeting summary
2. Items since Dec2006 meeting
    A. Review material list
    B. Status of TRTAC monitoring grant approved for funding in 2005
3. General Update
    A. Data and report status, including Annual Report to FERC
    B. Agency and NGO updates
    C. Monitoring update – Spawning run, ongoing and planned 2007 activities
    D. Restoration status
4. River operations and forecasts – FERC/VAMP schedules
5. Review of 2007 FERC Study Plan Proposal
6. Additional items
7. Next meeting and topics:
    - 14 June at TID

# TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

DON PEDRO PROJECT - FERC LICENSE 2299

MODESTO IRRIGATION DISTRICT
TURLOCK IRRIGATION DISTRICT
CITY & COUNTY OF SAN FRANCISCO
CALIFORNIA DEPARTMENT OF FISH & GAME
U. S. FISH & WILDLIFE SERVICE

333 East Canal Drive
Turlock, CA 95381-0949
Phone: (209) 883-8275
Fax: (209) 656-2180
Email: tjford@tid.org

## TECHNICAL ADVISORY COMMITTEE MEETING

08 March 2007
9:30 AM
Turlock Irrigation District, Lunch Room (2nd floor)

*Draft Summary*

1. Introduction
    A. Comments on draft agenda and prior meeting summary – none

2. Items since Dec2006 meeting
    A. Comments on material list – the listed items were reviewed
    B. Status of 2005 TRTAC monitoring grant – DFG had no new information

3. Updates
    A. Status of data/reports, including annual report
        - Ford provided draft annual report listing; 2006 report from DFG will be out soon; CWT update will update all tributary survival results and add first summary of SJR reaches

    B. Agency and NGO updates
        - FOT – see Boucher items in D below
        - DFG – see items in C below
        - FWS had no update – Kim Webb is Acting Project Leader and available by e-mail

    C. Monitoring update
        - DFG reported estimate of 625 salmon in fall run – lower than in Stanislaus and Merced runs
        - Ford provided handouts on salmon catch and size from the Waterford RST and the seining
        - DFG has no plans to conduct lower RST operation this year

D. Restoration update
    - Handout of updated TRTAC project status from Fryer (TID) was briefly reviewed
    - Boucher reported: State Parks is looking into acquiring land, incl. TR Resort; Grayson River Ranch active work is complete – monitoring report(s) will be later this year, but not in time for report to FERC; Bobcat Flat is having bird boxes installed by Lee Morris, an osprey nest platform is planned, and purchase of some of Arthur parcel is underway
    - Next TR Coalition meeting is 15 March

4. River operations and forecasts – FERC/VAMP schedules
    - Ford provided handout on FSA flow schedule/volumes by year type – dry year at 90% exceedence forecast; volume likely to be in range of 117,000-143,000 AF
    - Discussion on potential to shift water for spring pulse, but no decision – some concern raised about delta pump impacts
    - VAMP may begin on 22 April; barrier at Head of Old River not expected; study is planned with 1000 smolts with acoustic tags;

5. Review of 2007 FERC Study Plan Proposal
    - Nees introduced subject, then Wilcox led review of plan elements
    - Li inquired about Section 10 permit issues
    - FWS, DFG, and NMFS not prepared to provide any additional comments; Li stated he would review proposal
    - Boucher: stated that FSA did not require Districts to implement ten projects, although they needed to be diligent in seeking funds; other NGO comments addressed most of their issues; concerned about adequacy of spring flows to mirror natural patterns and no additional flow commitment
    - Ford stated existing spring flows vary by year type; winter pulses are experimental for fry movement
    - Handout comparing study elements of Districts' proposal and Agency Limiting Factors Analysis
    - Nees stated Districts are reviewing existing comments as part of submittal to meet FERC timeline

6. Additional items
    - TID infiltration gallery at Geer Road may become operational in 2009
    - Water quality was discussed; what is status of monitoring in basin? Boucher noted several E. coli reports are being done, would like WQ info. on TRTAC website, is interested in monitoring downstream of Geer Road, and is concerned about possible impacts from feedlot near Peaslee Creek off Lake Road.

7. Next meetings and topics:
    - TRTAC on 14Jun, 13Sep, 13Dec; all start at 9:30 AM at TID

**FERC 2299 TRTAC Meeting**
**08 March 2007**

| Name | Organization |
|---|---|
| Tim Ford | TID/MID |
| Robert Nees | TID |
| Roger Masuda | TID |
| Debbie Leibersbach | TID |
| Jeanie Hinds | TID |
| Bill Johnston | MID |
| Ron Yoshiyama | CCSF |
| Dennis Blakeman | DFG |
| Rick Burmester | USFWS |
| Stacy Li | NMFS |
| Noah Hume | Stillwater Sciences |
| Scott Wilcox | Stillwater Sciences |
| Allison Boucher | FOT |

Draft

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

| | | |
|---|---|---|
| Turlock Irrigation District | ) | |
| | ) | |
| and | ) | Project No. 2299 |
| | ) | |
| Modesto Irrigation District | ) | |

# 2006 LOWER TUOLUMNE RIVER ANNUAL REPORT

## 2006 Annual Summary Report

- Introduction
- Tuolumne River Technical Advisory Committee (TRTAC)
- Program Goals and Comparative Salmon Population Goals
- Flow Schedules and Operations
- Monitoring Information
- Non-flow Measure Activities in 2006
- Anticipated Non-flow Measure Activities in 2007
- Other FERC Settlement Agreement Activities
- Program Expenses through 2006
- References

Exhibits: Spawning run estimates, Ocean catch data, and Delta salmon salvage data
Attachment A: Water, Flows, Temperature, and Flow Schedule Correspondence
Attachment B: 2006 Technical Advisory Committee Materials

Report 2006-1: 2005 and 2006 Spawning Survey Reports

Report 2006-2: Spawning Survey Summary Update

Report 2006-3: 2006 Seine/Snorkel Report and Summary Update

Report 2006-4: 2006 Rotary Screw Trap Report

Report 2006-5: Rotary Screw Trap Summary Update

Report 2006-6: Coded-wire Tag Summary Update

Report 2006-7: Survival to Emergence Study Report

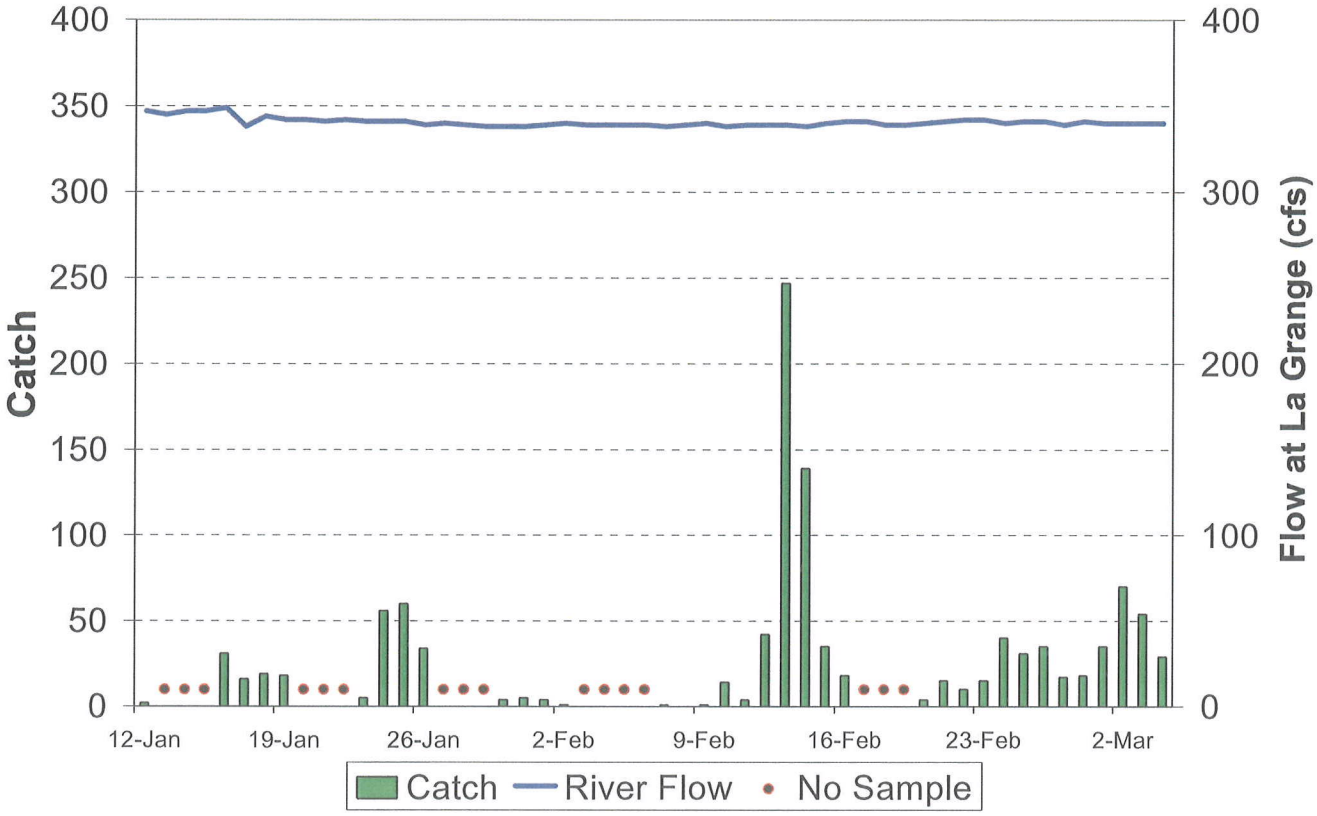
Report 2006-8: Special Run Pool 9 and 7/11 Reach: Post-Project Monitoring Synthesis Report

Report 2006-9: Lower Tuolumne River Predation Assessment Final Report

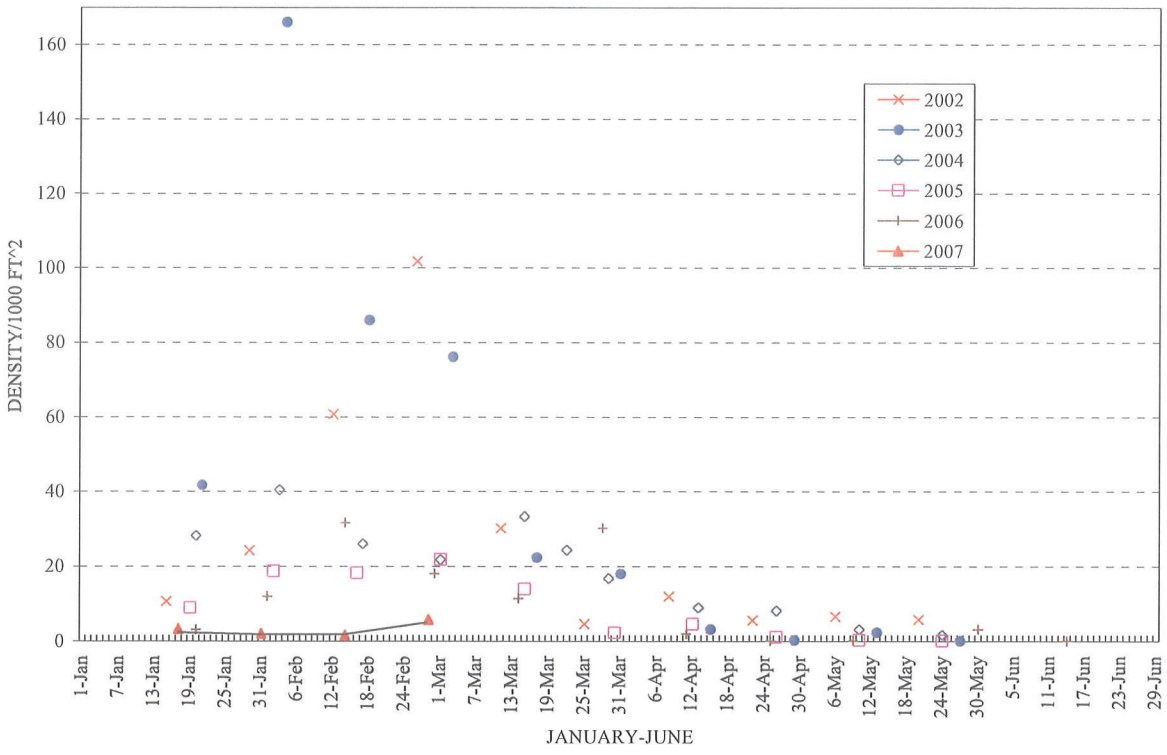
Report 2006-10: La Grange Gravel Addition Project Phase II 2000-2003 Report

Report 2006-11: La Grange Gravel Addition Project Phase II Geomorphic Monitoring Report

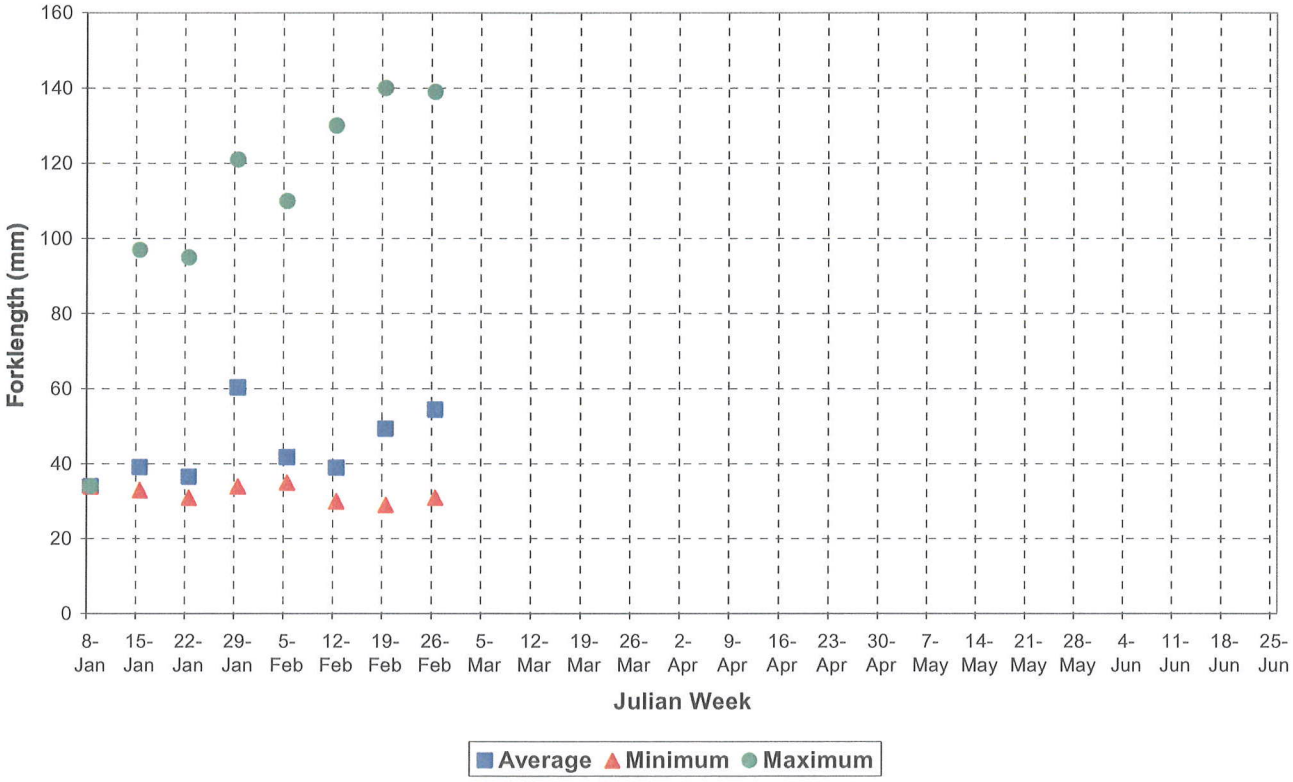
## 2007 Chinook Catch at Waterford and River Flow at La Grange



