Modesto Irrigation District
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March 26, 2009

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 2008

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 2008 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

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

2008 LOWER TUOLUMNE RIVER ANNUAL REPORT

2008 Annual Summary Report

Exhibits: Spawning runs, harvest data, rearing/outmigration data, Delta salvage and exports

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

Attachment B: 2008 Tuolumne River Technical Advisory Committee Materials

Report 2008-1: 2008 Spawning Survey Report

Report 2008-2: Spawning Survey Summary Update

Report 2008-3: 2008 Seine Report and Summary Update

Report 2008-4: 2008 Rotary Screw Trap Report

Report 2008-5: 2008 Snorkel Report and Summary Update

Report 2008-6: 2008 July *Oncorhynchus mykiss* Population Estimate Report

Report 2008-7: Aquatic Invertebrate Monitoring (2005, 2007, 2008) and Summary Update

Report 2008-8: Review of 2008 Summer Flow Operation

Report 2008-9: Monitoring of Winter 2008 Runoff Impacts from Peaslee Creek

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- FERC PROJECT NO. 2299 –

2008 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. January-June 2008 Basin salmon rearing/outmigration data
4. January-June 2008 delta salmon salvage data, water exports, and basin flows

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

Attachment B: 2008 Technical Advisory Committee Materials

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Introduction

This is the Districts' 13th annual report to the Federal Energy Regulatory Commission (FERC) in a series begun pursuant to Article 58 of the July 31,1996 Order on FERC Project License 2299 (1996 Order) and the 1995 Don Pedro Project FERC Settlement Agreement (FSA). This is also the first annual report pursuant to the "Order on Ten-Year Summary Report Under Article 58" issued on April 3, 2008 (2008 Order).

This report covers the 2008 calendar year and contains:

(1) Fishery monitoring
(2) Other monitoring
(3) Downstream issues
(4) Hydrology, flow schedules, and river operations
(5) Status of habitat restoration
(6) Coordination and regulatory information
(7) Technical reports on fishery/habitat monitoring and flow operations

An eight volume report pursuant to Article 39 of the License was filed in 1992 (20-Year Report) and included 28 technical reports. The 1996 Annual Report was filed in 1997 pursuant to the 1996 Order and consisted of seven volumes that included information for 1992-96 as well as other material not contained in the 20-Year Report. The Article 58 annual reports filed since have been of 1-3 volumes.

A Ten-Year Summary Report was filed in March 2005 as required by the 1996 Order and the Districts continued to file annual reports in 2005-2008. A listing of the Article 39 and Article 58 technical reports filed from 1992 to present is at the end of this annual report. The 2008 Order required (1) continued annual reporting by April 1 of San Joaquin River tributary salmon escapement numbers, (2) implementation of certain *Oncorhynchus mykiss* monitoring elements, and (3) an *O. mykiss* monitoring report to be filed by January 15, 2010.

1 - Fishery Monitoring

1.1. Fall-run Salmon Estimates

The unprecedented total ban on commercial and sport ocean harvest meant that Central Valley fall Chinook runs were maximized in 2008. Exhibits 1 and 2 contain graphs of run estimates, harvest data, and abundance.

1.1.1. San Joaquin Tributary Chinook Salmon Run Estimates

The preliminary 2008 Tuolumne fall-run Chinook population estimate from CDFG in Jan2009, using an adjusted Petersen formula, was 372 salmon, an increase from the 211 estimated for the 2007 run (Exhibit 1). The annual CDFG Tuolumne fall spawning survey report (Report 2008-1) was not available in time for this submittal. CDFG did provide more preliminary run survey data

on 25-26Mar2009, so Report 2008-2 could be included at this time.

The Stanislaus River weir count was 923 (405 in 2007) and the CDFG preliminary estimate based on carcass surveys was 1,085. The CDFG preliminary Merced River estimate was 398 and another 66 were taken at the CDFG Merced River Hatchery for a total of 464 (573 total in 2007).

The Stanislaus count and Tuolumne estimate were higher and the Merced River estimate lower as compared to 2007. The 2008 combined 3-river estimate (using Stanislaus weir count) of 1,759 was 148% of the combined 1,190 estimated in 2007.

The nearby Mokelumne River, an eastside tributary to the delta and which has a large hatchery, had a preliminary estimate of only 413 salmon (174 in-river and 239 hatchery), down considerably from 1,591 total in 2007.

1.1.2. Sacramento and Central Valley Fall-run Chinook Salmon Estimates

Overall numbers of fall-run salmon for the entire Central Valley (including hatcheries) were much lower in 2008 with a preliminary estimate of just 68,500, less than the 90,500 in 2007 (PFMC 2009a) and the prior low of 81,400 in 1992. The 66,264 for the Sacramento River basin in 2008 (Exhibit 2) was much less than the PFMC lower management target of 122,000 for the Sacramento River system and will likely lead to a 2nd year of commercial and sport salmon fishery closure for California.

Very few salmon were estimated to be 2-year olds in 2008 runs (just 4,061 in the Sacramento basin), an indication that cohort of 3-year olds (year class from 2006 runs) in 2009 returns will also be low. The PFMC has replaced their Central Valley Index with a Sacramento Index (SI) as a predictor of population abundance for fishery management purposes. The SI forecast for the 2009 Sacramento basin is 122,196 adults (age 3+) if no harvest is allowed (PFMC 2009b).

1.2. Seine Sampling

Report 2008-3 reviews the routine seine monitoring conducted in ten surveys during January-May at eight Tuolumne River sites from RM 50.5-3.4 and two San Joaquin River locations. A total of 198 juvenile Chinook salmon were caught in the Tuolumne River and none in the SJR, similar to 2007. That was the 5th lowest number of salmon caught during the 1986-2008 period and the salmon were captured from RM 50.5-3.4 (La Grange to Shiloh Road).

Density of fry ($\leq$ 50 mm) peaked on 19 February and density of juveniles (>50 mm) peaked on 18 March, but were at low overall levels, consistent with an estimated 80 female spawners in 2007. Maximum fork length (FL) increased from 38 mm on 22 January to 84 mm on 01 April; the minimum FL recorded was 33 mm. A comparative review with other years is in Report 2008-3. The seine report classifies "juvenile" salmon as >50 mm, whereas the screw trap report distinguishes parr (50-69 mm) and smolt ($\geq$ 70 mm) size ranges.

Four *O. mykiss* fry (28-49 mm FL) were caught in the Tuolumne River from 29Apr-13May. A total of 15 fish species were recorded in the Tuolumne River and 8 species in the SJR during the season.

1.3. Screw Trapping

Report 2008-4 reviews the screw trap monitoring conducted near Waterford (RM 29.8) from 08Jan-02Jun and near Grayson (RM 5.2) from 29Jan-04Jun and includes a comparison with other years. Total salmon catches were 3,350 at Waterford and 193 at Grayson.

Fry (< 50 mm) capture at the Waterford screw trap occurred from the start of sampling in early January mainly through March with an estimated passage of about 15,300 for that life stage (20,500 in 2007); estimated peak passage was in late January associated with a storm event and elevated turbidity. The screw trap sampling at Grayson missed most of January, but an estimated passage of 917 fry occurred (no estimate in 2007 due to later onset of sampling).

Waterford had a passage estimate of about 1,100 parr (50-69 mm) and 8,500 smolts (≥ 70 mm), fewer than the about 7,500 parr and 29,500 smolts in 2007. However, the Grayson passage estimate was about 2,350 smolts, more than the about 950 smolts in 2007. The peak smolt passage was associated with spring pulse flows. It was estimated there were about 311 juvenile salmon (fry to smolts) that passed the Waterford screw trap site per 2007 female spawner (in the 2007 run), more than the 200 juveniles/2006 female spawner in 2007. Comparing the estimated total passage at both sites resulted in a survival index between sites of 13.2% (no estimate in 2007).

Nine *O. mykiss* ranging from 58-268 mm were caught at Waterford from 26Jan-23May and two were caught at Grayson – 200 mm on 28 Feb and 224 mm on 31Mar. There were 24 other fish species captured in the screw traps in 2008.

1.4. June Reference Count Snorkeling

Report 2008- 3 reviews the "early summer" snorkel survey that was conducted on 17-19 June within the RM 31.5-50.7 (Waterford to La Grange) reach of the Tuolumne River during a flow range of 92-107 cfs. Water temperature ranged from 12.1 C (53.8 F) to 26.6 C (79.9 F) and a total of 43 juvenile Chinook salmon and 232 rainbow trout (*O. mykiss*) were recorded. Those totals are lower than the 67 juvenile Chinook salmon and 343 rainbow trout observed in Jun2007.

Chinook salmon were observed downstream to Riffle 3B (RM 49.1) and rainbow trout downstream to Riffle 21 (RM 42.9). Other native fish species observed were Sacramento sucker, Sacramento pikeminnow, hardhead, and riffle sculpin. The non-native species recorded were largemouth bass, smallmouth bass, redear sunfish and bluegill. Report 2008-3 contains a comparison with other years, including previous late summer snorkel surveys.

1.5. July *O. mykiss* Population Estimate Survey

This new snorkeling study pursuant to the 2008 Order is reviewed in Report 2008-6. Habitat mapping was done from 07-08Jul and a two-phase snorkel survey design was employed from 11-16Jul to develop *O. mykiss* population estimates from habitat-specific counts. A total of 135 young-of-the-year (YOY)/juvenile (< 150 mm FL) and 45 adult (> 150 mm FL) (180 total) *O. mykiss* were observed from RM 51.8-41.1within the study reach extending down to RM 39.6. Most juveniles were found in riffles and the upstream end (heads) of run habitat, while adults mainly were found within pool heads and riffles. Using a bounded counts population estimator, approximately 3,096 O. mykiss are estimated within the survey reach, with 95% confidence bounds of 1,905–3,047 and 325–914 YOY/juvenile and adult size classes, respectively.

Other species observed included Chinook salmon (*O. tshawytscha*) and at least nine non-salmonid species dominated by the native Sacramento pikeminnow (*Ptychocheilus grandis*), hardhead (*Mylopharodon conocephalus*), and Sacramento sucker (*Catostomus occidentalis*). A total of 96 juvenile (< 150 mm FL) Chinook salmon were observed in the study reach from RM 51.7- 43.1, within all habitat types except pool tail and run tail. Most of the salmon (80) were in the 50-99 mm range. There were also ten adult Chinook salmon, including a spawned out female, and five redds incidentally observed from RM 51-51.9.

2 - Other Monitoring

2.1. Aquatic Invertebrates

Aquatic invertebrate sampling was done in the summer of 2008 due to suitable (non-flood) flow conditions. Results of analysis of samples from 2005, 2007, and 2008 and a comparative long-term trend assessment are in Report 2008-7.

2.2. Temperature

Daily average thermograph data and daily max-min air temperatures are graphed in Attachment A with a more detailed review of the summer period contained in Report 2008-8. Complete thermograph data for the Tuolumne and San Joaquin Rivers are posted at http://tuolumnerivertac.com/data.htm.

2.3. Sedimentation

Episodic inputs of extreme amounts of fine sediment entered the river in rain runoff events in Jan-Feb 2008 near RM 45 from the Peaslee Creek watershed. The identified primary source was a large area of recently graded private land to the south of Lake Road. The situation was reported by the Districts to CDFG and turbidity monitoring was initiated by the Districts with results provided to the resource agencies. Turbidity readings and photos were posted at http://tuolumnerivertac.com/index.htm. A Cleanup and Abatement Order was issued to the landowner by the Regional Water Quality Control Board in Mar2008. Results of an assessment examining river sediments, topography, and invertebrates done in late May after the spring pulse flow are in Report 2008-9.

3 – Downstream Issues

Important factors influencing salmonid populations occur downstream of the Tuolumne River from the San Joaquin River to the Pacific Ocean - a few of these are mentioned in this section. Exhibits 3 and 4 have information on the size and numbers of salmon captured in sampling efforts from lower tributary 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 juvenile salmon (fry to smolt) rearing and migration period. Fry density was low in 2008 for both the Mossdale trawl catch and in the export salvage.

3.1. Ocean Conditions

Central Valley Chinook salmon spend the majority of their lives in the eastern Pacific Ocean and the influence of ocean conditions on their growth and survival is widely recognized (Williams, 2006). Temperature, upwelling, and general productivity of the Northern California Current varies considerably from year to year and the understanding of that environment has increased in recent years. The Northwest Fisheries Science Center reported that the poor conditions of 2005-2006 for ocean ecosystem indicators were improved in 2007 and that most were considered good in 2008 (http://www.nwfsc.noaa.gov/research/divisions/fed/oeip/g-forecast.cfm). The effects of ocean conditions may not be understood for years until salmon cohorts (year classes) return to spawn.

The stock collapse of Sacramento River fall-run salmon populations that became apparent in late 2007 was the subject of an extensive analysis leading to a pre-publication report to the PFMC issued on 18Mar2009 by NMFS http://swfsc.noaa.gov/news.aspx?id=14474 . The NMFS news release stated "The panel found that poor conditions in the coastal ocean in 2005 and 2006 resulted in unusually poor survival of fall-run Chinook salmon returning to the river in 2007 and 2008." There were also other contributing factors identified that were associated with the salmon decline, notably hatchery and habitat concerns.

3.2. Delta Issues

3.2.1. Salmon salvage and losses at Delta water export facilities

Exhibit 4 contains the 2008 State (SWP) and Federal (CVP) delta water export facility salmon salvage and loss information. Additional review is available in SJRGA 2009. Natural/unmarked salmon salvage and losses for Jan-Jun at the facilities were higher in 2008 with combined facility estimates for Jan-Jun of about 10,600 salmon salvaged and about 22,700 in losses (vs. about 8,000 and 11,500 respectively in 2007). 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 known how many of these salmon were from the San Joaquin basin, but salmon within the same size range and timing are recorded in catches from tributary and mainstem (Mossdale) sampling programs (Exhibit 3).

Salmon fry (<50mm) were largely absent at the facilities from January-March. There was a

dominant salvage of larger juveniles/smolts (75-110 mm) from April through early June. Weekly density (combined salvage and loss/1000 AF of export) was highest in late April to mid-May at both facilities, but substantial salvage and loss occurred again outside of the VAMP period in 2008 (Exhibit 4).

3.2.2. Spring smolt conditions and evaluation

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, from about 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 arrive 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.

As reported in SJRGA 2009, the 2008 VAMP implementation had no HORB installed and the designated VAMP period was 22Apr-22May. Average combined state and federal water export rate was 1,520 cfs and average Vernalis flow was 3,163 cfs, similar to 2002-2004 and 2007 conditions. The lack of a HORB meant that SJR salmon could enter Old River on a route directly to the export facilities. Flow measurements found 56-70% of the mean daily SJR flows at Mossdale went down Old River during the VAMP period with larger fractions recorded before and after VAMP.

The smolt evaluation design intended to use a total of about 950 hatchery smolts with implanted acoustic transmitters. There were 2 primary release periods with smolts released at 2 SJR locations (Durham Ferry and Stockton) in each. Those salmon were tracked with the use of several stationary receivers and a mobile receiver. The study results are incomplete at this time and several serious equipment-related problems were encountered (SJRGA 2009).

3.2.3. Other Delta issues

There are several other recognized issues of concern for salmon and steelhead 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 salmon smolt survival in VAMP studies also correspond 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 were also reductions in delta exports being implemented under court order in 2008 to reduce “take” of ESA-listed species, including delta smelt.

4 – Hydrology, Flow Schedules, and River Operations

The 2008 calendar year included part of the 2008 and 2009 "water years (WY)" which run from Oct-Sep. WY2008 (Oct2007-Sep2008). The WY2008 Tuolumne River preliminary computed natural runoff was 60% of the long-term average. The 2008 San Joaquin Basin 60-20-20 Water Supply Index was 2,064,496 – an Intermediate Critical-Dry Year in the Article 37 classification. The daily average computed natural flow, actual La Grange flow, and fish flow schedules of WY2008/2009 are graphed in Attachment A; actual flows at other SJR basin locations, Don Pedro Reservoir storage, and snow and precipitation data are also included.

Calendar year 2008 included Article 37 minimum flow and pulse flow requirements spanning the 2007-2008 and 2008-2009 "fish flow years", which are usually from 15Apr-14Apr. Attachment A contains the primary flow schedule correspondence. The 2008-2009 "fish flow year" had an annual Article 37 flow requirement of 121,838 AF. That was up slightly from the 115,836 AF required in the previous year, but still much less due to the very dry conditions than the maximum requirement of 300,923 AF.

The Article 37 spring (outmigration) pulse flow volume allocation was 37,060 AF by agreement as described in the May 12, 2008 letter in Attachment A. An additional 15,280 AF was provided in VAMP Supplemental Flow during the VAMP pulse flow period of 20Apr-20May for the Tuolumne River (SJRGA 2009). The Tuolumne flows during the VAMP period averaged 999 cfs and were shaped to provide two flow cycles of about 800-1300 cfs. Report 2008-8 reviews operations of the summer flow period in which 50 cfs was the minimum requirement. Flow releases throughout Jun-Sep actually exceeded 80 cfs and a variable flow operation averaging 100cfs was utilized in the June 10-September 30 period by water managers to provide in-river conditions more similar to other recent dry years. There was not a significant fall (attraction) pulse flow as just 96 cfs for two days was available to schedule in late October - no pulse was required by the applicable year type.

There were no flood management releases pursuant to ACOE criteria required in 2008 due to low reservoir storage and dry conditions (Don Pedro Reservoir storage graph in Attachment A). The March-May watershed rainfall conditions were the driest of record (since 1931). The exceptional dryness occurring in that part of the precipitation year contributed to the actual basin index ending up in August at less than the DWR 90% exceedence forecast of April 1. That extreme result was also experienced in the dry year of 2004.

5 – TRTAC Habitat Restoration Activities

TID has acted as the Project Manager on behalf of the TRTAC for the identified ten TRTAC priority projects ("Non-flow Measures"). The TID Project Manager provided several Restoration Updates to the TRTAC in 2008 (Attachment B). Four of the ten TRTAC projects were previously completed (SRP 9, 7-11 Mining Reach Segment #1, River Mile 43 at Bobcat Flat, and Gasburg Creek).

Substantial CALFED grant funding that was previously approved to implement three other projects (Ruddy Mining Reach Segment #2 and Warner-Deardorf Mining Reach Segment #3 -

$10,839,000 and the Spawning Gravel Transfusion Project near La Grange - $3,898,989) has been withheld or not provided, so no TRTAC projects were worked on in 2008. TID is still attempting to obtain reimbursement of $469,836 from CDFG for the Gasburg Creek project completed in 2007.

As described in the 2007 Annual Report, another TRTAC-developed proposal to provide funding for three years of restoration project and river monitoring was submitted to CALFED and that proposal was successfully approved for funding back in 2005. However, there was no change in status in 2008 and CDFG, as CALFED Grant Administrator, has never approved the Scope of Work nor provided any of the $1,263,900 for monitoring. The Districts and CCSF have continued to conduct and fund several monitoring activities that were part of the TRTAC grant proposal at their own expense.

Three other identified TRTAC projects are also not active and have no current funding: SRP 10 (design work was completed earlier but there is no funding for construction), gravel cleaning, and the Reed Gravel Mining Reach Segment #4.

6 – Coordination and Regulatory Information

6.1. Tuolumne River Technical Advisory Committee (TRTAC)

Four quarterly TRTAC meetings were held in 2008: March, June, September, and December. Attachment B contains the 2008 TRTAC meeting agendas, summaries, handouts, and other materials. The website (http://tuolumnerivertac.com/) was used for posting various TRTAC-related items (documents, reports, correspondence, meeting materials, etc.) and other fishery/habitat information.

6.2. ESA Actions

NMFS first established "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 a final rule on a "threatened" determination using a DPS policy (not their former ESU policy) in Jan2006.

A ruling on a legal challenge of the relisting was made in favor of NMFS by the Eastern District Court of California in Oct2008 (http://plf.typepad.com/esa/files/wanger_decision.pdf). Further information on the NMFS *O. mykiss* listing, including the 2005 designation of critical habitat, is at http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Steelhead/STCCV.cfm

6.3. ***O. mykiss*** Study Permits

The Districts pursued obtaining permits to conduct two new *O. mykiss* studies (winter adult tracking study and sampling for anadromy) in 2009 pursuant to the 2008 Order, as indicated in an August 26, 2008 notification letter to FERC. The Districts had their fishery consultant submit a timely study permit application in October 2008 using the ESA 4d process as was

recommended by NMFS. That process typically results in an annual NMFS permit issued to CDFG that allows various research programs by other parties, such as the Districts, to be conducted on listed species under the jurisdiction of NMFS. The Districts also made all other necessary preparations, including ordering acoustic tracking equipment in October, in order to be able to conduct the tracking study on schedule starting in winter 2009. To date there has been no official notification, but the NMFS recently informally notified the consultant that CDFG had denied those two *O. mykiss* permit applications without explanation.

7 - 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 2009a. Review of 2008 Ocean Salmon Fisheries. Portland, OR Available at: http://www.pcouncil.org/salmon/salsafe08/salsafe08.html

Pacific Fishery Management Council 2009b. Preseason Report 1: stock abundance analysis for 2009 ocean salmon fisheries. Portland, OR Available at: http://www.pcouncil.org/salmon/salpreI09/salpreI09.html

San Joaquin River Group Authority (SJRGA). 2009. 2008 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

8 - General List of Acronyms 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
CDFG or DFG	California Department of Fish and Game
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
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
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
SJRGA	San Joaquin River Group Authority
SRP	Special Run/Pool (mined area of river, usually with #, e.g. SRP 9)
SWP	State Water Project
TID	Turlock Irrigation District
TRE	Tuolumne River Expeditions
TRT	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

8 - List of 1992-2008 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

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
2008-2: 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
2008-3: 2008 Seine Report and Summary Update
2008-5: 2008 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
2008-4: 2008 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

2008-6: 2008 July *Oncorhynchus mykiss* Population Estimate 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)
2008-7: Aquatic Invertebrate Monitoring (2005, 2007, 2008) and Summary Update

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
2008-9: Monitoring of Winter 2008 Runoff Impacts from Peaslee Creek

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
2008-8: Review of 2008 Summer Flow Operation

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

Exhibits

1. Spawning run estimates
   1.1. San Joaquin River tributary estimates
   1.2. Other Central Valley Fall-run estimates
2. Salmon harvest and Sacramento abundance data
   2.1. California Chinook ocean harvest
   2.2. Sacramento River Fall-run Estimates
   2.3. Abundance Index and Harvest Rates
3. January-June 2008 Basin salmon rearing/outmigration data
   3.1. Tributary screw trap catches and San Joaquin River (Mossdale) trawl catch
   3.2. Average size in catch and delta salvage
   3.3. Mossdale catch individual size and mark
4. January-June 2008 delta salmon salvage data, water exports, and basin flows
   4.1. Table of weekly salvage and flow/export data
   4.2. Graphs of estimated salvage/loss numbers and density (relative abundance)
   4.3. Weekly average flow and exports
   4.4. Size and hatchery origin of delta salvage
   4.5. Daily San Joaquin Basin flows and rainfall

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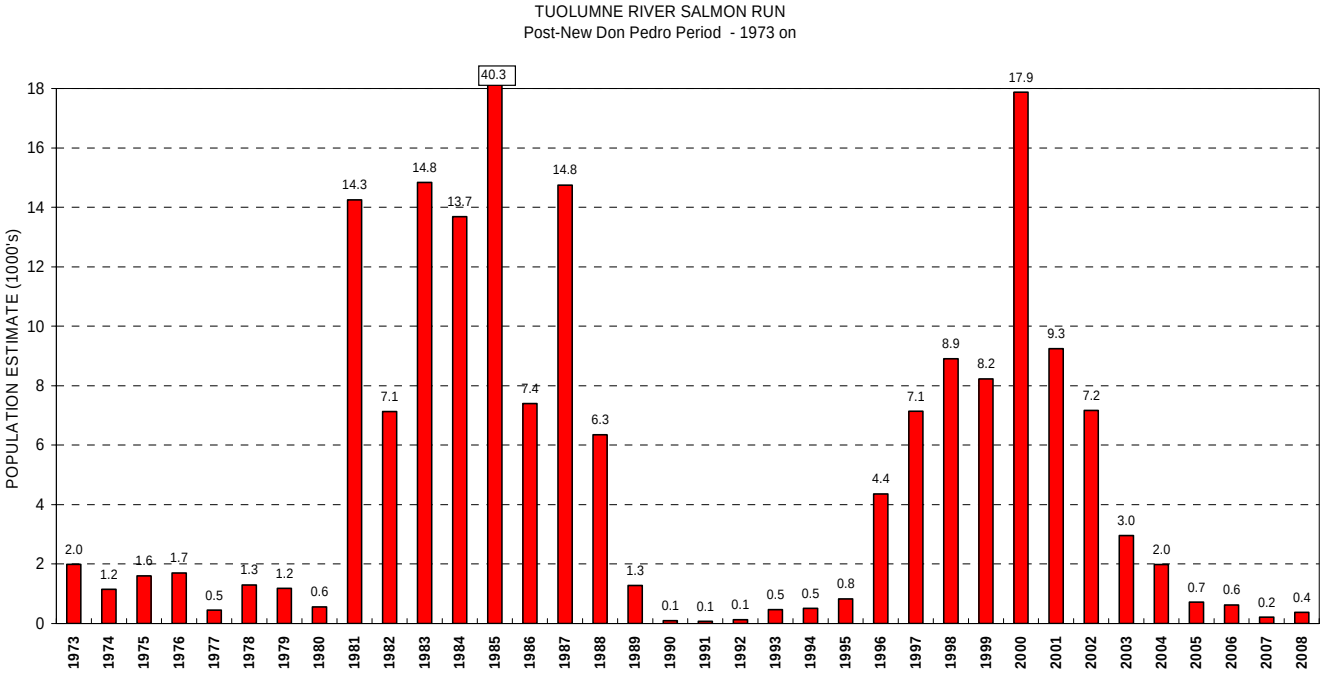
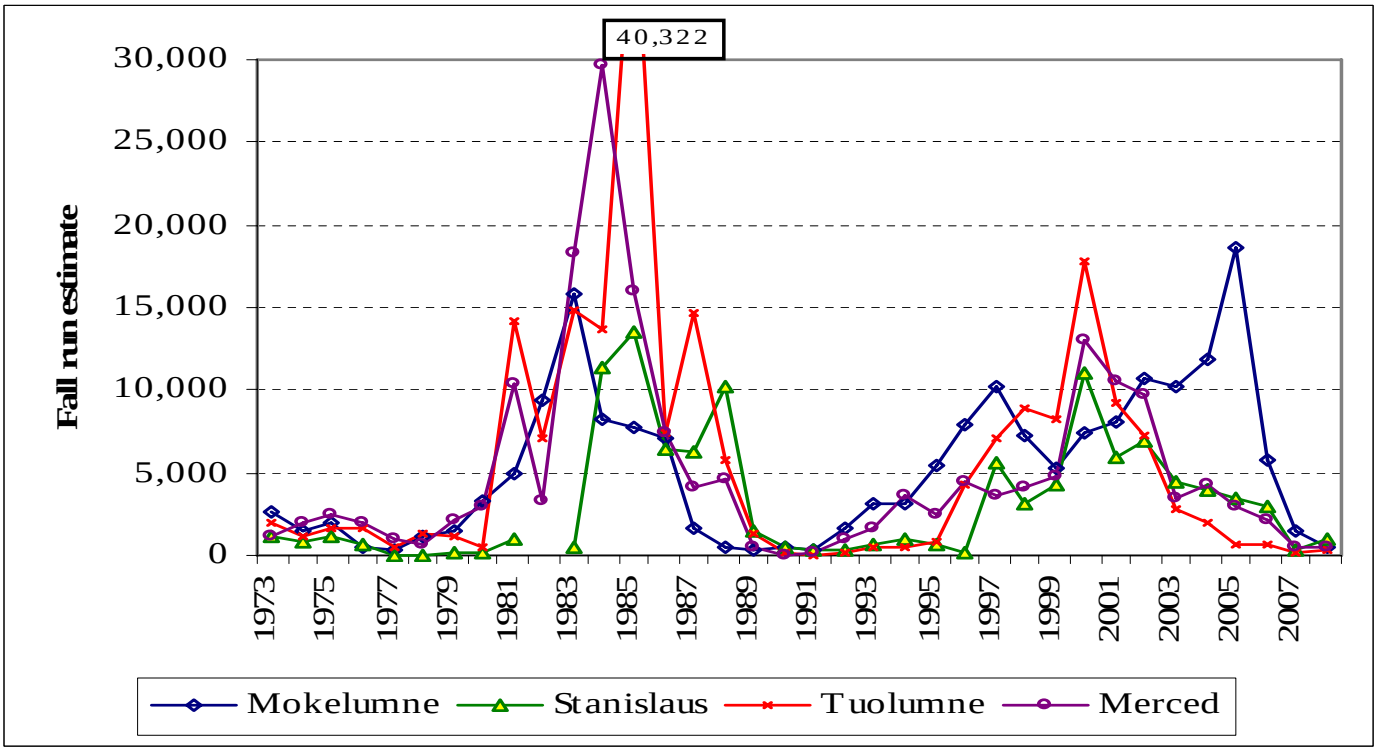
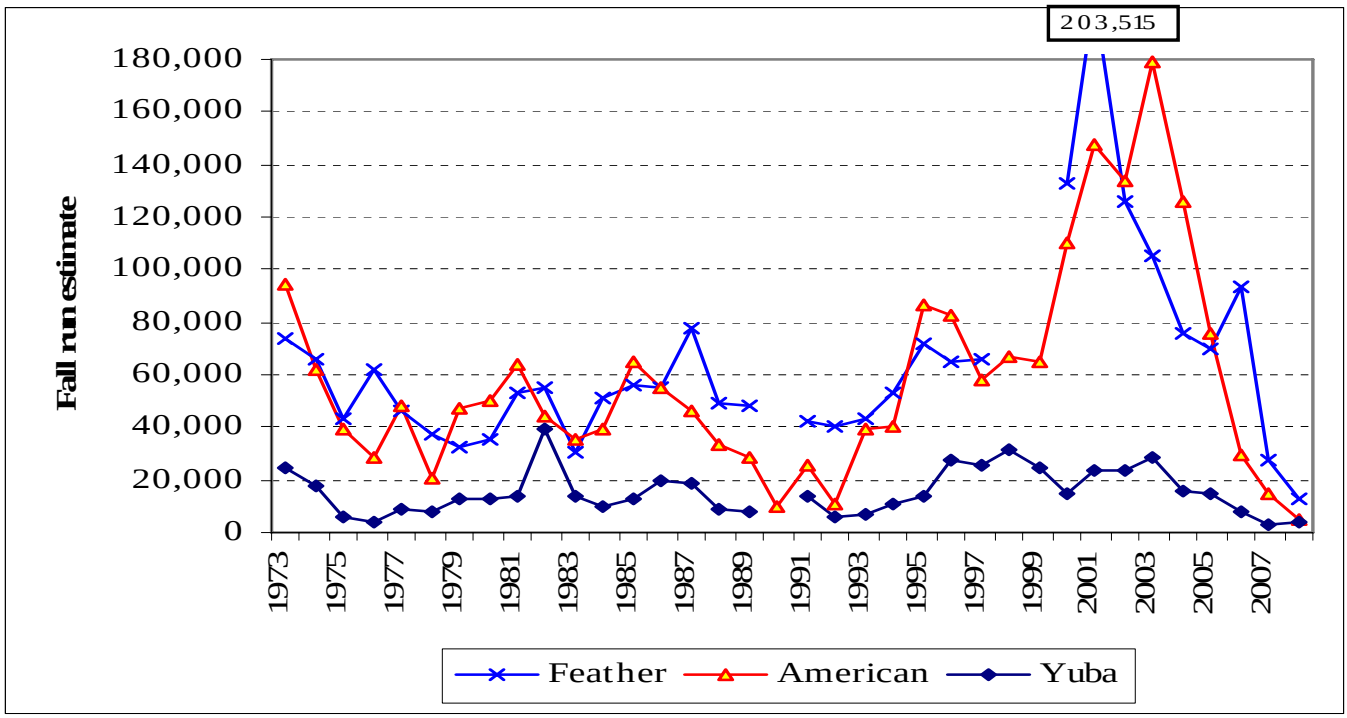
Exhibit 1 – Spawning run estimates



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



Some Fall-run Salmon Rivers in Sacramento Basin
(Yuba River does not have hatchery)