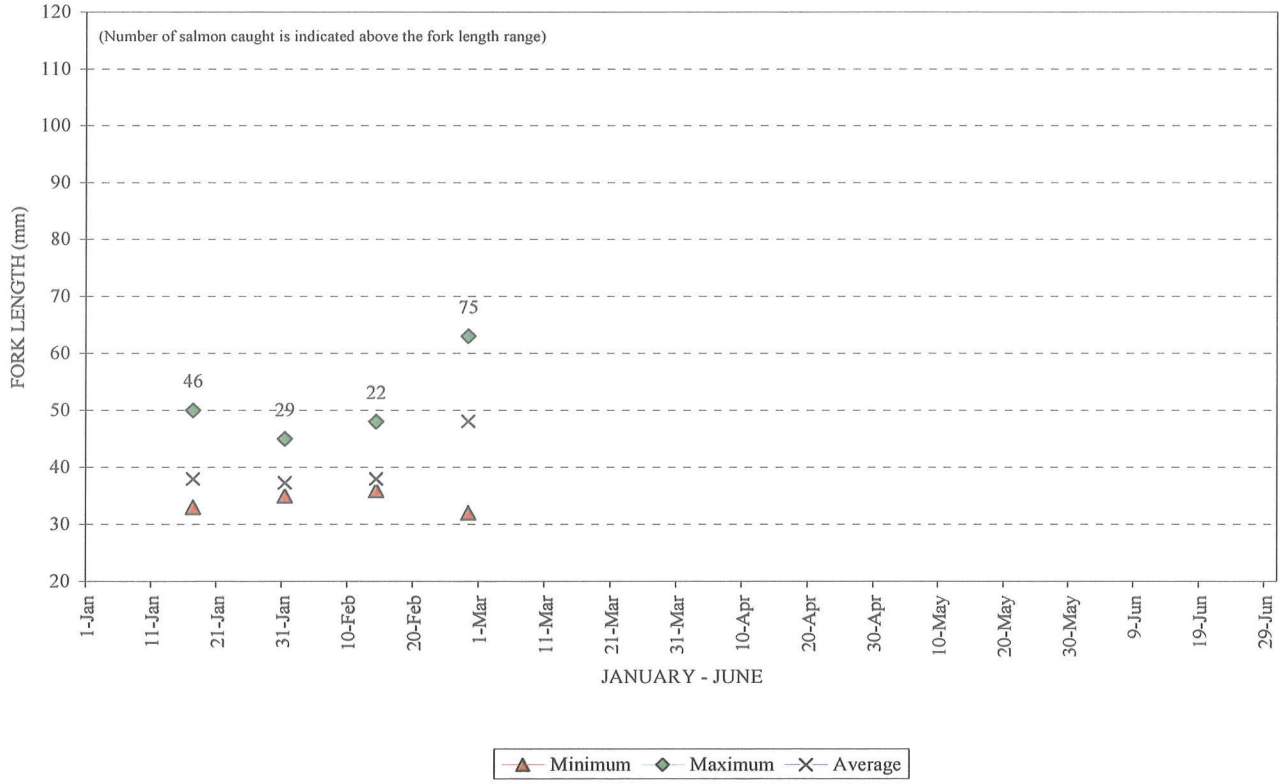

2002-2007 TUOLUMNE RIVER SEINING
COMBINED FRY AND JUVENILE SALMON DENSITY INDEX



## Weekly Average, Minimum and Maximum Lengths of Juvenile Chinook at Waterford Screw Trap - 2007




TUOLUMNE RIVER JUVENILE SALMON STUDY
2007 SEINING



TUOLUMNE FERC SETTLEMENT AGREEMENT FLOW SCHEDULE

| **Schedule** | **Days** | **Critical & Below** | | **Median Critical** | | **Intermediate C-D** | | **Median Dry** | | **Intermediate D-BN** | | **Median Below Normal** | | **Intermediate BN-AN** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Occurrence** | | **6.4%** | | **8.0%** | | **6.1%** | | **10.8%** | | **9.1%** | | **10.3%** | | **15.5%** | |
| Oct 1 - 15 | 15 | 100 | cfs | 100 | cfs | 150 | cfs | 150 | cfs | 180 | cfs | 200 | cfs | 300 | cfs |
| | | 2,975 | ac-ft | 2,975 | ac-ft | 4,463 | ac-ft | 4,463 | ac-ft | 5,355 | ac-ft | 5,950 | ac-ft | 8,926 | ac-ft |
| Attraction Pulse Flow | | none | | none | | none | | none | | 1,676 | ac-ft | 1,736 | ac-ft | 5,950 | ac-ft |
| Oct 16 - May 31 | 228 | 150 | cfs | 150 | cfs | 150 | cfs | 150 | cfs | 180 | cfs | 175 | cfs | 300 | cfs |
| | | 67,835 | ac-ft | 67,835 | ac-ft | 67,835 | ac-ft | 67,835 | ac-ft | 81,402 | ac-ft | 79,140 | ac-ft | 135,669 | ac-ft |
| Outmigration Pulse Flow | | 11,091 | ac-ft | 20,091 | ac-ft | 32,619 | ac-ft | 37,060 | ac-ft | 35,920 | ac-ft | 60,027 | ac-ft | 89,882 | ac-ft |
| June 1 - Sept 30 | 122 | 50 | cfs | 50 | cfs | 50 | cfs | 75 | cfs | 75 | cfs | 75 | cfs | 250 | cfs |
| | | 12,099 | ac-ft | 12,099 | ac-ft | 12,099 | ac-ft | 18,149 | ac-ft | 18,149 | ac-ft | 18,149 | ac-ft | 60,496 | ac-ft |
| Volume (ac-ft) | 365 | 94,000 | | 103,000 | | 117,016 | | 127,507 | | 142,502 | | 165,002 | | 300,923 | |

| | | | | | |
|---|---|---|---|---|---|
| Basin Index Threshold (calc. through WY2006) | 1.476 | 2.002 | 2.187 | 2.441 | 2.720 | 3.183 |

TURLOCK IRRIGATION DISTRICT

CIVIL ENGINEERING DEPARTMENT
MEMORANDUM

TO: TRTAC
FROM: Wilton Fryer
DATE: 8 March 2007
RE: Restoration Projects - Status Update

| Project | Funding | Status |
|---|---|---|
| Active Projects: | | |
| MJ Ruddy | none | All the project (Federal) funds were withdrawn by AFRP and CBDA effective 30 June 06 and 31 March 06 respectively. The landowner has been informed that the project was de-funded, but he still has desire to see the project built. There is a slim potential for a portion of the Warner-Deardorff Phase II Prop 204 funds being made available for reconstruction of a redesigned Ruddy reach project. See next. |
| Warner-Deardorff | Uncertain | The status of the $10.8M in CBDA Prop 204 funds, originally for Phase II work, remain uncertain. The project completed a Directed Action process, without CBDA issuing a contract, while under the directions from the CBDA ERPIAM. In May 2006 the DFG representative on the ERPIAM directed that completion of the contact be stopped pending transfer of the project administration from CBDF to CDFG. It is not clear if the funds were transferred to DFG in July 06, as none of the Prop 204 funding from CBDA has been transferred to DFG administration as of 1 March 2007. The original project funds may still be available for work on the Mining Reach, if a revised directed action proposal is approved and contract is in place by May 2007. AFRP modified their Phase I funding agreement with TID to allow a revision of the designs that would allow a modification of both the MJ Ruddy Segment and Warner-Deardorff Segments to fit the available Phase II funds. The designs are scheduled for completion by 12 Mar 07 and a proposal will be prepared for submittal to CBDA-DFG. |
| La Grange Gravel | Full | The Infusion Project, with all the amendment changes in place, went before the CBDA-ERPIAM in November and December |

| | | |
|---|---|---|
| | | 2006. These current members and CBDA staff did not realize that the amendment had gone through the required public review process back in March and April 2004 and the current submittal was the culmination of all the previous CBDA staff requests since 2004. It appears the ERPIAM will allow the contract amendment to proceed before the next amendments hearing in mid May, but confirmation was not received by the time of this report. In December 06, M&T was given approval to try and complete the design, review, and permitting tasks to be in a position to bid for 2007 inchannel work. At this time, it will still be very lucky to get all permits, design review, and contracts let in time for work in July 2007. Expect the project to run in 2008 and 2009, assuming a time extension is granted.<br><br>Discussions this week with DFG indicate 4-Pumps will be proceeding with a gravel addition at riffle 3A in 2007. This is one of the sites identified for the LG Infusion Project. While following the Course Sediment Management Plan for conceptual design, the design review procedures required of 4-Pumps projects does not include the processes in the CSMP that were approved by the CalFed. While it may be possible to piggy back off the DFG – 4-Pumps permits for the TID infusion project, there needs to be much closer coordination between these two projects. |
| Fine Sediment | Full | The Gasburg Creek restoration construction went out for bid in August 2006 with bids received on 1 September. The bids exceeded available funding. A design & project element review has been completed and the project will again go out for bids in March 2007 with the construction to start in June 2007. |
| Completed Projects: | (No Changes) | |
| SRP 10 | Partial | This project was split into two phases by CBDA and only design and modeling funded under Phase I. No Phase II funding for acquisition and construction has ever been identified. The Phase I work was completed in June 2006 and the project funding closed for Phase I. The landowner has been informed there is no foreseeable Phase II funding. |
| SRP 9 | Full | Construction completed, revegetation planted and maintained for two years, and final replacement planting completed in December 2003. NOC filed March 2003. |
| SRP 10 Dike | Full | Construction complete. NOC filed March 2003. |

| | | |
|---|---|---|
| 7\11 Segment | Full | Construction complete with remaining revegetation planted in December 2003. 7\11 Materials NOC filed March 2003. HART NOC filed May 2004. A separate limited irrigation & maintenance agreement is in place for 2004, funded by MWD. |
| Design Manual | Full | Completed with Final Report submitted 26 February 2004. |
| Course Sediment | Full | Report was completed with modifications on methods and techniques to protect existing salmonid habitats during implementation. The CBDA Science Panel has accepted the CSMP as part of their acceptance of the LG Sediment Infusion Project. |
| RM 43 | Full | The Project was completed in September 2005 and post project monitoring was started in time for this year's salmon run. |

## Agency Limiting Factor Analysis and Recommended Studies

| Agency LFA No. | | Corresp. Dist No. |
|---|---|---|
| | **Chinook Salmon Studies** | |
| 1.1 | Chinook Salmon escapement and redd surveys | |
| 1.2 | Otolith and/or Scale Age analysis | |
| 1.3 | Rotary Screw Trap: Jan-Jun Upper and Lower Sites | 1.3 |
| 1.4 | CWT smolt survival studies during non-low flows | 1.1 |
| 1.5 | Smolt Tagging – Predation & other mortality factors | 5.1 |
| 1.6 | Juvenile Fish Histology, Physiology, and Disease Study | |
| 1.7 | Predator ID study Feb-Mar (fry) | 5.2 |
| 1.8 | Fall Pulse Flow on Egg Viability | |
| 1.9 | Pre-Spawn Mortality Study | |
| 1.10 | Intensive Redd Use Surveys | 2.4 |
| 1.11 | Pilot Delta Fry Contribution Study using Microchemical and Microstructural Methods | |
| 1.12 | Water Temperature Monitoring | 6.1 |
| 1.13 | Early vs. Late Smolt Survival: Reanalysis of existing CWT data | 1.1 |
| 1.14 | Model relationship between flow and floodplain area inundated. | |
| 1.15 | Fall Pulse Flow Straying Study AFRP Stillwater Ongoing Juvenile Use at Restoration Sites | |
| 1.16 | Egg survival to emergence studies in restoration gravels | 2.3, 2.4 |
| 1.17 | Water Temperature Modeling-Thermal Response (e.g. HEC5Q) | 6.2 |
| 1.18 | Water Temperature Modeling-Juvenile Production (e.g. SALMOD or ORCM) | 6.2 |
| 1.19 | Predation stomach contents Apr-Jun—(Electrofishing, Angling, Gill Net Study) | 5.2 |
| 1.20 | Water Quality Contaminant Bioassay Lab Study | |
| 1.21 | Juvenile food source study | |
| 1.22 | Entrainment studies at unscreened diversions | |
| 1.23 | Flow Ramping Rates and Riparian Vegetation Recruitment Surveys | |
| 1.24 | Phase III Quantify Fry and Smolt Losses from Predation | 5.2 |
| | **Steelhead Studies** | |
| 2.1 | Otolith and Scale Study | |
| 2.2 | Restored Site Snorkel of Videography Surveys | |
| 2.3 | Electro-fishing Adult Mark-Recapture Study | 4.1 |
| 2.4 | Adult Abundance—Snorkeling Survey | 4.1 |
| 2.5 | Juvenile Abundance Snorkel Surveys | 4.1 |
| 2.6 | Rotary Screw Trap Sampling | 1.3 |
| 2.7 | Juvenile Gill- ATPase Study | |
| 2.8 | IFIM Study | |
| 2.9 | Radio Telemetry/Sonic Tag Study | |
| 2.1 | Creel/Poaching Survey | |
| 2.11 | Water Temperature Monitoring | 6.1 |
| 2.12 | Water Temperature Modeling-Thermal Response (e.g. HEC5Q) | 6.2 |
| 2.13 | Water Temperature Modeling-Juvenile Production (e.g. SALMOD or ORCM) | 6.2 |
| 2.14 | Adult Redd Survey | |
| 2.15 | Limiting Factors Analysis | 4.3 |