Combined Natural Spawning and Hatchery Total Since 1973

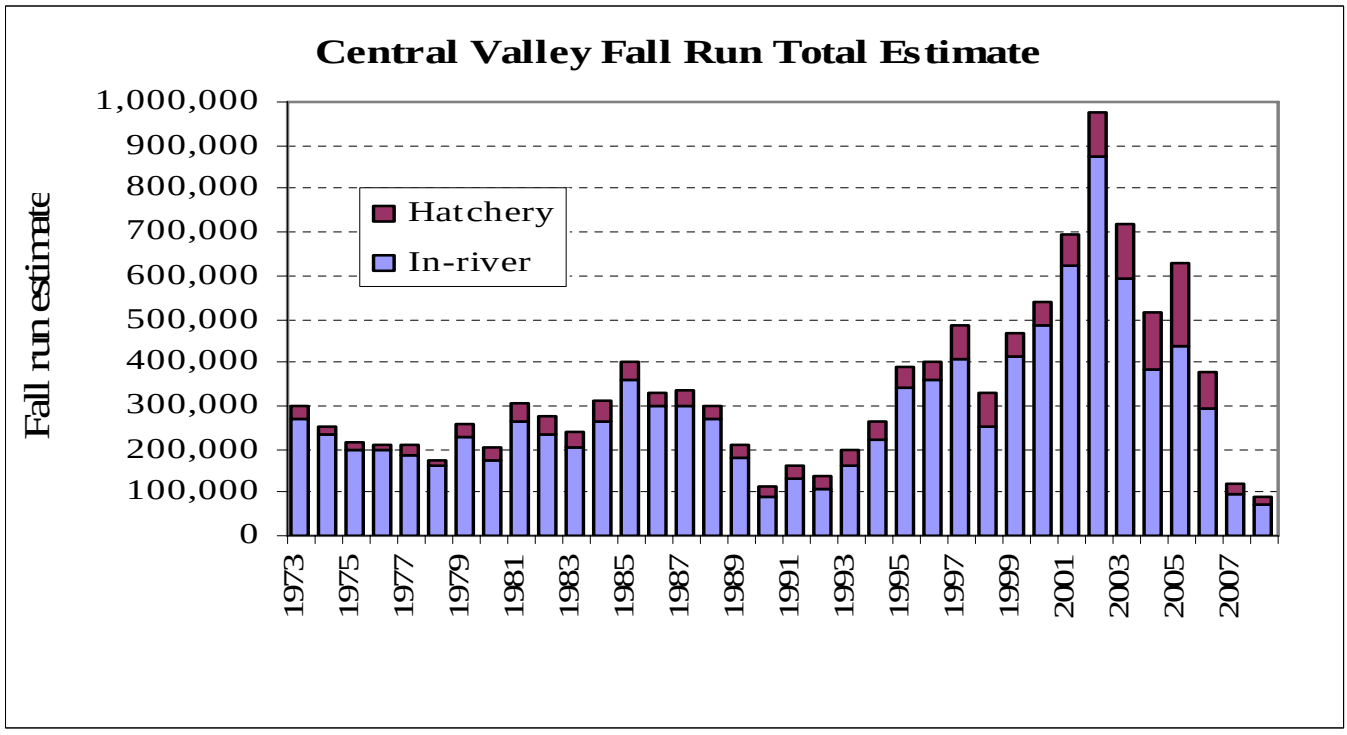
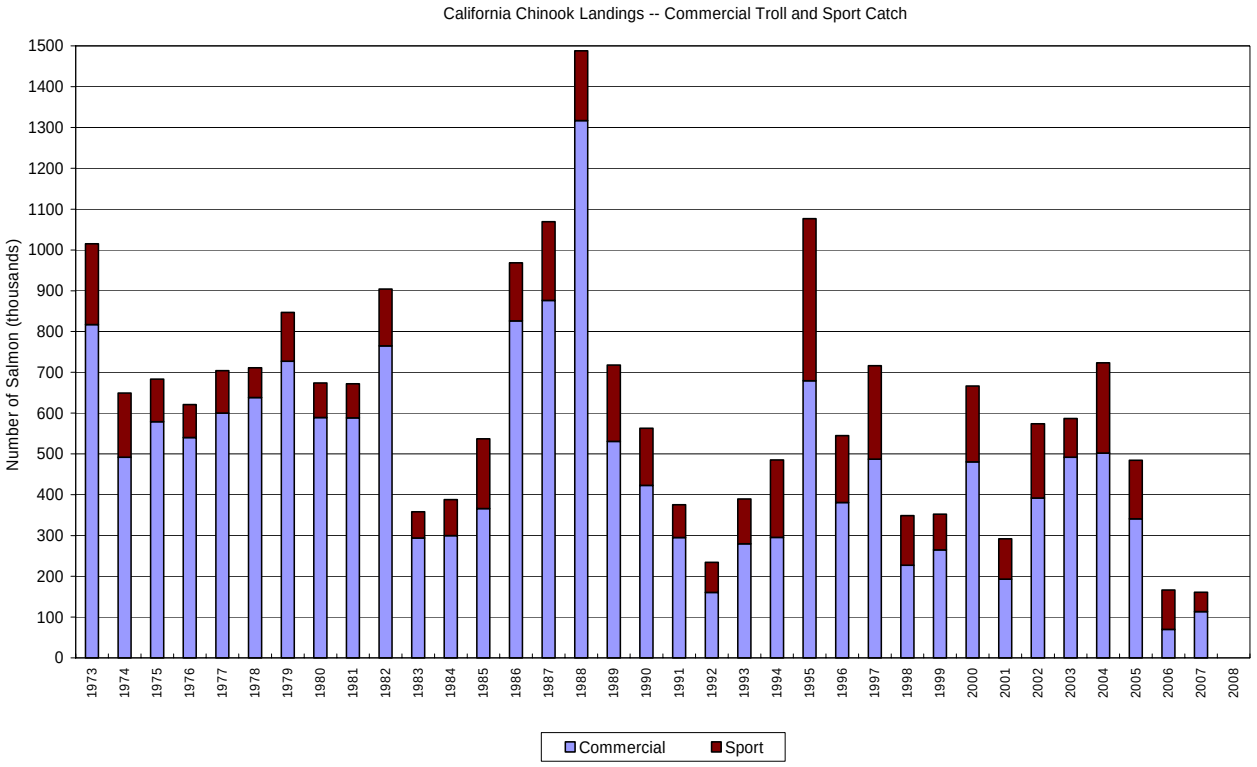
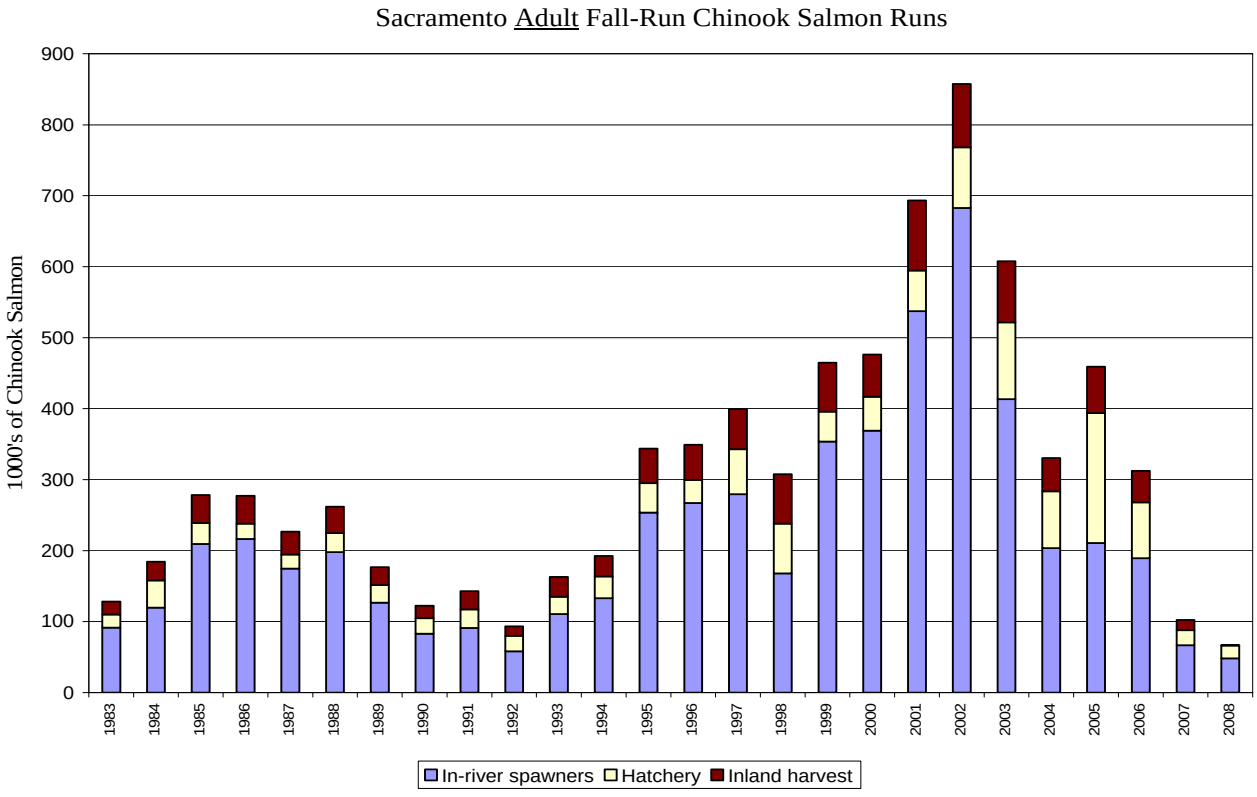
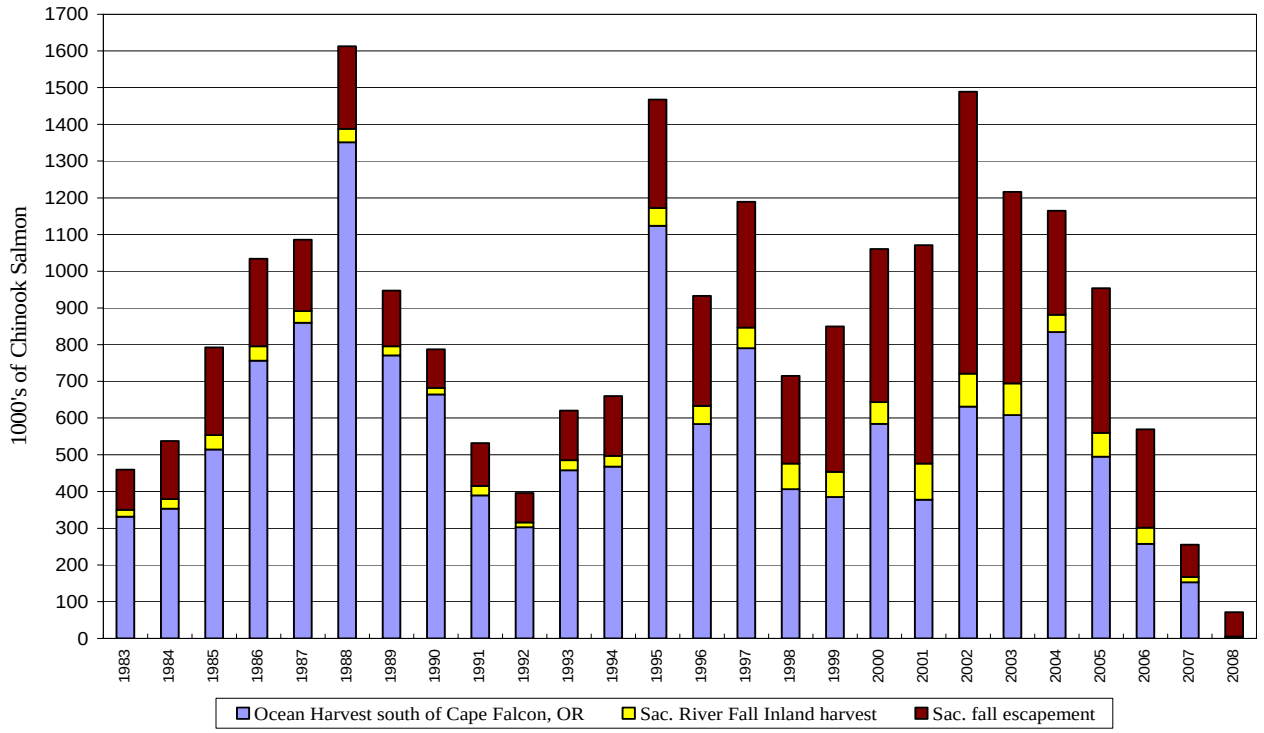


Exhibit 2 – Salmon harvest and Sacramento abundance data





Sacramento River Chinook Abundance Index: River and Ocean Totals



Comparison of the Central Valley Ocean Harvest Rate (OHR) Index (south of Pt. Arena)
versus the Sacramento Index (SI - south of Cape Falcon, OR)

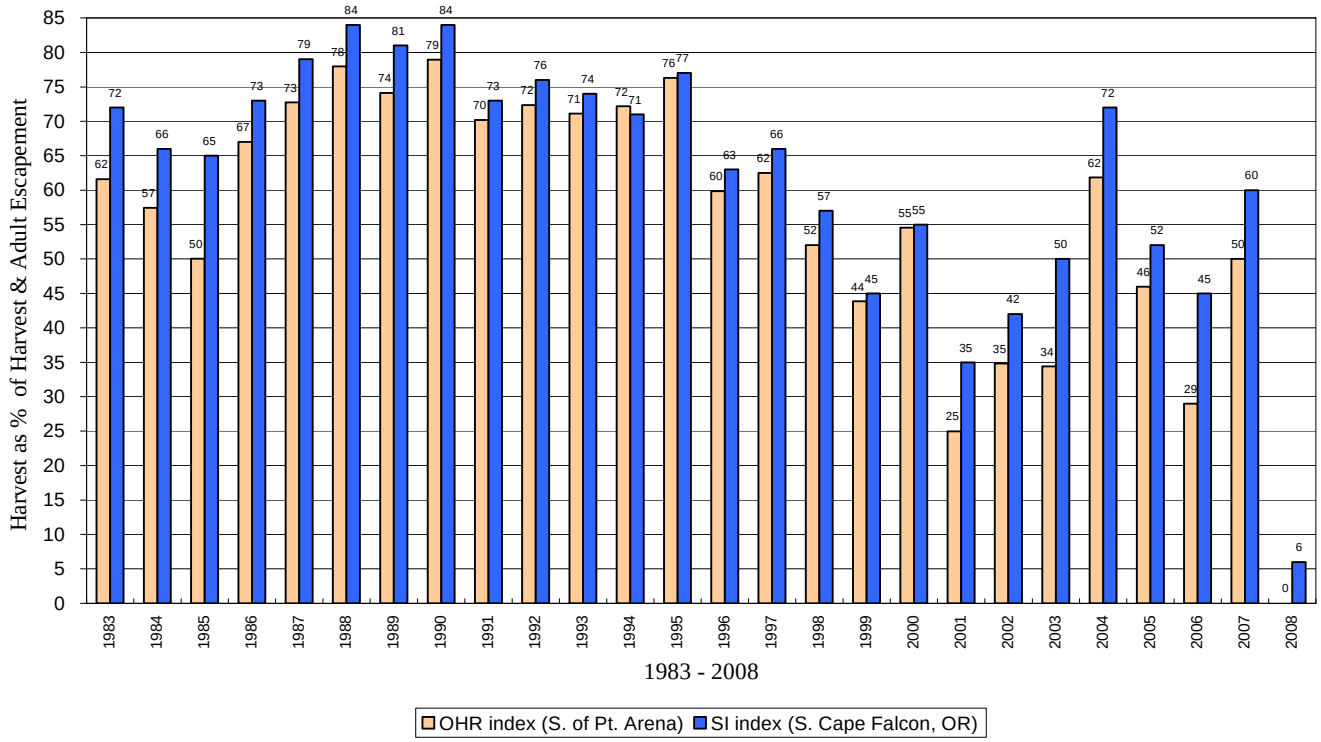
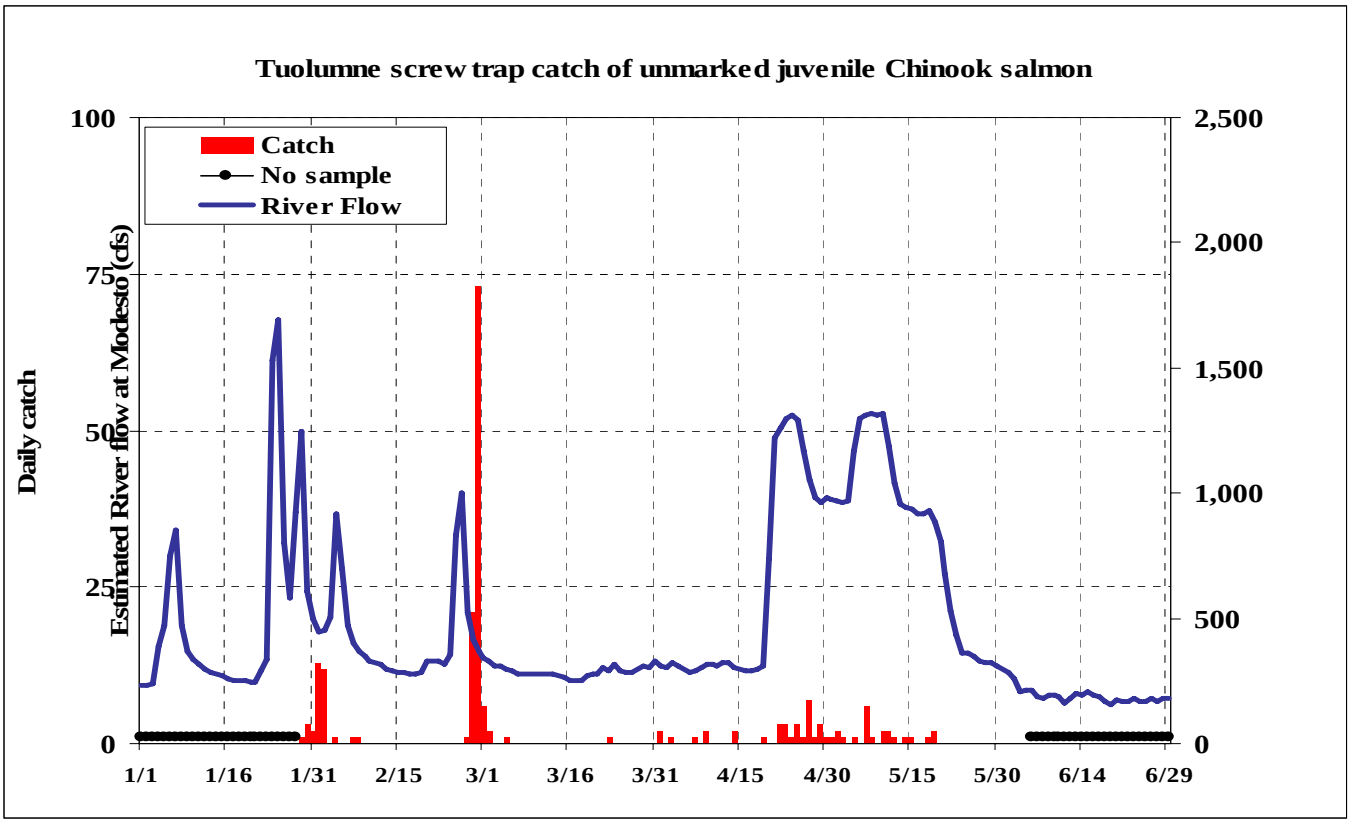
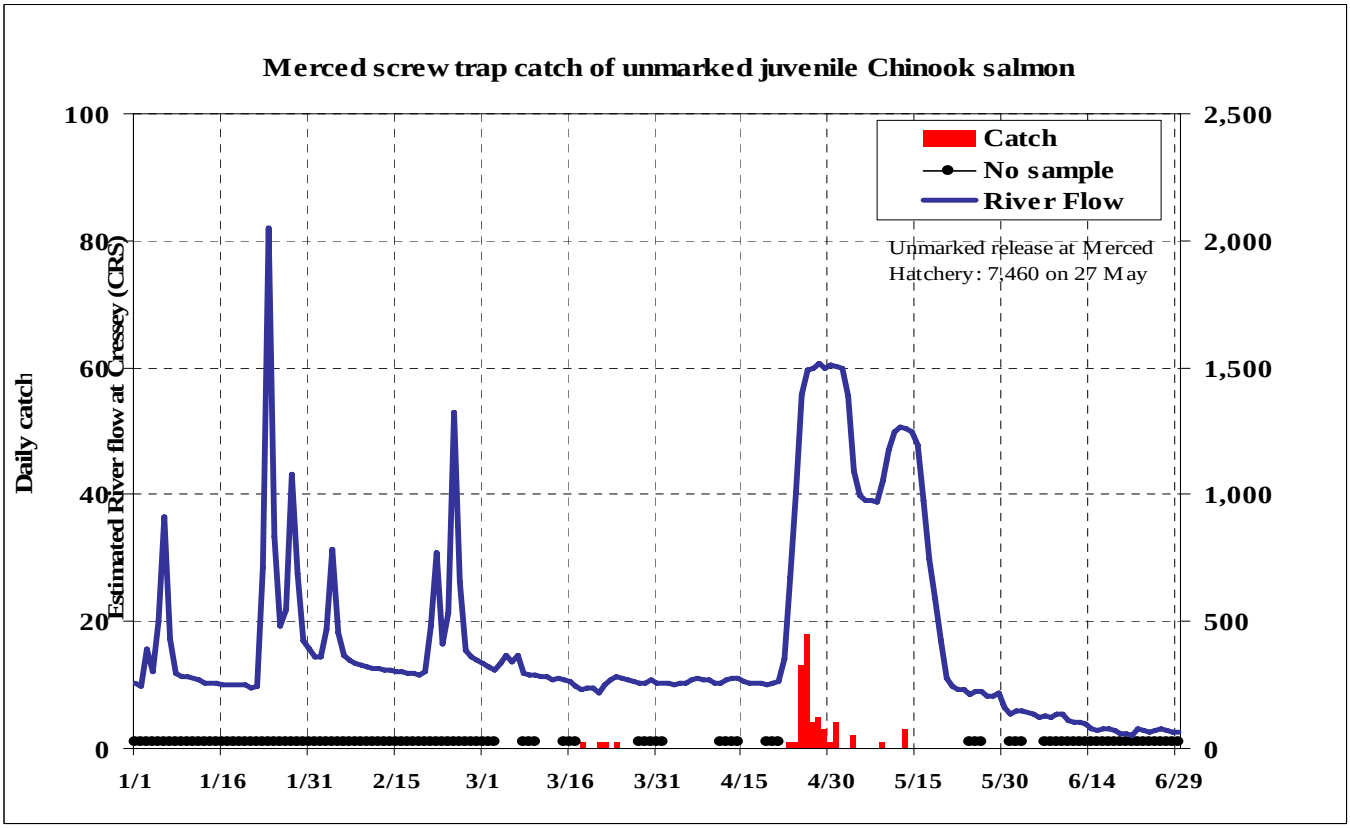
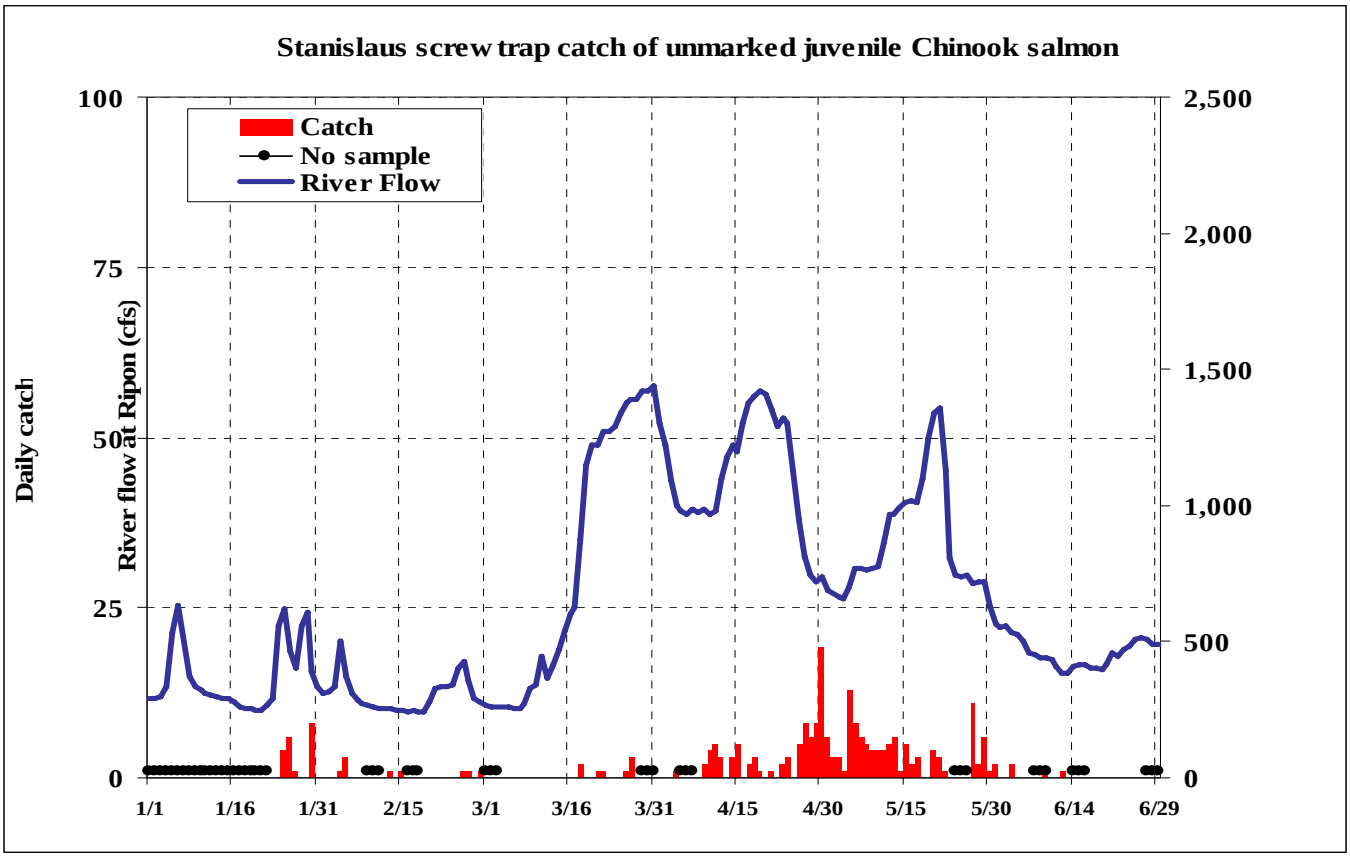
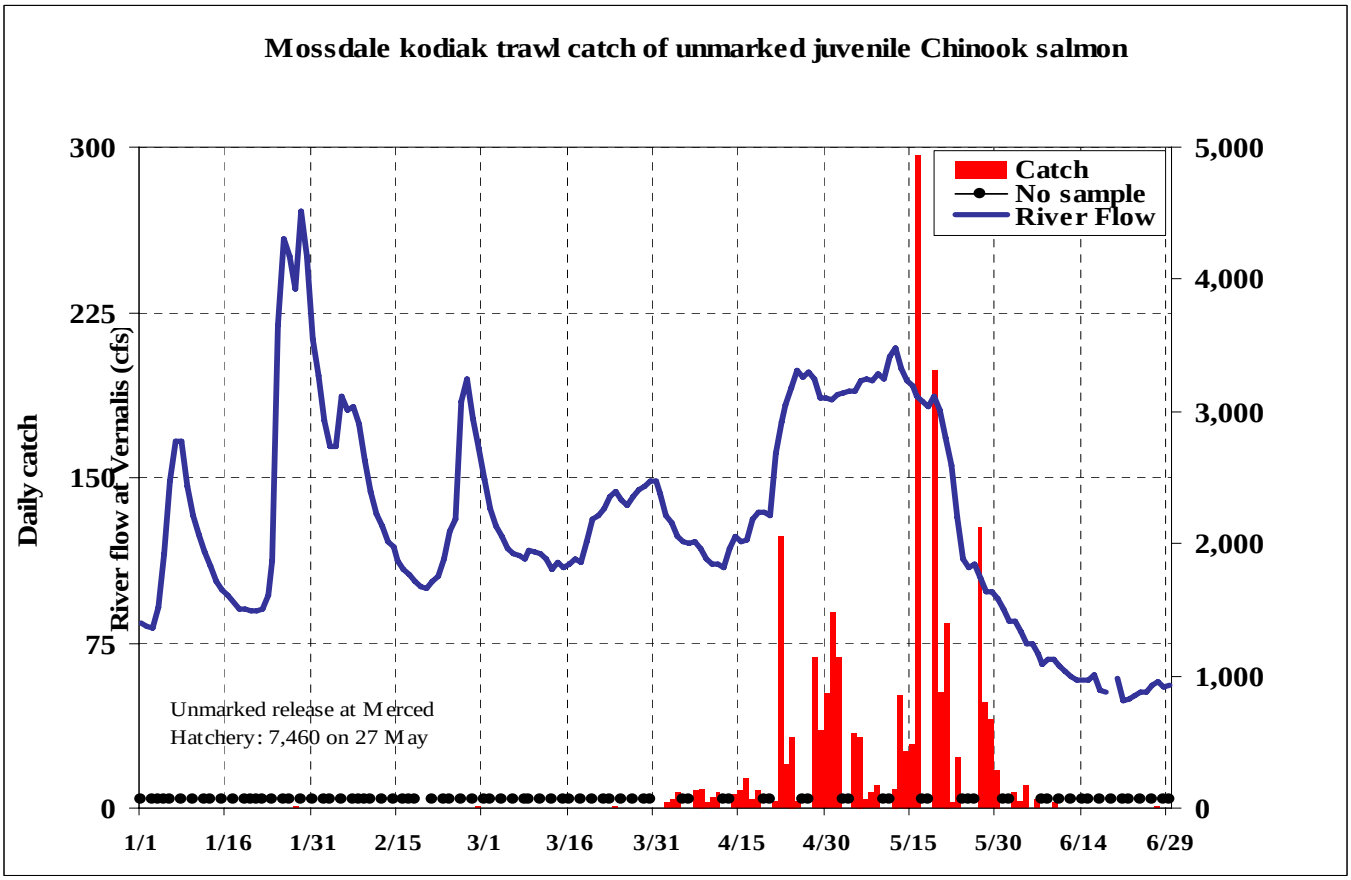


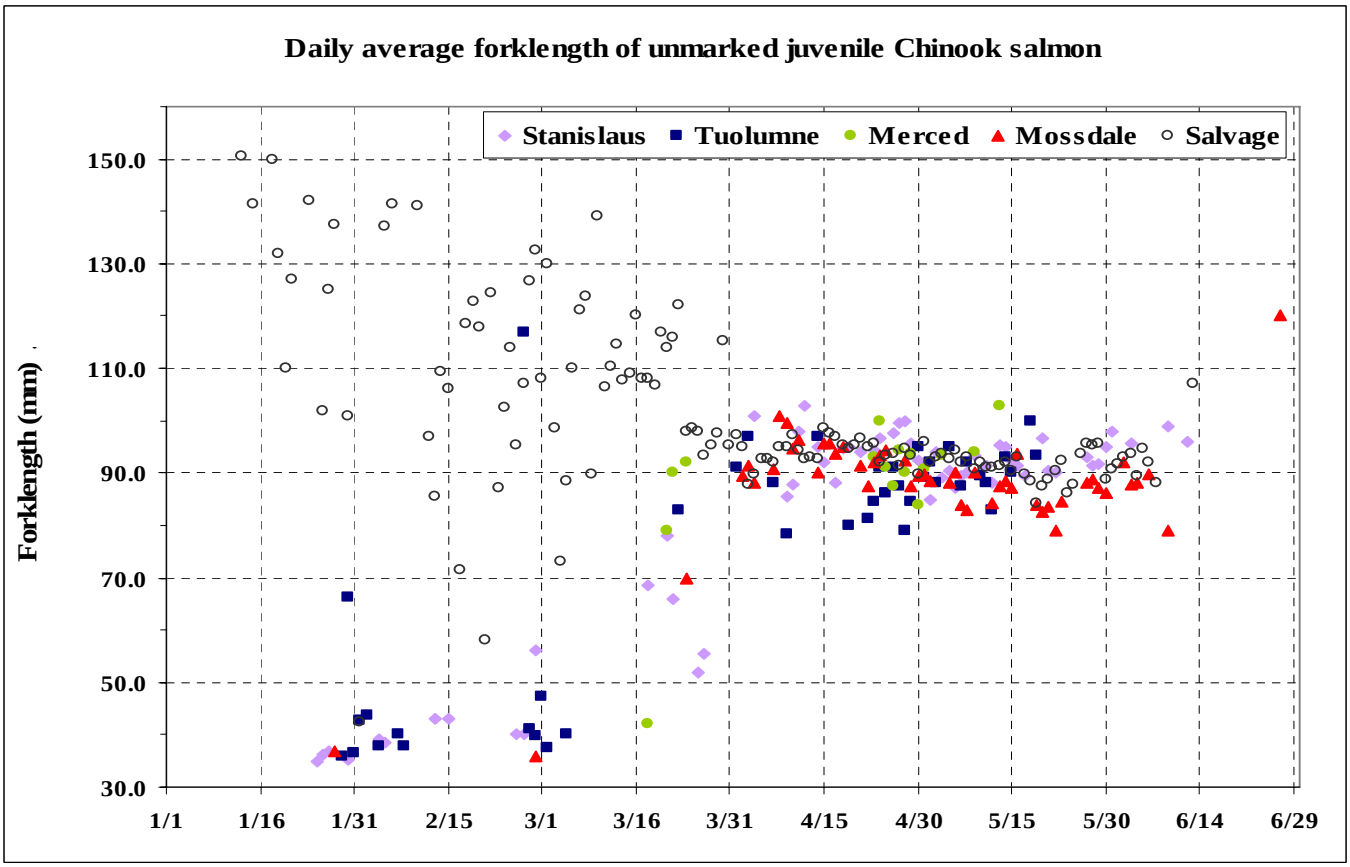
Exhibit 3 – January-June 2008 Basin salmon rearing/outmigration data






Stanislaus screw trap catch of unmarked juvenile Chinook salmon
Catch
No sample
River Flow
Daily catch
River flow at Ripon (cfs)
100
75
50
25
0
2,500
2,000
1,500
1,000
500
0
1/1
1/16
1/31
2/15
3/1
3/16
3/31
4/15
4/30
5/15
5/30
6/14
6/29


Mossdale kodiak trawl catch of unmarked juvenile Chinook salmon
Catch
No sample
River Flow
Daily catch
River flow at Vernalis (cfs)
300
225
150
75
0
5,000
4,000
3,000
2,000
1,000
0
Unmarked release at Merced Hatchery: 7,460 on 27 May
1/1
1/16
1/31
2/15
3/1
3/16
3/31
4/15
4/30
5/15
5/30
6/14
6/29


Daily average forklength of unmarked juvenile Chinook salmon
Stanislaus
Tuolumne
Merced
Mossdale
Salvage
Forklength (mm)
150.0
130.0
110.0
90.0
70.0
50.0
30.0
1/1
1/16
1/31
2/15
3/1
3/16
3/31
4/15
4/30
5/15
5/30
6/14
6/29

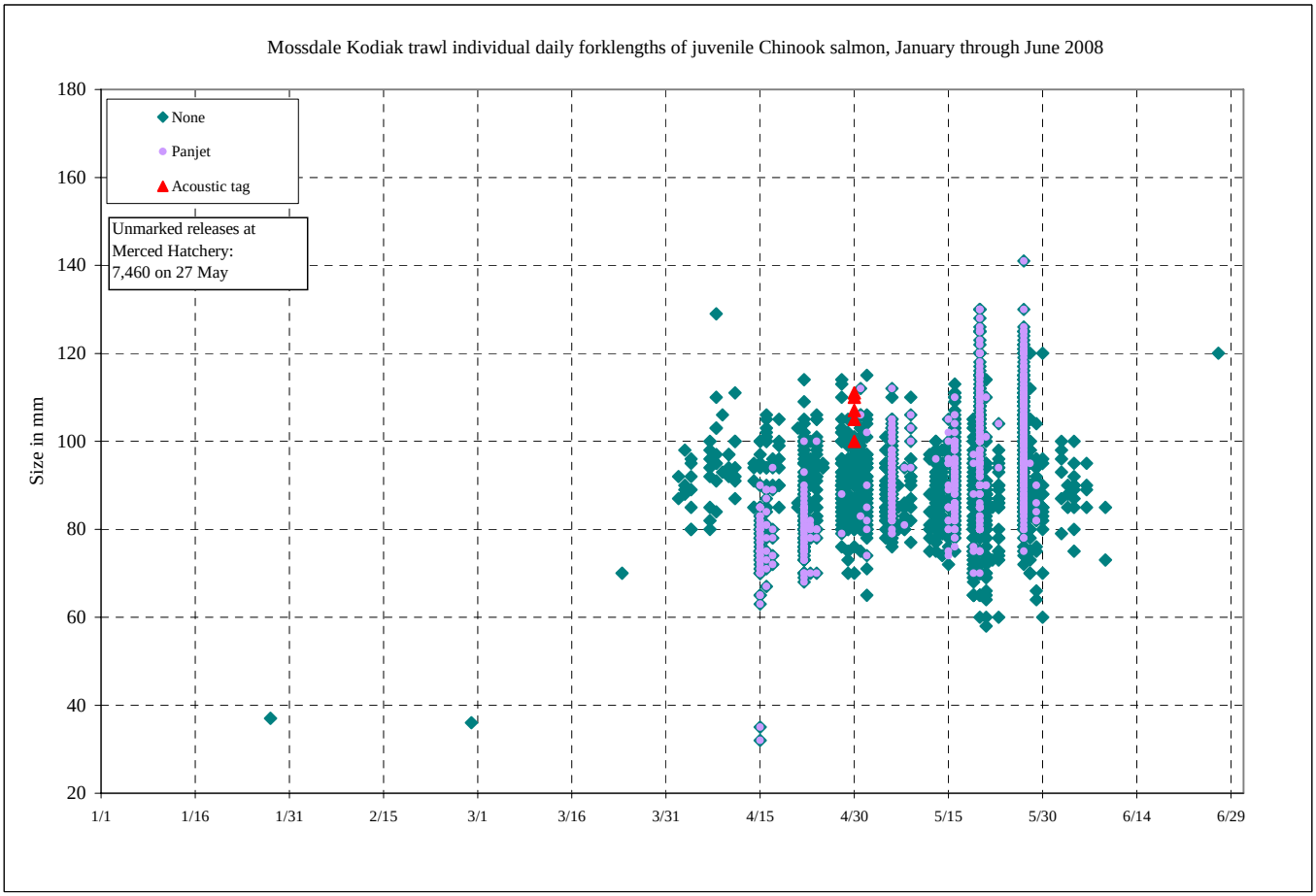

Mossdale Kodiak trawl individual daily forklengths of juvenile Chinook salmon, January through June 2008
None
Panjet
Acoustic tag
Unmarked releases at
Merced Hatchery:
7,460 on 27 May
Size in mm
180
160
140
120
100
80
60
40
20
1/1
1/16
1/31
2/15
3/1
3/16
3/31
4/15
4/30
5/15
5/30
6/14
6/29

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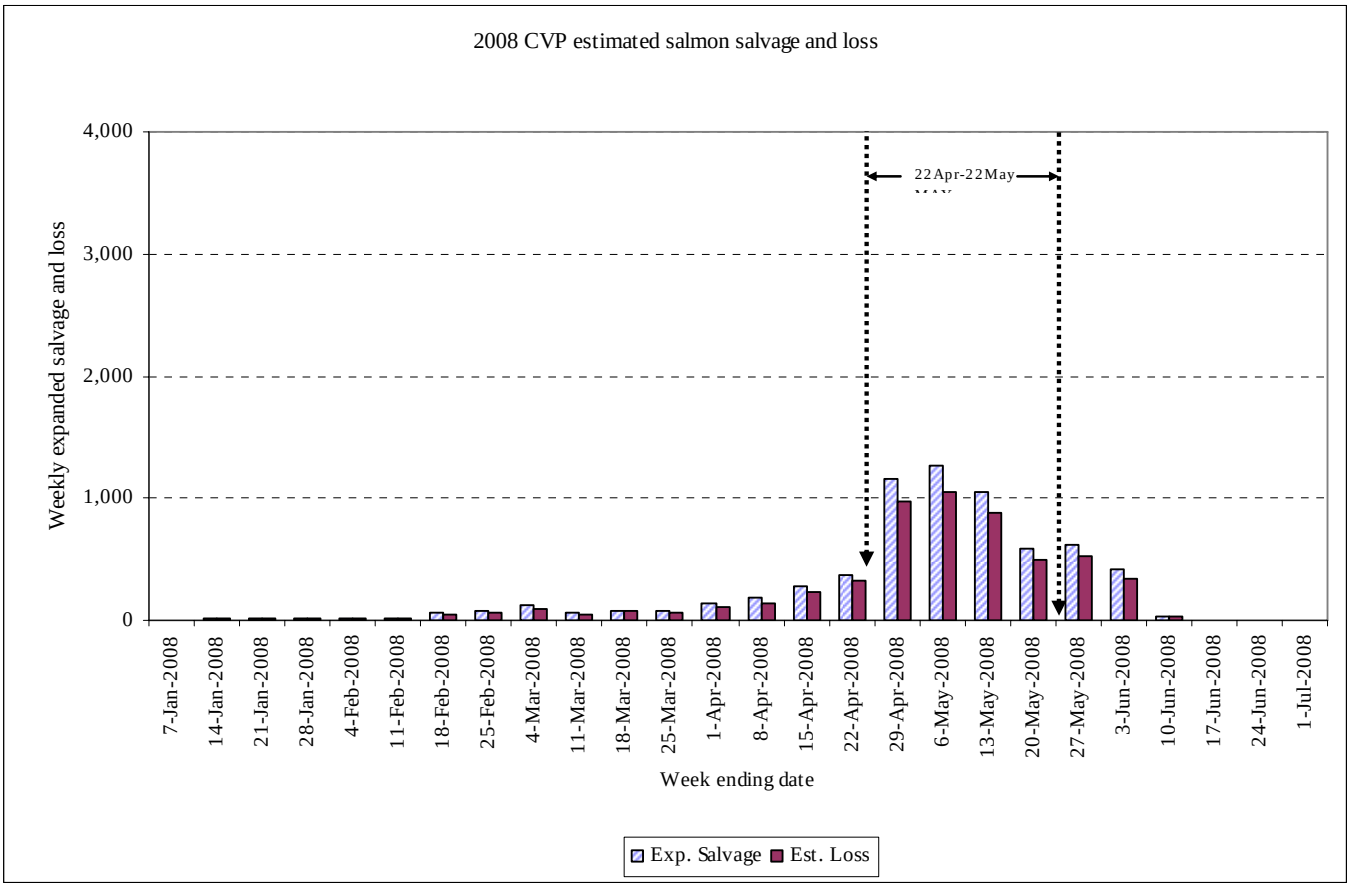
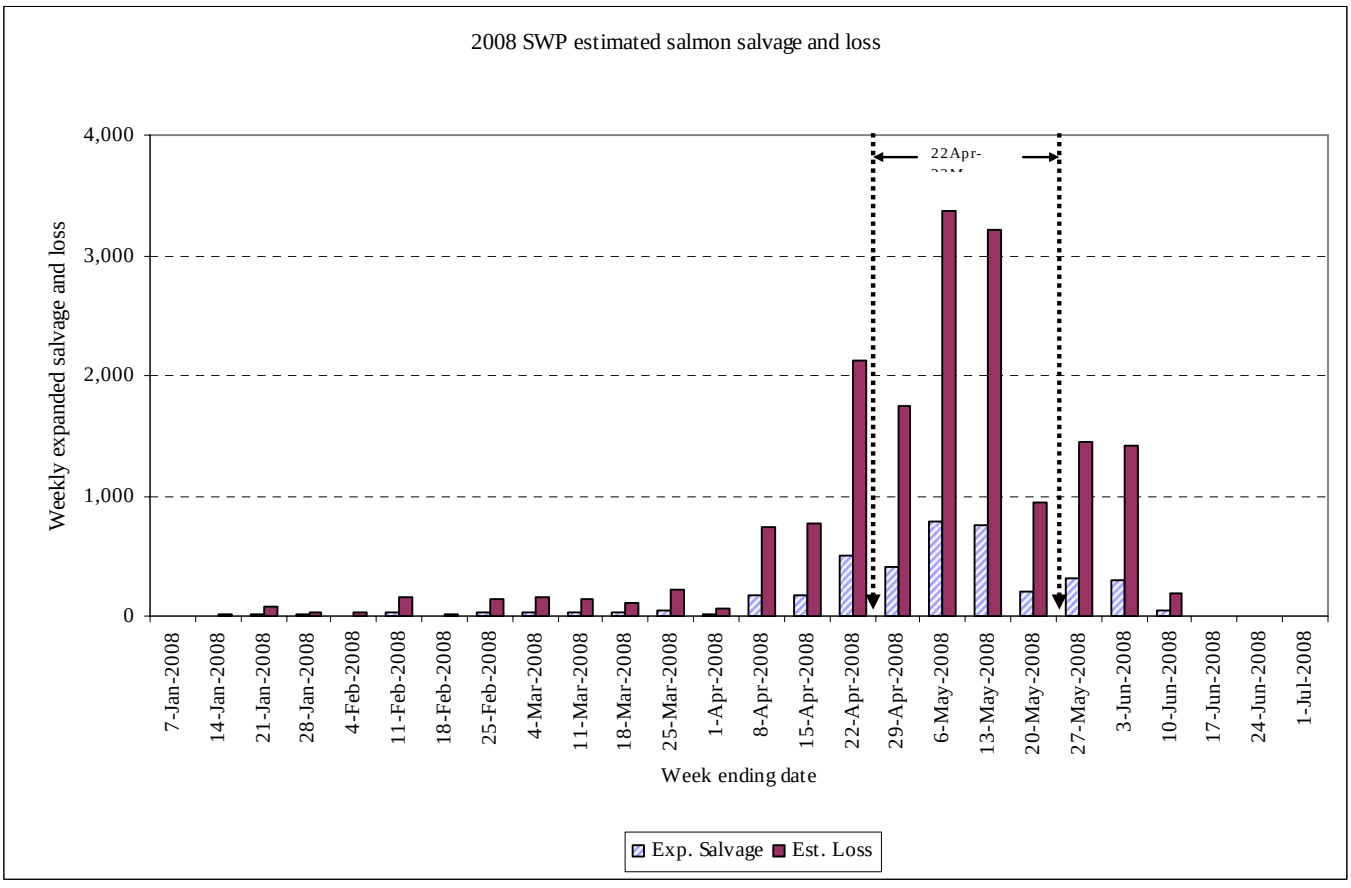
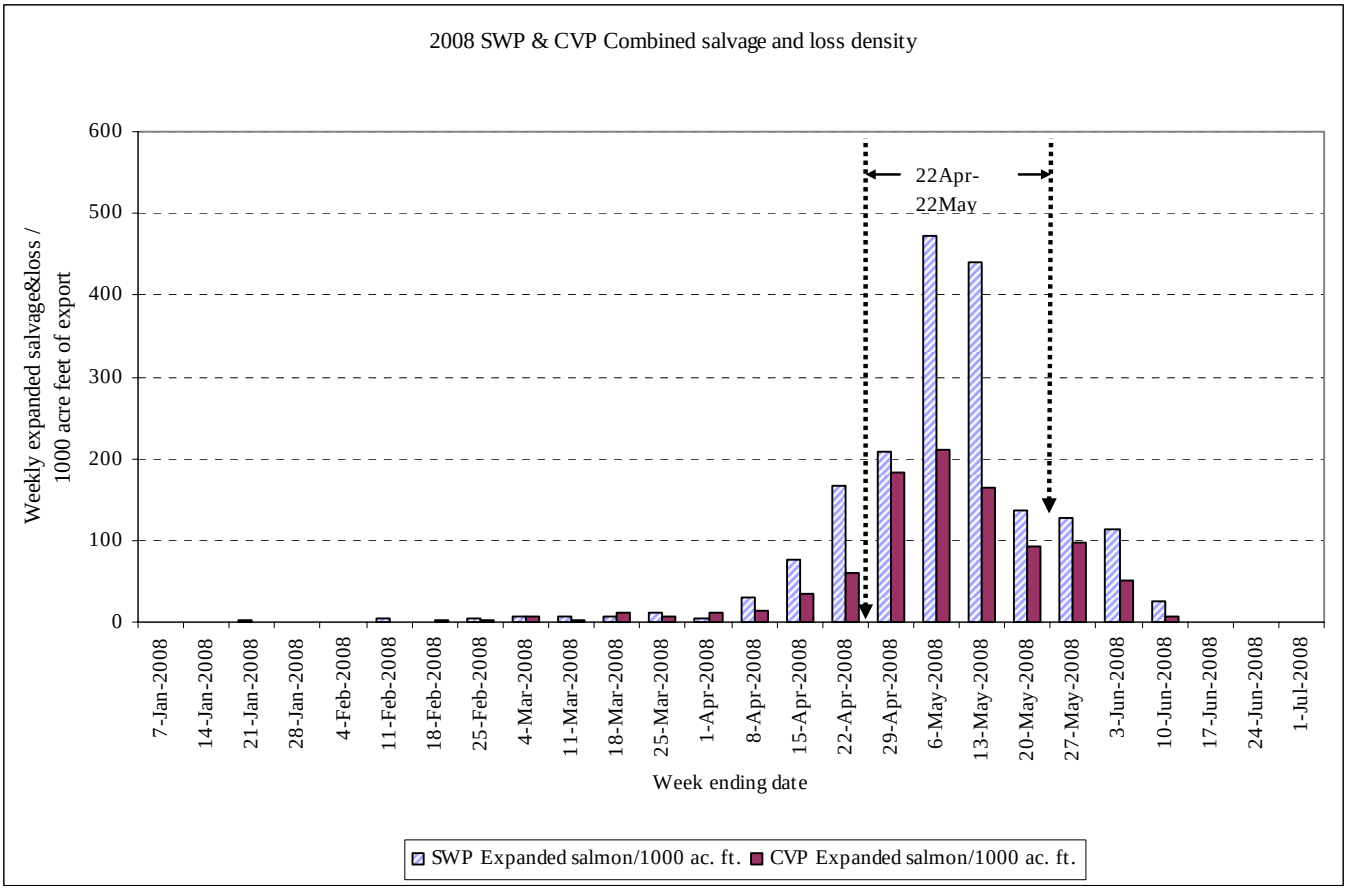
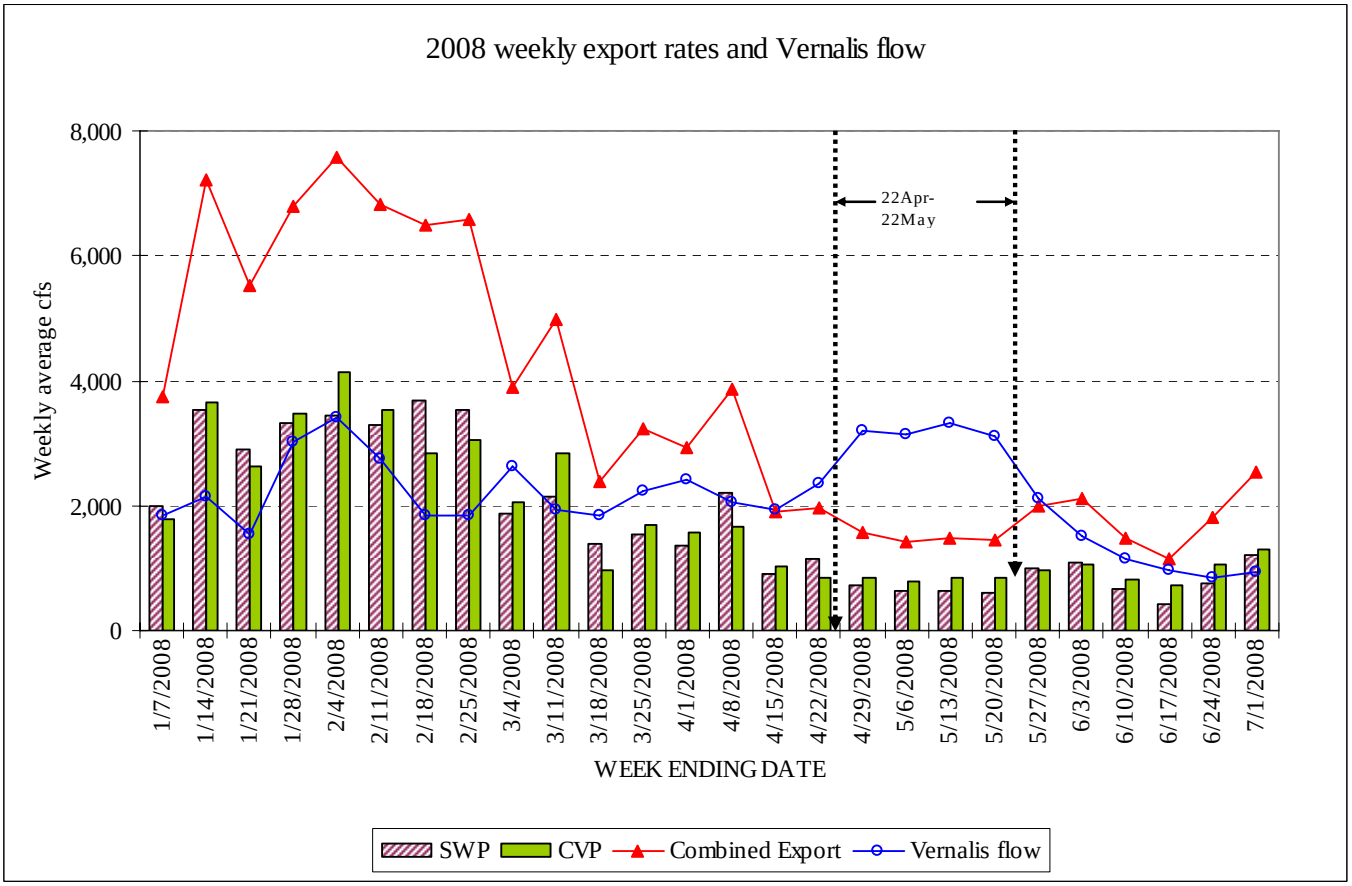
Exhibit 4 – January-June 2008 delta salmon salvage data, water exports, and basin flows

2008	(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-2008	0	0	0	0	1985	27,548	0.0	0.0	3,757
14-Jan-2008	1	4	17	20.93	3546	49,216	0.1	0.4	7,200
21-Jan-2008	5	17	77	93.67	2896	40,201	0.4	2.3	5,531
28-Jan-2008	4	8	36	44.14	3323	46,129	0.2	1.0	6,806
4-Feb-2008	2	6	27	33.1	3440	47,751	0.1	0.7	7,567
11-Feb-2008	11	36	162	197.67	3302	45,833	0.8	4.3	6,831
18-Feb-2008	1	4	18	22	3675	51,007	0.1	0.4	6,499
25-Feb-2008	12	32	140	172	3542	49,168	0.7	3.5	6,582
4-Mar-2008	12	37	165	202	1861	25,838	1.4	7.8	3,905
11-Mar-2008	11	34	147	181	2134	29,628	1.1	6.1	4,976
18-Mar-2008	9	24	107	131	1400	19,429	1.2	6.7	2,372
25-Mar-2008	18	50	218	268	1542	21,408	2.3	12.5	3,237
1-Apr-2008	5	16	65	81	1358	18,854	0.8	4.3	2,936
8-Apr-2008	60	178	737	915	2203	30,586	5.8	29.9	3,859
15-Apr-2008	60	180	777	957	892	12,380	14.5	77.3	1,917
22-Apr-2008	180	497	2122	2,619	1137	15,781	31.5	165.9	1,974
29-Apr-2008	143	403	1745	2,148	739	10,264	39.3	209.3	1,576
6-May-2008	255	789	3370	4,159	635	8,808	89.6	472.2	1,430
13-May-2008	268	754	3212	3,966	648	8,991	83.9	441.2	1,489
20-May-2008	70	202	951	1,153	603	8,368	24.1	137.7	1,445
27-May-2008	92	316	1456	1,772	998	13,855	22.8	127.9	1,978
3-Jun-2008	84	292	1411	1,703	1079	14,982	19.5	113.7	2,125
10-Jun-2008	13	40	191	231	669	9,286	4.3	24.9	1,480
17-Jun-2008	0	0	0	0	416	5,771	0.0	0.0	1,149
24-Jun-2008	0	0	0	0	758	10,516	0.0	0.0	1,808
1-Jul-2008	0	0	0	0	1216	16,875	0.0	0.0	2,527
Tot&avg	**1,316**	**3,919**	**17,151**	**21,070**	**1,769**	**638,474**	**13.3**	**71.2**	3,575
VAMP	736	2,148	9,279	11,427	656	36,432	59	315	1,485
							CVP	CVP	
CENTRAL VALLEY PROJECT							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-2008	0	0	0	0	1773	24,609	0.0	0.0	1833
14-Jan-2008	3	12	9	20.64	3655	50,729	0.2	0.4	2140
21-Jan-2008	4	16	13	28.76	2635	36,570	0.4	0.8	1544
28-Jan-2008	3	12	8	20.08	3483	48,350	0.2	0.4	3006
4-Feb-2008	5	20	12	32.19	4127	57,283	0.3	0.6	3416
11-Feb-2008	5	20.3	15	34.94	3529	48,992	0.4	0.7	2737
18-Feb-2008	16	64	46	109.71	2824	39,200	1.6	2.8	1851
25-Feb-2008	20	80	58	138	3039	42,190	1.9	3.3	1847
4-Mar-2008	30	116	96	212	2044	28,369	4.1	7.5	2619
11-Mar-2008	20	66.8	51	118	2841	39,440	1.7	3.0	1926
18-Mar-2008	26	83.5	79	163	973	13,500	6.2	12.1	1851
25-Mar-2008	29	81.5	69	151	1695	23,524	3.5	6.4	2249
1-Apr-2008	37	142.5	115	257	1578	21,906	6.5	11.7	2403
8-Apr-2008	48	186	145	331	1656	22,987	8.1	14.4	2059
15-Apr-2008	70	279	224	503	1025	14,226	19.6	35.4	1917
22-Apr-2008	95	377.2	321	698	837	11,618	32.5	60.1	2357
29-Apr-2008	290	1160	973	2,133	837	11,616	99.9	183.6	3207
6-May-2008	317	1265	1051	2,316	795	11,035	114.6	209.9	3143
13-May-2008	263	1052	873	1,925	842	11,682	90.1	164.8	3317
20-May-2008	148	589	487	1,076	842	11,686	50.4	92.1	3113
27-May-2008	155	620	522	1,142	980	11,658	53.2	98.0	2124
3-Jun-2008	104	413	342	755	1046	14,514	28.5	52.0	1504
10-Jun-2008	9	36	30	66	811	11,252	3.2	5.9	1150
17-Jun-2008	1	4	4	8	733	10,179	0.4	0.8	976
24-Jun-2008				0	1050	14,577	0.0	0.0	841
1-Jul-2008				0	1311	18,204	0.0	0.0	929
Tot&avg	**1,698**	**6,696**	**5,542**	**12,237**	**1,806**	**649,897**	**20.3**	**37.2**	**2,156**
VAMP	1,018	4,066	3,384	7,450	829	46,019	89	163	3,195


2008 CVP estimated salmon salvage and loss
Weekly expanded salvage and loss
4,000
3,000
2,000
1,000
0
22Apr-22May
7-Jan-2008
14-Jan-2008
21-Jan-2008
28-Jan-2008
4-Feb-2008
11-Feb-2008
18-Feb-2008
25-Feb-2008
4-Mar-2008
11-Mar-2008
18-Mar-2008
25-Mar-2008
1-Apr-2008
8-Apr-2008
15-Apr-2008
22-Apr-2008
29-Apr-2008
6-May-2008
13-May-2008
20-May-2008
27-May-2008
3-Jun-2008
10-Jun-2008
17-Jun-2008
24-Jun-2008
1-Jul-2008
Week ending date
Exp. Salvage
Est. Loss


2008 SWP estimated salmon salvage and loss
Weekly expanded salvage and loss
4,000
3,000
2,000
1,000
0
22Apr-
7-Jan-2008
14-Jan-2008
21-Jan-2008
28-Jan-2008
4-Feb-2008
11-Feb-2008
18-Feb-2008
25-Feb-2008
4-Mar-2008
11-Mar-2008
18-Mar-2008
25-Mar-2008
1-Apr-2008
8-Apr-2008
15-Apr-2008
22-Apr-2008
29-Apr-2008
6-May-2008
13-May-2008
20-May-2008
27-May-2008
3-Jun-2008
10-Jun-2008
17-Jun-2008
24-Jun-2008
1-Jul-2008
Week ending date
Exp. Salvage
Est. Loss


2008 SWP & CVP Combined salvage and loss density
Weekly expanded salvage&loss / 1000 acre feet of export
600
500
400
300
200
100
0
22Apr-
22May
7-Jan-2008
14-Jan-2008
21-Jan-2008
28-Jan-2008
4-Feb-2008
11-Feb-2008
18-Feb-2008
25-Feb-2008
4-Mar-2008
11-Mar-2008
18-Mar-2008
25-Mar-2008
1-Apr-2008
8-Apr-2008
15-Apr-2008
22-Apr-2008
29-Apr-2008
6-May-2008
13-May-2008
20-May-2008
27-May-2008
3-Jun-2008
10-Jun-2008
17-Jun-2008
24-Jun-2008
1-Jul-2008
Week ending date
SWP Expanded salmon/1000 ac. ft.
CVP Expanded salmon/1000 ac. ft.


2008 weekly export rates and Vernalis flow
Weekly average cfs
8,000
6,000
4,000
2,000
0
22Apr-
22May
1/7/2008
1/14/2008
1/21/2008
1/28/2008
2/4/2008
2/11/2008
2/18/2008
2/25/2008
3/4/2008
3/11/2008
3/18/2008
3/25/2008
4/1/2008
4/8/2008
4/15/2008
4/22/2008
4/29/2008
5/6/2008
5/13/2008
5/20/2008
5/27/2008
6/3/2008
6/10/2008
6/17/2008
6/24/2008
7/1/2008
WEEK ENDING DATE
SWP
CVP
Combined Export
Vernalis flow

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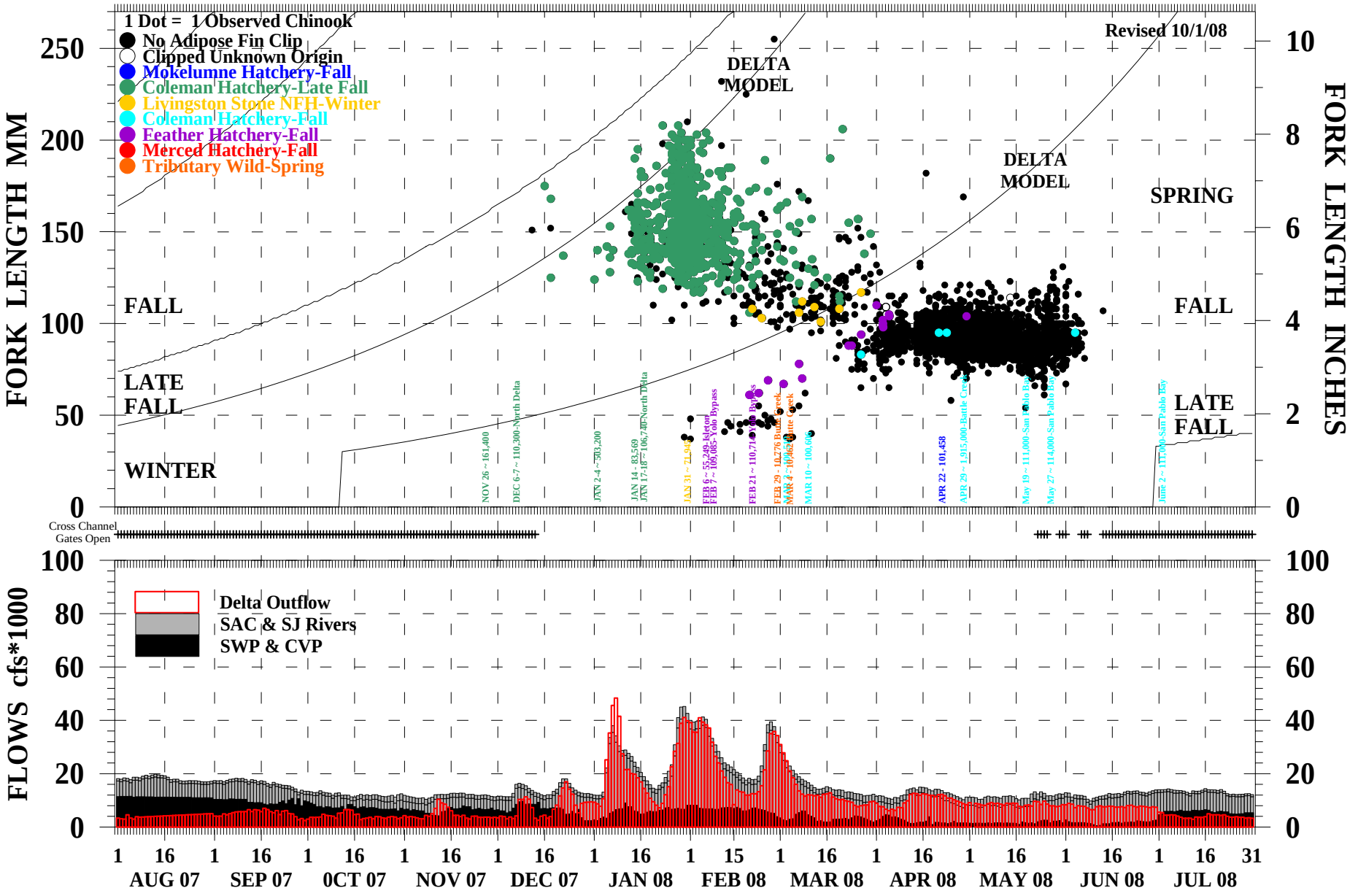
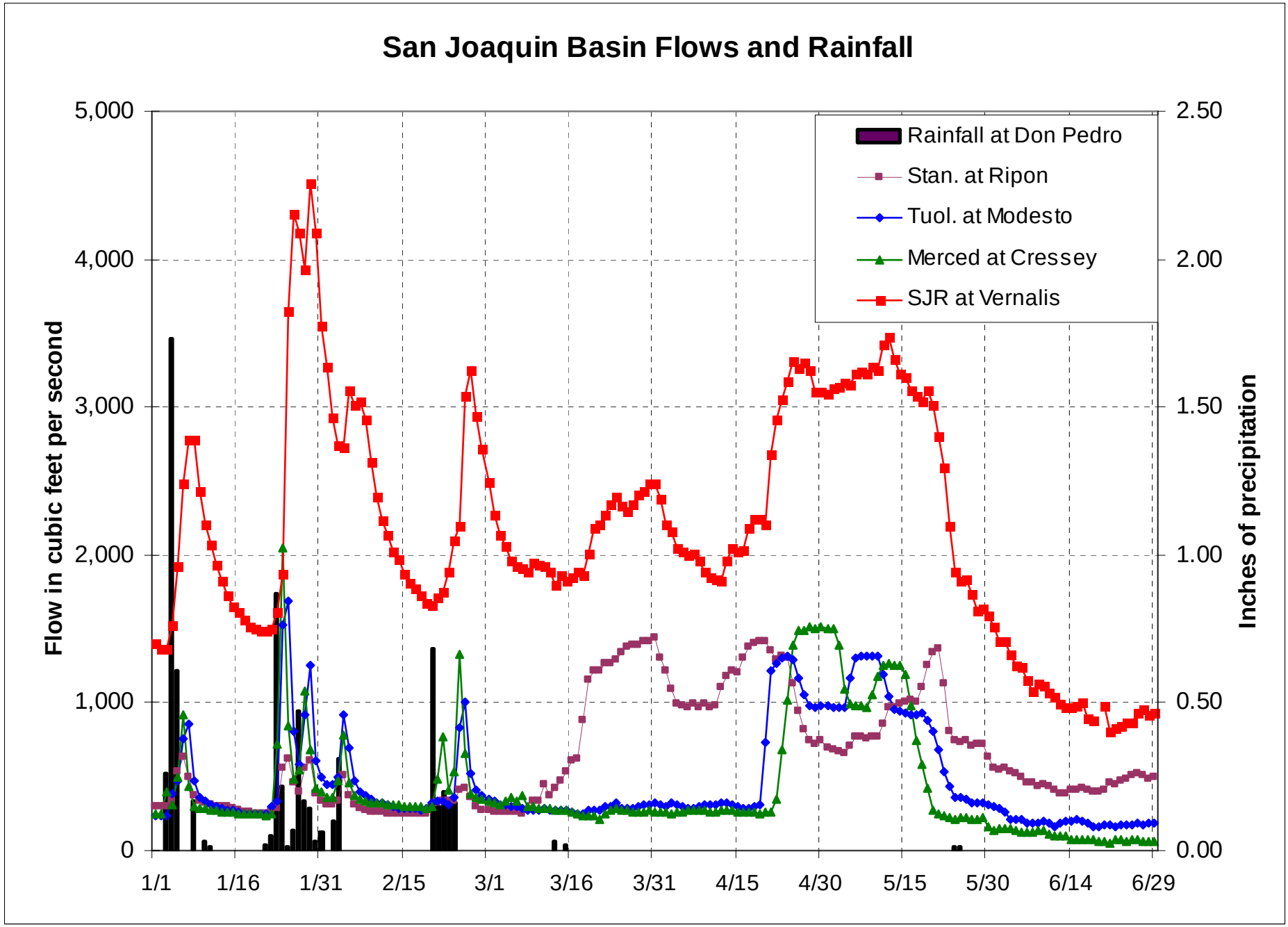
Note: “Delta Model” size/date categories by run designation are approximate

OBSERVED CHINOOK SALVAGE AT THE SWP & CVP DELTA FISH FACILITIES 8/1/07 THROUGH 7/31/08




San Joaquin Basin Flows and Rainfall
Flow in cubic feet per second
Inches of precipitation
5,000
4,000
3,000
2,000
1,000
0
2.50
2.00
1.50
1.00
0.50
0.00
1/1
1/16
1/31
2/15
3/1
3/16
3/31
4/15
4/30
5/15
5/30
6/14
6/29
Rainfall at Don Pedro
Stan. at Ripon
Tuol. at Modesto
Merced at Cressey
SJR at Vernalis