## TUOLUMNE RIVER FISHERIES STUDY PLAN

| Dist No. | | Corresp. Agency LFA No. |
|---|---|---|
| | **I. Instream Flow** | |
| 1.1 | Expanded analysis of existing CWT data at other recovery locations | 1.4, 1.13 |
| 1.2 | Experimental winter pulse flow schedule | |
| 1.3 | Paired Rotary Screw Trap (RST) Monitoring | 1.3, 2.6 |
| | **II. Habitat Restoration** | |
| 2.1 | Implement Coarse Sediment Augmentation | |
| 2.2 | Spawning habitat utilization | |
| 2.3 | Egg survival studies | 1.16 |
| 2.4 | Redd monitoring and emergence trapping | 1.10, 1.16 |
| 2.5 | Assessment of the 1995 FSA Section 12 Program | |
| | **III. Fry Survival** | |
| 3.1 | Paired Rotary Screw Trap (RST) Monitoring | |
| 3.2 | River-wide Seining Surveys | |
| 3.3 | Synthesis of ongoing and planned spawning and emergence studies with RST data | |
| | **IV. Steelhead Presence/Protection** | |
| 4.1 | Summer population estimate | 2.3, 2.4, 2.5 |
| 4.2 | Sampling of O. mykiss for Anadromy | |
| 4.3 | Synthesize results of past and ongoing studies by 2011 | 2.15 |
| | **V. Predator Control** | |
| 5.1 | Monitoring of Completed Predator Isolation Projects | 1.5 |
| 5.2 | Direct Predator Sampling | 1.7, 1.19, 1.24 |
| 5.3 | Predator Removal | |
| 5.4 | Paired Rotary Screw Trap (RST) Monitoring | |
| | **VI. River Temperature** | |
| 6.1 | Continue Temperature Monitoring | 1.12, 2.11 |
| 6.2 | Synthesize results of existing and ongoing studies by 2011 | 1.17, 1.18, 2.12, 2.13 |
| 6.3 | Delta temperature evaluation | |

# TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

DON PEDRO PROJECT - FERC LICENSE 2299

MODESTO IRRIGATION DISTRICT
TURLOCK IRRIGATION DISTRICT
CITY & COUNTY OF SAN FRANCISCO
CALIFORNIA DEPARTMENT OF FISH & GAME
U. S. FISH & WILDLIFE SERVICE

333 East Canal Drive
Turlock, CA 95381-0949
Phone: (209) 883-8275
Fax: (209) 656-2180
Email: tjford@tid.org

## TECHNICAL ADVISORY COMMITTEE MEETING

14 June 2007
9:30 AM
Turlock Irrigation District, Lunch Room (2nd floor)

*Draft Summary*

1. Introduction
    A. Comments on draft agenda – none

2. Items since Mar2007 meeting
    A. Comments on material list – the listed items were reviewed; send comments on Mar meeting notes

3. General Updates
    A. Data and report status; distribution of annual report
        - Ford provided 2006 annual report to several attendees
        - Hume reported invertebrate report work was presently on hold
        - Li requested copy of seine data sheets already being provided to CDFG and FWS by Districts

    B. Agency and NGO updates
        - FOT – the Bouchers are relocating to Oregon for several years but will still be involved with FOT and TRTAC
        - TRT - Koepele stated Meg Gonzalez is new staff person in Modesto; she had developed 4th grade Trekking the Tuolumne curriculum for the Great Valley Museum

    C. Monitoring update
        - Hume reported a NMFS Section 10 permit for trout monitoring had been obtained
        - TRTAC monitoring grant funding administered by CDFG has still not been released to TID
        - Ford provided handout on salmon catch from the Waterford and Grayson screw

traps for the season and noted that only about 30 salmon (all in April) were caught at Grayson; another handout showed the size of salmon caught at Waterford

D. Restoration update
   - Handout of updated TRTAC project status from Fryer (TID) was briefly reviewed:
     i. Gasburg Project will start in about a week
     ii. CDFG delayed approval of amendment to TRTAC gravel addition project in May so no gravel will be added this year
     iii. CDFG requested delay of $10.8 million contract award in 2006 for TRTAC Warner-Deardorff channel restoration project and that funding is still not awarded – a redesign has been submitted to combine with the adjacent TRTAC Ruddy reach project which had already lost funding for construction
   - Boucher reported:
     i. A proposed 32 acre parcel split variance would result in a 29 acre addition to their Bobcat Flat property
     ii. 22Jun tours will be held at Bobcat Flat and Grayson River Ranch
     iii. Ceres has tour of new river park off Hatch Road at 2 pm on 13Jun (day of meeting)
   - Koepele reported:
     i. Big Bend tree planting was completed and smaller vegetation will be added in next two years
     ii. Monitoring report may be available by end of year
     iii. Stillwater Sciences poster of monitoring for CALFED meeting is available online (check with Hume)
   - Discussion of stalled restoration grant for TRTAC gravel addition project being administered by CDFG and measures Districts have employed to attempt to move process forward; Boucher indicated a letter urging CDFG to provide funds may be sent; Koepele suggested TRTAC project selection be reviewed again

4. River operations and forecasts – Flow schedule
   - Ford provided handout of current flow schedule – summer schedule presently at 95 cfs and subject to change; estimated annual volume used was 117,335 AF with final volume not known until August

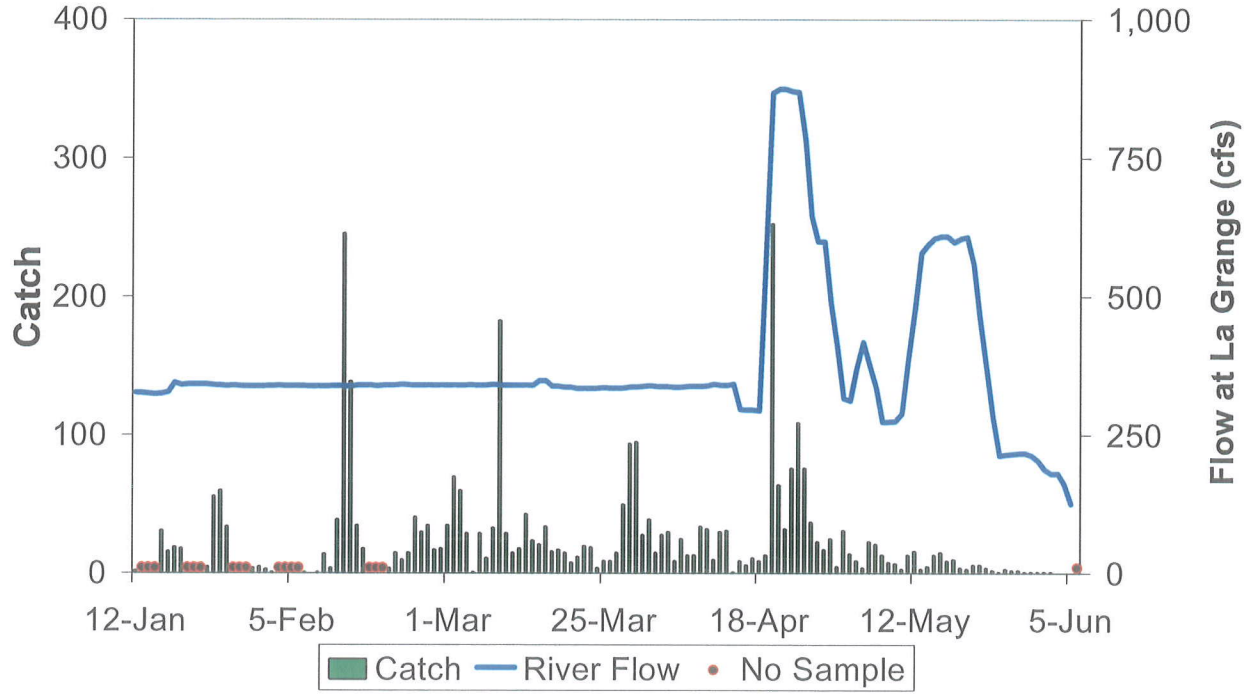
5. Additional items
   - Li stated he completed a draft of a NMFS Tech. Advisory Bulletin on the Delta that could be out in July

6. Next meetings and topics:
   - 13 September and 13 December, starting at 9:30 AM at TID

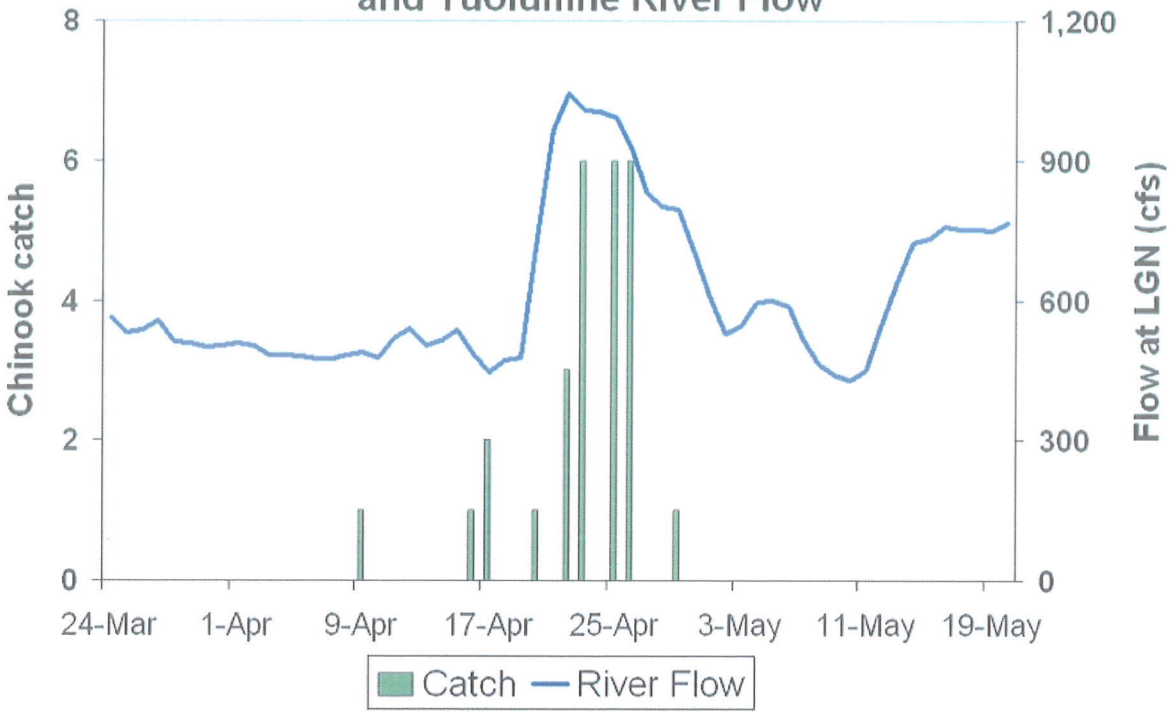
**FERC 2299 TRTAC Meeting**
**14 June 2007**

| Name | Organization |
|---|---|
| Tim Ford | TID/MID |
| Robert Nees | TID |
| Roger Masuda | TID |
| Bill Johnston | MID |
| Ron Yoshiyama | CCSF |
| Rick Burmester | USFWS |
| Noah Hume | Stillwater Sciences |
| Allison Boucher | FOT |
| Stacy Li | NMFS (phone) |
| Patrick Koepele | TRT (phone) |

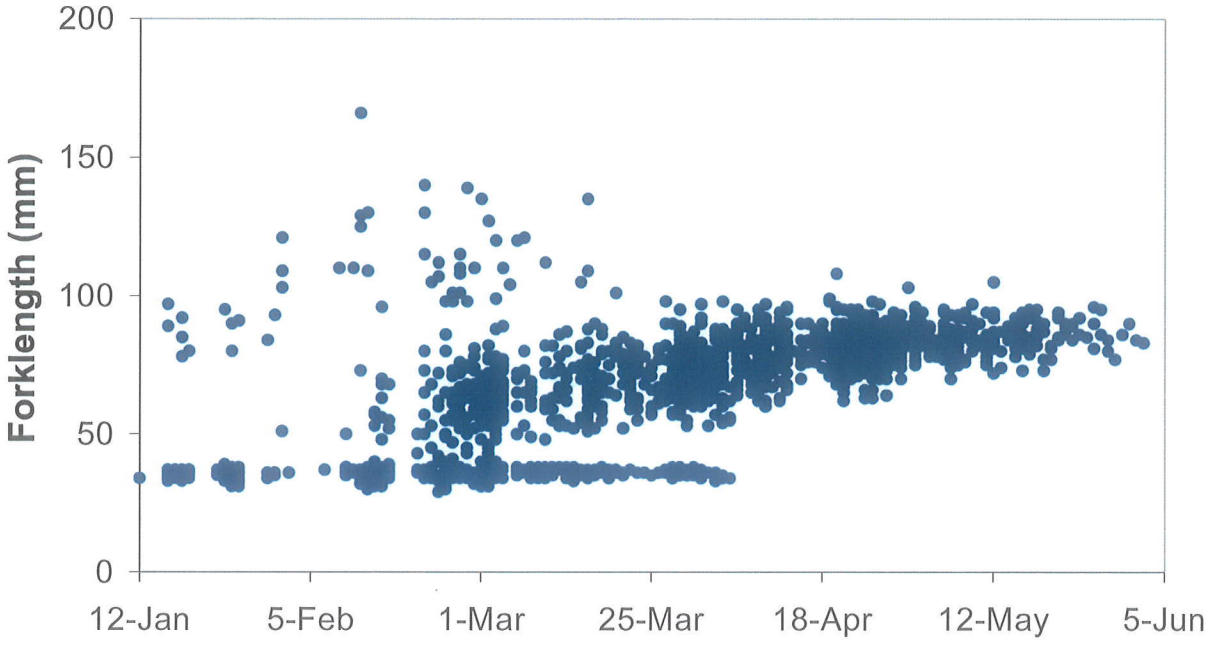
## 2007 Chinook Catch at Waterford and Tuolumne River Flow at La Grange