Attachment -A-

Water, Flows, Temperature, and Flow Schedule Correspondence

1. Graphs of flows, FERC flow schedule, reservoir status, and precipitation data
   1.1. 2008/2009 Water Years (Oct-Sep) daily average computed natural flow, actual flow, and FERC flow schedule at La Grange
   1.2. 2008/2009 Water Years actual flow: Tuolumne at Modesto, Stanislaus at Ripon, Merced at Cressey, San Joaquin at Stevinson and at Vernalis, Vernalis and combined exports, Vernalis flow minus combined exports
   1.3. Required flow volume forecasts and final amount
   1.4. 2008/2009 Water Years Don Pedro Reservoir storage
   1.5. 2008/2009 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
   2.1. Water Years 2008/2009 daily average water temperature for Tuolumne and San Joaquin Rivers
   2.2. Modesto air temperature for Water Years 2008/2009
3. Flow schedule correspondence for 2008
   3.1. 21Mar – Minimum flow coordination process and initial flow schedules
   3.2. 12May – Interim flow schedule, including spring pulse flow
   3.3. 06Jun – Interim flow schedules, including summer flow requirement
   3.4. 08Sep – Final annual flow volume and revised flow schedule
   3.5. 30Oct – Update of water year classification index
   3.6. 21Jan2009 – Review of fall 45-day flow period

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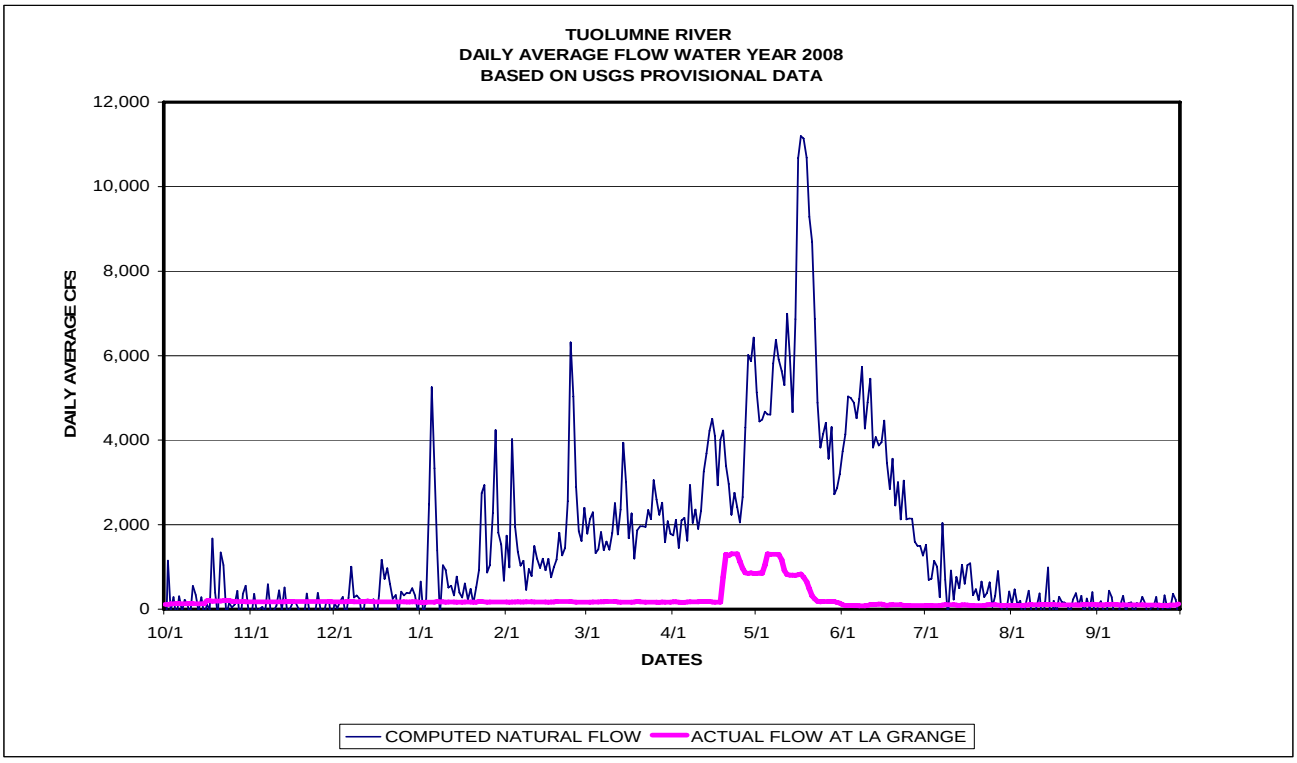
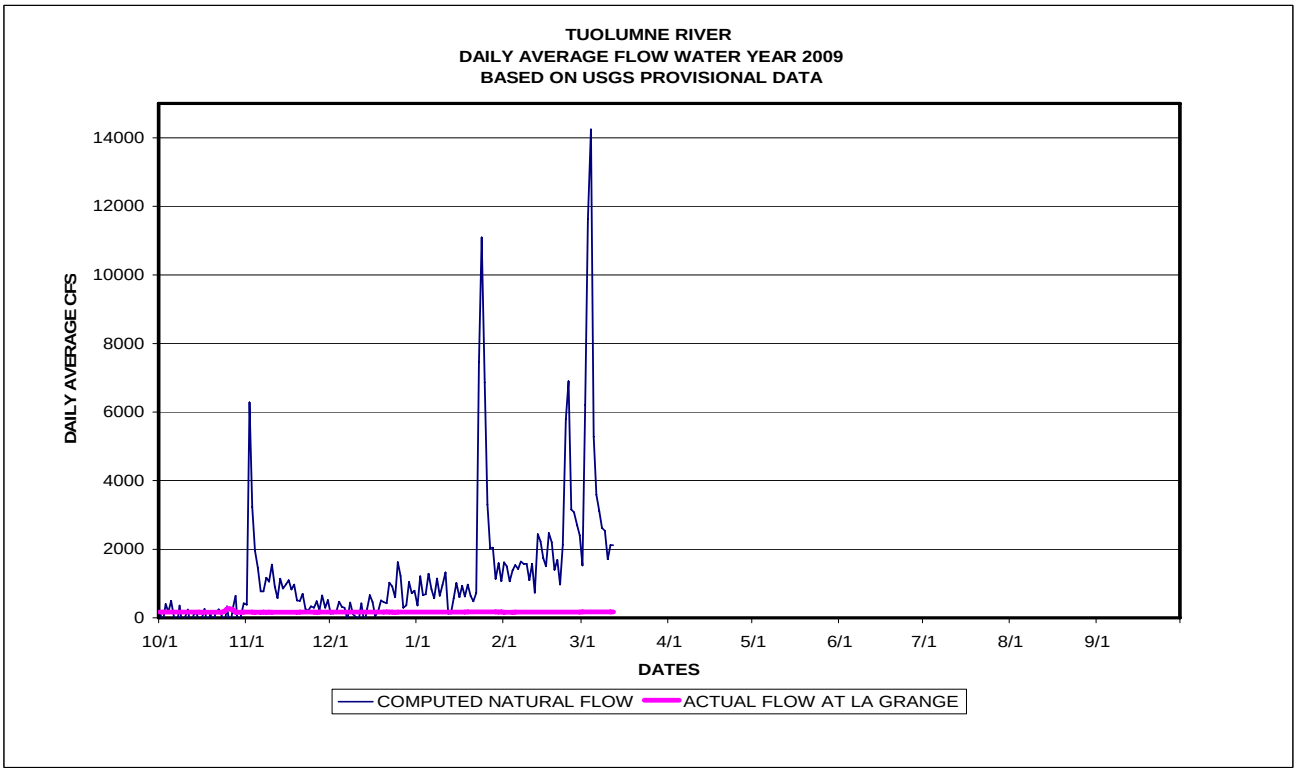
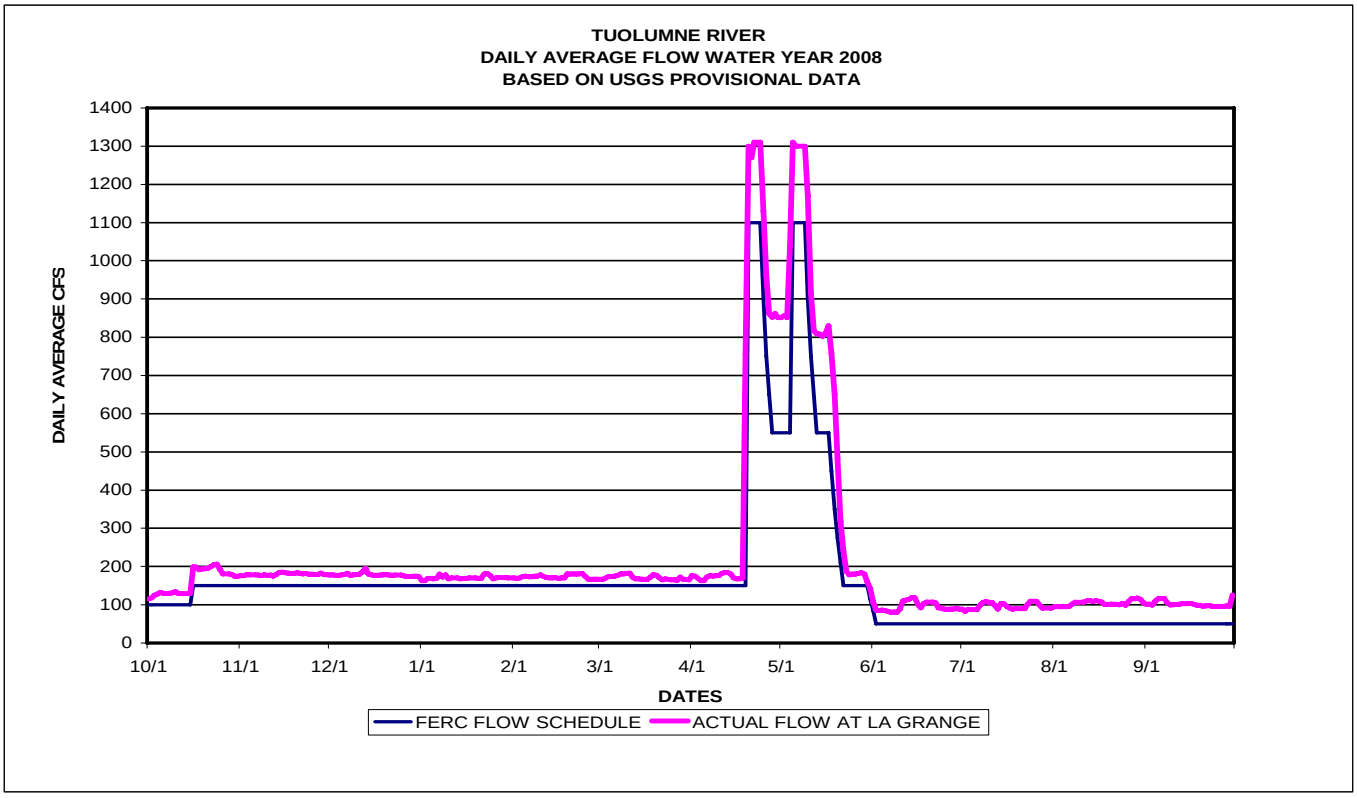
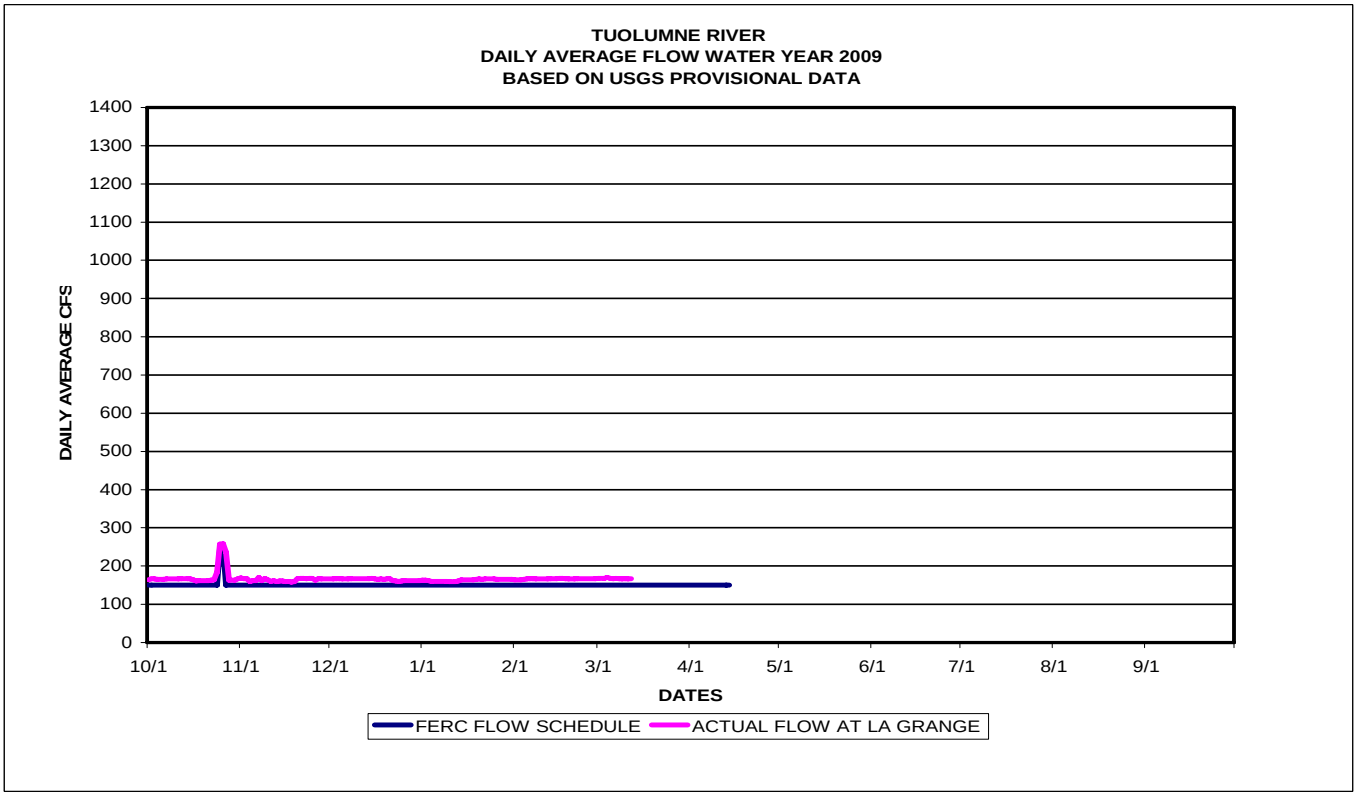
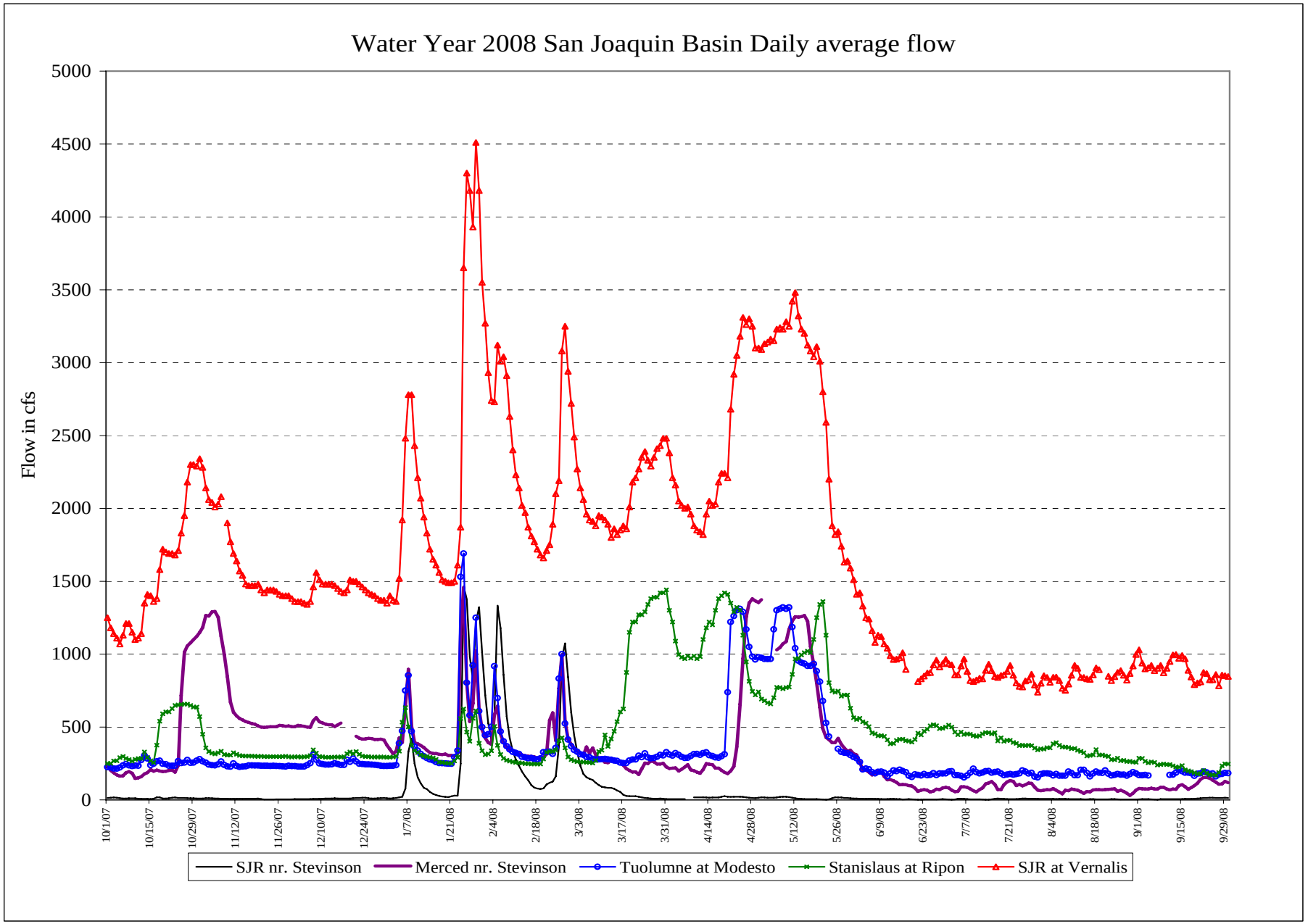
1. Graphs of flows, flow schedule, reservoir status, and precipitation data

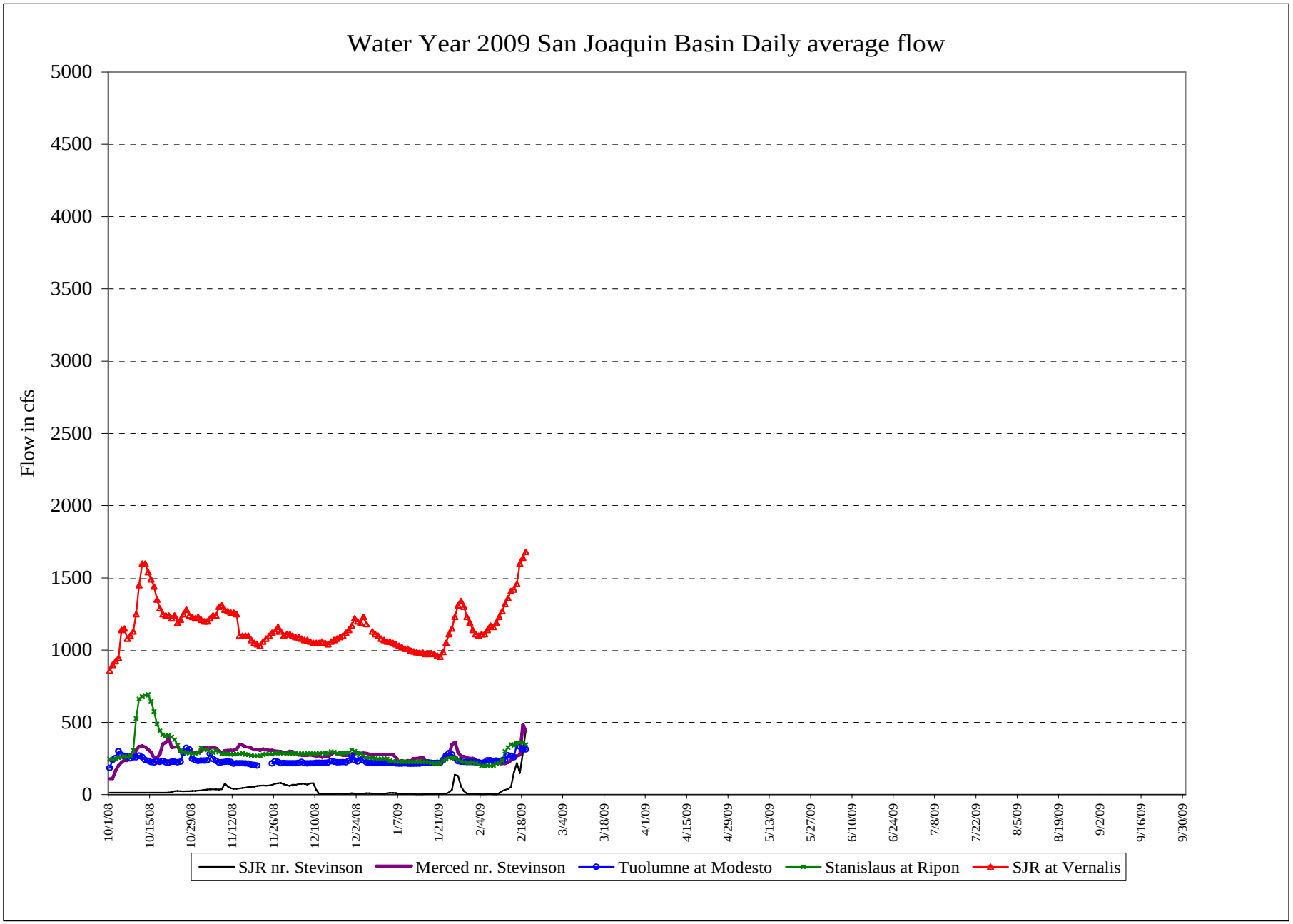




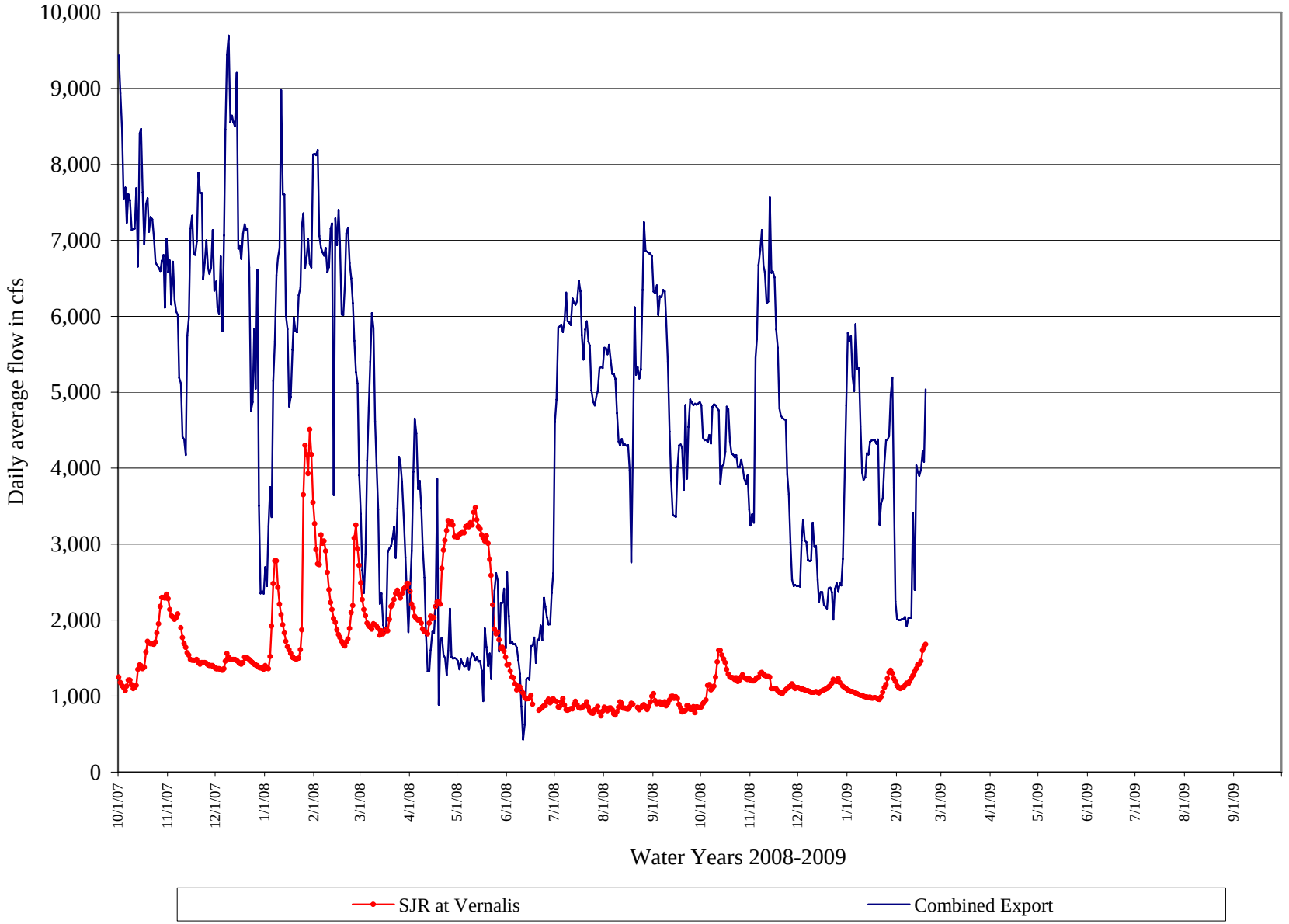

TUOLUMNE RIVER
DAILY AVERAGE FLOW WATER YEAR 2008
BASED ON USGS PROVISIONAL DATA
DAILY AVERAGE CFS
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
10/1
11/1
12/1
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
DATES
FERC FLOW SCHEDULE
ACTUAL FLOW AT LA GRANGE

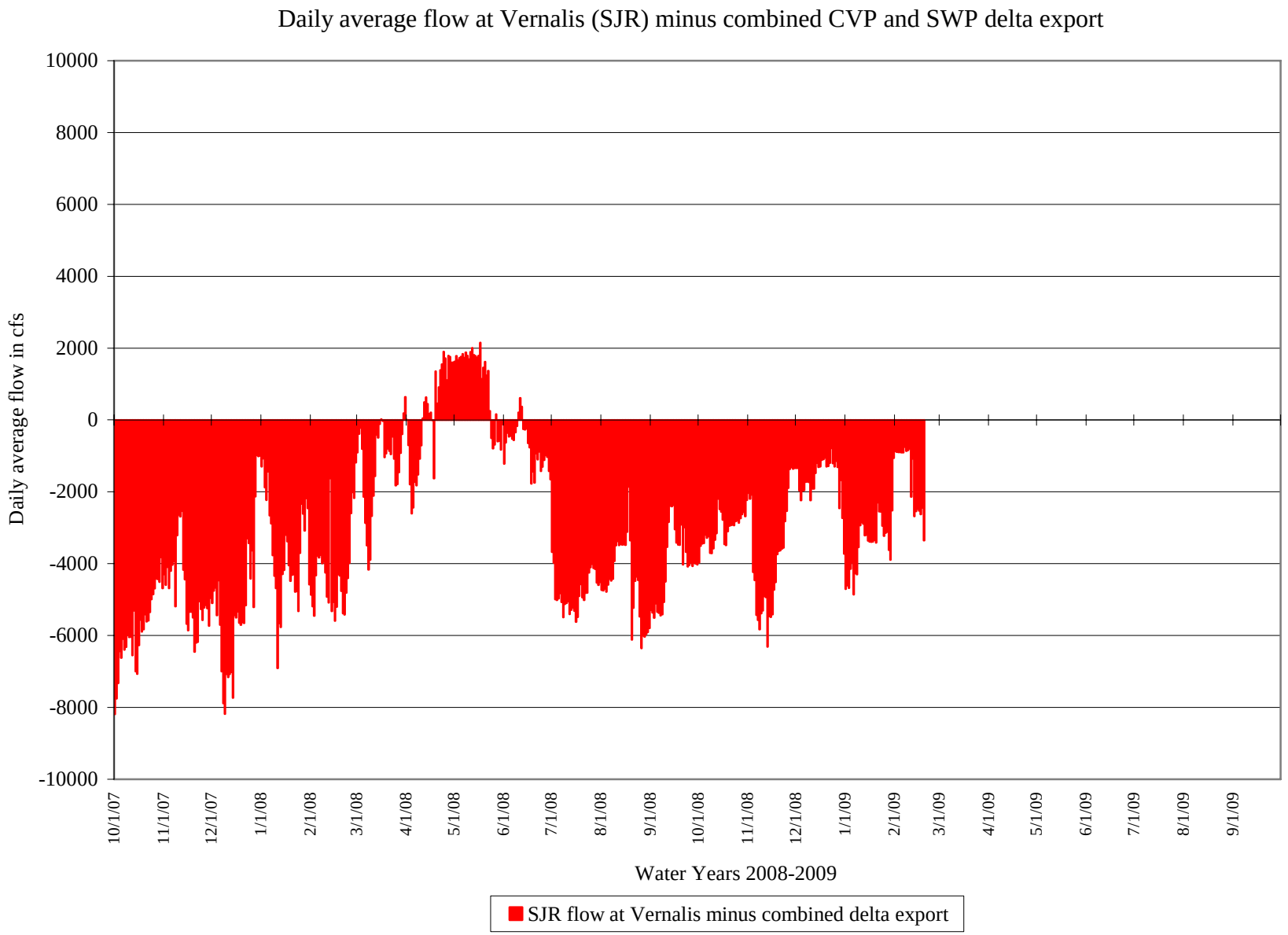

TUOLUMNE RIVER
DAILY AVERAGE FLOW WATER YEAR 2009
BASED ON USGS PROVISIONAL DATA
DAILY AVERAGE CFS
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
10/1
11/1
12/1
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
DATES
FERC FLOW SCHEDULE
ACTUAL FLOW AT LA GRANGE

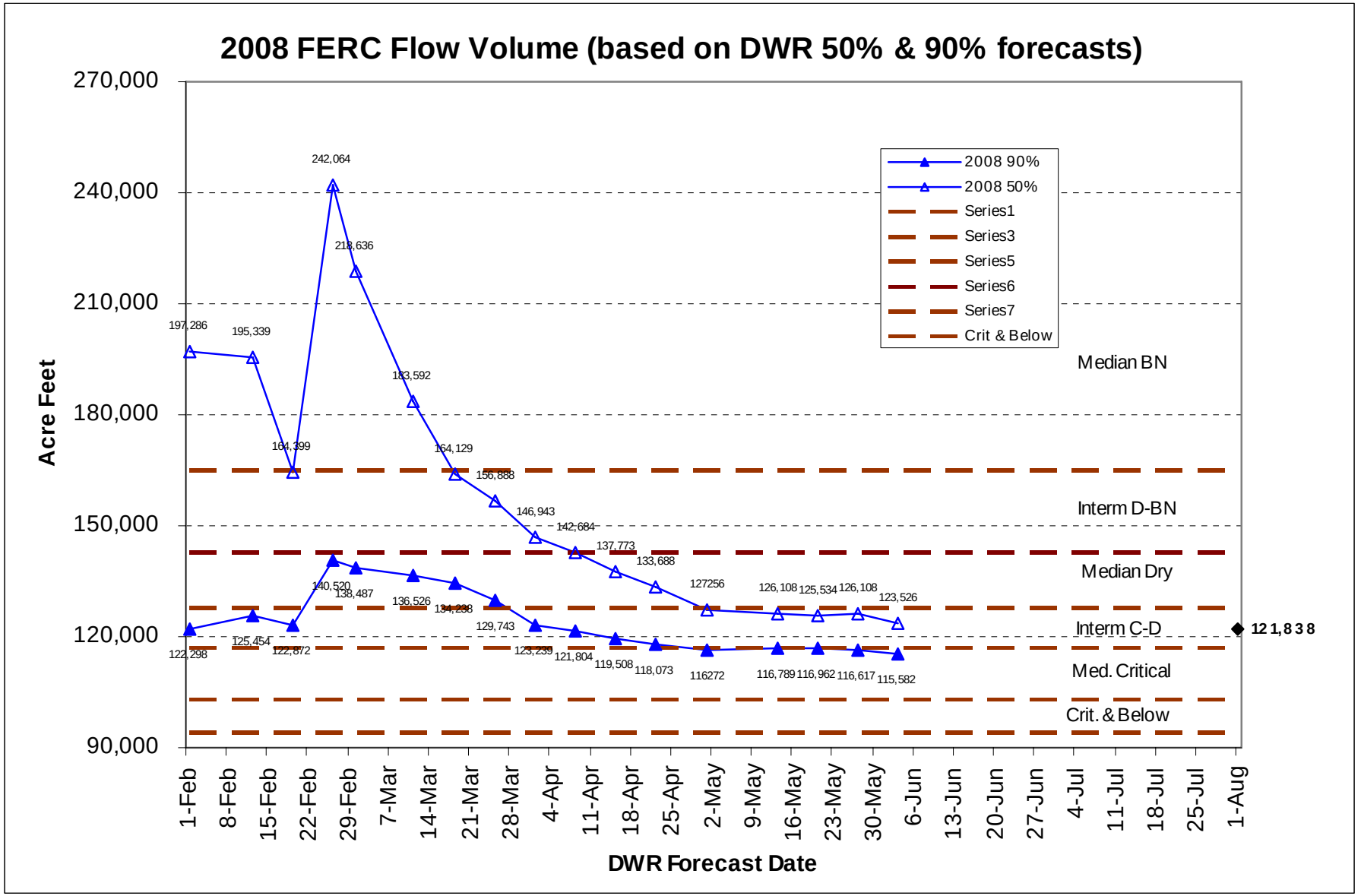

Water Year 2008 San Joaquin Basin Daily average flow
Flow in cfs
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
10/1/07
10/15/07
10/29/07
11/12/07
11/26/07
12/10/07
12/24/07
1/7/08
1/21/08
2/4/08
2/18/08
3/3/08
3/17/08
3/31/08
4/14/08
4/28/08
5/12/08
5/26/08
6/9/08
6/23/08
7/7/08
7/21/08
8/4/08
8/18/08
9/1/08
9/15/08
9/29/08
SJR nr. Stevinson
Merced nr. Stevinson
Tuolumne at Modesto
Stanislaus at Ripon
SJR at Vernalis

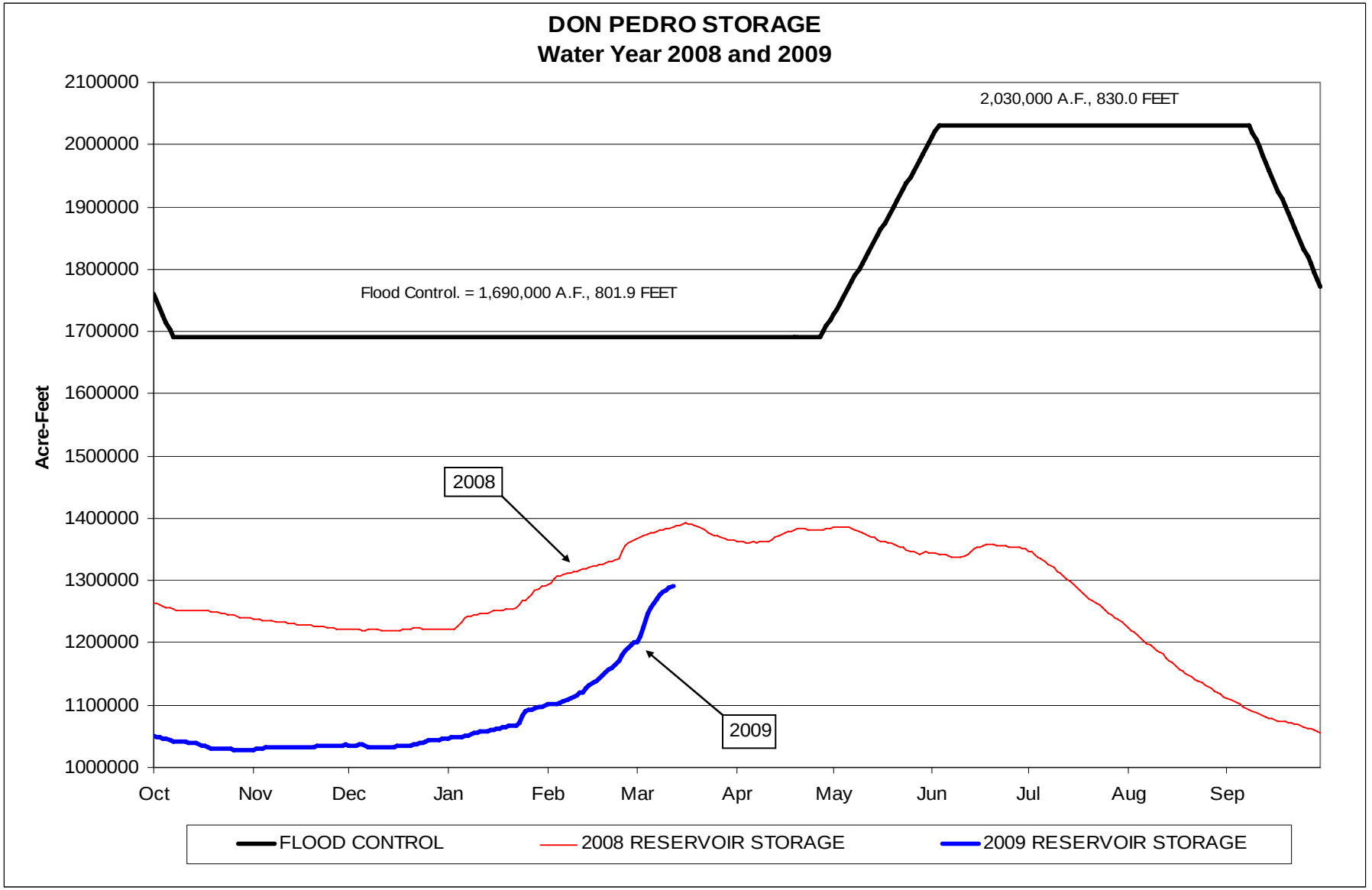

Water Year 2009 San Joaquin Basin Daily average flow
Flow in cfs
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
10/1/08
10/15/08
10/29/08
11/12/08
11/26/08
12/10/08
12/24/08
1/7/09
1/21/09
2/4/09
2/18/09
3/4/09
3/18/09
4/1/09
4/15/09
4/29/09
5/13/09
5/27/09
6/10/09
6/24/09
7/8/09
7/22/09
8/5/09
8/19/09
9/2/09
9/16/09
9/30/09
SJR nr. Stevinson
Merced nr. Stevinson
Tuolumne at Modesto
Stanislaus at Ripon
SJR at Vernalis

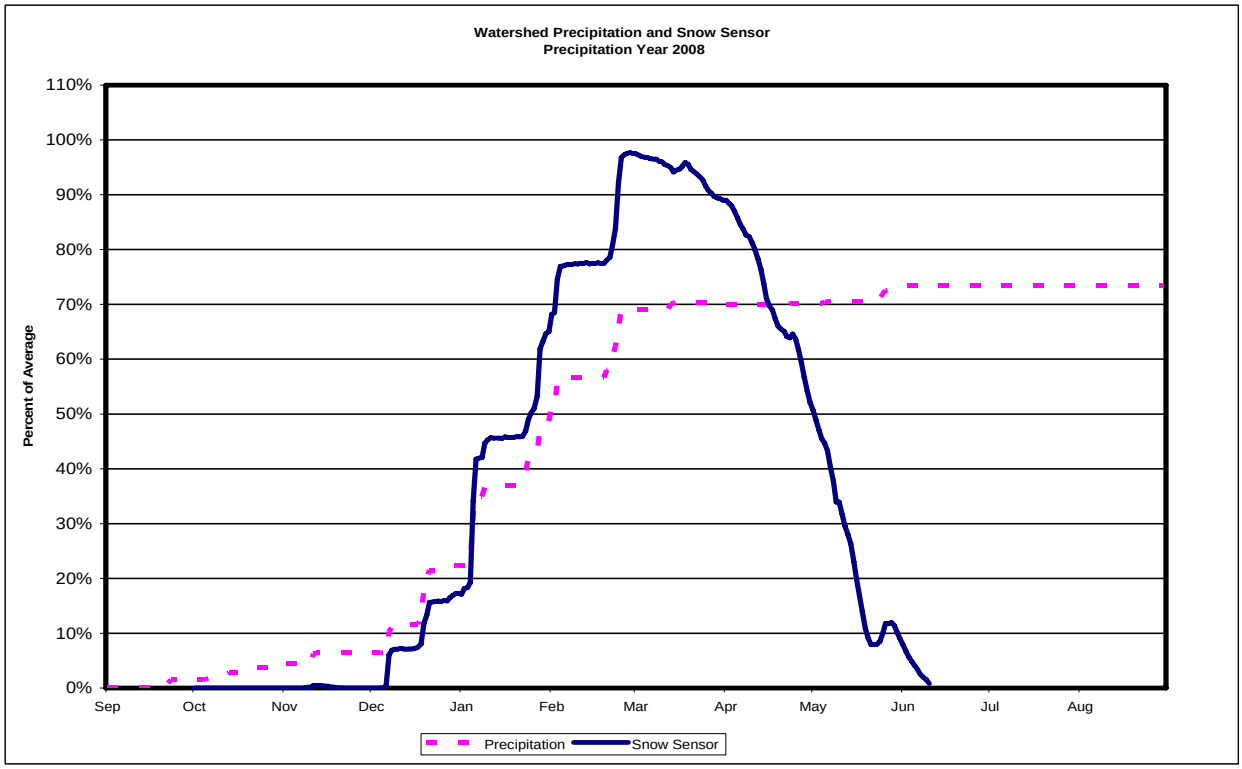
Daily average flow at Vernalis (SJR) and combined CVP and SWP delta export

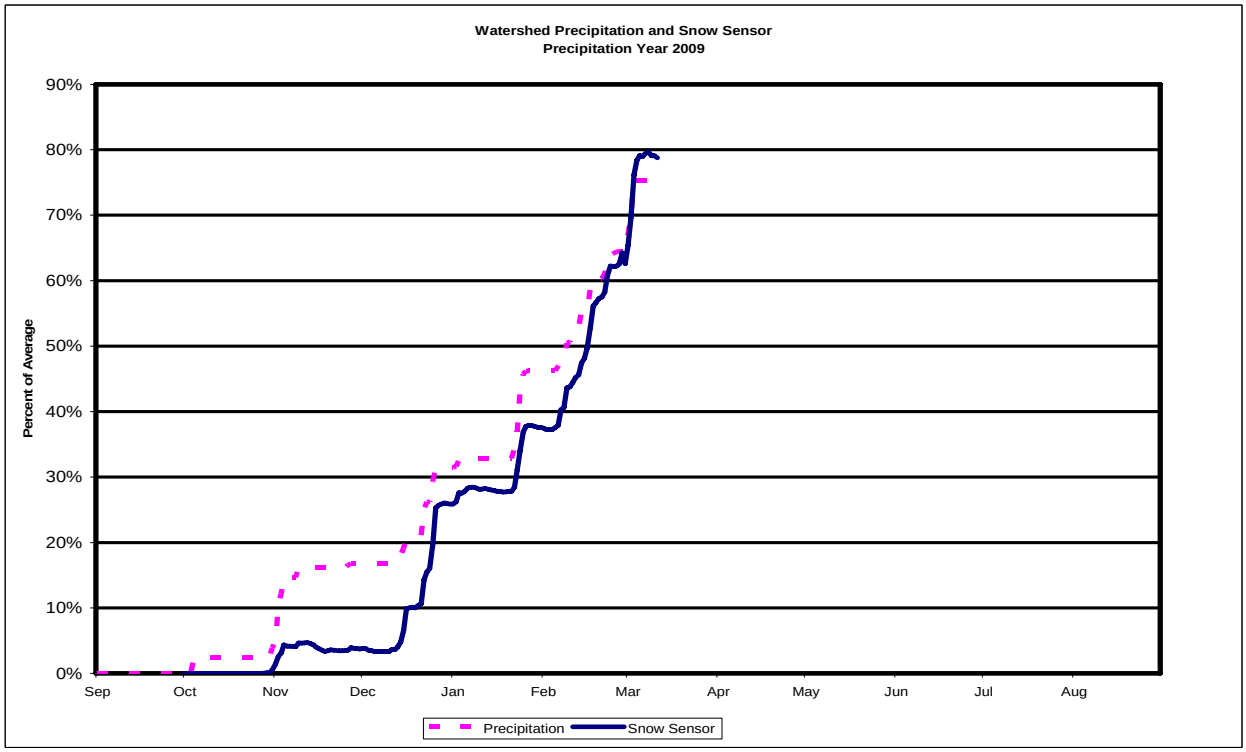



Daily average flow at Vernalis (SJR) minus combined CVP and SWP delta export
Daily average flow in cfs
10000
8000
6000
4000
2000
0
-2000
-4000
-6000
-8000
-10000
10/1/07
11/1/07
12/1/07
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
1/1/09
2/1/09
3/1/09
4/1/09
5/1/09
6/1/09
7/1/09
8/1/09
9/1/09
Water Years 2008-2009
SJR flow at Vernalis minus combined delta export

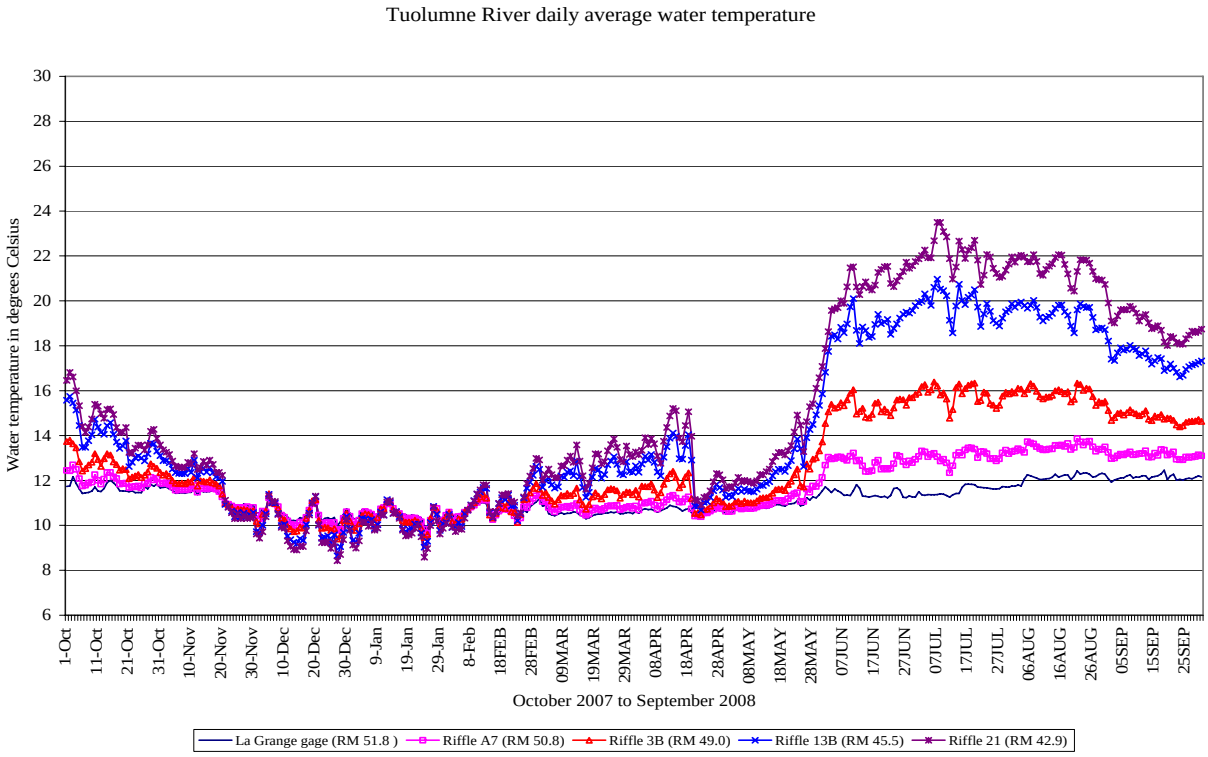

2008 FERC Flow Volume (based on DWR 50% & 90% forecasts)
Acre Feet
270,000
240,000
210,000
180,000
150,000
120,000
90,000
1-Feb
8-Feb
15-Feb
22-Feb
29-Feb
7-Mar
14-Mar
21-Mar
28-Mar
4-Apr
11-Apr
18-Apr
25-Apr
2-May
9-May
16-May
23-May
30-May
6-Jun
13-Jun
20-Jun
27-Jun
4-Jul
11-Jul
18-Jul
25-Jul
1-Aug
DWR Forecast Date
2008 90%
2008 50%
Series1
Series3
Series5
Series6
Series7
Crit & Below
Median BN
Interm D-BN
Median Dry
Interm C-D
Med. Critical
Crit. & Below
121,838
197,286
195,339
164,399
242,064
218,636
183,592
164,129
156,888
146,943
142,684
137,773
133,688
127256
126,108
125,534
126,108
123,526
122,298
125,454
122,872
140,520
138,487
136,526
134,298
129,743
123,239
121,804
119,508
118,073
116272
116,789
116,962
116,617
115,582

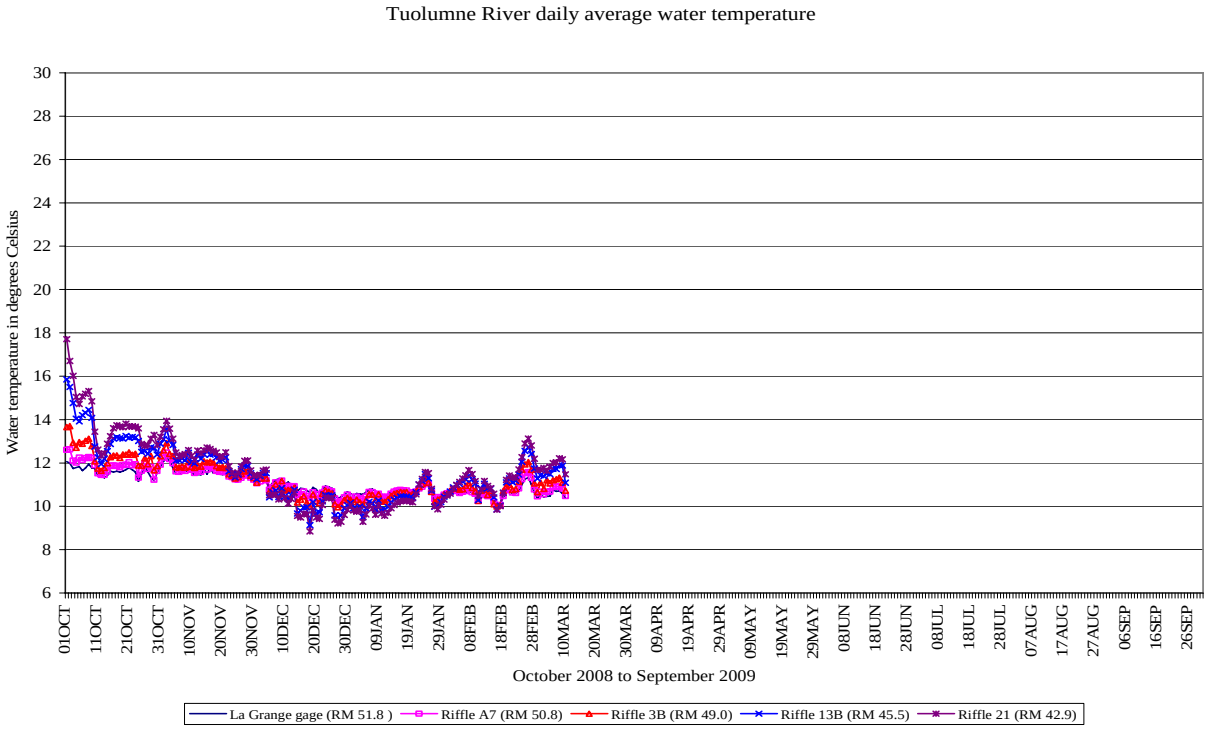

DON PEDRO STORAGE
Water Year 2008 and 2009
2100000
2000000
1900000
1800000
1700000
1600000
1500000
1400000
1300000
1200000
1100000
1000000
Acre-Feet
2,030,000 A.F., 830.0 FEET
Flood Control. = 1,690,000 A.F., 801.9 FEET
2008
2009
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
FLOOD CONTROL
2008 RESERVOIR STORAGE
2009 RESERVOIR STORAGE


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

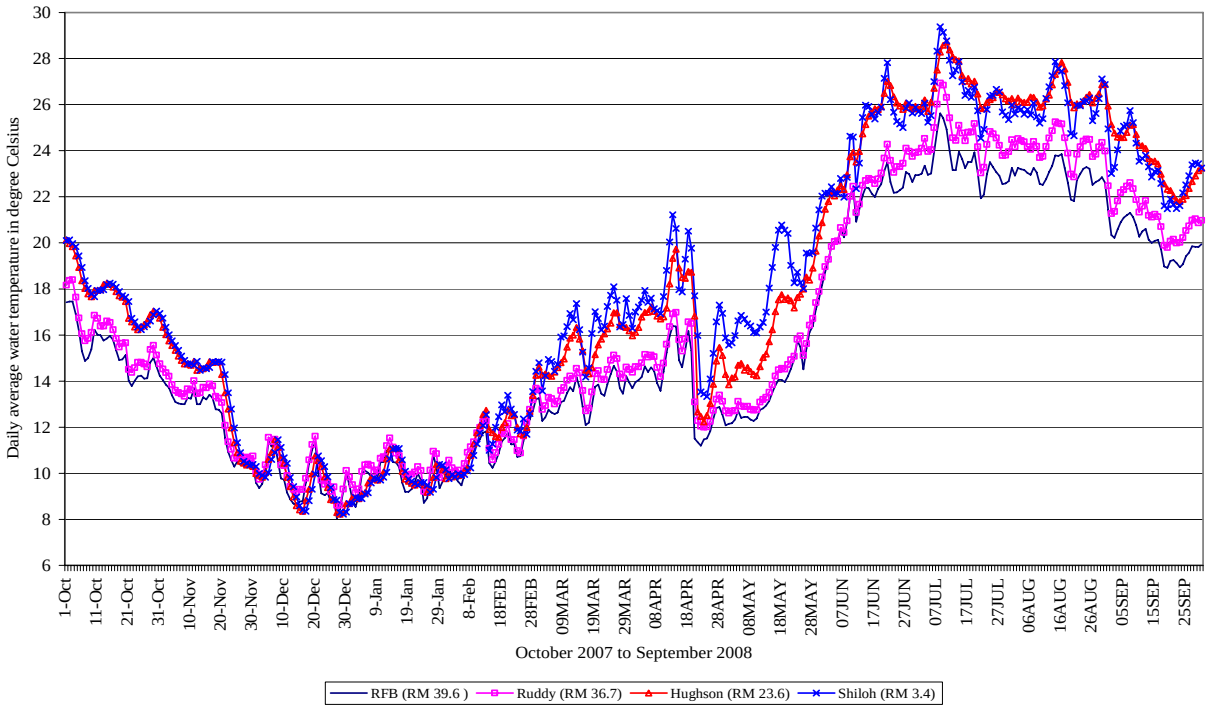

Watershed Precipitation and Snow Sensor
Precipitation Year 2009
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent of Average
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Precipitation
Snow Sensor

2. Graphs of water temperature and air temperature

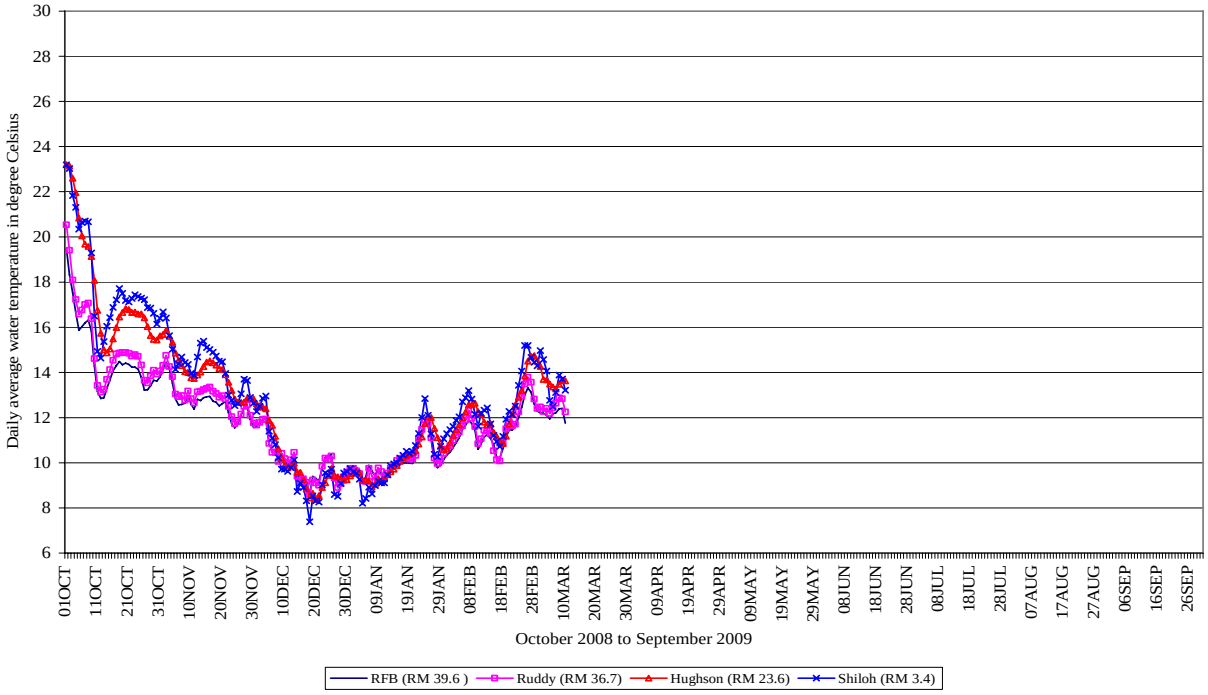




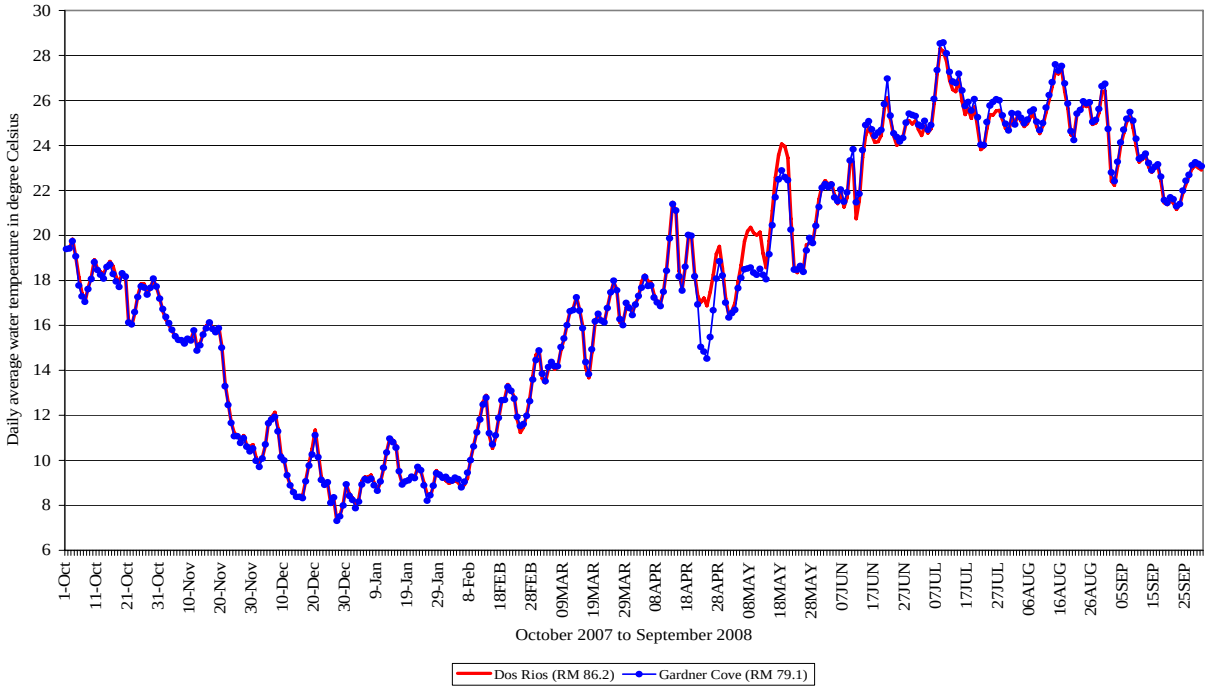
Tuolumne River daily average water temperature



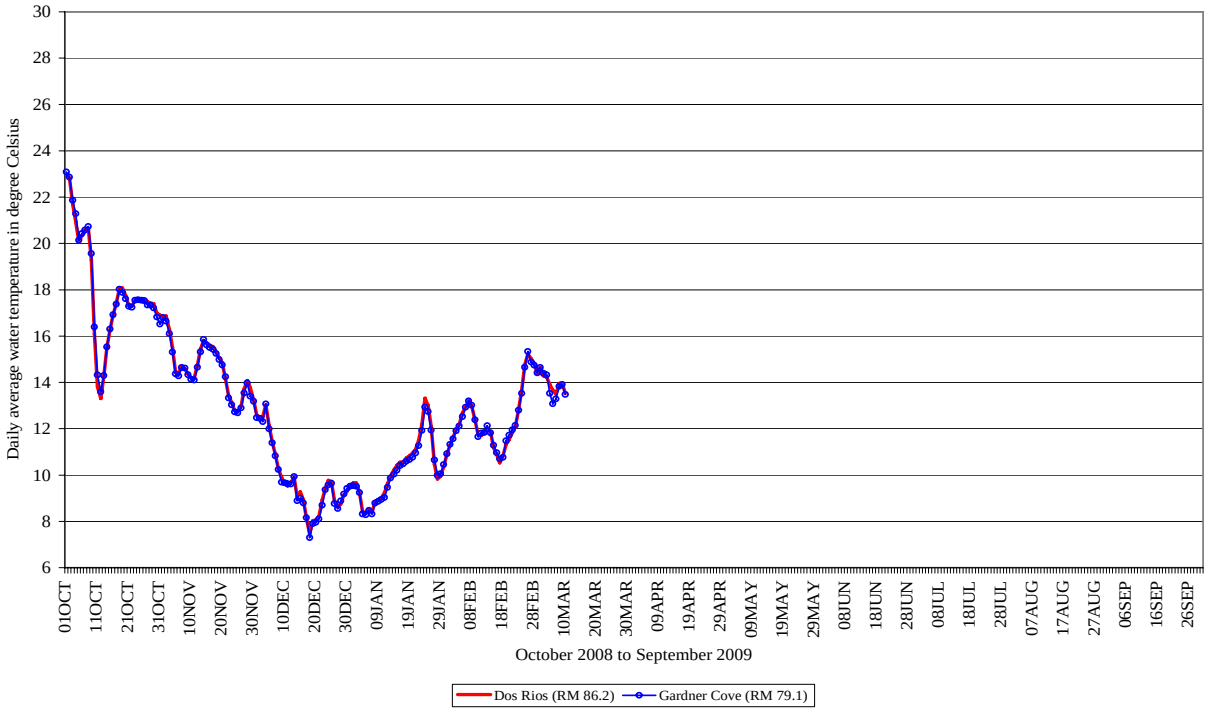
Tuolumne River daily average water temperature

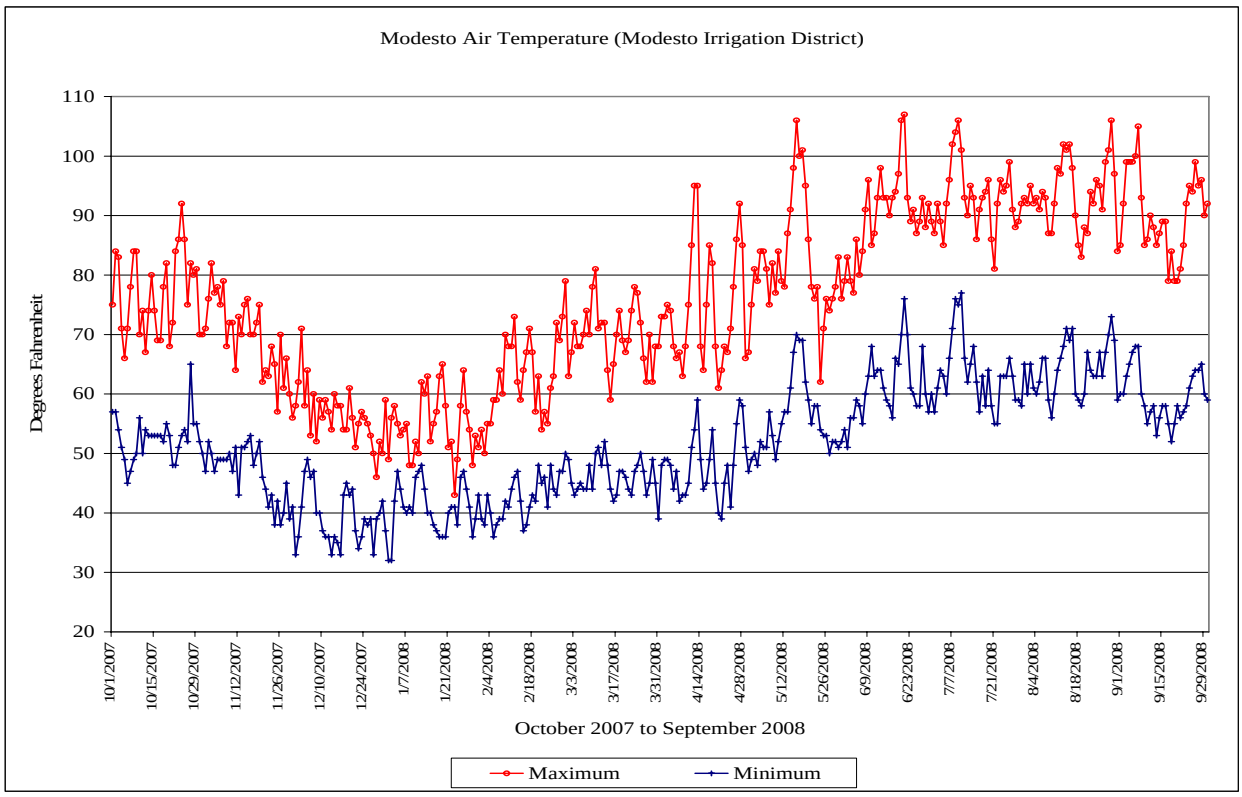


San Joaquin River daily average water temperature



San Joaquin River daily average water temperature




Modesto Air Temperature (Modesto Irrigation District)
Degrees Fahrenheit
110
100
90
80
70
60
50
40
30
20
10/1/2007
10/15/2007
10/29/2007
11/12/2007
11/26/2007
12/10/2007
12/24/2007
1/7/2008
1/21/2008
2/4/2008
2/18/2008
3/3/2008
3/17/2008
3/31/2008
4/14/2008
4/28/2008
5/12/2008
5/26/2008
6/9/2008
6/23/2008
7/7/2008
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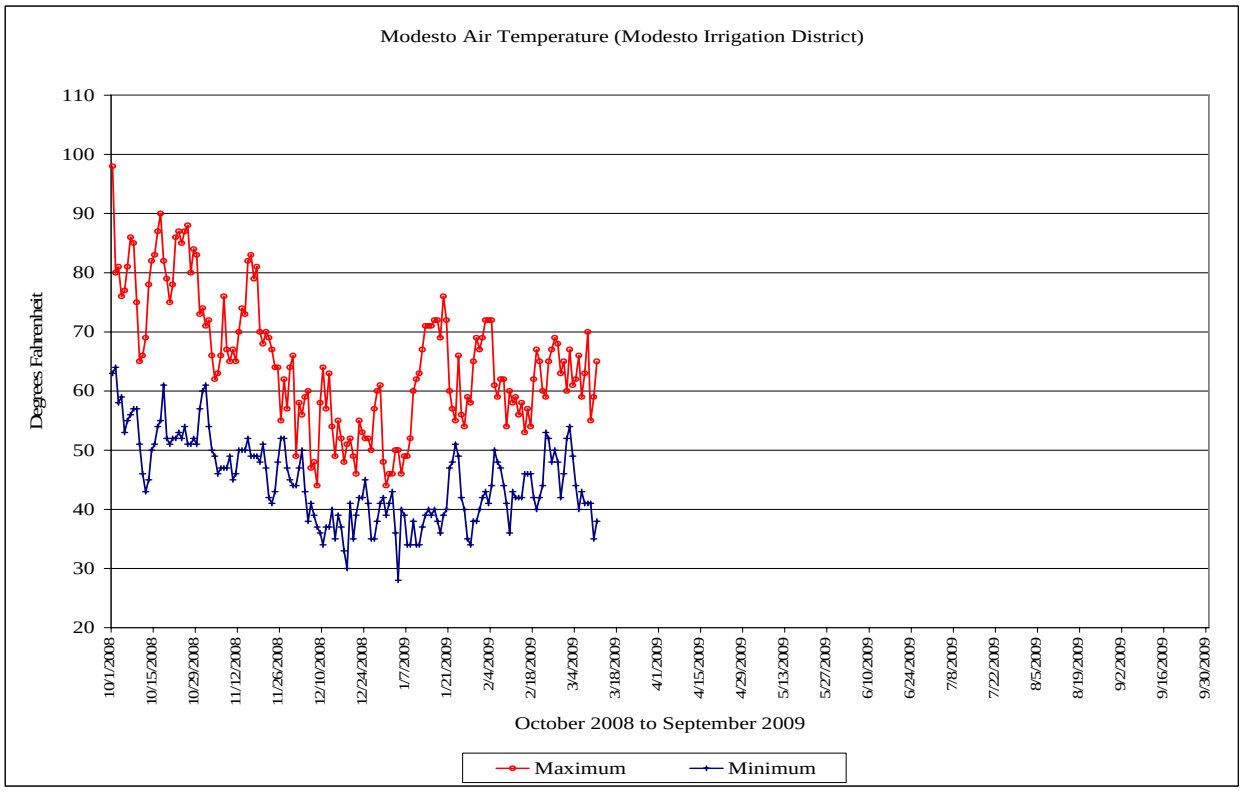
9/1/2008
9/15/2008
9/29/2008
October 2007 to September 2008
Maximum
Minimum


Modesto Air Temperature (Modesto Irrigation District)
Degrees Fahrenheit
110
100
90
80
70
60
50
40
30
20
10/1/2008
10/15/2008
10/29/2008
11/12/2008
11/26/2008
12/10/2008
12/24/2008
1/7/2009
1/21/2009
2/4/2009
2/18/2009
3/4/2009
3/18/2009
4/1/2009
4/15/2009
4/29/2009
5/13/2009
5/27/2009
6/10/2009
6/24/2009
7/8/2009
7/22/2009
8/5/2009
8/19/2009
9/2/2009
9/16/2009
9/30/2009
October 2008 to September 2009
Maximum
Minimum

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

March 21, 2008

VIA E-MAIL

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

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

RE: Project 2299 – Minimum Flow Coordination Process for 2008-2009 Fish Flow Year

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 are based on the San Joaquin Basin 60-20-20 Indices for water years. The index has been updated in a continuous fashion based on the Department of Water Resources (DWR) monthly forecasts and updates of those forecasts are provided in Table 1. We are in another below average year so far and as such each update changes the fish flow volume at the 50% and 90% exceedence levels.