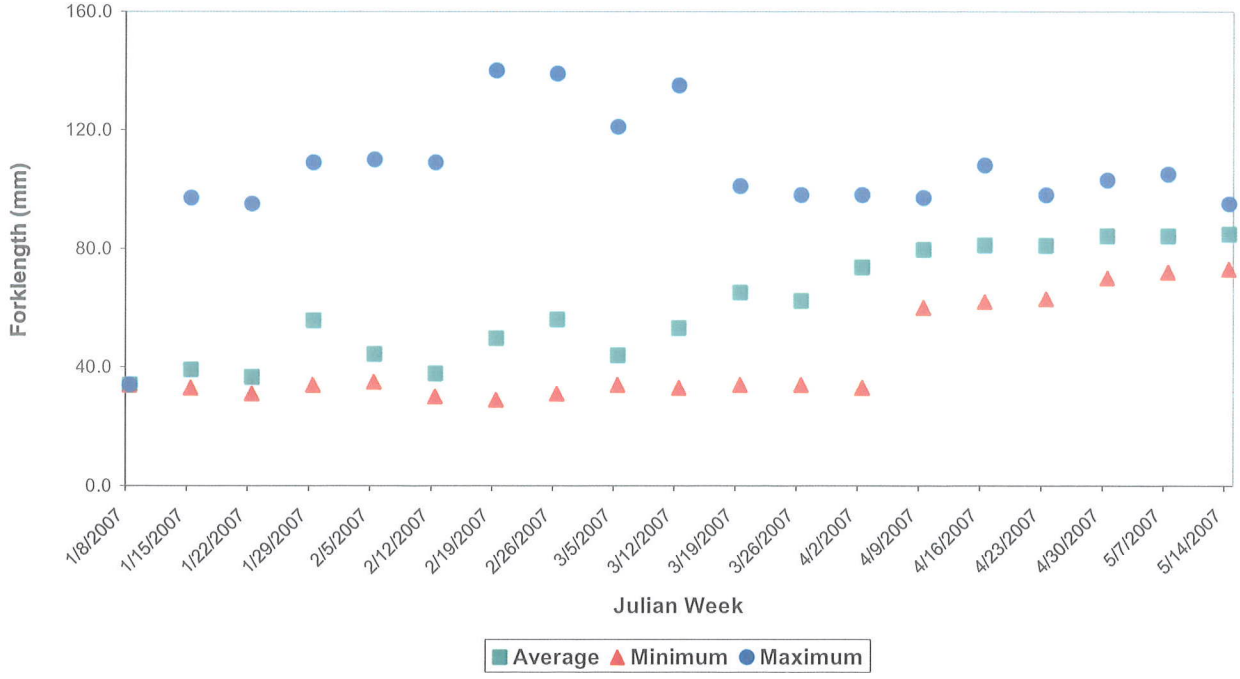

## Daily Chinook Catch at Grayson and Tuolumne River Flow



## Individual Lengths of Chinook Captured at Waterford - 2007




## Weekly Average, Minimum and Maximum Lengths of Juvenile Chinook at Waterford



# TABLE 1

## Tuolumne River Flow Schedule

### SCHEDULE FOR 2007 - 2008 Fish Flow Year

| DATE | | Number of | BASE FLOW | | | PULSE FLOW | | | ADDITIONAL FLOW | | | TOTAL FERC FLOW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ACCUM. | | | ACCUM. | | | ACCUM. | | ACCUM. |
| From: | To: | DAYS | CFS | AF | A.F. | CFS | AF | A.F. | CFS | AF | A.F. | CFS | A.F. |
| 15-Apr-2007 | 15-Apr-2007 | 1 | 150 | 298 | 298 | 100 | 198 | 198 | 0 | 0 | 0 | 250 | 496 |
| 16-Apr-2007 | 16-Apr-2007 | 1 | 150 | 298 | 595 | 100 | 198 | 397 | 0 | 0 | 0 | 250 | 992 |
| 17-Apr-2007 | 17-Apr-2007 | 1 | 150 | 298 | 893 | 100 | 198 | 595 | 0 | 0 | 0 | 250 | 1,488 |
| 18-Apr-2007 | 18-Apr-2007 | 1 | 150 | 298 | 1,190 | 100 | 198 | 793 | 0 | 0 | 0 | 250 | 1,983 |
| 19-Apr-2007 | 19-Apr-2007 | 1 | 150 | 298 | 1,488 | 100 | 198 | 992 | 0 | 0 | 0 | 250 | 2,479 |
| 20-Apr-2007 | 20-Apr-2007 | 1 | 150 | 298 | 1,785 | 392 | 778 | 1,770 | 56 | 111 | 111 | 599 | 3,667 |
| 21-Apr-2007 | 21-Apr-2007 | 1 | 150 | 298 | 2,083 | 392 | 778 | 2,548 | 56 | 111 | 223 | 599 | 4,854 |
| 22-Apr-2007 | 22-Apr-2007 | 1 | 150 | 298 | 2,380 | 392 | 778 | 3,327 | 56 | 111 | 334 | 599 | 6,041 |
| 23-Apr-2007 | 23-Apr-2007 | 1 | 150 | 298 | 2,678 | 392 | 778 | 4,105 | 56 | 111 | 446 | 599 | 7,229 |
| 24-Apr-2007 | 24-Apr-2007 | 1 | 150 | 298 | 2,975 | 392 | 778 | 4,883 | 56 | 111 | 557 | 599 | 8,416 |
| 25-Apr-2007 | 25-Apr-2007 | 1 | 150 | 298 | 3,273 | 392 | 778 | 5,662 | 56 | 111 | 669 | 599 | 9,603 |
| 26-Apr-2007 | 26-Apr-2007 | 1 | 150 | 298 | 3,570 | 392 | 778 | 6,440 | 56 | 111 | 780 | 599 | 10,791 |
| 27-Apr-2007 | 27-Apr-2007 | 1 | 150 | 298 | 3,868 | 392 | 778 | 7,218 | 56 | 111 | 892 | 599 | 11,978 |
| 28-Apr-2007 | 28-Apr-2007 | 1 | 150 | 298 | 4,165 | 392 | 778 | 7,997 | 56 | 111 | 1003 | 599 | 13,165 |
| 29-Apr-2007 | 29-Apr-2007 | 1 | 150 | 298 | 4,463 | 285 | 566 | 8,563 | 41 | 81 | 1084 | 476 | 14,110 |
| 30-Apr-2007 | 30-Apr-2007 | 1 | 150 | 298 | 4,760 | 196 | 389 | 8,952 | 28 | 56 | 1140 | 374 | 14,853 |
| 01-May-2007 | 01-May-2007 | 1 | 150 | 298 | 5,058 | 107 | 212 | 9,164 | 15 | 30 | 1171 | 272 | 15,393 |
| 02-May-2007 | 02-May-2007 | 1 | 150 | 298 | 5,355 | 107 | 212 | 9,377 | 15 | 30 | 1201 | 272 | 15,933 |
| 03-May-2007 | 03-May-2007 | 1 | 150 | 298 | 5,653 | 107 | 212 | 9,589 | 15 | 30 | 1231 | 272 | 16,473 |
| 04-May-2007 | 04-May-2007 | 1 | 150 | 298 | 5,950 | 107 | 212 | 9,801 | 15 | 30 | 1262 | 272 | 17,013 |
| 05-May-2007 | 05-May-2007 | 1 | 150 | 298 | 6,248 | 107 | 212 | 10,013 | 15 | 30 | 1292 | 272 | 17,554 |
| 06-May-2007 | 06-May-2007 | 1 | 150 | 298 | 6,545 | 107 | 212 | 10,226 | 15 | 30 | 1323 | 272 | 18,094 |
| 07-May-2007 | 07-May-2007 | 1 | 150 | 298 | 6,843 | 107 | 212 | 10,438 | 15 | 30 | 1353 | 272 | 18,634 |
| 08-May-2007 | 08-May-2007 | 1 | 150 | 298 | 7,140 | 107 | 212 | 10,650 | 15 | 30 | 1383 | 272 | 19,174 |
| 09-May-2007 | 09-May-2007 | 1 | 150 | 298 | 7,438 | 107 | 212 | 10,863 | 15 | 30 | 1414 | 272 | 19,714 |
| 10-May-2007 | 10-May-2007 | 1 | 150 | 298 | 7,736 | 107 | 212 | 11,075 | 15 | 30 | 1444 | 272 | 20,255 |
| 11-May-2007 | 11-May-2007 | 1 | 150 | 298 | 8,033 | 196 | 389 | 11,464 | 28 | 56 | 1500 | 374 | 20,997 |
| 12-May-2007 | 12-May-2007 | 1 | 150 | 298 | 8,331 | 285 | 566 | 12,030 | 41 | 81 | 1581 | 476 | 21,942 |
| 13-May-2007 | 13-May-2007 | 1 | 150 | 298 | 8,628 | 392 | 778 | 12,808 | 56 | 111 | 1693 | 599 | 23,129 |
| 14-May-2007 | 14-May-2007 | 1 | 150 | 298 | 8,926 | 392 | 778 | 13,587 | 56 | 111 | 1804 | 599 | 24,316 |
| 15-May-2007 | 15-May-2007 | 1 | 150 | 298 | 9,223 | 392 | 778 | 14,365 | 56 | 111 | 1916 | 599 | 25,504 |
| 16-May-2007 | 16-May-2007 | 1 | 150 | 298 | 9,521 | 392 | 778 | 15,143 | 56 | 111 | 2027 | 599 | 26,691 |
| 17-May-2007 | 17-May-2007 | 1 | 150 | 298 | 9,818 | 392 | 778 | 15,922 | 56 | 111 | 2139 | 599 | 27,878 |
| 18-May-2007 | 18-May-2007 | 1 | 150 | 298 | 10,116 | 392 | 778 | 16,700 | 56 | 111 | 2250 | 599 | 29,066 |
| 19-May-2007 | 19-May-2007 | 1 | 150 | 298 | 10,413 | 392 | 778 | 17,478 | 56 | 111 | 2362 | 599 | 30,253 |
| 20-May-2007 | 20-May-2007 | 1 | 150 | 298 | 10,711 | 392 | 778 | 18,257 | 56 | 111 | 2473 | 599 | 31,440 |
| 21-May-2007 | 21-May-2007 | 1 | 150 | 298 | 11,008 | 400 | 793 | 19,050 | 0 | 0 | 2,473 | 550 | 32,531 |
| 22-May-2007 | 22-May-2007 | 1 | 150 | 298 | 11,306 | 275 | 545 | 19,596 | 0 | 0 | 2,473 | 425 | 33,374 |
| 23-May-2007 | 23-May-2007 | 1 | 150 | 298 | 11,603 | 175 | 347 | 19,943 | 0 | 0 | 2,473 | 325 | 34,019 |
| 24-May-2007 | 24-May-2007 | 1 | 150 | 298 | 11,901 | 75 | 149 | 20,091 | 0 | 0 | 2,473 | 225 | 34,465 |
| 25-May-2007 | 25-May-2007 | 1 | 150 | 298 | 12,198 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 34,763 |
| 26-May-2007 | 26-May-2007 | 1 | 150 | 298 | 12,496 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,060 |
| 27-May-2007 | 27-May-2007 | 1 | 150 | 298 | 12,793 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,358 |
| 28-May-2007 | 28-May-2007 | 1 | 150 | 298 | 13,091 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,655 |
| 29-May-2007 | 29-May-2007 | 1 | 150 | 298 | 13,388 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 150 | 35,953 |
| 30-May-2007 | 30-May-2007 | 1 | 135 | 268 | 13,656 | 0 | 0 | 20,091 | 0 | 0 | 2,473 | 135 | 36,221 |
| 31-May-2007 | 31-May-2007 | 1 | 100 | 198 | 13,855 | 0 | 0 | 20,091 | 20 | 40 | 2,513 | 120 | 36,459 |
| 01-Jun-2007 | 01-Jun-2007 | 1 | 80 | 159 | 14,013 | 0 | 0 | 20,091 | 25 | 50 | 2,562 | 105 | 36,667 |
| 02-Jun-2007 | 02-Jun-2007 | 1 | 75 | 149 | 14,162 | 0 | 0 | 20,091 | 20 | 40 | 2,602 | 95 | 36,855 |
| 03-Jun-2007 | 03-Jun-2007 | 1 | 60 | 119 | 14,281 | 0 | 0 | 20,091 | 35 | 69 | 2,671 | 95 | 37,044 |
| 04-Jun-2007 | 04-Jun-2007 | 1 | 50 | 99 | 14,380 | 0 | 0 | 20,091 | 45 | 89 | 2,761 | 95 | 37,232 |
| 05-Jun-2007 | 30-Jun-2007 | 26 | 50 | 2,579 | 16,959 | 0 | 0 | 20,091 | 45 | 2,321 | 5,081 | 95 | 42,131 |
| 01-Jul-2007 | 31-Jul-2007 | 31 | 50 | 3,074 | 20,033 | 0 | 0 | 20,091 | 45 | 2,767 | 7,848 | 95 | 47,973 |
| 01-Aug-2007 | 31-Aug-2007 | 31 | 50 | 3,074 | 23,107 | 0 | 0 | 20,091 | 45 | 2,767 | 10,615 | 95 | 53,814 |
| 01-Sep-2007 | 30-Sep-2007 | 30 | 50 | 2,975 | 26,083 | 0 | 0 | 20,091 | 45 | 2,678 | 13,293 | 95 | 59,467 |
| 01-Oct-2007 | 13-Oct-2007 | 13 | 100 | 2,579 | 28,661 | 0 | 0 | 20,091 | 25 | 645 | 13,937 | 125 | 62,690 |
| 14-Oct-2007 | 15-Oct-2007 | 2 | 100 | 397 | 29,058 | 0 | 0 | 20,091 | 25 | 99 | 14,037 | 125 | 63,186 |
| 16-Oct-2007 | 26-Oct-2007 | 11 | 150 | 3,273 | 32,331 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 66,459 |
| 27-Oct-2007 | 28-Oct-2007 | 2 | 150 | 595 | 32,926 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 67,054 |
| 29-Oct-2007 | 29-Oct-2007 | 1 | 150 | 298 | 33,223 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 67,351 |
| 30-Oct-2007 | 30-Oct-2007 | 1 | 150 | 298 | 33,521 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 67,649 |
| 31-Oct-2007 | 31-Oct-2007 | 1 | 150 | 298 | 33,818 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 67,946 |
| 01-Nov-2007 | 16-Nov-2007 | 16 | 150 | 4,760 | 38,579 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 72,707 |
| 17-Nov-2007 | 30-Nov-2007 | 14 | 150 | 4,165 | 42,744 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 76,872 |
| 01-Dec-2007 | 31-Dec-2007 | 31 | 150 | 9,223 | 51,967 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 86,095 |
| 01-Jan-2008 | 31-Jan-2008 | 31 | 150 | 9,223 | 61,190 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 95,318 |
| 01-Feb-2008 | 29-Feb-2008 | 29 | 150 | 8,628 | 69,818 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 103,946 |
| 01-Mar-2008 | 31-Mar-2008 | 31 | 150 | 9,223 | 79,041 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 113,169 |
| 01-Apr-2008 | 14-Apr-2008 | 14 | 150 | 4,165 | 83,207 | 0 | 0 | 20,091 | 0 | 0 | 14,037 | 150 | 117,335 |
| No. of days | | 366 | (April 15 through April 14) | | | | | | | | | | |

1 cfs day = 1.983471 acre-feet (af)

Notes: 1. Based on 60-20-20 Index is 2,043,183 July 31, 1996 FERC Order Flow Interpolated as 119,360 AF fish flow year requirement.

2. The pulse flows are a target that represents a daily average.

TURLOCK IRRIGATION DISTRICT

CIVIL ENGINEERING DEPARTMENT
M E M O R A N D U M

TO: TRTAC
FROM: Wilton Fryer
DATE: 14 June 2007
RE: Restoration Projects - Status Update

| Project | Funding | Status |
|---|---|---|
| Active Projects: | | |
| Fine Sediment | Full | The Gasburg Creek restoration construction went out for a second round of bids in March 2007. The bids came in higher than the 2006 bids. The new bids had been set up to allow portions of the project to be deleted to get down to available funds. A contract has been awarded to Seam Smith and the work will be starting 18 June 2007. |
| La Grange Gravel | Full | The Infusion Project, with all the amendment changes in place, went before the CBDA-ERPIAM in November and December 2006 and again in March 2007. The amendment was then scheduled for formal approval on 17 May 2007. However, the amendment was pulled from the agenda by DFG on 15 May and there is no clear idea of what will happen next.<br><br>We had been working closely with DFG / 4-Pumps to use their permits and our CSMP designs and modeling for the Reclamation Board permit such that we would be able to start some of our infusion work this summer. With cancellation of the amendment we had to suspend the joint effort with DFG. We have not heard the impacts this has had on the remainder of the 4-Pumps work, but it is expected to complicate them completing their permits for this the last year of the 4-Pumps funding. |
| MJ Ruddy | none | All the project (Federal) funds were withdrawn by AFRP and CBDA effective 30 June 06 and 31 March 06 respectively. A Warner Deardorff amendment request was submitted on 24 May 2007 that included a redesign of the MJ Ruddy project with lower floodway benches that are considered to be more conducive to fry & smolt rearing. This was a design change |

| | | |
|---|---|---|
| | | approved and funded by AFRP. Processing of this request would be predicated on the contract being issued for the initial Warner-Deardorff Project. See next. |
| Warner-Deardorff | Uncertain | The status of obtaining a contract for the $10.8M in CBDA Prop 204 funds originally awarded for Phase II work remains uncertain. However, DFG has indicated that the funds have not been withdrawn from the project. On 24 May 2007 a request was submitted to DFG asking that they now complete the award of the contract that they requested CBDA to suspend in June 2006 only until completion of the transition to DFG administration of the ERP funds. The submittal package included the completed ERP Science Panel directed action & response, the 90% drawings for the original Warner-Deardorff plans, and the 30% level of redesign that included the lowered floodway benches on the MJ Ruddy Project along with the lower bench configuration for the Warner-Deardorff Project. The 30% redesign work had been paid for by AFRP before their portion of the Warner-Deardorff Phase I funding ran out. |
| Completed Projects: | (No Changes) | |
| SRP 10 | Partial | This project was split into two phases by CBDA and only design and modeling funded under Phase I. No Phase II funding for acquisition and construction has ever been identified. The Phase I work was completed in June 2006 and the project funding closed for Phase I. The landowner has been informed there is no foreseeable Phase II funding. |
| SRP 9 | Full | Construction completed, revegetation planted and maintained for two years, and final replacement planting completed in December 2003. NOC filed March 2003. |
| SRP 10 Dike | Full | Construction complete. NOC filed March 2003. |
| 7\11 Segment | Full | Construction complete with remaining revegetation planted in December 2003. 7\11 Materials NOC filed March 2003. HART NOC filed May 2004. A separate limited irrigation & maintenance agreement is in place for 2004, funded by MWD. |
| Design Manual | Full | Completed with Final Report submitted 26 February 2004. |
| Course Sediment | Full | Report was completed with modifications on methods and techniques to protect existing salmonid habitats during implementation. The CBDA Science Panel has accepted the |

| | | |
|---|---|---|
| | | CSMP as part of their acceptance of the LG Sediment Infusion Project. |
| RM 43 | Full | The Project was completed in September 2005 and post project monitoring was started in time for this year's salmon run. |

## Tim Ford - Fwd: we're moving

**From:** Tim Ford
**To:** TRTAC LIST 2-2007
**Date:** 6/12/2007 9:23:33 AM
**Subject:** Fwd: we're moving

To TRTAC list as requested

>>> "Allison Boucher" <boucher.a@comcast.net> 6/9/2007 11:55 AM >>>
Tim,

Please forward this email to the TRTAC group.

Dave and I are taking a sabatical for a few years. We're moving to Bend, OR where Dave has a position that is one week on and one week off--the best kind of half time. I have closed my practice and am retired.

The Friends of the Tuolumne will continue its efforts for the river in every way. Our Board of Directors is supportive of our temporary leave of absence and we will continue to travel to Modesto for select meetings throughout the year.

Bobcat Flat, one of our active projects, is seeking funds to place additional gravel in the river to create spawning and rearing habitat immediately downstreem of Rivermile 43. We need approximately $1 million for engineering, permits, construction, and monitoring. Any help or support you can provide will be greatly appreciated.

Dave and I expect to move back to the area in time for the FERC relicensing in 2015. And, of course, we will remain active in the current 10 year review with FERC.

Necessary info:

Phone: 209-471-0476
Phone: 541-306-6887
Address: 1900 NE 3rd, Ste 106 #314
Bend, OR 97701

Please feel free to call anytime.

I am giving a tour of the Bobcat Flat completed construction on Friday, June 22 at 9:30 am and we will tour Grayson River Ranch after lunch. You are all welcome to come.

Dave and Allison Boucher

# TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

DON PEDRO PROJECT - FERC LICENSE 2299

MODESTO IRRIGATION DISTRICT
TURLOCK IRRIGATION DISTRICT
CITY & COUNTY OF SAN FRANCISCO
CALIFORNIA DEPARTMENT OF FISH & GAME
U. S. FISH & WILDLIFE SERVICE

333 East Canal Drive
Turlock, CA 95381-0949
Phone: (209) 883-8275
Fax: (209) 656-2180
Email: tjford@tid.org

## TECHNICAL ADVISORY COMMITTEE MEETING

13 September 2007
9:30 AM
Turlock Irrigation District, Lunch Room (2nd floor)

*DRAFT AGENDA*

1. Introduction - Comments on draft agenda
2. Items since June 2007 meeting
    A. Review material list
3. General Update
    A. Data and report status
    B. Agency and NGO updates
    C. Monitoring update – completed and planned activities
    D. Restoration status
4. River operations and forecasts – Flow schedule
5. Additional items
6. Next meeting and topics:
    - 13 December at TID

(see also information at TRTAC website: http://tuolumnerivertac.com/ )

# Tim Ford - September 13 TRTAC meeting

**From:** Tim Ford
**To:** fwm; TRTAC LIST 2-2007
**Date:** 9/7/2007 10:45:22 AM
**Subject:** September 13 TRTAC meeting

To TRTAC list:

The next TRTAC meeting is Thursday, September 13 at TID, 9:30 AM. Attached is the restoration project update from Wilton Fryer. Other meeting material and updates since the June meeting already posted at the TRTAC website (http://tuolumnerivertac.com/) include:

- Meetings
  - June 2007 TRTAC meeting summary and handouts
  - September 2007 TRTAC meeting agenda and material list
- Correspondence
  - Filings about flow schedules
  - Filings about study plan
  - Filings about August FERC public meeting
- Documents
  - 2007 Tuolumne Screw Trap Data Report
- Data
  - 2007 Feb-Aug thermograph data
  - 2007 Jun/Jul snorkel data
  - Final 2007 screw trap update
  - Update of basin monitoring newsletter
- Participants
  - List has been updated

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209-883-8275 Phone
209-656-2180 FAX

# TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

DON PEDRO PROJECT - FERC LICENSE 2299

MODESTO IRRIGATION DISTRICT
TURLOCK IRRIGATION DISTRICT
CITY & COUNTY OF SAN FRANCISCO
CALIFORNIA DEPARTMENT OF FISH & GAME
U. S. FISH & WILDLIFE SERVICE

333 East Canal Drive
Turlock, CA 95381-0949
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## TECHNICAL ADVISORY COMMITTEE MEETING

13 September 2007
9:30 AM
Turlock Irrigation District, Lunch Room (2nd floor)

*Final Summary*

1. Introduction and comments on draft agenda
   - DFG would not be attending per message to Wilton Fryer/TID
   - Cindy Charles of Golden West Women Flyfishers (GWWF) was attending for the first time
   - Flow schedule review would be first update topic discussed

2. Items since June 2007 meeting
   A. Comments on material list – the items listed since June were reviewed (meetings, correspondence, documents, data, participant list) – all available at website

3. General Updates
   A. Data and report status
      - 2007 Screw trap data report has been posted
      - Snorkel and thermograph data has been posted

   B. Agency and NGO updates
      - GWWF – Members fish the Tuolumne and are interested in summer temperature conditions for trout; further review of recent data should be made

   C. Monitoring update
      - Another snorkel survey will be done later in the month
      - Invertebrate sampling was done in late July

   D. Restoration update
      - Handout of updated TRTAC project status from Fryer (TID) was reviewed:
        i. Gasburg Project to be completed by December, but CDFG has IDed some issues about prior work
        ii. Gravel addition project: the amendment is now waiting for a new CDFG

evaluation report to be completed by the end of the year. Even if approved, that could cause more delay of another year to 2009

iii. Warner-Deardorff and Ruddy Reach channel restoration projects are also stalled until the new CDFG evaluation report

4. River operations and forecasts – Flow schedule
    - Current schedule went from 95 cfs to 76 cfs on 11 September to adjust to final volume; another schedule letter was sent out
    - Ford provided a PowerPoint/handout review of flow schedule determination process
    - Dry years under current system since 1995 were 2001-2004 and 2007 (driest)
    - Year types, volumes, and seasonal allocations, including scheduling of interpolation volumes, were reviewed
    - Review of basin index forecasts (50% and 90%) and schedule volume changes over time was done for 2004 and 2007
    - Changes in the 2007 50% and 90% volumes relative to schedule year types were reviewed
    - Examples of other dry year fall flow schedules were provided; NMFS is coordinating with other agencies regarding if a fall pulse flow allocation is recommended

5. Additional items
    - Question from Burmester of pulse flow effects on low DO conditions at Stockton in the Deep Water Ship Channel; Hume thought about 2,000 cfs at Vernalis would increase DO; it was noted that some salmon seemed to even get past low DO, perhaps by another migration route, such as Old River before barrier placement.

6. Next meetings and topics
    - 13 December, starting at 9:30 AM at TID

**FERC 2299 TRTAC Meeting**
**13 September 2007**

| Name | Organization |
|---|---|
| Tim Ford | TID/MID |
| Robert Nees | TID |
| Roger Masuda | TID |
| Wes Monier | TID |
| Debbie Liebersbach | TID |
| Walter Ward | MID |
| Bill Sears | CCSF |
| Ron Yoshiyama | CCSF |
| Rick Burmester | USFWS |
| Noah Hume | Stillwater Sciences |
| Cindy Charles | Golden West Women Flyfishers |

TURLOCK IRRIGATION DISTRICT

CIVIL ENGINEERING DEPARTMENT
M E M O R A N D U M

TO: TRTAC
FROM: Wilton Fryer
DATE: 13 September 2007
RE: Restoration Projects - Status Update

| Project | Funding | Status |
|---|---|---|
| Active Projects: | | |
| Fine Sediment | Full | The earthwork portion of the Gasburg Creek restoration construction was completed on 31 July and it looks great. Revegetation is scheduled for November. After the construction was finished, DFG, as contract manager, has raised procedural questions on how the Gasburg Creek construction elements have been changed since the project was first proposed. For example: the addition of upstream erosion sites as a DFG condition for building the original lower site on DFG lands. |
| La Grange Gravel | Full | There has been no change in the status of the Gravel Infusion Project since the ERP amendment was pulled from the agenda by DFG on 15 May. This also effectively stopped work on the associated DFG - 4-Pumps project in the same reach of the river.<br><br>We are waiting for the DFG to complete an assessment report for restoration projects on the Merced & Tuolumne Rivers that is due out at the end of December. DFG has indicated they will not consider the amendment until after this assessment report is completed and its findings accepted. However, if there is to be infusion work done in the summer of 2008 it will be necessary to restart work on the required state & federal permits in October 2007. |
| MJ Ruddy | none | No Change in project status. All the project (Federal) funds were withdrawn by AFRP and CBDA effective 30 June 06 and 31 March 06 respectively. A Warner Deardorff amendment request was submitted on 24 May 2007 that included a redesign of the MJ Ruddy project with lower floodway benches that are considered to be more conducive to |

| | | |
|---|---|---|
| | | fry & smolt rearing. This was a design change approved and funded by AFRP. Processing of this request would be predicated on the contract being issued for the initial Warner-Deardorff Project. See next. |
| Warner-Deardorff | Uncertain | No change in project status. The status of obtaining a contract for the $10.8M in CBDA Prop 204 funds originally awarded for Phase II work remains uncertain. However, DFG has indicated that the funds have not been withdrawn from the project. On 24 May 2007 a request was submitted to DFG asking that they now complete the award of the contract that they requested CBDA to suspend in June 2006 only until completion of the transition to DFG administration of the ERP funds. The submittal package included the completed ERP Science Panel directed action & response, the 90% drawings for the original Warner-Deardorff plans, and the 30% level of redesign that included the lowered floodway benches on the MJ Ruddy Project along with the lower bench configuration for the Warner-Deardorff Project. The 30% redesign work had been paid for by AFRP before their portion of the Warner-Deardorff Phase I funding ran out. |
| Completed Projects: | (No Changes) | |
| SRP 10 | Partial | This project was split into two phases by CBDA and only design and modeling funded under Phase I. No Phase II funding for acquisition and construction has ever been identified. The Phase I work was completed in June 2006 and the project funding closed for Phase I. The landowner has been informed there is no foreseeable Phase II funding. |
| SRP 9 | Full | Construction completed, revegetation planted and maintained for two years, and final replacement planting completed in December 2003. NOC filed March 2003. |
| SRP 10 Dike | Full | Construction complete. NOC filed March 2003. |
| 7\11 Segment | Full | Construction complete with remaining revegetation planted in December 2003. 7\11 Materials NOC filed March 2003. HART NOC filed May 2004. A separate limited irrigation & maintenance agreement is in place for 2004, funded by MWD. |
| Design Manual | Full | Completed with Final Report submitted 26 February 2004. |
| Course Sediment | Full | Report was completed July 2004, with modifications on methods and techniques to protect existing salmonid habitats during implementation. The CBDA Science Panel has |

| | | |
|---|---|---|
| | | accepted the CSMP as part of their acceptance of the LG Sediment Infusion Project. |
| RM 43 | Full | The Project was completed in September 2005 and post project monitoring was started in time for this year's salmon run. |