TID has again been tracking the forecasts and providing your agencies with corresponding flow volume information in e-mails sent on Feb 19, Feb 21, Feb 29, Mar 10, Mar 13, and Mar 21. The volumes resulting from the Mar 1 forecast were reviewed at the Mar 13 TRTAC meeting. TID also supplied preliminary dry and average scenario daily schedules for initial Vernalis Adaptive Management Program (VAMP) pulse flow schedules that were provided to your agencies in a Mar 13 e-mail from the VAMP Hydrology Coordinator and at the Mar 14 VAMP technical meeting. At that meeting, the "final" selection for the VAMP period timing was determined to be from April 22 through May 22, the same as last year. Therefore, the corresponding start of that period at La Grange would be April 20, 2008 using the customary 2-day lead time for flow to arrive at Vernalis on the San Joaquin River. Consideration should be made again for adding to the base flow during the April 15-19 period as was done in 2007 where the flow schedule was raised from 150 cfs to 250 cfs.

Based on applying the current DWR April-July runoff forecast update of March 18 to the DWR March 1 60-20-20 basin index, the annual minimum flow requirements are 134,238 AF under the 90% Exceedence case and 164,129 AF under the 50% Exceedence case. These values are also shown on Table 1 with the respective 60-20-20 index. Those present forecast values for the 50%

(average) and 90% (dry) cases for the 2008-2009 Fish Year are shown in Figures 2 through 4 along with the different flow components within each classification. Due to the present dry trend these numbers incorporate a reduced estimate for March which the DWR will not update until the April 1 forecast. Also since it has turned dry this month, the 50% and 90% levels, and not the 10% level, seem the most appropriate for a general range to consider at present.

Based on all of the above, two updated daily schedules are presented as examples (Tables 2 & 3). The process that went into the schedules is as follows:

1) The base flow and pulse flow amounts are based those specified in the 1996 FERC Order.
2) The timing of the higher spring pulse flow is consistent with the VAMP period. The flow schedule during the April 15-19 period was raised to 250 cfs as was done in 2007.
3) The spring pulse flows are shown as steady with a rampdown. However a varied pattern with two peaks as has been used in past years is recommended as schedule(s) are refined over the next few weeks.
4) A rampdown to the June flow is shown.
5) The "interpolation water" volume for these two cases is shown at the bottom of the schedules. Allocating this variable category could be considered in later schedules when there is more information
6) The initial timing of the fall pulse flow in the 50% exceedence case is based on a default period of October 6 thorough 10 that was established in 1996. The actual timing and pattern of any pulse flows could be determined after July when the final 2008-2009 fish flow year volume is known.

Due to the tendency of dry years, for the Article 37 requirement we will use the April 1 60-20-20 Index 90% exceedence value for the initial flow schedule and apply a constant rate during the established VAMP flow period of the corresponding outmigration flow volume for that water year classification, adjusted for transition/rampdown periods, unless an alternative schedule is otherwise agreed upon by the parties. At this time we have been informed of no change to the decision of the US Fish and Wildlife Service to have National Marine Fisheries Service make flow schedule decisions on their behalf per the notification e-mail provided by Deborah Giglio on August 8, 2007, which stated "we are deferring to NOAA for flow requirements due to the anadromous fish species present in the project area as expressed in our February 26, 2004 letter to FERC". Please indicate if there is any change to that arrangement and if there is any change to the specific agency personnel designated to render flow schedule decisions in this process.

If an alternative flow schedule is to be utilized, we will need documented agreement for implementing the following items:

1) A FERC flow schedule starting April 15 that includes variable pulse flows, transition or rampdown flows, or other desired flow schedule aspects.
2) Any later schedule(s) for the VAMP flow scheduling process using more current hydrological data

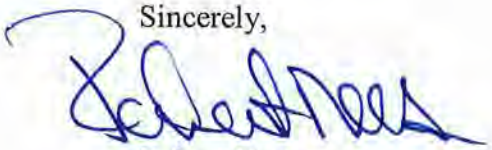
3) Other schedules as required by Article 37 where the volume of the annual flow shall be periodically readjusted as more current unimpaired flow information becomes available. The Fish Flow Procedure contained in the 2005 Ten Year Summary Report as Appendix A identified the process.

All flow schedules must have adequate advance notice provided for the Districts to meet their operational scheduling needs.

During the spring pulse flow period, there may be requests by the VAMP flow operation coordinators for flow adjustments in real time due to efforts to maintain certain target flows at Vernalis. Therefore, to the extent those requests may adjust an established FERC pulse flow schedule, we would need specific documented concurrence from the agencies in advance to make such flow changes as may be requested. This issue will be most relevant if there is little or no "supplemental VAMP flow" scheduled for the Tuolumne River, the status of which is unknown at this time. Another option would be to participate directly in the VAMP flow operation process and approve any such requests affecting FERC pulse flows on a case-specific basis during the VAMP period. Otherwise, we will adhere to the established FERC flow schedule without adjustment. Keep in mind that the flow rates for days with pulse flows scheduled are considered targets, and not minimum flow requirements for those days.

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

Sincerely,



Robert Nees
Directory of Water Resources and Regulatory Affairs

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

Table 1

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

602020 INDEX

YEAR	APRIL-JULY RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	OCTOBER-MARCH RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	602020 INDEX	TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT	San Joaquin Index (not the FERC Index) RANKING
Feb 1 Forecast													
Dry	440,000	790,000	400,000	850,000	2,480,000	208,750	297,500	152,750	314,000	973,000	2,074,121	122,298	Critical
Average	670,000	1,180,000	580,000	1,210,000	3,640,000	261,751	399,657	205,643	353,752	1,220,803	2,819,681	197,286	Below Normal
Wet	1,130,000	1,970,000	1,090,000	2,030,000	6,220,000	371,563	593,125	377,063	595,500	1,937,250	4,510,971	300,923	Wet
Feb 12 Update													
Dry	470,000	830,000	420,000	870,000	2,590,000	208,750	297,500	152,750	314,000	973,000	2,140,121	125,454	Dry
Average	680,000	1,170,000	580,000	1,200,000	3,630,000	261,751	399,657	205,643	353,752	1,220,803	2,813,681	195,339	Below Normal
Wet	1,110,000	1,900,000	1,030,000	1,940,000	5,980,000	371,563	593,125	377,063	595,500	1,937,250	4,366,971	300,923	Wet
Feb 21 Update													
Dry	460,000	810,000	400,000	830,000	2,500,000	208,750	297,500	152,750	314,000	973,000	2,086,121	122,872	Critical
Average	650,000	1,120,000	550,000	1,140,000	3,460,000	261,751	399,657	205,643	353,752	1,220,803	2,711,681	164,399	Below Normal
Wet	1,070,000	1,800,000	960,000	1,830,000	5,660,000	371,563	593,125	377,063	595,500	1,937,250	4,174,971	300,923	Wet
Feb 26 Update													
Dry	530,000	960,000	480,000	1,010,000	2,980,000	208,750	297,500	152,750	314,000	973,000	2,374,121	140,520	Dry
Average	710,000	1,240,000	620,000	1,300,000	3,870,000	261,751	399,657	205,643	353,752	1,220,803	2,957,681	242,064	Below Normal
Wet	1,110,000	1,880,000	990,000	1,930,000	5,910,000	371,563	593,125	377,063	595,500	1,937,250	4,324,971	300,923	Wet
Mar 1 Forecast													
Dry	530,000	960,000	470,000	960,000	2,920,000	202,500	351,250	188,750	261,250	1,003,750	2,344,271	138,487	Dry
Average	700,000	1,220,000	610,000	1,240,000	3,770,000	240,558	400,393	212,769	306,060	1,159,780	2,885,477	218,636	Below Normal
Wet	1,090,000	1,840,000	960,000	1,830,000	5,720,000	369,375	530,938	291,563	453,438	1,645,313	4,152,583	300,923	Wet
Mar 11 Update													
Dry	520,000	930,000	450,000	920,000	2,820,000	240,558	400,393	212,769	306,060	1,159,780	2,315,477	136,526	Dry
Average	680,000	1,160,000	580,000	1,170,000	3,590,000	240,558	400,393	212,769	306,060	1,159,780	2,777,477	183,592	Below Normal
Wet	1,020,000	1,710,000	890,000	1,680,000	5,300,000	240,558	400,393	212,769	306,060	1,159,780	3,803,477	300,923	Wet
Mar 18 Update													
Dry	520,000	920,000	440,000	910,000	2,790,000	221,529	375,822	200,760	283,655	1,081,765	2,281,874	134,238	Dry
Average	670,000	1,130,000	560,000	1,140,000	3,500,000	221,529	375,822	200,760	283,655	1,081,765	2,707,874	164,129	Below Normal
Wet	980,000	1,620,000	850,000	1,590,000	5,040,000	221,529	375,822	200,760	283,655	1,081,765	3,631,874	300,923	Above Normal

TABLE 2

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

DATE		Number of	Flow for Dry										
			Flow			Pulse 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-2008	15-Apr-2008	1	150	298	298	100	198	198	0	0	0	250	496
16-Apr-2008	16-Apr-2008	1	150	298	595	100	198	397	0	0	0	250	992
17-Apr-2008	17-Apr-2008	1	150	298	893	100	198	595	0	0	0	250	1,488
18-Apr-2008	18-Apr-2008	1	150	298	1,190	100	198	793	0	0	0	250	1,983
19-Apr-2008	19-Apr-2008	1	150	298	1,488	100	198	992	0	0	0	250	2,479
20-Apr-2008	20-Apr-2008	1	150	298	1,785	555	1,101	2,093	0	0	0	705	3,878
21-Apr-2008	21-Apr-2008	1	150	298	2,083	555	1,101	3,194	0	0	0	705	5,277
22-Apr-2008	22-Apr-2008	1	150	298	2,380	555	1,101	4,295	0	0	0	705	6,675
23-Apr-2008	23-Apr-2008	1	150	298	2,678	555	1,101	5,396	0	0	0	705	8,074
24-Apr-2008	24-Apr-2008	1	150	298	2,975	555	1,101	6,497	0	0	0	705	9,472
25-Apr-2008	25-Apr-2008	1	150	298	3,273	555	1,101	7,598	0	0	0	705	10,871
26-Apr-2008	26-Apr-2008	1	150	298	3,570	555	1,101	8,699	0	0	0	705	12,270
27-Apr-2008	27-Apr-2008	1	150	298	3,868	555	1,101	9,801	0	0	0	705	13,668
28-Apr-2008	28-Apr-2008	1	150	298	4,165	555	1,101	10,902	0	0	0	705	15,067
29-Apr-2008	29-Apr-2008	1	150	298	4,463	555	1,101	12,003	0	0	0	705	16,466
30-Apr-2008	30-Apr-2008	1	150	298	4,760	555	1,101	13,104	0	0	0	705	17,864
01-May-2008	01-May-2008	1	150	298	5,058	555	1,101	14,205	0	0	0	705	19,263
02-May-2008	02-May-2008	1	150	298	5,355	555	1,101	15,306	0	0	0	705	20,662
03-May-2008	03-May-2008	1	150	298	5,653	555	1,101	16,407	0	0	0	705	22,060
04-May-2008	04-May-2008	1	150	298	5,950	555	1,101	17,508	0	0	0	705	23,459
05-May-2008	05-May-2008	1	150	298	6,248	555	1,101	18,609	0	0	0	705	24,857
06-May-2008	06-May-2008	1	150	298	6,545	555	1,101	19,711	0	0	0	705	26,256
07-May-2008	07-May-2008	1	150	298	6,843	555	1,101	20,812	0	0	0	705	27,655
08-May-2008	08-May-2008	1	150	298	7,140	555	1,101	21,913	0	0	0	705	29,053
09-May-2008	09-May-2008	1	150	298	7,438	555	1,101	23,014	0	0	0	705	30,452
10-May-2008	10-May-2008	1	150	298	7,736	555	1,101	24,115	0	0	0	705	31,851
11-May-2008	11-May-2008	1	150	298	8,033	555	1,101	25,216	0	0	0	705	33,249
12-May-2008	12-May-2008	1	150	298	8,331	555	1,101	26,317	0	0	0	705	34,648
13-May-2008	13-May-2008	1	150	298	8,628	555	1,101	27,418	0	0	0	705	36,046
14-May-2008	14-May-2008	1	150	298	8,926	555	1,101	28,519	0	0	0	705	37,445
15-May-2008	15-May-2008	1	150	298	9,223	555	1,101	29,621	0	0	0	705	38,844
16-May-2008	16-May-2008	1	150	298	9,521	555	1,101	30,722	0	0	0	705	40,242
17-May-2008	17-May-2008	1	150	298	9,818	555	1,101	31,823	0	0	0	705	41,641
18-May-2008	18-May-2008	1	150	298	10,116	555	1,101	32,924	0	0	0	705	43,040
19-May-2008	19-May-2008	1	150	298	10,413	555	1,101	34,025	0	0	0	705	44,438
20-May-2008	20-May-2008	1	150	298	10,711	555	1,101	35,126	0	0	0	705	45,837
21-May-2008	21-May-2008	1	150	298	11,008	425	843	35,969	0	0	0	575	46,977
22-May-2008	22-May-2008	1	150	298	11,306	300	595	36,564	0	0	0	450	47,870
23-May-2008	23-May-2008	1	150	298	11,603	175	347	36,911	0	0	0	325	48,515
24-May-2008	24-May-2008	1	150	298	11,901	75	149	37,060	0	0	0	225	48,961
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,060	0	0	0	150	49,258
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,060	0	0	0	150	49,556
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,060	0	0	0	150	49,853
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,060	0	0	0	150	50,151
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,060	0	0	0	150	50,448
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,060	0	0	0	150	50,746
31-May-2008	31-May-2008	1	125	248	13,934		0	37,060	0	0	0	125	50,994
01-Jun-2008	01-Jun-2008	1	100	198	14,132		0	37,060	0	0	0	100	51,192
02-Jun-2008	02-Jun-2008	1	75	149	14,281		0	37,060	0	0	0	75	51,341
03-Jun-2008	03-Jun-2008	1	75	149	14,430		0	37,060	0	0	0	75	51,490
04-Jun-2008	04-Jun-2008	1	75	149	14,579		0	37,060	0	0	0	75	51,639
05-Jun-2008	30-Jun-2008	26	75	3,868	18,446		0	37,060	0	0	0	75	55,506
01-Jul-2008	31-Jul-2008	31	75	4,612	23,058		0	37,060	0	0	0	75	60,118
01-Aug-2008	31-Aug-2008	31	75	4,612	27,669		0	37,060	0	0	0	75	64,729
01-Sep-2008	10-Sep-2008	10	75	1,488	29,157		0	37,060	0	0	0	75	66,217
11-Sep-2008	13-Sep-2008	3	75	446	29,603		0	37,060	0	0	0	75	66,663
14-Sep-2008	30-Sep-2008	17	75	2,529	32,132		0	37,060	0	0	0	75	69,192
01-Oct-2008	05-Oct-2008	5	150	1,488	33,620		0	37,060	0	0	0	150	70,680
06-Oct-2008	10-Oct-2008	5	150	1,488	35,107	0	0	37,060	0	0	0	150	72,167
11-Oct-2008	26-Oct-2008	16	150	4,760	39,868		0	37,060	0	0	0	150	76,928
27-Oct-2008	28-Oct-2008	2	150	595	40,463		0	37,060	0	0	0	150	77,523
29-Oct-2008	29-Oct-2008	1	150	298	40,760		0	37,060	0	0	0	150	77,820
30-Oct-2008	30-Oct-2008	1	150	298	41,058		0	37,060	0	0	0	150	78,118
31-Oct-2008	31-Oct-2008	1	150	298	41,355		0	37,060	0	0	0	150	78,415
01-Nov-2008	16-Nov-2008	16	150	4,760	46,116		0	37,060	0	0	0	150	83,176
17-Nov-2008	30-Nov-2008	14	150	4,165	50,281		0	37,060	0	0	0	150	87,341
01-Dec-2008	31-Dec-2008	31	150	9,223	59,504		0	37,060	0	0	0	150	96,564
01-Jan-2009	31-Jan-2009	31	150	9,223	68,727		0	37,060	0	0	0	150	105,787
01-Feb-2009	28-Feb-2009	28	150	8,331	77,058		0	37,060	0	0	0	150	114,118
01-Mar-2009	31-Mar-2009	31	150	9,223	86,281		0	37,060	0	0	0	150	123,341
01-Apr-2009	14-Apr-2009	14	150	4,165	90,446		0	37,060	0	0	0	150	127,506
No. of days		365	(April 15 through April 14)						Interpolation		6,732		134,238

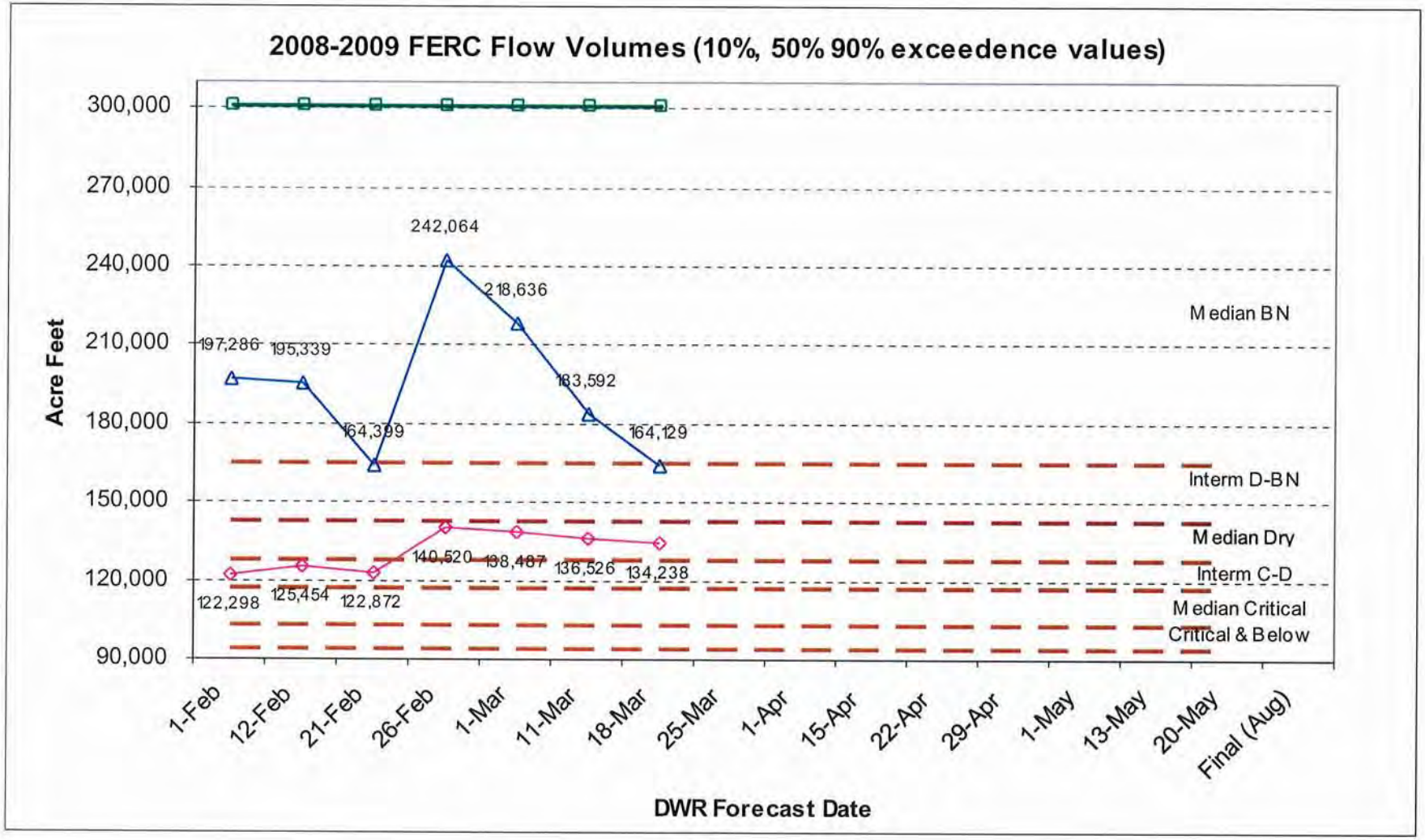
TABLE 3

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

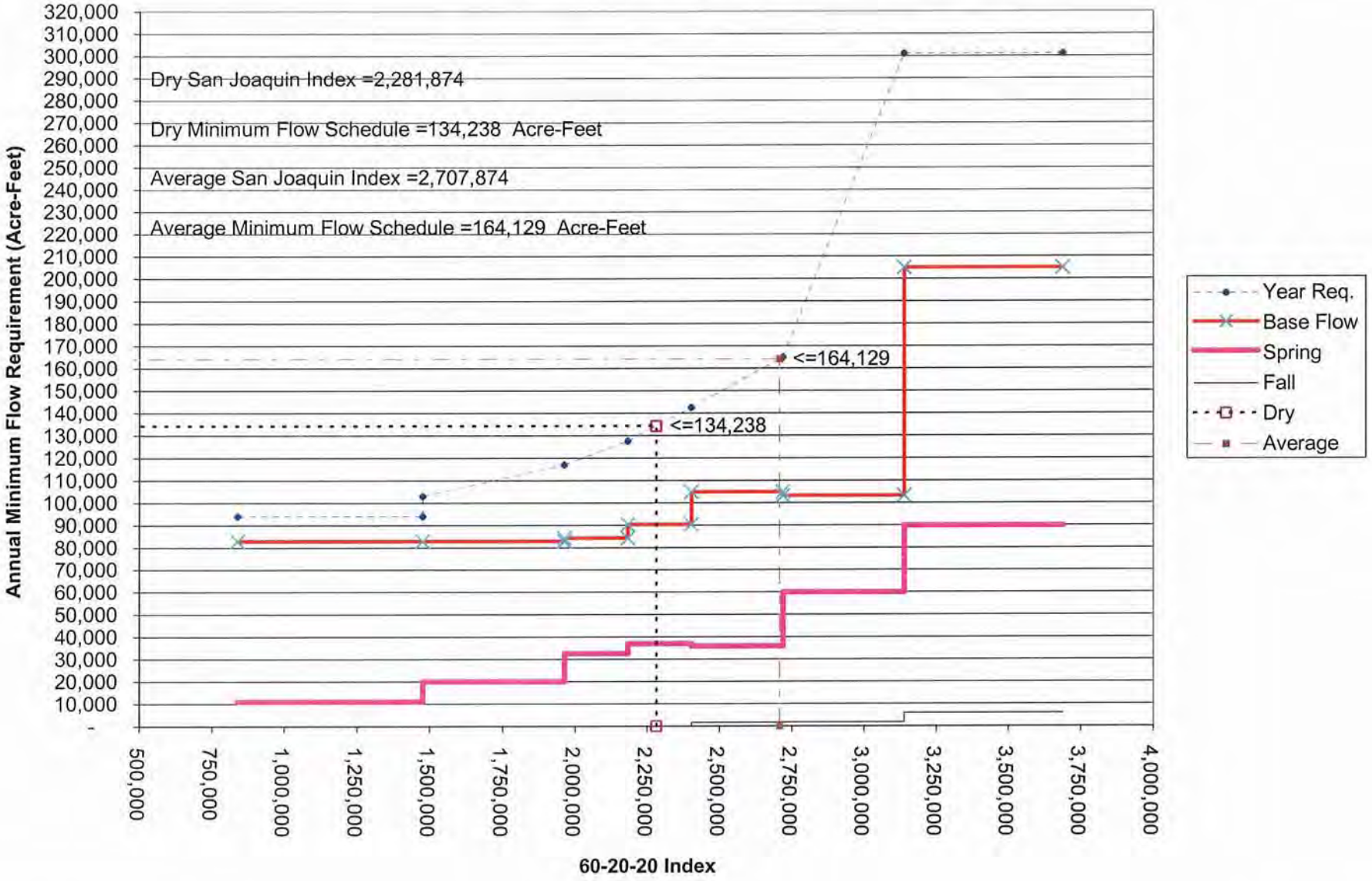
DATE		Number of	Flow for Average										
			Flow			Pulse Flows			Other Adjusted Flow			Total FERC Flow	
From:	To:	DAYS	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2008	15-Apr-2008	1	180	357	357	70	139	139	0	0	0	250	496
16-Apr-2008	16-Apr-2008	1	180	357	714	70	139	278	0	0	0	250	992
17-Apr-2008	17-Apr-2008	1	180	357	1,071	70	139	417	0	0	0	250	1,488
18-Apr-2008	18-Apr-2008	1	180	357	1,428	70	139	555	0	0	0	250	1,983
19-Apr-2008	19-Apr-2008	1	180	357	1,785	70	139	694	0	0	0	250	2,479
20-Apr-2008	20-Apr-2008	1	180	357	2,142	542	1,075	1,769	0	0	0	722	3,912
21-Apr-2008	21-Apr-2008	1	180	357	2,499	542	1,075	2,845	0	0	0	722	5,344
22-Apr-2008	22-Apr-2008	1	180	357	2,856	542	1,075	3,920	0	0	0	722	6,776
23-Apr-2008	23-Apr-2008	1	180	357	3,213	542	1,075	4,995	0	0	0	722	8,208
24-Apr-2008	24-Apr-2008	1	180	357	3,570	542	1,075	6,070	0	0	0	722	9,641
25-Apr-2008	25-Apr-2008	1	180	357	3,927	542	1,075	7,145	0	0	0	722	11,073
26-Apr-2008	26-Apr-2008	1	180	357	4,284	542	1,075	8,221	0	0	0	722	12,505
27-Apr-2008	27-Apr-2008	1	180	357	4,641	542	1,075	9,296	0	0	0	722	13,937
28-Apr-2008	28-Apr-2008	1	180	357	4,998	542	1,075	10,371	0	0	0	722	15,369
29-Apr-2008	29-Apr-2008	1	180	357	5,355	542	1,075	11,446	0	0	0	722	16,802
30-Apr-2008	30-Apr-2008	1	180	357	5,712	542	1,075	12,522	0	0	0	722	18,234
01-May-2008	01-May-2008	1	180	357	6,069	542	1,075	13,597	0	0	0	722	19,666
02-May-2008	02-May-2008	1	180	357	6,426	542	1,075	14,672	0	0	0	722	21,098
03-May-2008	03-May-2008	1	180	357	6,783	542	1,075	15,747	0	0	0	722	22,531
04-May-2008	04-May-2008	1	180	357	7,140	542	1,075	16,822	0	0	0	722	23,963
05-May-2008	05-May-2008	1	180	357	7,498	542	1,075	17,898	0	0	0	722	25,395
06-May-2008	06-May-2008	1	180	357	7,855	542	1,075	18,973	0	0	0	722	26,827
07-May-2008	07-May-2008	1	180	357	8,212	542	1,075	20,048	0	0	0	722	28,260
08-May-2008	08-May-2008	1	180	357	8,569	542	1,075	21,123	0	0	0	722	29,692
09-May-2008	09-May-2008	1	180	357	8,926	542	1,075	22,198	0	0	0	722	31,124
10-May-2008	10-May-2008	1	180	357	9,283	542	1,075	23,274	0	0	0	722	32,556
11-May-2008	11-May-2008	1	180	357	9,640	542	1,075	24,349	0	0	0	722	33,989
12-May-2008	12-May-2008	1	180	357	9,997	542	1,075	25,424	0	0	0	722	35,421
13-May-2008	13-May-2008	1	180	357	10,354	542	1,075	26,499	0	0	0	722	36,853
14-May-2008	14-May-2008	1	180	357	10,711	542	1,075	27,575	0	0	0	722	38,285
15-May-2008	15-May-2008	1	180	357	11,068	542	1,075	28,650	0	0	0	722	39,717
16-May-2008	16-May-2008	1	180	357	11,425	542	1,075	29,725	0	0	0	722	41,150
17-May-2008	17-May-2008	1	180	357	11,782	542	1,075	30,800	0	0	0	722	42,582
18-May-2008	18-May-2008	1	180	357	12,139	542	1,075	31,875	0	0	0	722	44,014
19-May-2008	19-May-2008	1	180	357	12,496	542	1,075	32,951	0	0	0	722	45,446
20-May-2008	20-May-2008	1	180	357	12,853	542	1,075	34,026	0	0	0	722	46,879
21-May-2008	21-May-2008	1	180	357	13,210	420	833	34,859	0	0	0	600	48,069
22-May-2008	22-May-2008	1	180	357	13,567	295	585	35,444	0	0	0	475	49,011
23-May-2008	23-May-2008	1	180	357	13,924	170	337	35,781	0	0	0	350	49,705
24-May-2008	24-May-2008	1	180	357	14,281	70	139	35,920	0	0	0	250	50,201
25-May-2008	25-May-2008	1	180	357	14,638	0	0	35,920	0	0	0	180	50,558
26-May-2008	26-May-2008	1	180	357	14,995	0	0	35,920	0	0	0	180	50,915
27-May-2008	27-May-2008	1	180	357	15,352	0	0	35,920	0	0	0	180	51,272
28-May-2008	28-May-2008	1	180	357	15,709	0	0	35,920	0	0	0	180	51,629
29-May-2008	29-May-2008	1	180	357	16,066	0	0	35,920	0	0	0	180	51,986
30-May-2008	30-May-2008	1	180	357	16,423	0	0	35,920	0	0	0	180	52,343
31-May-2008	31-May-2008	1	130	258	16,681		0	35,920	0	0	0	130	52,601
01-Jun-2008	01-Jun-2008	1	105	208	16,889		0	35,920	0	0	0	105	52,809
02-Jun-2008	02-Jun-2008	1	95	188	17,078		0	35,920	0	0	0	95	52,998
03-Jun-2008	03-Jun-2008	1	75	149	17,226		0	35,920	0	0	0	75	53,146
04-Jun-2008	04-Jun-2008	1	75	149	17,375		0	35,920	0	0	0	75	53,295
05-Jun-2008	30-Jun-2008	26	75	3,868	21,243		0	35,920	0	0	0	75	57,163
01-Jul-2008	31-Jul-2008	31	75	4,612	25,855		0	35,920	0	0	0	75	61,775
01-Aug-2008	31-Aug-2008	31	75	4,612	30,466		0	35,920	0	0	0	75	66,386
01-Sep-2008	10-Sep-2008	10	75	1,488	31,954		0	35,920	0	0	0	75	67,874
11-Sep-2008	13-Sep-2008	3	75	446	32,400		0	35,920	0	0	0	75	68,320
14-Sep-2008	30-Sep-2008	17	75	2,529	34,929		0	35,920	0	0	0	75	70,849
01-Oct-2008	05-Oct-2008	5	180	1,785	36,714		0	35,920	0	0	0	180	72,634
06-Oct-2008	10-Oct-2008	5	180	1,785	38,499	169	1,676	37,596	0	0	0	349	76,095
11-Oct-2008	26-Oct-2008	16	180	5,712	44,212		0	37,596	0	0	0	180	81,808
27-Oct-2008	28-Oct-2008	2	180	714	44,926		0	37,596	0	0	0	180	82,522
29-Oct-2008	29-Oct-2008	1	180	357	45,283		0	37,596	0	0	0	180	82,879
30-Oct-2008	30-Oct-2008	1	180	357	45,640		0	37,596	0	0	0	180	83,236
31-Oct-2008	31-Oct-2008	1	180	357	45,997		0	37,596	0	0	0	180	83,593
01-Nov-2008	16-Nov-2008	16	180	5,712	51,709		0	37,596	0	0	0	180	89,305
17-Nov-2008	30-Nov-2008	14	180	4,998	56,707		0	37,596	0	0	0	180	94,303
01-Dec-2008	31-Dec-2008	31	180	11,068	67,775		0	37,596	0	0	0	180	105,371
01-Jan-2009	31-Jan-2009	31	180	11,068	78,843		0	37,596	0	0	0	180	116,439
01-Feb-2009	28-Feb-2009	28	180	9,997	88,840		0	37,596	0	0	0	180	126,436
01-Mar-2009	31-Mar-2009	31	180	11,068	99,907		0	37,596	0	0	0	180	137,503
01-Apr-2009	14-Apr-2009	14	180	4,998	104,906		0	37,596	0	0	0	180	142,502
No. of days		365	(April 15 through April 14)						Interpolation		21,627		164,129

Figure 1.