# Review of “Dry” Year Flow Schedules

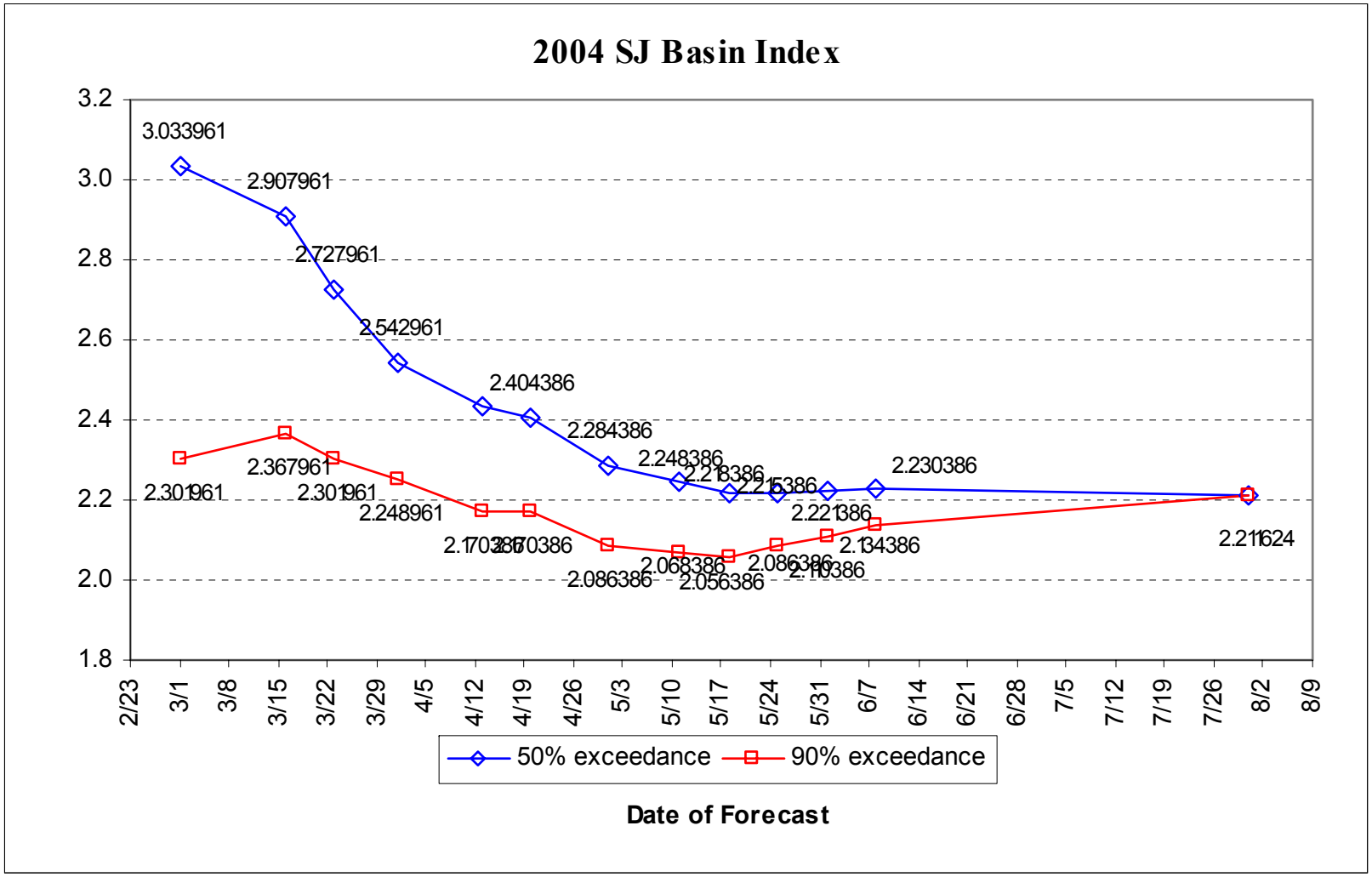
- Drier years since 1995 have been 2001,2002, 2003, 2004, and 2007

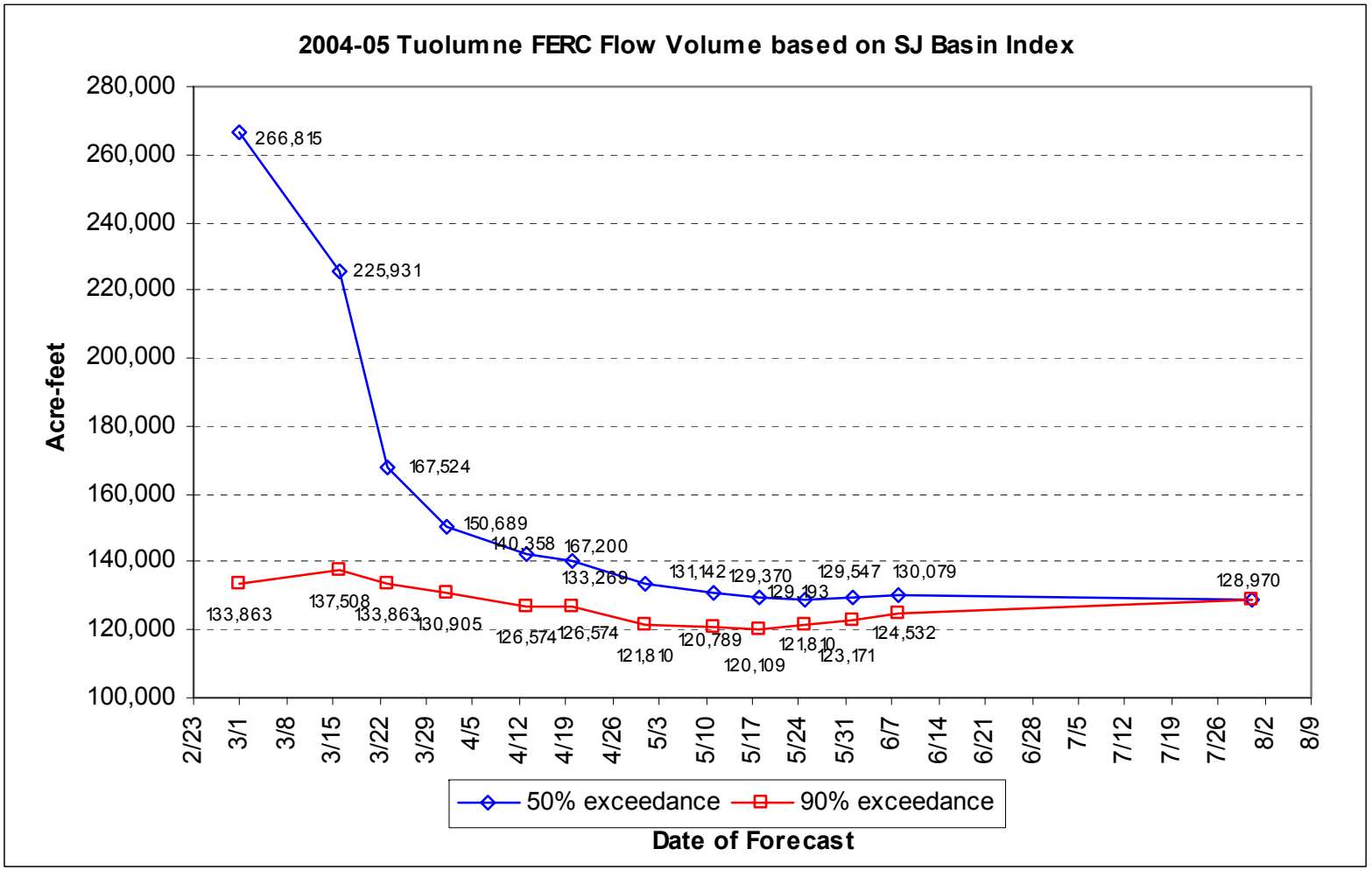
TUOLUMNE FERC SETTLEMENT AGREEMENT FLOW SCHEDULE

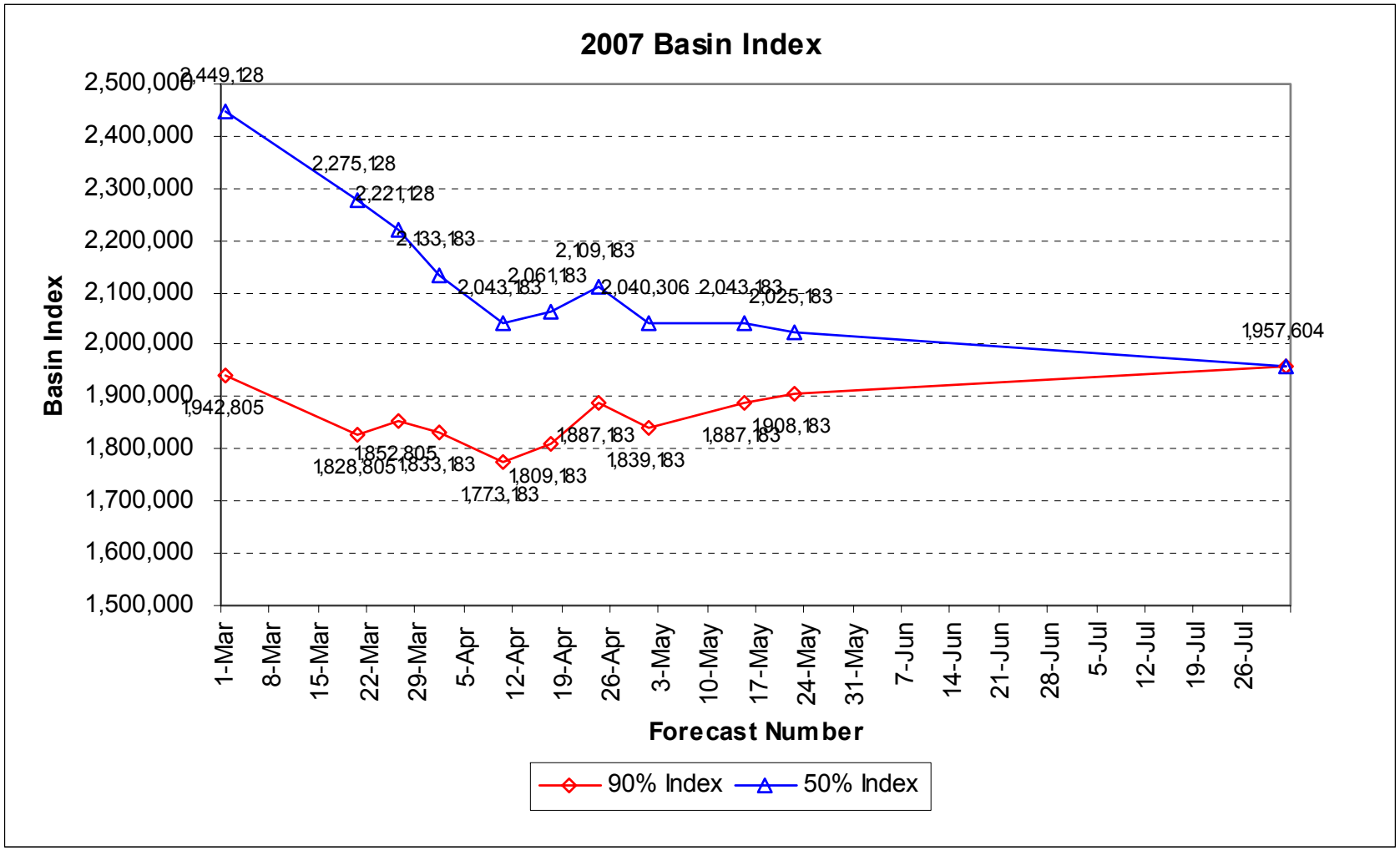
| Schedule | Days | Critical & Below | | Median Critical | | Intermediate C-D | | Median Dry | | Intermediate D-BN | | Median Below Normal | | Intermediate BN-AN | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Occurrence** | | **6.4%** | | **8.0%** | | **6.1%** | | **10.8%** | | **9.1%** | | **10.3%** | | **15.5%** | |
| Oct 1 - 15 | 15 | 100 | cfs | 100 | cfs | 150 | cfs | 150 | cfs | 180 | cfs | 200 | cfs | 300 | cfs |
| | | 2,975 | ac-ft | 2,975 | ac-ft | 4,463 | ac-ft | 4,463 | ac-ft | 5,355 | ac-ft | 5,950 | ac-ft | 8,926 | ac-ft |
| Attraction Pulse Flow | | none | | none | | none | | none | | 1,676 | ac-ft | 1,738 | ac-ft | 5,950 | ac-ft |
| Oct 16 - May 31 | 228 | 150 | cfs | 150 | cfs | 150 | cfs | 150 | cfs | 180 | cfs | 175 | cfs | 300 | cfs |
| | | 67,835 | ac-ft | 67,835 | ac-ft | 67,835 | ac-ft | 67,835 | ac-ft | 81,402 | ac-ft | 79,140 | ac-ft | 135,669 | ac-ft |
| Outmigration Pulse Flow | | 11,091 | ac-ft | 20,091 | ac-ft | 32,619 | ac-ft | 37,060 | ac-ft | 35,920 | ac-ft | 60,027 | ac-ft | 89,882 | ac-ft |
| June 1 - Sept 30 | 122 | 50 | cfs | 50 | cfs | 50 | cfs | 75 | cfs | 75 | cfs | 75 | cfs | 250 | cfs |
| | | 12,099 | ac-ft | 12,099 | ac-ft | 12,099 | ac-ft | 18,149 | ac-ft | 18,149 | ac-ft | 18,149 | ac-ft | 60,496 | ac-ft |
| Volume (ac-ft) | 365 | 94,000 | | 103,000 | | 117,016 | | 127,507 | | 142,502 | | 165,002 | | 300,923 | |
| Basin Index Threshold (calc. through WY2006) | | | | 1.476 | | 2.002 | | 2.167 | | 2.441 | | 2.720 | | 3.183 | |

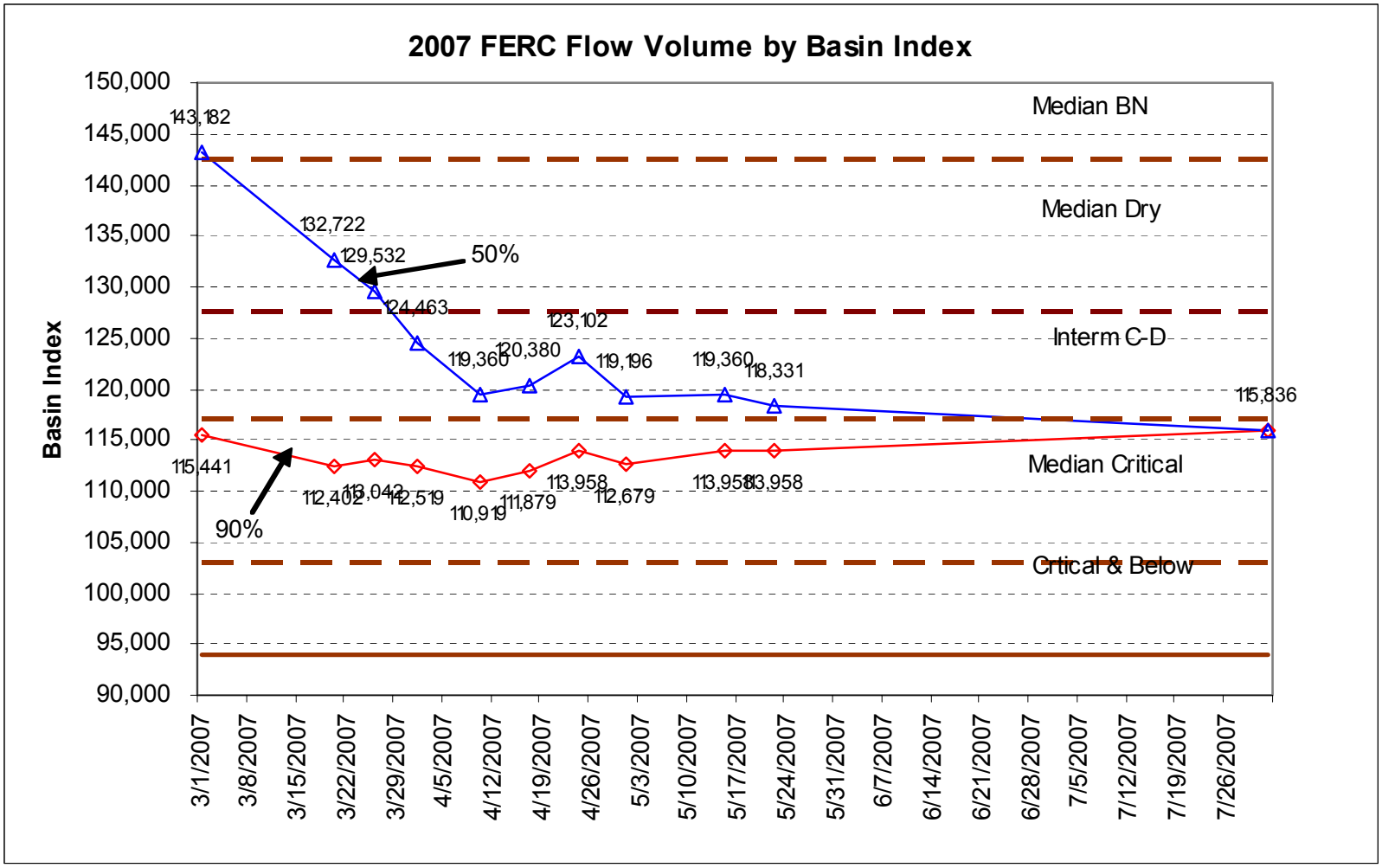
Draft - Tuolumne River FERC Flow Volumes

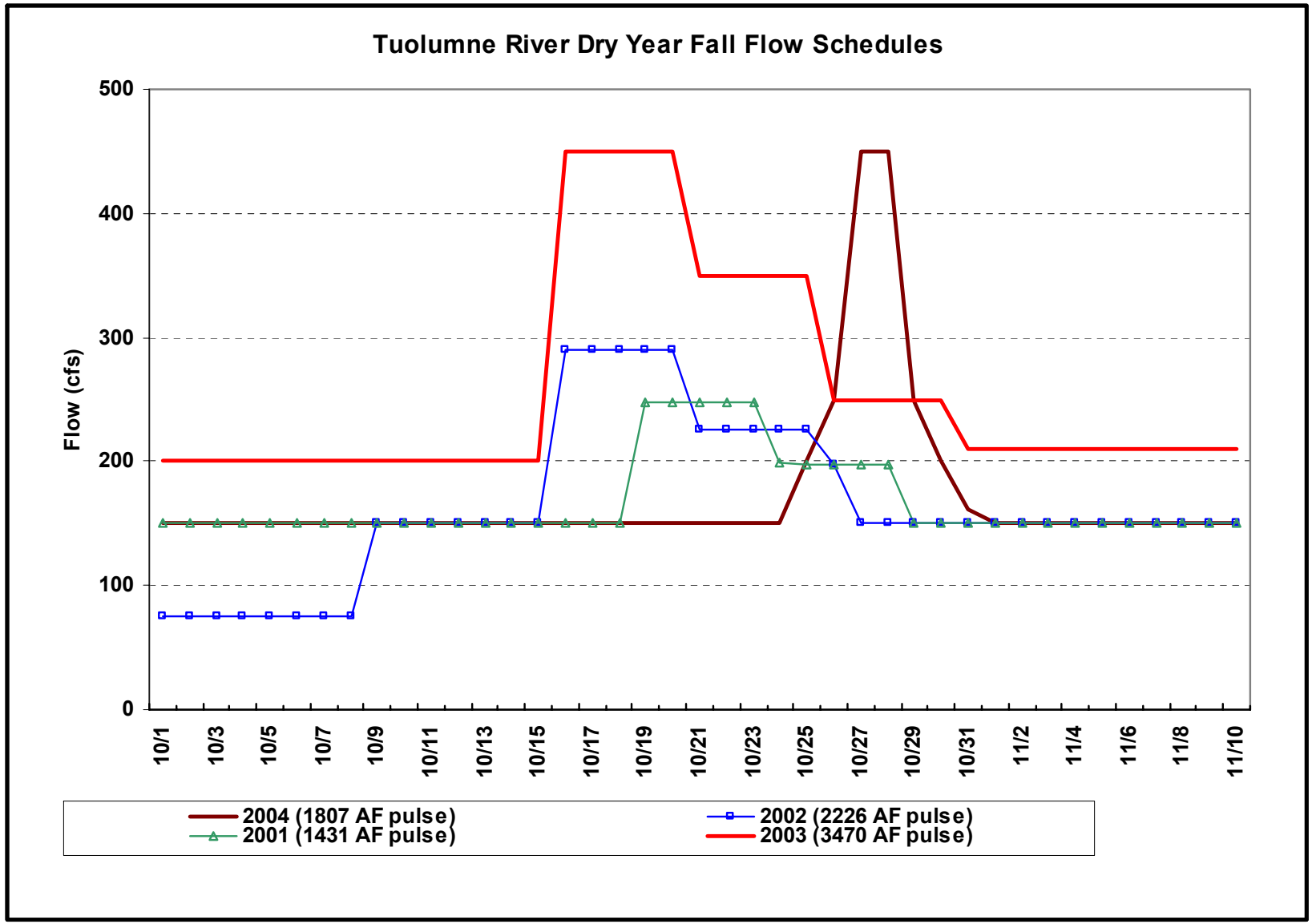
| Article 37 Fish Flow Year (4/15-4/14) | Initial Flow Volume Used in April | Final Fish Flow Volume | Final Article 37 Year Type | SJ Basin Index | Base Annual Volume per Final Year Type | Final Amount of Interpolation Water (AF) | Spring Pulse Volume per Final Year Type | Scheduled Spring Pulse Volume | Fall Pulse Volume per Final Year Type | Scheduled Fall Pulse Volume | Period of Interpolation Water |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996-1997 | NA | 300,923 | Intermediate AN-W | 4,119,611 | | | | | | | |
| 1997-1998 | 300,923 | 300,923 | Intermediate AN-W | 4,130,248 | | | | | | | |
| 1998-1999 | 300,923 | 300,923 | Median Wet/Max | 5,655,738 | | | | | | | |
| 1999-2000 | 300,923 | 300,923 | Intermediate BN-AN | 3,590,923 | | | | | | | |
| 2000-2001 | 300,923 | 300,923 | Intermediate BN-AN | 3,381,658 | | | | | | | |
| 2001-2002 | 128,660 | 128,780 | Median Dry | 2,205,000 | 127,507 | 1,273 | 37,060 | 36,902 | 0 | 1,431 | Fall Pulse |
| 2002-2003 | 147,763 | 136,466 | Median Dry | 2,337,853 | 127,507 | 8,959 | 37,060 | 42,684 | 0 | 2,226 | Spring & Fall Pulse |
| 2003-2004 | 126,064 | 192,859 | Median Blw Normal | 2,813,796 | 165,002 | 27,857 | 60,027 | 32,619 | 1,736 | 3,470 | Late May to April |
| 2004-2005 | 140,373 | 128,970 | Median Dry | 2,213,884 | 127,507 | 1,463 | 37,060 | 35,514 | 0 | 1,807 | Summer, Fall Pulse |
| 2005-2006 | 300,923 | 300,923 | Median Wet/Max | 4,753,642 | | | | | | | |
| 2006-2007 | 300,923 | 300,923 | Median Wet/Max | 5,899,081 | | | | | | | |
| 2007-2008 | 110,919 | 115,836 | Median Critical | 1,957,604 | 103,000 | 12,836 | 20,091 | 22,564 | 0 | ? | Spring Pulse, Summer |


2004 SJ Basin Index
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
3.033961
2.907961
2.727961
2.542961
2.404386
2.284386
2.248386
2.230386
2.367961
2.301961
2.301961
2.248961
2.086386
2.068386
2.056386
2.134386
2.211624
2/23
3/1
3/8
3/15
3/22
3/29
4/5
4/12
4/19
4/26
5/3
5/10
5/17
5/24
5/31
6/7
6/14
6/21
6/28
7/5
7/12
7/19
7/26
8/2
8/9
50% exceedance
90% exceedance
Date of Forecast


2004-05 Tuolumne FERC Flow Volume based on SJ Basin Index
Acre-feet
280,000
260,000
240,000
220,000
200,000
180,000
160,000
140,000
120,000
100,000
266,815
225,931
167,524
150,689
140,358
167,200
133,269
131,142
129,370
129,193
129,547
130,079
128,970
133,863
137,508
133,863
130,905
126,574
126,574
121,810
120,789
120,109
121,810
123,171
124,532
2/23
3/1
3/8
3/15
3/22
3/29
4/5
4/12
4/19
4/26
5/3
5/10
5/17
5/24
5/31
6/7
6/14
6/21
6/28
7/5
7/12
7/19
7/26
8/2
8/9
50% exceedance
90% exceedance
Date of Forecast


2007 Basin Index
Basin Index
2,500,000
2,400,000
2,300,000
2,200,000
2,100,000
2,000,000
1,900,000
1,800,000
1,700,000
1,600,000
1,500,000
2,449,128
2,275,128
2,221,128
2,133,183
2,043,183
2,061,183
2,109,183
2,040,306
2,043,183
2,025,183
1,957,604
1,942,805
1,828,805
1,852,805
1,833,183
1,773,183
1,809,183
1,887,183
1,839,183
1,887,183
1,908,183
1-Mar
8-Mar
15-Mar
22-Mar
29-Mar
5-Apr
12-Apr
19-Apr
26-Apr
3-May
10-May
17-May
24-May
31-May
7-Jun
14-Jun
21-Jun
28-Jun
5-Jul
12-Jul
19-Jul
26-Jul
Forecast Number
90% Index
50% Index


2007 FERC Flow Volume by Basin Index
Basin Index
150,000
145,000
140,000
135,000
130,000
125,000
120,000
115,000
110,000
105,000
100,000
95,000
90,000
Median BN
Median Dry
Interm C-D
Median Critical
Crtical & Below
50%
90%
143,182
132,722
129,532
124,463
119,360
120,380
123,102
119,196
119,360
118,331
115,836
115,441
112,402
113,042
112,519
110,919
111,879
113,958
112,679
113,958
113,958
3/1/2007
3/8/2007
3/15/2007
3/22/2007
3/29/2007
4/5/2007
4/12/2007
4/19/2007
4/26/2007
5/3/2007
5/10/2007
5/17/2007
5/24/2007
5/31/2007
6/7/2007
6/14/2007
6/21/2007
6/28/2007
7/5/2007
7/12/2007
7/19/2007
7/26/2007


Tuolumne River Dry Year Fall Flow Schedules
Flow (cfs)
500
400
300
200
100
0
10/1
10/3
10/5
10/7
10/9
10/11
10/13
10/15
10/17
10/19
10/21
10/23
10/25
10/27
10/29
10/31
11/2
11/4
11/6
11/8
11/10
2004 (1807 AF pulse)
2002 (2226 AF pulse)
2001 (1431 AF pulse)
2003 (3470 AF pulse)