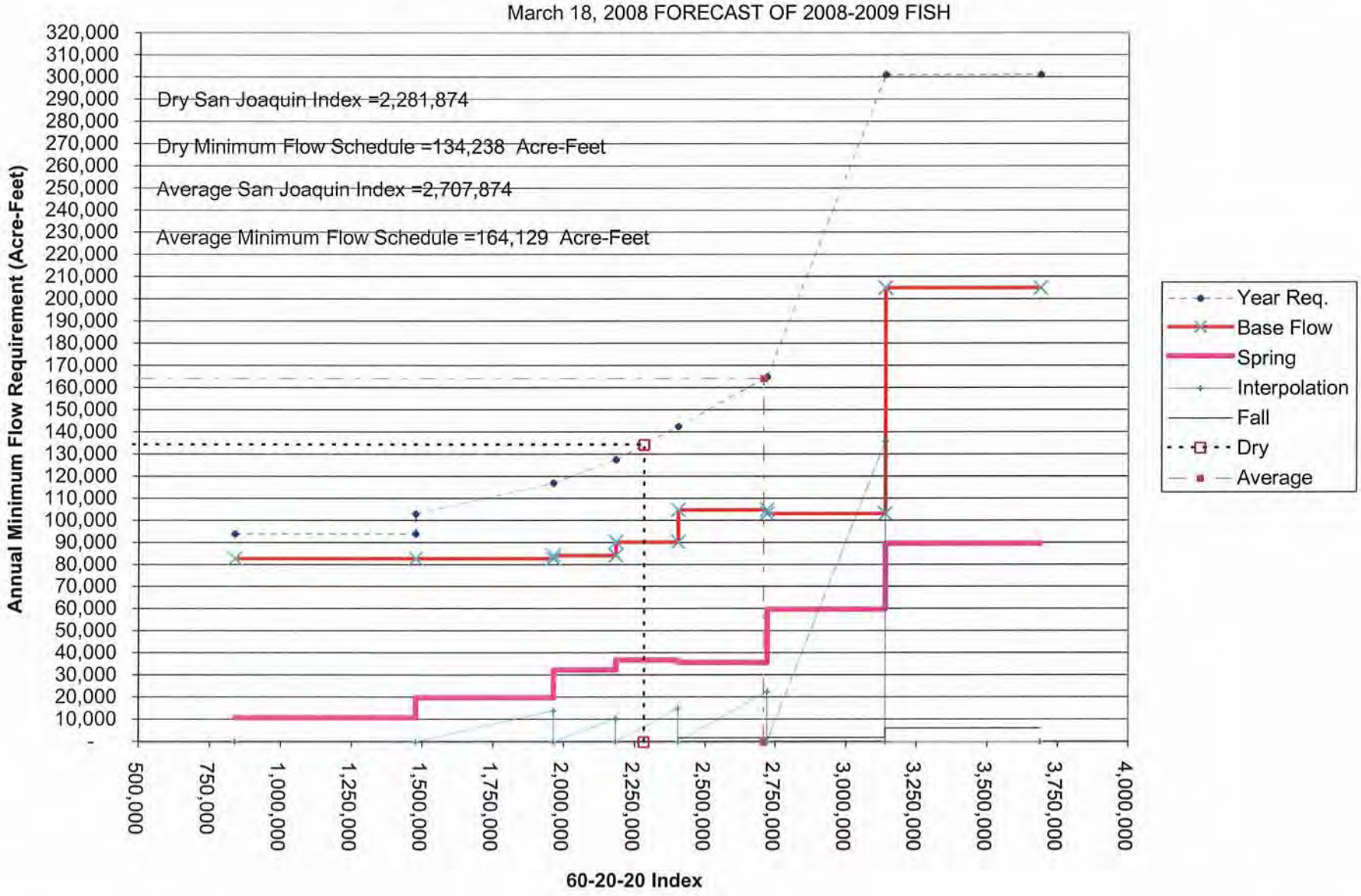

2008-2009 FERC Flow Volumes (10%, 50% 90% exceedence values)
300,000
270,000
240,000
210,000
180,000
150,000
120,000
90,000
Acre Feet
242,064
218,636
197,286
195,339
183,592
164,399
164,129
140,520
138,487
136,526
134,238
122,298
125,454
122,872
Median BN
Interm D-BN
Median Dry
Interm C-D
Median Critical
Critical & Below
1-Feb
12-Feb
21-Feb
26-Feb
1-Mar
11-Mar
18-Mar
25-Mar
1-Apr
15-Apr
22-Apr
29-Apr
1-May
13-May
20-May
Final (Aug)
DWR Forecast Date

TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT (Figure 2)

March 18, 2008 FORECAST OF 2008-2009 FISH YEAR

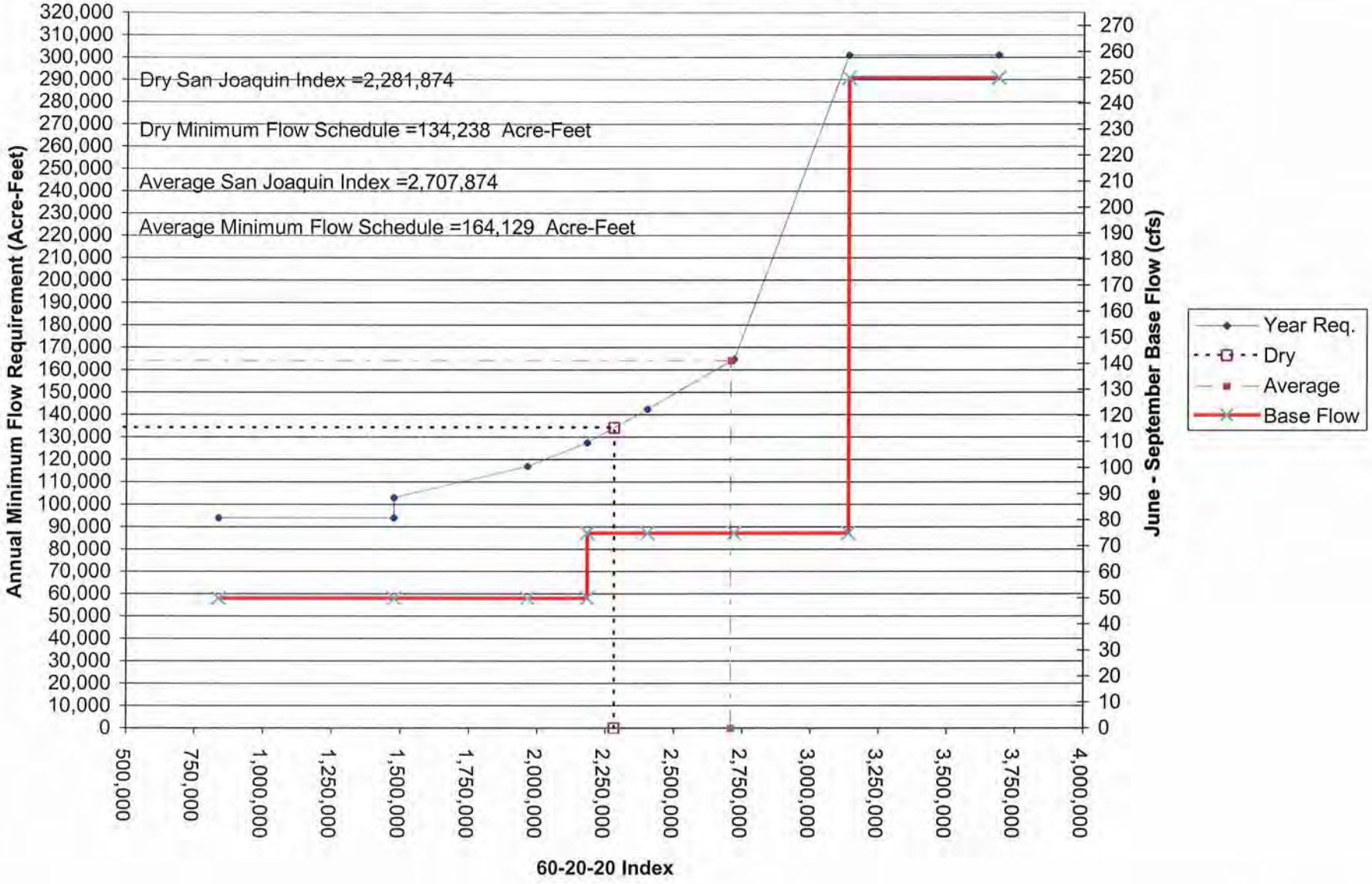


TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT (Figure 3)

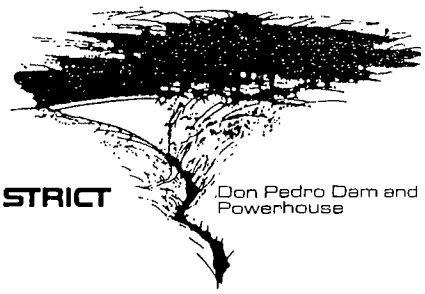


TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT (Summer Base Flow) (Figure 4)

March 18, 2008 FORECAST OF 2008-2009 FISH YEAR



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



May 12, 2008

(via e-mail)

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

RE: Tuolumne River 2008-2009 FERC Article 37 Flow Schedule for P-2299

Dear Fishery Agency Representatives:

The following information is being provided in an effort to keep all parties up-to-date on the latest runoff projections for the Tuolumne River; the releases planned from the Don Pedro Reservoir; and a chronological reference to the actions and activities of the Districts for the 2008-2009 Fish Flow Year.

Our letter of March 21, 2008 (attached) provided preliminary information for the 2008-2009 Fish Flow Year beginning April 15, pursuant to the 1996 FERC Order, Amended Article 37, for the volume of required stream flows based on the DWR March 18, San Joaquin Basin 60-20-20 Index forecast. That letter represented the seventh DWR update for the year. These updates or forecasts and the corresponding Fish Flow volumes have been sent by TID for your information. Included in our correspondence were additional data that contained current trends and projections. TID has since provided your agencies with updated information based on five more DWR forecasts and the associated data mentioned above, as well as provided additional proposed daily flow schedules (see Table 1).

The 2008 Water Year is another dry year with the runoff forecasts decreasing since February 26. The DWR April 1, 60-20-20 San Joaquin Basin Index forecast was calculated to be 2.465792 for 50% exceedance and 2.093792 for 90% exceedance. The calculated forecast dropped to 2.405792 for 50% exceedance and 2.063792 for 90% exceedance with the DWR April 8, update. The calculated forecast again dropped to 2.333792 for 50% exceedance and 2.015792 for 90% exceedance with the DWR April 15, update. The applicable Article 37 basin index thresholds are 2.183 for 50% exceedance and 1.964 for 90% exceedance in accordance with our letter of December 6, 2007. Those April 15, values correspond to annual volumes of 127,506 AF (including 37,060 AF out migration pulse flow for Median-Dry year type) and 117,016 AF (including 32,619 AF out migration pulse flow for Intermediate Critical-Dry year type) respectively, exclusive of additional water provisionally available based on interpolation. Runoff forecast numbers continued to decline in the 60-20-20 San Joaquin Basin Index based on the DWR April 22, update.

The 2008 Vernalis Adaptive Management Plan (VAMP) flow period is from April 22-May 22 with a corresponding flow period for La Grange releases of April 20-May 20. The District has been coordinating daily flow schedules for the spring pulse flow period with your agencies through the VAMP process.

During a conference call regarding spring pulse flow/VAMP period operations held on April 18, there was agreement between CDFG, USFWS, and the Districts on the allocation of 37,060 AF of water to meet the required Article 37, Table 2, FERC Flow Schedule based upon the April 15, index and, if needed, the lowering of the base flow allocation after September if extremely dry conditions persist. (Confirming e-mails from both CDFG and USFWS are attached.) Any later adjustment would be to maintain the annual volume as determined by the final basin index value. Summer base flow levels would be either 50 or 75 cfs (exclusive of any potential allocation of interpolation water), subject to basin index forecasts after the pulse flow period when more current hydrologic data is available.

The NMFS staff member participating on the April 18, conference call concurred with the selected flow schedule pending agreement from senior management. However, the supervisor of the NMFS Sacramento office stated in a subsequent telephone conversation with Wes Monier of TID on April 22, that developing or commenting on flow schedules was not within the purview of NMFS.

Since the development of the spring flows, (which includes the spring pulse flow of 37,060 AF; the base flows; consideration of fall and winter flows after September; and the ultimate goal of making sure the 60-20-20 index and the associated total annual minimum flow requirement is met) was consistent and in keeping with the Article 37 requirements of the FERC License, no official notification of FERC is required. (Please note, however, that as a courtesy and matter of practice, FERC is copied on this correspondence.)

Attached is the most current Tuolumne River Article 37 flow schedule starting April 15, utilizing 37,060 AF in spring pulse flow. Due to the dry year, the final annual Fish Flow Year volume will not be available until August after the 60-20-20 basin index is finalized.

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

Sincerely,

Robert M. Nees
Director of Water Resources and Regulatory Affairs

C: Larry Weis - TID
Allen Short – MID
Roger Guinee – USFWS
Jeff Stuart - NMFS
FERC Secretary

TURLOCK IRRIGATION DISTRICT

(FWM)

Table 1

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

602020 INDEX

YEAR	APRIL-JULY RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	OCTOBER-MARCH RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	602020 INDEX	TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT	San Joaquin Index (not the FERC Index) RANKING
Feb 1 Forecast													
Dry	440,000	790,000	400,000	850,000	2,480,000	208,750	297,500	152,750	314,000	973,000	2,074,121	122,298	Critical
Average	670,000	1,180,000	580,000	1,210,000	3,640,000	261,751	399,657	205,643	353,752	1,220,803	2,819,681	197,286	Below Normal
Wet	1,130,000	1,970,000	1,090,000	2,030,000	6,220,000	371,563	593,125	377,063	595,500	1,937,250	4,510,971	300,923	Wet
Feb 12 Update													
Dry	470,000	830,000	420,000	870,000	2,590,000	208,750	297,500	152,750	314,000	973,000	2,140,121	125,454	Dry
Average	680,000	1,170,000	580,000	1,200,000	3,630,000	261,751	399,657	205,643	353,752	1,220,803	2,813,681	195,339	Below Normal
Wet	1,110,000	1,900,000	1,030,000	1,940,000	5,980,000	371,563	593,125	377,063	595,500	1,937,250	4,366,971	300,923	Wet
Feb 21 Update													
Dry	460,000	810,000	400,000	830,000	2,500,000	208,750	297,500	152,750	314,000	973,000	2,086,121	122,872	Critical
Average	650,000	1,120,000	550,000	1,140,000	3,460,000	261,751	399,657	205,643	353,752	1,220,803	2,711,681	164,399	Below Normal
Wet	1,070,000	1,800,000	960,000	1,830,000	5,660,000	371,563	593,125	377,063	595,500	1,937,250	4,174,971	300,923	Wet
Feb 26 Update													
Dry	530,000	960,000	480,000	1,010,000	2,980,000	208,750	297,500	152,750	314,000	973,000	2,374,121	140,520	Dry
Average	710,000	1,240,000	620,000	1,300,000	3,870,000	261,751	399,657	205,643	353,752	1,220,803	2,957,681	242,064	Below Normal
Wet	1,110,000	1,880,000	990,000	1,930,000	5,910,000	371,563	593,125	377,063	595,500	1,937,250	4,324,971	300,923	Wet
Mar 1 Forecast													
Dry	530,000	960,000	470,000	960,000	2,920,000	202,500	351,250	188,750	261,250	1,003,750	2,344,271	138,487	Dry
Average	700,000	1,220,000	610,000	1,240,000	3,770,000	240,558	400,393	212,769	306,060	1,159,780	2,885,477	218,636	Below Normal
Wet	1,090,000	1,840,000	960,000	1,830,000	5,720,000	369,375	530,938	291,563	453,438	1,645,313	4,152,583	300,923	Wet
Mar 11 Update													
Dry	520,000	930,000	450,000	920,000	2,820,000	240,558	400,393	212,769	306,060	1,159,780	2,315,477	136,526	Dry
Average	680,000	1,160,000	580,000	1,170,000	3,590,000	240,558	400,393	212,769	306,060	1,159,780	2,777,477	183,592	Below Normal
Wet	1,020,000	1,710,000	890,000	1,680,000	5,300,000	240,558	400,393	212,769	306,060	1,159,780	3,803,477	300,923	Wet
Mar 18 Update													
Dry	520,000	920,000	440,000	910,000	2,790,000	221,529	375,822	200,760	283,655	1,081,765	2,281,874	134,238	Dry
Average	670,000	1,130,000	560,000	1,140,000	3,500,000	221,529	375,822	200,760	283,655	1,081,765	2,707,874	164,129	Below Normal
Wet	980,000	1,620,000	850,000	1,590,000	5,040,000	221,529	375,822	200,760	283,655	1,081,765	3,631,874	300,923	Above Normal
Mar 25 Update													
Dry	500,000	890,000	420,000	870,000	2,680,000	221,529	375,822	200,760	283,655	1,081,765	2,215,874	129,743	Dry
Average	640,000	1,080,000	530,000	1,080,000	3,330,000	221,529	375,822	200,760	283,655	1,081,765	2,605,874	156,888	Below Normal
Wet	920,000	1,520,000	790,000	1,480,000	4,710,000	221,529	375,822	200,760	283,655	1,081,765	3,433,874	300,923	Above Normal
Apr 01 Forecast													
Dry	450,000	840,000	390,000	830,000	2,510,000	207,940	334,052	171,469	267,895	981,356	2,093,792	123,239	Critical
Average	590,000	1,010,000	490,000	1,040,000	3,130,000	207,940	334,052	171,469	267,895	981,356	2,465,792	146,943	Dry
Wet	840,000	1,400,000	730,000	1,380,000	4,350,000	207,940	334,052	171,469	267,895	981,356	3,197,792	300,923	Above Normal
Apr 08 Update													
Dry	440,000	830,000	380,000	810,000	2,460,000	207,940	334,052	171,469	267,895	981,356	2,063,792	121,804	Critical
Average	570,000	980,000	470,000	1,010,000	3,030,000	207,940	334,052	171,469	267,895	981,356	2,405,792	142,684	Dry
Wet	790,000	1,320,000	680,000	1,310,000	4,100,000	207,940	334,052	171,469	267,895	981,356	3,047,792	271,303	Below Normal
Apr 15 Update													
Dry	430,000	800,000	370,000	780,000	2,380,000	207,940	334,052	171,469	267,895	981,356	2,015,792	119,508	Critical
Average	550,000	940,000	450,000	970,000	2,910,000	207,940	334,052	171,469	267,895	981,356	2,333,792	137,773	Dry
Wet	730,000	1,230,000	630,000	1,230,000	3,820,000	207,940	334,052	171,469	267,895	981,356	2,879,792	216,791	Below Normal
Apr 22 Update													
Dry	420,000	790,000	360,000	760,000	2,330,000	207,940	334,052	171,469	267,895	981,356	1,985,792	118,073	Critical
Average	530,000	910,000	430,000	940,000	2,810,000	207,940	334,052	171,469	267,895	981,356	2,273,792	133,688	Dry
Wet	680,000	1,150,000	580,000	1,160,000	3,570,000	207,940	334,052	171,469	267,895	981,356	2,729,792	168,119	Below Normal

TABLE 2

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

DATE		Number of	Flow for Average										
			Flow			Pulse Flows			Interpolation 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-2008	15-Apr-2008	1	150	298	298	0	0	0	0	0	0	150	298
16-Apr-2008	16-Apr-2008	1	150	298	595	0	0	0	0	0	0	150	595
17-Apr-2008	17-Apr-2008	1	150	298	893	0	0	0	0	0	0	150	893
18-Apr-2008	18-Apr-2008	1	150	298	1,190	0	0	0	0	0	0	150	1,190
19-Apr-2008	19-Apr-2008	1	150	298	1,488	0	0	0	0	0	0	150	1,488
20-Apr-2008	20-Apr-2008	1	150	298	1,785	950	1,884	1,884	0	0	0	1,100	3,669
21-Apr-2008	21-Apr-2008	1	150	298	2,083	950	1,884	3,769	0	0	0	1,100	5,851
22-Apr-2008	22-Apr-2008	1	150	298	2,380	950	1,884	5,653	0	0	0	1,100	8,033
23-Apr-2008	23-Apr-2008	1	150	298	2,678	950	1,884	7,537	0	0	0	1,100	10,215
24-Apr-2008	24-Apr-2008	1	150	298	2,975	950	1,884	9,421	0	0	0	1,100	12,397
25-Apr-2008	25-Apr-2008	1	150	298	3,273	750	1,488	10,909	0	0	0	900	14,182
26-Apr-2008	26-Apr-2008	1	150	298	3,570	600	1,190	12,099	0	0	0	750	15,669
27-Apr-2008	27-Apr-2008	1	150	298	3,868	500	992	13,091	0	0	0	650	16,959
28-Apr-2008	28-Apr-2008	1	150	298	4,165	400	793	13,884	0	0	0	550	18,050
29-Apr-2008	29-Apr-2008	1	150	298	4,463	400	793	14,678	0	0	0	550	19,140
30-Apr-2008	30-Apr-2008	1	150	298	4,760	400	793	15,471	0	0	0	550	20,231
01-May-2008	01-May-2008	1	150	298	5,058	400	793	16,264	0	0	0	550	21,322
02-May-2008	02-May-2008	1	150	298	5,355	400	793	17,058	0	0	0	550	22,413
03-May-2008	03-May-2008	1	150	298	5,653	400	793	17,851	0	0	0	550	23,504
04-May-2008	04-May-2008	1	150	298	5,950	400	793	18,645	0	0	0	550	24,595
05-May-2008	05-May-2008	1	150	298	6,248	950	1,884	20,529	0	0	0	1,100	26,777
06-May-2008	06-May-2008	1	150	298	6,545	950	1,884	22,413	0	0	0	1,100	28,959
07-May-2008	07-May-2008	1	150	298	6,843	950	1,884	24,298	0	0	0	1,100	31,140
08-May-2008	08-May-2008	1	150	298	7,140	950	1,884	26,182	0	0	0	1,100	33,322
09-May-2008	09-May-2008	1	150	298	7,438	950	1,884	28,066	0	0	0	1,100	35,504
10-May-2008	10-May-2008	1	150	298	7,736	750	1,488	29,554	0	0	0	900	37,289
11-May-2008	11-May-2008	1	150	298	8,033	600	1,190	30,744	0	0	0	750	38,777
12-May-2008	12-May-2008	1	150	298	8,331	500	992	31,736	0	0	0	650	40,066
13-May-2008	13-May-2008	1	150	298	8,628	400	793	32,529	0	0	0	550	41,157
14-May-2008	14-May-2008	1	150	298	8,926	400	793	33,322	0	0	0	550	42,248
15-May-2008	15-May-2008	1	150	298	9,223	400	793	34,116	0	0	0	550	43,339
16-May-2008	16-May-2008	1	150	298	9,521	400	793	34,909	0	0	0	550	44,430
17-May-2008	17-May-2008	1	150	298	9,818	400	793	35,702	0	0	0	550	45,521
18-May-2008	18-May-2008	1	150	298	10,116	300	595	36,298	0	0	0	450	46,413
19-May-2008	19-May-2008	1	150	298	10,413	200	397	36,694	0	0	0	350	47,107
20-May-2008	20-May-2008	1	150	298	10,711	125	248	36,942	0	0	0	275	47,653
21-May-2008	21-May-2008	1	150	298	11,008	60	119	37,061	0	0	0	210	48,069
22-May-2008	22-May-2008	1	150	298	11,306	0	0	37,061	0	0	0	150	48,367
23-May-2008	23-May-2008	1	150	298	11,603	0	0	37,061	0	0	0	150	48,664
24-May-2008	24-May-2008	1	150	298	11,901	0	0	37,061	0	0	0	150	48,962
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,061	0	0	0	150	49,260
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,061	0	0	0	150	49,557
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,061	0	0	0	150	49,855
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,061	0	0	0	150	50,152
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,061	0	0	0	150	50,450
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,061	0	0	0	150	50,747
31-May-2008	31-May-2008	1	150	298	13,983		0	37,061	0	0	0	150	51,045
01-Jun-2008	01-Jun-2008	1	75	149	14,132		0	37,061	0	0	0	75	51,193
02-Jun-2008	02-Jun-2008	1	75	149	14,281		0	37,061	0	0	0	75	51,342
03-Jun-2008	03-Jun-2008	1	75	149	14,430		0	37,061	0	0	0	75	51,491
04-Jun-2008	04-Jun-2008	1	75	149	14,579		0	37,061	0	0	0	75	51,640
05-Jun-2008	30-Jun-2008	26	75	3,868	18,446		0	37,061	0	0	0	75	55,507
01-Jul-2008	31-Jul-2008	31	75	4,612	23,058		0	37,061	0	0	0	75	60,119
01-Aug-2008	31-Aug-2008	31	75	4,612	27,669		0	37,061	0	0	0	75	64,731
01-Sep-2008	10-Sep-2008	10	75	1,488	29,157		0	37,061	0	0	0	75	66,218
11-Sep-2008	13-Sep-2008	3	75	446	29,603		0	37,061	0	0	0	75	66,664
14-Sep-2008	30-Sep-2008	17	75	2,529	32,132		0	37,061	0	0	0	75	69,193
01-Oct-2008	05-Oct-2008	5	150	1,488	33,620		0	37,061	0	0	0	150	70,681
06-Oct-2008	10-Oct-2008	5	150	1,488	35,107	0	0	37,061	0	0	0	150	72,169
11-Oct-2008	26-Oct-2008	16	150	4,760	39,868		0	37,061	0	0	0	150	76,929
27-Oct-2008	28-Oct-2008	2	150	595	40,463		0	37,061	0	0	0	150	77,524
29-Oct-2008	29-Oct-2008	1	150	298	40,760		0	37,061	0	0	0	150	77,821
30-Oct-2008	30-Oct-2008	1	150	298	41,058		0	37,061	0	0	0	150	78,119
31-Oct-2008	31-Oct-2008	1	150	298	41,355		0	37,061	0	0	0	150	78,417
01-Nov-2008	16-Nov-2008	16	150	4,760	46,116		0	37,061	0	0	0	150	83,177
17-Nov-2008	30-Nov-2008	14	150	4,165	50,281		0	37,061	0	0	0	150	87,342
01-Dec-2008	31-Dec-2008	31	150	9,223	59,504		0	37,061	0	0	0	150	96,565
01-Jan-2009	31-Jan-2009	31	150	9,223	68,727		0	37,061	0	0	0	150	105,788
01-Feb-2009	28-Feb-2009	28	150	8,331	77,058		0	37,061	0	0	0	150	114,119
01-Mar-2009	31-Mar-2009	31	150	9,223	86,281		0	37,061	0	0	0	150	123,342
01-Apr-2009	14-Apr-2009	14	150	4,165	90,446		0	37,061	0	0	0	150	127,507
No. of days		365 (April 15 through April 14)							Interpolation		10,266		137,773

From: "Tim Heyne" <THEYNE@dfg.ca.gov>
To: <Roger_Guinee@fws.gov>, <fwmonier@tid.org>
Date: 4/18/2008 10:09 AM
Subject: Re: 2008 San Joaquin River Index Update and Tuolumne Forecast Based onApril

CC: <Derek_Hilts@fws.gov>, <Nick_Hindman@fws.gov>, <diane.windham@noaa.gov>,...
Wes

In case it is required from CDFG, I want to say that we will agree to work out adjustments to flow followimg spring flows as needed for us to use the 50% exceedance for spring flows. I also agree with the peaking pattern that was developed for the pulse flow period.
-----Original Message-----
From: <Roger_Guinee@fws.gov>
Cc: Heyne, Tim <THEYNE@dfg.ca.gov>
Cc: <Derek_Hilts@fws.gov>
Cc: <Nick_Hindman@fws.gov>
Cc: <diane.windham@noaa.gov>
Cc: <j.stuart@noaa.gov>
Cc: <maria.rea@noaa.gov>
To: Monier, Wes <fwmonier@tid.org>

Sent: 4/18/2008 9:58:06 AM
Subject: Re: 2008 San Joaquin River Index Update and Tuolumne Forecast Based onApril 15 Update

Wes,

As a followup to my previous email, my understanding is the 50% exceedence flows in the Tuolumne during VAMP will be 750 cfs, resulting in a VAMP flow objective at Vernalis of 3,200 cfs.

We understand that if it stays dry through the end of September, there may be a risk that flows from October, 2008 through April, 2009 may be reduced by up to 6 cfs from the current base flow projections. We concur with NMFS' comments on this morning's call that there will not be any flow reductions during the summer months (June through September).

Again, please let me know if you need any more information or have any questions.

Roger Guinee
(916) 414-6537

Wes,

Thank you for the email. I have reviewed your email, and after our discussion on this morning's VAMP conference call, we concur with the use of the 50% exceedence for the VAMP existing flow, and we concur with items (1), (2) and (3) in your email below.

Please let me know if you need any more information or have any questions.

Roger Guinee (916) 414-6537

"Wes Monier" <fwmonier@tid.org> 04/17/2008 04:58 PM

To: "Dennis Blakeman" <DBLAKEMAN@dfg.ca.gov>, "Dale Mitchell" <DFMITCHELL@dfg.ca.gov>, "Dean Marston" <DMarston@dfg.ca.gov>, "Tim Heyne" <theyne@dfg.ca.gov>, "William Loudermilk" <WLouderm@dfg.ca.gov>, <deborah_giglio@fws.gov>, "Nick Hindman" <Nick_Hindman@fws.gov>, "Roger Guinee" <roger_guinee@fws.gov>, "Walter Ward" <walterw@mid.org>, "Jeffrey Stuart" <J.Stuart@noaa.gov>, <maria.rea@noaa.gov>, "Debbie Liebersbach" <dcliebersbach@tid.org>, "Donn Furman" <donn_w_furman.sf.ca.us.ci@tid.org>, "Jason Carkeet" <jacarkeet@tid.org>, "Jeff Barton" <jtbarton@tid.org>, "Randy Baysinger" <rcbaysinger@tid.org>, "Robert M. Nees" <rmnees@tid.org>, "Tim Ford" <tjford@tid.org>

cc: "Derek Hilts (E-mail)" <Derek_Hilts@fws.gov>, "Jeff McLain" <Jeff_McLain@fws.gov>, "<Mike Archer", <tselb@mercedid.org>, "Elizabeth Kiteck" <ekiteck@mp.usbr.gov>, <eric.theiss@noaa.gov>, <erin.strange@noaa.gov>

Subject: 2008 San Joaquin River Index Update and Tuolumne Forecast Based on April 15 Update

Attached is a spreadsheet (sanjoaqn 2008010.xls) with the DWR April 15th

update forecast and the resulting 60-20-20 Index and Tuolumne River Minimum Flow Requirement under the dry, average and wet conditions. The 60-20-20 Index dropped by 72,000 af under the 50% Exceedence and by 48,000 af under the 90% Exceedence. Those correspond to reductions of FERC flow volume of 4,911 AF (now 137,773) at 50% level and 2,296 AF (now 119,508) at the 90% level from last week's values.

Also attached is a graph that shows the trend continuing down and the corresponding numbers are less than 2004. The 50% Exceedence now has moved down into the Median Dry classification with the base flows currently at the 150 cfs level. We will continue at this level until the pulse flow starts.

Again, we need concurrence on (1) allocations and daily schedules during the spring pulse flow period, (2) addressing adjustments that may be required during VAMP if adjustment is requested of the FERC schedule, and (3) addressing base flows later in the year if they are affected by higher allocations in the spring.

As indicated before, we would prefer to use the spring pulse flow volume based on the April 15th DWR 50% Exceedence (now 37,060 AF), and with a variable pattern. However, those flows could now cause an over release by about 2200 af if the actual 60-20-20 index ends up at the current 90% Exceedence level. This would be equivalent to dropping the base flows by about 6 cfs through out the fall/winter starting October 1. We feel that this would be insignificant compared with the difference in spring flow. Summer flows could remain unaffected at either the 50 or 75 cfs level, depending on the year type, which should be better judged after the spring pulse is over.

There is a conference call at 8:30 am tomorrow, Friday,that will determine the schedule of flows for VAMP. We need concurrence prior to that call to help determine the existing flow for that process and to establish a pulse starting on Sunday that is different than the identified default for the current dry conditions which is a flat 670 cfs using the 90% year type.

If there are any questions, please give me a call at 209-883-8321.

Thanks
Wes(See attached file: sanjoaqn 2008010 0417.xls)(See attached file: graph.xls)

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

Don Pedro Dam and Powerhouse

June 6, 2008
(via e-mail)

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

RE: Tuolumne River Article 37 Flow Schedule for P-2299 and Spring Pulse Flow Operation

Dear Fishery Agency representatives:

Our letter of May 12, 2008 provided the initial schedule implemented for the 2008-2009 Fish Flow Year beginning April 15, based on and pursuant to the 1996 FERC Order, Amended Article 37, for the volume of required stream flows based on the DWR April 15 San Joaquin Basin 60-20-20 Index forecast. That schedule was selected from two proposed versions provided, both of which complied with the requirements of Article 37. The parties agreed to use a spring pulse volume of 37,060 AF, which is based upon the Median Dry year type, or 50% exceedence, instead of the 90%-exceedence volume, which would have been used if agreement had not been reached. TID has since provided your agencies subsequent DWR updates in May that showed the DWR 50% exceedence and 90% exceedence forecasts had declined into drier Article 37 year types of Intermediate Critical-Dry and Median Critical respectively—both of those year types have spring pulse volumes of less than 37,060 AF (Table 1).