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Email: tjford@tid.org

## TECHNICAL ADVISORY COMMITTEE MEETING

13 December 2007
9:30 AM
Turlock Irrigation District, Lunch Room (2nd floor)

*DRAFT AGENDA*

1. Introduction
2. Comments on agenda; approve prior meeting summary (at http://tuolumnerivertac.com/)
3. General Update
    A. Items since last meeting
    B. Data/report status
    C. Agency/NGO updates
    D. Monitoring update
    E. Restoration and gallery project status
4. River operations and forecasts
5. Additional items
6. 2008 meeting dates

# TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

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## TECHNICAL ADVISORY COMMITTEE MEETING

13 December 2007
9:30 AM
Turlock Irrigation District, Lunch Room (2nd floor)

*Draft Summary*

1. Introduction
    - No agencies or NGOs were present – FWS had called to say they could not attend
    - Beth Chasnoff is new staff with Stillwater Sciences

2. Comments on draft agenda - none
    A. Sep meeting summary was approved with minor wording change to Item 5

3. General Updates
    A. Items since last meeting: the material list was reviewed

    B. Data/report status
        - 2007 FERC report will have usual technical reports from monitoring programs (screw traps, seine/snorkel, thermographs, spawning survey)
        - Invertebrate samples from 2005 and 2007 will be ID'ed and a report included if completed in time (by late March)
        - Other reports may be included as available
        - Seine/snorkel report posted to website and available for comment

    C. Agency and NGO updates
        - None present

    D. Monitoring update
        - Nothing heard from CDFG since March2007 on TRTAC monitoring grant
        - Snorkel survey was done in September
        - Spawning surveys through November by CDFG indicate very low runs in all three San Joaquin tributaries
        - Anticipate for now continuation of 2007 monitoring activities in 2008, depending

on pending FERC determination; likely that any acoustic study would start in 2009 due to extended lead time involved

E. Restoration and gallery project status
   - Handout of updated TRTAC project status from Fryer (TID) was reviewed:
     i. Gasburg Project still has several issues as CDFG removed amendment approval from CALFED meeting agenda in Nov2007; planting by CDFG may not be done as a result
     ii. Gravel addition project: nothing new since CDFG removed amendment approval from the CALFED meeting agenda in May2007.
     iii. Warner-Deardorff and Ruddy Reach: nothing new; CDFG has not responded to funding request submitted in May2007
   - Gallery project could begin in 2010 at earliest and operation may depend on several factors

4. River operations and forecasts
   - Current minimum flow schedule is 150 cfs through mid-April
   - No pulse flow was allocated by fishery agencies; high pulses went made on Stanislaus and Merced Rivers
   - Ford provided some handouts
     - Precipitation to date is below average, mainly due to very dry November
     - Dec 1 DWR basin index forecast was critical at 50%

5. Additional items
   - Some discussion of Water Temperature Model – status of progress will be checked

6. 2008 meeting dates
   - Same as 2007, 2nd Thursday of Mar, Jun, Sep, Dec starting at 9:30 AM at TID

**FERC 2299 TRTAC Meeting**
**13 December 2007**

| **Name** | **Organization** |
|---|---|
| Tim Ford | TID/MID |
| Roger Masuda (phone) | TID |
| Walter Ward | MID |
| Bill Sears | CCSF |
| Ron Yoshiyama | CCSF |
| Noah Hume | Stillwater Sciences |
| Beth Chasnoff | Stillwater Sciences |

TURLOCK IRRIGATION DISTRICT

CIVIL ENGINEERING DEPARTMENT
M E M O R A N D U M

TO: TRTAC
FROM: Wilton Fryer
DATE: 12 December 2007
RE: Restoration Projects - Status Update

| Project | Funding | Status |
|---|---|---|
| Active Projects: | | |
| Fine Sediment | Full | The earthwork portion of the Gasburg Creek restoration construction was completed on 31 July. After the construction DFG raised procedural questions regarding transferring of funds between tasks. To resolve the issue, an amendment was developed and submitted to the ERP for approval at their 15 Nov 07 meeting. The amendment included a 6 month extension to allow for winter storm water monitoring and completion of the revegetation work. On 14 November the amendment was pulled by DFG. At this time it is uncertain if the amendment will be approved before the contract runs out. Without approval of the amendment DFG has held up reimbursement of $387,103 in invoices that have been submitted for the construction work. Under the amendment the revegetation task was to be transferred to DFG for completion during the winter. However, with the contract expiring on 31 Dec 07, it appears project funds will not be transferred to DFG for that work. |
| La Grange Gravel | Full | There has been no change in the status of the Gravel Infusion Project since the ERP amendment was pulled from the agenda by DFG on 15 May.<br><br>We continue to wait for the DFG to complete an assessment report for restoration projects on the Merced & Tuolumne Rivers that is due out at the end of December. DFG has indicated they will not consider our amendment until after this assessment report is completed and its findings accepted. Informal discussions with DFG staff indicated that DFG has apparently decided against further gravel infusion projects. Given the late date and the lead time required to acquire the |

| | | |
|---|---|---|
| | | appropriate state and federal permits, renewal of the infusion efforts could not get started until summer of 2009. |
| MJ Ruddy | none | No Change in project status. All the project (Federal) funds were withdrawn by AFRP and CBDA effective 30 June 06 and 31 March 06 respectively. A Warner Deardorff amendment request was submitted on 24 May 2007 that included a redesign of the MJ Ruddy project with lower floodway benches that are considered to be more conducive to fry & smolt rearing. This was a design change approved and funded by AFRP. Processing of this request would be predicated on the contract being issued for the initial Warner-Deardorff Project. See next. |
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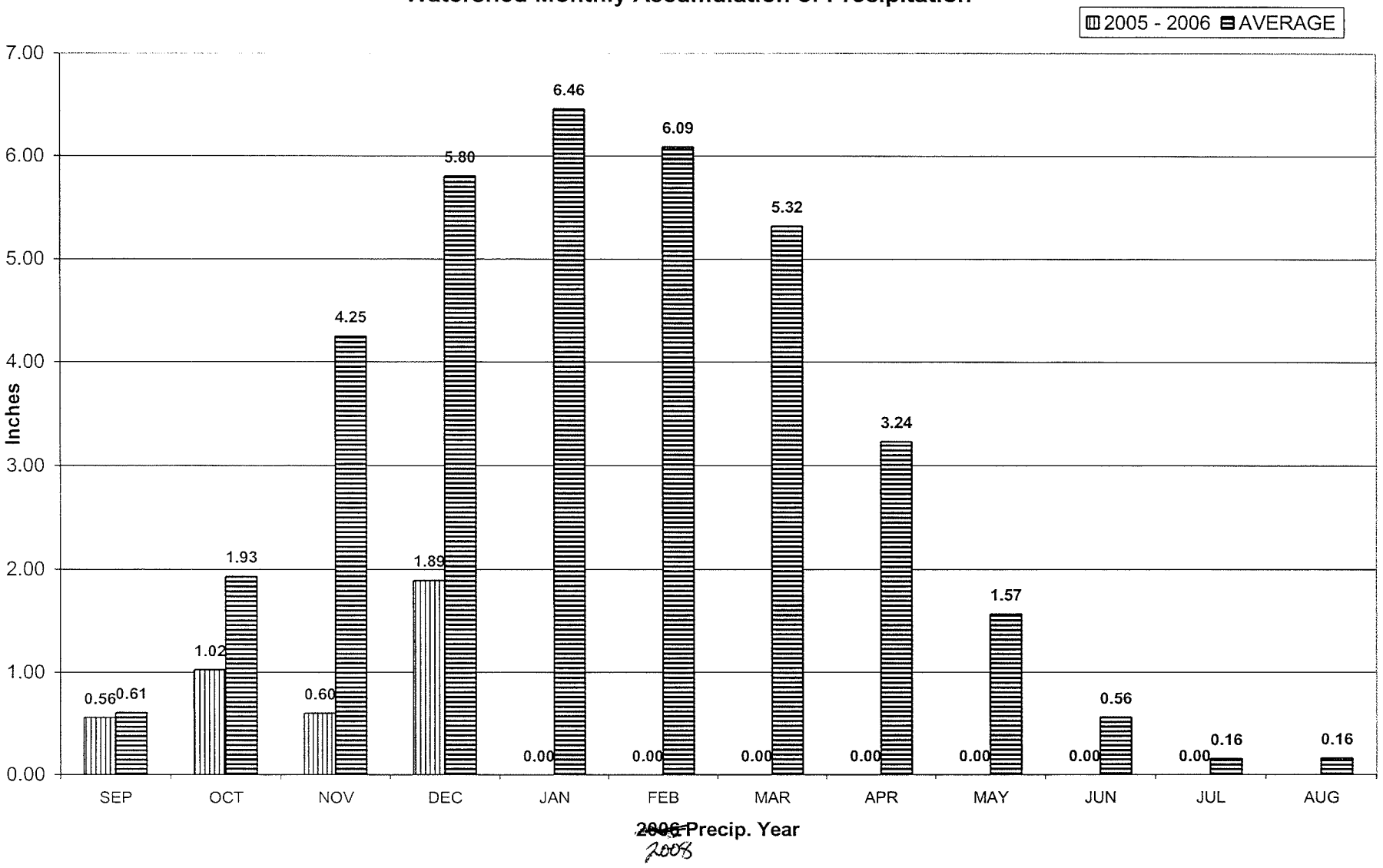
| SRP 10 Dike | Full | Construction complete. NOC filed March 2003. |

| | | |
|---|---|---|
| 7\11 Segment | Full | Construction complete with remaining revegetation planted in December 2003. 7\11 Materials NOC filed March 2003. HART NOC filed May 2004. A separate limited irrigation & maintenance agreement is in place for 2004, funded by MWD. |
| Design Manual | Full | Completed with Final Report submitted 26 February 2004. |
| Course Sediment | Full | Report was completed July 2004, with modifications on methods and techniques to protect existing salmonid habitats during implementation. The CBDA Science Panel has accepted the CSMP as part of their acceptance of the LG Sediment Infusion Project. |
| RM 43 | Full | The Project was completed in September 2005 and post project monitoring was started in time for this year's salmon run. |

# TURLOCK IRRIGATION DISTRICT



## Watershed Monthly Accumulation of Precipitation




water shed rainfall 5.xls

SAN JOAQUIN VALLEY WATER YEAR TYPE INDEX (60-20-20)

| | Probability of Exceedence | | | | | |
|---|---|---|---|---|---|---|
| Forecast Date | 99% | 90% | 75% | 50% | 25% | 10% |
| Dec 1, 2007 | 0.7 | 1.1 | 1.5 | 2.1 | 2.9 | 3.8 |

Water Year Index based on flow in million acre feet

Index = 0.6 * Current Apr-Jul Runoff (1)
+ 0.2 * Current Oct-Mar Runoff (1)
+ 0.2 * Previous Year's Index (2)

Notes:
(1) Runoff is the sum of unimpaired flow in million acre-feet at:
Stanislaus River below Goodwin Reservoir (aka inflow to New Melones Res.)
Tuolumne River below La Grange (aka inflow to New Don Pedro Reservoir)
Merced River below Merced Falls (aka inflow to Lake McClure)
San Joaquin River inflow to Millerton Lake
(2) Maximum 4.5 for previous year index term

Previous Water Year Indices:

| | | |
|---|---|---|
| 2007 = | 2.0 | 60% of average |
| 1977 (Min) = | 0.8 | 26% of average |
| 1983 (Max) = | 7.2 | 219% of average |
| 1956-2005 average = | 3.3 | |

| Year Type Classification: | Index based on flow in million acre-feet: |
|---|---|
| Wet | Equal to or greater than 3.8 |
| Above Normal | Greater than 3.1, and less than 3.8 |
| Below Normal | Greater than 2.5, and equal to or less than 3.1 |
| Dry | Greater than 2.1, and equal to or less than 2.5 |
| Critical | Equal to or less than 2.1 |

This index, originally specified in the 1995 SWRCB Water Quality Control Plan, is used to determine the San Joaquin Valley water year type as implemented in SWRCB D-1641. Year types are set by first of month forecasts beginning in February. Final determination for San Joaquin River flow objectives is based on the May 1 75% exceedence forecast.

TUOLUMNE FERC SETTLEMENT AGREEMENT FLOW SCHEDULE

| Schedule | Days | Critical & Below | | Median Critical | | Intermediate C-D | | Median Dry | | Intermediate D-BN | | Median Below Normal | | Intermediate BN-AN | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Occurrence** | | 6.4% | | 8.0% | | 6.1% | | **10.8%** | | **9.1%** | | **10.3%** | | **15.5%** | |
| Oct 1 - 15 | 15 | 100 | cfs | 100 | cfs | 150 | cfs | 150 | cfs | 180 | cfs | 200 | cfs | 300 | cfs |
| | | 2,975 | ac-ft | 2,975 | ac-ft | 4,463 | ac-ft | 4,463 | ac-ft | 5,355 | ac-ft | 5,950 | ac-ft | 8,926 | ac-ft |
| Attraction Pulse Flow | | none | | none | | none | | none | | 1,676 | ac-ft | 1,736 | ac-ft | 5,950 | ac-ft |
| Oct 16 - May 31 | 228 | 150 | cfs | 150 | cfs | 150 | cfs | 150 | cfs | 180 | cfs | 175 | cfs | 300 | cfs |
| | | 67,835 | ac-ft | 67,835 | ac-ft | 67,835 | ac-ft | 67,835 | ac-ft | 81,402 | ac-ft | 79,140 | ac-ft | 135,669 | ac-ft |
| Outmigration Pulse Flow | | 11,091 | ac-ft | 20,091 | ac-ft | 32,619 | ac-ft | 37,060 | ac-ft | 35,920 | ac-ft | 60,027 | ac-ft | 89,882 | ac-ft |
| June 1 - Sept 30 | 122 | 50 | cfs | 50 | cfs | 50 | cfs | 75 | cfs | 75 | cfs | 75 | cfs | 250 | cfs |
| | | 12,099 | ac-ft | 12,099 | ac-ft | 12,099 | ac-ft | 18,149 | ac-ft | 18,149 | ac-ft | 18,149 | ac-ft | 60,496 | ac-ft |
| Volume (ac-ft) | 365 | 94,000 | | 103,000 | | 117,016 | | 127,507 | | 142,502 | | 165,002 | | 300,923 | |
| Basin Index Threshold (calc. through WY2006) | | | | 1.476 | | 2.002 | | 2.187 | | 2.441 | | 2.720 | | 3.183 | |