The 60-20-20 San Joaquin Basin Index calculated from the DWR June 3 forecast is 2.099792 MAF for 50% exceedence and 1.913792 MAF for 90% exceedence. The applicable Article 37 basin index thresholds are 1.964000 MAF for 50% exceedence and 1.476000 MAF for 90% exceedence in accordance with our letter of December 6, 2007. The June 3 basin index values correspond to Article 37 annual volumes of 117,016 AF (an Intermediate Critical-Dry year type including 32,619 AF outmigration pulse flow) and 103,000 AF (a Median Critical year type including 20,091 AF outmigration pulse flow) respectively, exclusive of additional water provisionally available based on interpolation. Tables 2 and 3 are flow schedules based on those annual amounts, which in both cases have a 50 cfs summer flow. That base flow under the 50% forecast could be augmented by allocation of some provisional interpolation water as was done in 2007, however, CDFG previously indicated a preference for not doing so. The current 90% forecast would result in a reduction of the fall-winter flows as indicated and previously agreed to, if needed, as a result of allocation of the spring pulse flow.

A tabulation of the Article 37 spring pulse flow and releases for the 2008 Vernalis Adaptive Management Plan (VAMP) flow period (from April 20-May 20 at La Grange) is in Table 4. The Article 37 pulse flow volume of 37,060 AF was released as scheduled and approximately 15,280 AF was released for VAMP supplemental flow as shown.

TID
WATER & POWER

The final annual Fish Flow Year volume will not be available until August after the 60-20-20 basin index is finalized. The present schedules are within the Article 37 framework; however, if there is interest in modifying the current flow schedule for the summer period, please contact Wes Monier at 209-883-8321.

Sincerely,

Robert M. Nees
Director of Water Resources and Regulatory Affairs

C: Larry Weis - TID
Allen Short – MID
Michael Carlin - CCSF
Maria Rea - NMFS
FERC Secretary

Table 1

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

602020 INDEX

YEAR	APRIL-JULY RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	OCTOBER-MARCH RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	602020 INDEX	TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT	San Joaquin Index (not the FERC Index) RANKING
Feb 1 Forecast													
Dry	440,000	790,000	400,000	850,000	2,480,000	208,750	297,500	152,750	314,000	973,000	2,074,121	122,298	Critical
Average	670,000	1,180,000	580,000	1,210,000	3,640,000	261,751	399,657	205,643	353,752	1,220,803	2,819,681	197,286	Below Normal
Wet	1,130,000	1,970,000	1,090,000	2,030,000	6,220,000	371,563	593,125	377,063	595,500	1,937,250	4,510,971	300,923	Wet
Feb 12 Update													
Dry	470,000	830,000	420,000	870,000	2,590,000	208,750	297,500	152,750	314,000	973,000	2,140,121	125,454	Dry
Average	680,000	1,170,000	580,000	1,200,000	3,630,000	261,751	399,657	205,643	353,752	1,220,803	2,813,681	195,339	Below Normal
Wet	1,110,000	1,900,000	1,030,000	1,940,000	5,980,000	371,563	593,125	377,063	595,500	1,937,250	4,366,971	300,923	Wet
Feb 21 Update													
Dry	460,000	810,000	400,000	830,000	2,500,000	208,750	297,500	152,750	314,000	973,000	2,086,121	122,872	Critical
Average	650,000	1,120,000	550,000	1,140,000	3,460,000	261,751	399,657	205,643	353,752	1,220,803	2,711,681	164,399	Below Normal
Wet	1,070,000	1,800,000	960,000	1,830,000	5,660,000	371,563	593,125	377,063	595,500	1,937,250	4,174,971	300,923	Wet
Feb 26 Update													
Dry	530,000	960,000	480,000	1,010,000	2,980,000	208,750	297,500	152,750	314,000	973,000	2,374,121	140,520	Dry
Average	710,000	1,240,000	620,000	1,300,000	3,870,000	261,751	399,657	205,643	353,752	1,220,803	2,957,681	242,064	Below Normal
Wet	1,110,000	1,880,000	990,000	1,930,000	5,910,000	371,563	593,125	377,063	595,500	1,937,250	4,324,971	300,923	Wet
Mar 1 Forecast													
Dry	530,000	960,000	470,000	960,000	2,920,000	202,500	351,250	188,750	261,250	1,003,750	2,344,271	138,487	Dry
Average	700,000	1,220,000	610,000	1,240,000	3,770,000	240,558	400,393	212,769	306,060	1,159,780	2,885,477	218,636	Below Normal
Wet	1,090,000	1,840,000	960,000	1,830,000	5,720,000	369,375	530,938	291,563	453,438	1,645,313	4,152,583	300,923	Wet
Mar 11 Update													
Dry	520,000	930,000	450,000	920,000	2,820,000	240,558	400,393	212,769	306,060	1,159,780	2,315,477	136,526	Dry
Average	680,000	1,160,000	580,000	1,170,000	3,590,000	240,558	400,393	212,769	306,060	1,159,780	2,777,477	183,592	Below Normal
Wet	1,020,000	1,710,000	890,000	1,680,000	5,300,000	240,558	400,393	212,769	306,060	1,159,780	3,803,477	300,923	Wet
Mar 18 Update													
Dry	520,000	920,000	440,000	910,000	2,790,000	221,529	375,822	200,760	283,655	1,081,765	2,281,874	134,238	Dry
Average	670,000	1,130,000	560,000	1,140,000	3,500,000	221,529	375,822	200,760	283,655	1,081,765	2,707,874	164,129	Below Normal
Wet	980,000	1,620,000	850,000	1,590,000	5,040,000	221,529	375,822	200,760	283,655	1,081,765	3,631,874	300,923	Above Normal
Mar 25 Update													
Dry	500,000	890,000	420,000	870,000	2,680,000	221,529	375,822	200,760	283,655	1,081,765	2,215,874	129,743	Dry
Average	640,000	1,080,000	530,000	1,080,000	3,330,000	221,529	375,822	200,760	283,655	1,081,765	2,605,874	156,888	Below Normal
Wet	920,000	1,520,000	790,000	1,480,000	4,710,000	221,529	375,822	200,760	283,655	1,081,765	3,433,874	300,923	Above Normal
Apr 01 Forecast													
Dry	450,000	840,000	390,000	830,000	2,510,000	207,940	334,052	171,469	267,895	981,356	2,093,792	123,239	Critical
Average	590,000	1,010,000	490,000	1,040,000	3,130,000	207,940	334,052	171,469	267,895	981,356	2,465,792	146,943	Dry
Wet	840,000	1,400,000	730,000	1,380,000	4,350,000	207,940	334,052	171,469	267,895	981,356	3,197,792	300,923	Above Normal
Apr 08 Update													
Dry	440,000	830,000	380,000	810,000	2,460,000	207,940	334,052	171,469	267,895	981,356	2,063,792	121,804	Critical
Average	570,000	980,000	470,000	1,010,000	3,030,000	207,940	334,052	171,469	267,895	981,356	2,405,792	142,684	Dry
Wet	790,000	1,320,000	680,000	1,310,000	4,100,000	207,940	334,052	171,469	267,895	981,356	3,047,792	271,303	Below Normal
Apr 15 Update													
Dry	430,000	800,000	370,000	780,000	2,380,000	207,940	334,052	171,469	267,895	981,356	2,015,792	119,508	Critical
Average	550,000	940,000	450,000	970,000	2,910,000	207,940	334,052	171,469	267,895	981,356	2,333,792	137,773	Dry
Wet	730,000	1,230,000	630,000	1,230,000	3,820,000	207,940	334,052	171,469	267,895	981,356	2,879,792	216,791	Below Normal
Apr 22 Update													
Dry	420,000	790,000	360,000	760,000	2,330,000	207,940	334,052	171,469	267,895	981,356	1,985,792	118,073	Critical
Average	530,000	910,000	430,000	940,000	2,810,000	207,940	334,052	171,469	267,895	981,356	2,273,792	133,688	Dry
Wet	680,000	1,150,000	580,000	1,160,000	3,570,000	207,940	334,052	171,469	267,895	981,356	2,729,792	168,119	Below Normal
May 01 Forecast													
Dry	410,000	770,000	340,000	730,000	2,250,000	207,940	334,052	171,469	267,895	981,356	1,937,792	116,272	Critical
Average	500,000	870,000	400,000	880,000	2,650,000	207,940	334,052	171,469	267,895	981,356	2,177,792	127,256	Dry
Wet	600,000	1,040,000	510,000	1,050,000	3,200,000	207,940	334,052	171,469	267,895	981,356	2,507,792	149,925	Below Normal

Table 1

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

602020 INDEX

YEAR	APRIL-JULY RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	OCTOBER-MARCH RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	602020 INDEX	TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT	San Joaquin Index (not the FERC Index) RANKING
May 13 Update													
Dry	420,000	770,000	350,000	740,000	2,280,000	207,940	334,052	171,469	267,895	981,356	1,955,792	116,789	Critical
Average	490,000	850,000	400,000	870,000	2,610,000	207,940	334,052	171,469	267,895	981,356	2,153,792	126,108	Dry
Wet	570,000	990,000	480,000	1,010,000	3,050,000	207,940	334,052	171,469	267,895	981,356	2,417,792	143,536	Dry
May 20 Update													
Dry	420,000	770,000	350,000	750,000	2,290,000	207,940	334,052	171,469	267,895	981,356	1,961,792	116,962	Critical
Average	480,000	840,000	400,000	870,000	2,590,000	207,940	334,052	171,469	267,895	981,356	2,141,792	125,534	Dry
Wet	550,000	970,000	470,000	1,000,000	2,990,000	207,940	334,052	171,469	267,895	981,356	2,381,792	141,042	Dry
May 27 Update													
Dry	420,000	750,000	350,000	750,000	2,270,000	207,940	334,052	171,469	267,895	981,356	1,949,792	116,617	Critical
Average	490,000	840,000	400,000	880,000	2,610,000	207,940	334,052	171,469	267,895	981,356	2,153,792	126,108	Dry
Wet	560,000	950,000	470,000	1,010,000	2,990,000	207,940	334,052	171,469	267,895	981,356	2,381,792	141,042	Dry
Jun 03 Update													
Dry	400,000	710,000	360,000	740,000	2,210,000	207,940	334,052	171,469	267,895	981,356	1,913,792	115,582	Critical
Average	450,000	810,000	400,000	860,000	2,520,000	207,940	334,052	171,469	267,895	981,356	2,099,792	123,526	Critical
Wet	510,000	910,000	460,000	980,000	2,860,000	207,940	334,052	171,469	267,895	981,356	2,303,792	135,730	Dry

TABLE 2

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

DATE		Number of	Flow for Average														
			Flow			Pulse Flows			Interpolation 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	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2008	15-Apr-2008	1	150	298	298	0	0	0	0	0	0	0	0	0	150	298
16-Apr-2008	16-Apr-2008	1	150	298	595	0	0	0	0	0	0	0	0	0	150	595
17-Apr-2008	17-Apr-2008	1	150	298	893	0	0	0	0	0	0	0	0	0	150	893
18-Apr-2008	18-Apr-2008	1	150	298	1,190	0	0	0	0	0	0	0	0	0	150	1,190
19-Apr-2008	19-Apr-2008	1	150	298	1,488	0	0	0	0	0	0	0	0	0	150	1,488
20-Apr-2008	20-Apr-2008	1	150	298	1,785	950	1,884	1,884	0	0	0	0	0	0	1,100	3,669
21-Apr-2008	21-Apr-2008	1	150	298	2,083	950	1,884	3,769	0	0	0	0	0	0	1,100	5,851
22-Apr-2008	22-Apr-2008	1	150	298	2,380	950	1,884	5,653	0	0	0	0	0	0	1,100	8,033
23-Apr-2008	23-Apr-2008	1	150	298	2,678	950	1,884	7,537	0	0	0	0	0	0	1,100	10,215
24-Apr-2008	24-Apr-2008	1	150	298	2,975	950	1,884	9,421	0	0	0	0	0	0	1,100	12,397
25-Apr-2008	25-Apr-2008	1	150	298	3,273	750	1,488	10,909	0	0	0	0	0	0	900	14,182
26-Apr-2008	26-Apr-2008	1	150	298	3,570	600	1,190	12,099	0	0	0	0	0	0	750	15,669
27-Apr-2008	27-Apr-2008	1	150	298	3,868	500	992	13,091	0	0	0	0	0	0	650	16,959
28-Apr-2008	28-Apr-2008	1	150	298	4,165	400	793	13,884	0	0	0	0	0	0	550	18,050
29-Apr-2008	29-Apr-2008	1	150	298	4,463	400	793	14,678	0	0	0	0	0	0	550	19,140
30-Apr-2008	30-Apr-2008	1	150	298	4,760	400	793	15,471	0	0	0	0	0	0	550	20,231
01-May-2008	01-May-2008	1	150	298	5,058	400	793	16,264	0	0	0	0	0	0	550	21,322
02-May-2008	02-May-2008	1	150	298	5,355	400	793	17,058	0	0	0	0	0	0	550	22,413
03-May-2008	03-May-2008	1	150	298	5,653	400	793	17,851	0	0	0	0	0	0	550	23,504
04-May-2008	04-May-2008	1	150	298	5,950	400	793	18,645	0	0	0	0	0	0	550	24,595
05-May-2008	05-May-2008	1	150	298	6,248	950	1,884	20,529	0	0	0	0	0	0	1,100	26,777
06-May-2008	06-May-2008	1	150	298	6,545	950	1,884	22,413	0	0	0	0	0	0	1,100	28,959
07-May-2008	07-May-2008	1	150	298	6,843	950	1,884	24,298	0	0	0	0	0	0	1,100	31,140
08-May-2008	08-May-2008	1	150	298	7,140	950	1,884	26,182	0	0	0	0	0	0	1,100	33,322
09-May-2008	09-May-2008	1	150	298	7,438	950	1,884	28,066	0	0	0	0	0	0	1,100	35,504
10-May-2008	10-May-2008	1	150	298	7,736	750	1,488	29,554	0	0	0	0	0	0	900	37,289
11-May-2008	11-May-2008	1	150	298	8,033	600	1,190	30,744	0	0	0	0	0	0	750	38,777
12-May-2008	12-May-2008	1	150	298	8,331	500	992	31,736	0	0	0	0	0	0	650	40,066
13-May-2008	13-May-2008	1	150	298	8,628	400	793	32,529	0	0	0	0	0	0	550	41,157
14-May-2008	14-May-2008	1	150	298	8,926	400	793	33,322	0	0	0	0	0	0	550	42,248
15-May-2008	15-May-2008	1	150	298	9,223	400	793	34,116	0	0	0	0	0	0	550	43,339
16-May-2008	16-May-2008	1	150	298	9,521	400	793	34,909	0	0	0	0	0	0	550	44,430
17-May-2008	17-May-2008	1	150	298	9,818	400	793	35,702	0	0	0	0	0	0	550	45,521
18-May-2008	18-May-2008	1	150	298	10,116	300	595	36,298	0	0	0	0	0	0	450	46,413
19-May-2008	19-May-2008	1	150	298	10,413	200	397	36,694	0	0	0	0	0	0	350	47,107
20-May-2008	20-May-2008	1	150	298	10,711	125	248	36,942	0	0	0	0	0	0	275	47,653
21-May-2008	21-May-2008	1	150	298	11,008	60	119	37,061	0	0	0	0	0	0	210	48,069
22-May-2008	22-May-2008	1	150	298	11,306	0	0	37,061	0	0	0	0	0	0	150	48,367
23-May-2008	23-May-2008	1	150	298	11,603	0	0	37,061	0	0	0	0	0	0	150	48,664
24-May-2008	24-May-2008	1	150	298	11,901	0	0	37,061	0	0	0	0	0	0	150	48,962
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,061	0	0	0	0	0	0	150	49,260
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,061	0	0	0	0	0	0	150	49,557
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,061	0	0	0	0	0	0	150	49,855
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,061	0	0	0	0	0	0	150	50,152
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,061	0	0	0	0	0	0	150	50,450
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,061	0	0	0	0	0	0	150	50,747
31-May-2008	31-May-2008	1	150	298	13,983		0	37,061	0	0	0	-35	(69)	(69)	115	50,975
01-Jun-2008	01-Jun-2008	1	50	99	14,083		0	37,061	0	0	0	35	69	0	85	51,144
02-Jun-2008	02-Jun-2008	1	50	99	14,182		0	37,061	0	0	0	0	0	0	50	51,243
03-Jun-2008	03-Jun-2008	1	50	99	14,281		0	37,061	0	0	0	0	0	0	50	51,342
04-Jun-2008	04-Jun-2008	1	50	99	14,380		0	37,061	0	0	0	0	0	0	50	51,441
05-Jun-2008	30-Jun-2008	26	50	2,579	16,959		0	37,061	0	0	0	0	0	0	50	54,020
01-Jul-2008	31-Jul-2008	31	50	3,074	20,033		0	37,061	0	0	0	0	0	0	50	57,094
01-Aug-2008	31-Aug-2008	31	50	3,074	23,107		0	37,061	0	0	0	0	0	0	50	60,169
01-Sep-2008	10-Sep-2008	10	50	992	24,099		0	37,061	0	0	0	0	0	0	50	61,160
11-Sep-2008	13-Sep-2008	3	50	298	24,397		0	37,061	0	0	0	0	0	0	50	61,458
14-Sep-2008	30-Sep-2008	17	50	1,686	26,083		0	37,061	0	0	0	0	0	0	50	63,144
01-Oct-2008	05-Oct-2008	5	150	1,488	27,570		0	37,061	0	0	0	0	0	0	150	64,631
06-Oct-2008	10-Oct-2008	5	150	1,488	29,058	0	0	37,061	0	0	0	0	0	0	150	66,119
11-Oct-2008	26-Oct-2008	16	150	4,760	33,818		0	37,061	0	0	0	0	0	0	150	70,879
27-Oct-2008	28-Oct-2008	2	150	595	34,413		0	37,061	0	0	0	0	0	0	150	71,474
29-Oct-2008	29-Oct-2008	1	150	298	34,711		0	37,061	0	0	0	0	0	0	150	71,772
30-Oct-2008	30-Oct-2008	1	150	298	35,008		0	37,061	0	0	0	0	0	0	150	72,069
31-Oct-2008	31-Oct-2008	1	150	298	35,306		0	37,061	0	0	0	0	0	0	150	72,367
01-Nov-2008	16-Nov-2008	16	150	4,760	40,066		0	37,061	0	0	0	0	0	0	150	77,127
17-Nov-2008	30-Nov-2008	14	150	4,165	44,231		0	37,061	0	0	0	0	0	0	150	81,293
01-Dec-2008	31-Dec-2008	31	150	9,223	53,455		0	37,061	0	0	0	0	0	0	150	90,516
01-Jan-2009	31-Jan-2009	31	150	9,223	62,678		0	37,061	0	0	0	0	0	0	150	99,739
01-Feb-2009	28-Feb-2009	28	150	8,331	71,008		0	37,061	0	0	0	0	0	0	150	108,069
01-Mar-2009	31-Mar-2009	31	150	9,223	80,231		0	37,061	0	0	0	0	0	0	150	117,293
01-Apr-2009	14-Apr-2009	14	150	4,165	84,397		0	37,061	0	0	0	0	0	0	150	121,458
No. of days		365	(April 15 through April 14)						Interpolation Water =		2,068				Total =		123,526

TABLE 3

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

DATE		Number of	Flow for Dry													
			Flow			Pulse Flows			Interpolation 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	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2008	15-Apr-2008	1	150	298	298	0	0	0	0	0	0	0	0	0	150	298
16-Apr-2008	16-Apr-2008	1	150	298	595	0	0	0	0	0	0	0	0	0	150	595
17-Apr-2008	17-Apr-2008	1	150	298	893	0	0	0	0	0	0	0	0	0	150	893
18-Apr-2008	18-Apr-2008	1	150	298	1,190	0	0	0	0	0	0	0	0	0	150	1,190
19-Apr-2008	19-Apr-2008	1	150	298	1,488	0	0	0	0	0	0	0	0	0	150	1,488
20-Apr-2008	20-Apr-2008	1	150	298	1,785	950	1,884	1,884	0	0	0	0	0	0	1,100	3,669
21-Apr-2008	21-Apr-2008	1	150	298	2,083	950	1,884	3,769	0	0	0	0	0	0	1,100	5,851
22-Apr-2008	22-Apr-2008	1	150	298	2,380	950	1,884	5,653	0	0	0	0	0	0	1,100	8,033
23-Apr-2008	23-Apr-2008	1	150	298	2,678	950	1,884	7,537	0	0	0	0	0	0	1,100	10,215
24-Apr-2008	24-Apr-2008	1	150	298	2,975	950	1,884	9,421	0	0	0	0	0	0	1,100	12,397
25-Apr-2008	25-Apr-2008	1	150	298	3,273	750	1,488	10,909	0	0	0	0	0	0	900	14,182
26-Apr-2008	26-Apr-2008	1	150	298	3,570	600	1,190	12,099	0	0	0	0	0	0	750	15,669
27-Apr-2008	27-Apr-2008	1	150	298	3,868	500	992	13,091	0	0	0	0	0	0	650	16,959
28-Apr-2008	28-Apr-2008	1	150	298	4,165	400	793	13,884	0	0	0	0	0	0	550	18,050
29-Apr-2008	29-Apr-2008	1	150	298	4,463	400	793	14,678	0	0	0	0	0	0	550	19,140
30-Apr-2008	30-Apr-2008	1	150	298	4,760	400	793	15,471	0	0	0	0	0	0	550	20,231
01-May-2008	01-May-2008	1	150	298	5,058	400	793	16,264	0	0	0	0	0	0	550	21,322
02-May-2008	02-May-2008	1	150	298	5,355	400	793	17,058	0	0	0	0	0	0	550	22,413
03-May-2008	03-May-2008	1	150	298	5,653	400	793	17,851	0	0	0	0	0	0	550	23,504
04-May-2008	04-May-2008	1	150	298	5,950	400	793	18,645	0	0	0	0	0	0	550	24,595
05-May-2008	05-May-2008	1	150	298	6,248	950	1,884	20,529	0	0	0	0	0	0	1,100	26,777
06-May-2008	06-May-2008	1	150	298	6,545	950	1,884	22,413	0	0	0	0	0	0	1,100	28,959
07-May-2008	07-May-2008	1	150	298	6,843	950	1,884	24,298	0	0	0	0	0	0	1,100	31,140
08-May-2008	08-May-2008	1	150	298	7,140	950	1,884	26,182	0	0	0	0	0	0	1,100	33,322
09-May-2008	09-May-2008	1	150	298	7,438	950	1,884	28,066	0	0	0	0	0	0	1,100	35,504
10-May-2008	10-May-2008	1	150	298	7,736	750	1,488	29,554	0	0	0	0	0	0	900	37,289
11-May-2008	11-May-2008	1	150	298	8,033	600	1,190	30,744	0	0	0	0	0	0	750	38,777
12-May-2008	12-May-2008	1	150	298	8,331	500	992	31,736	0	0	0	0	0	0	650	40,066
13-May-2008	13-May-2008	1	150	298	8,628	400	793	32,529	0	0	0	0	0	0	550	41,157
14-May-2008	14-May-2008	1	150	298	8,926	400	793	33,322	0	0	0	0	0	0	550	42,248
15-May-2008	15-May-2008	1	150	298	9,223	400	793	34,116	0	0	0	0	0	0	550	43,339
16-May-2008	16-May-2008	1	150	298	9,521	400	793	34,909	0	0	0	0	0	0	550	44,430
17-May-2008	17-May-2008	1	150	298	9,818	400	793	35,702	0	0	0	0	0	0	550	45,521
18-May-2008	18-May-2008	1	150	298	10,116	300	595	36,298	0	0	0	0	0	0	450	46,413
19-May-2008	19-May-2008	1	150	298	10,413	200	397	36,694	0	0	0	0	0	0	350	47,107
20-May-2008	20-May-2008	1	150	298	10,711	125	248	36,942	0	0	0	0	0	0	275	47,653
21-May-2008	21-May-2008	1	150	298	11,008	60	119	37,061	0	0	0	0	0	0	210	48,069
22-May-2008	22-May-2008	1	150	298	11,306	0	0	37,061	0	0	0	0	0	0	150	48,367
23-May-2008	23-May-2008	1	150	298	11,603	0	0	37,061	0	0	0	0	0	0	150	48,664
24-May-2008	24-May-2008	1	150	298	11,901	0	0	37,061	0	0	0	0	0	0	150	48,962
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,061	0	0	0	0	0	0	150	49,260
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,061	0	0	0	0	0	0	150	49,557
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,061	0	0	0	0	0	0	150	49,855
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,061	0	0	0	0	0	0	150	50,152
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,061	0	0	0	0	0	0	150	50,450
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,061	0	0	0	0	0	0	150	50,747
31-May-2008	31-May-2008	1	150	298	13,983		0	37,061	0	0	0	-35	(69)	(69)	115	50,975
01-Jun-2008	01-Jun-2008	1	50	99	14,083		0	37,061	0	0	0	35	69	0	85	51,144
02-Jun-2008	02-Jun-2008	1	50	99	14,182		0	37,061	0	0	0	0	0	0	50	51,243
03-Jun-2008	03-Jun-2008	1	50	99	14,281		0	37,061	0	0	0	0	0	0	50	51,342
04-Jun-2008	04-Jun-2008	1	50	99	14,380		0	37,061	0	0	0	0	0	0	50	51,441
05-Jun-2008	30-Jun-2008	26	50	2,579	16,959		0	37,061	0	0	0	0	0	0	50	54,020
01-Jul-2008	31-Jul-2008	31	50	3,074	20,033		0	37,061	0	0	0	0	0	0	50	57,094
01-Aug-2008	31-Aug-2008	31	50	3,074	23,107		0	37,061	0	0	0	0	0	0	50	60,169
01-Sep-2008	10-Sep-2008	10	50	992	24,099		0	37,061	0	0	0	0	0	0	50	61,160
11-Sep-2008	13-Sep-2008	3	50	298	24,397		0	37,061	0	0	0	0	0	0	50	61,458
14-Sep-2008	30-Sep-2008	17	50	1,686	26,083		0	37,061	0	0	0	0	0	0	50	63,144
01-Oct-2008	05-Oct-2008	5	100	992	27,074		0	37,061	0	0	0	-11	(112)	(112)	89	64,024
06-Oct-2008	10-Oct-2008	5	100	992	28,066	0	0	37,061	0	0	0	-11	(112)	(224)	89	64,903
11-Oct-2008	15-Oct-2008	5	100	992	29,058		0	37,061	0	0	0	-11	(112)	(336)	89	65,783
16-Oct-2008	17-Oct-2008	2	150	595	29,653		0	37,061	0	0	0	-11	(45)	(381)	139	66,333
18-Oct-2008	18-Oct-2008	1	150	298	29,950		0	37,061	0	0	0	-11	(22)	(403)	139	66,609
19-Oct-2008	19-Oct-2008	1	150	298	30,248		0	37,061	0	0	0	-11	(22)	(425)	139	66,884
20-Oct-2008	31-Oct-2008	12	150	3,570	33,818		0	37,061	0	0	0	-11	(269)	(694)	139	70,185
01-Nov-2008	16-Nov-2008	16	150	4,760	38,579		0	37,061	0	0	0	-11	(358)	(1,052)	139	74,587
17-Nov-2008	30-Nov-2008	14	150	4,165	42,744		0	37,061	0	0	0	-11	(313)	(1,366)	139	78,439
01-Dec-2008	31-Dec-2008	31	150	9,223	51,967		0	37,061	0	0	0	-11	(694)	(2,060)	139	86,968
01-Jan-2009	31-Jan-2009	31	150	9,223	61,190		0	37,061	0	0	0	-11	(694)	(2,754)	139	95,498
01-Feb-2009	28-Feb-2009	28	150	8,331	69,521		0	37,061	0	0	0	-11	(627)	(3,381)	139	103,201
01-Mar-2009	31-Mar-2009	31	150	9,223	78,744		0	37,061	0	0	0	-11	(694)	(4,075)	139	111,730
01-Apr-2009	14-Apr-2009	14	150	4,165	82,909		0	37,061	0	0	0	-11	(313)	(4,388)	139	115,582
No. of days		365	(April 15 through April 14)						Interpolation Water =		0				Total =	115,582

Table 4

Tuolumne River Flow Schedule - as of June 3, 2008 DWR forecast

(VAMP period is shaded)

	FERC Schedule Article 37 Flow	Supplemental VAMP Flow	USGS Prelim. Actual Flow (cfs)
15-Apr-2008	150		170
16-Apr-2008	150		168
17-Apr-2008	150		168
18-Apr-2008	150		169
19-Apr-2008	150		756
20-Apr-2008	1,100	200	1,300
21-Apr-2008	1,100	170	1,270
22-Apr-2008	1,100	210	1,310
23-Apr-2008	1,100	210	1,310
24-Apr-2008	1,100	210	1,310
25-Apr-2008	900	230	1,130
26-Apr-2008	750	212	962
27-Apr-2008	650	211	861
28-Apr-2008	550	302	852
29-Apr-2008	550	312	862
30-Apr-2008	550	301	851
1-May-2008	550	301	851
2-May-2008	550	306	856
3-May-2008	550	301	851
4-May-2008	550	490	1,040
5-May-2008	1,100	210	1,310
6-May-2008	1,100	200	1,300
7-May-2008	1,100	200	1,300
8-May-2008	1,100	200	1,300
9-May-2008	1,100	200	1,300
10-May-2008	900	270	1,170
11-May-2008	750	165	915
12-May-2008	650	167	817
13-May-2008	550	259	809
14-May-2008	550	258	808
15-May-2008	550	252	802
16-May-2008	550	261	811
17-May-2008	550	280	830
18-May-2008	450	308	758
19-May-2008	350	300	650
20-May-2008	275	207	482
21-May-2008	210		318
22-May-2008	150		241
23-May-2008	150		187
24-May-2008	150		178
25-May-2008	150		180
26-May-2008	150		180
27-May-2008	150		182
28-May-2008	150		184
29-May-2008	150		180
30-May-2008	150		160
31-May-2008	115		143
1-Jun-2008	85		107
2-Jun-2008	50		86
3-Jun-2008	50		85

Total VAMP AF 15,279

TURLOCK IRRIGATION DISTRICT
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September 8, 2008

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

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

Dear Fishery Agency Representatives:

As you know, the final 60-20-20 San Joaquin Basin Index (Index) is not available until August of each year following the end of the April-July runoff period that is part of the calculated Index. When the Index is below average, preliminary annual Article 37 flow volumes prior to August are based upon consideration of both the dry (90%) and average (50%) Index forecasts, which are provided by the Department of Water Resources (DWR). TID this year has again notified the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service on a continuing basis starting in February of 2008 of these DWR forecasts (see Table 1 on the DWR forecasts).

Our letter of June 6, 2008, attached for your reference, contained the latest two flow schedules developed under the Article 37 flow guidelines for the current Fish Flow Year based on the June 03 DWR 90% and 50% forecast update for the Index. Those interim schedules had respectively 115,582 and 123,526 acre-feet of annual volume, representing Median Critical and Intermediate Critical-Dry Article 37 year types. The two schedules were identical for the summer period and provided a range of flows that might be available for the fall/winter period.

On August 20, 2008, TID sent you by e-mail the final Index (2,064,496) and corresponding Article 37 volume (121,838 AF) in a proposed schedule (Table 2). Figure 1 tracks the 90% and 50% volumes as they declined over the course of the season. The schedule included the 380 AF of remaining interpolation water and distributed that on October 21-22, with base flows for the Intermediate Critical-Dry type for the remainder of the fish flow year through April 14, 2009. TID did not receive any alternative suggestions from your agencies for use of the interpolation water by the requested August 27, 2008 date. As a result, the schedule contained in Table 2 will be implemented under the Article 37 flow guidelines.

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

Sincerely,

Robert M. Nees
Director of Water Resources and Regulatory Affairs

C: Larry Weis - TID
Allen Short – MID
Michael Carlin - CCSF
Maria Rea - NMFS
FERC Secretary

WATER & POWER

Table 1

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

602020 INDEX

YEAR	APRIL-JULY RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	OCTOBER-MARCH RUNOFF (AF) STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	602020 INDEX	TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT	San Joaquin Index (not the FERC Index) RANKING
Feb 1 Forecast													
Dry	440,000	790,000	400,000	850,000	2,480,000	208,750	297,500	152,750	314,000	973,000	2,074,121	122,298	Critical
Average	670,000	1,180,000	580,000	1,210,000	3,640,000	261,751	399,657	205,643	353,752	1,220,803	2,819,681	197,286	Below Normal
Wet	1,130,000	1,970,000	1,090,000	2,030,000	6,220,000	371,563	593,125	377,063	595,500	1,937,250	4,510,971	300,923	Wet
Feb 12 Update													
Dry	470,000	830,000	420,000	870,000	2,590,000	208,750	297,500	152,750	314,000	973,000	2,140,121	125,454	Dry
Average	680,000	1,170,000	580,000	1,200,000	3,630,000	261,751	399,657	205,643	353,752	1,220,803	2,813,681	195,339	Below Normal
Wet	1,110,000	1,900,000	1,030,000	1,940,000	5,980,000	371,563	593,125	377,063	595,500	1,937,250	4,366,971	300,923	Wet
Feb 21 Update													
Dry	460,000	810,000	400,000	830,000	2,500,000	208,750	297,500	152,750	314,000	973,000	2,086,121	122,872	Critical
Average	650,000	1,120,000	550,000	1,140,000	3,460,000	261,751	399,657	205,643	353,752	1,220,803	2,711,681	164,399	Below Normal
Wet	1,070,000	1,800,000	960,000	1,830,000	5,660,000	371,563	593,125	377,063	595,500	1,937,250	4,174,971	300,923	Wet
Feb 26 Update													
Dry	530,000	960,000	480,000	1,010,000	2,980,000	208,750	297,500	152,750	314,000	973,000	2,374,121	140,520	Dry
Average	710,000	1,240,000	620,000	1,300,000	3,870,000	261,751	399,657	205,643	353,752	1,220,803	2,957,681	242,064	Below Normal
Wet	1,110,000	1,880,000	990,000	1,930,000	5,910,000	371,563	593,125	377,063	595,500	1,937,250	4,324,971	300,923	Wet
Mar 1 Forecast													
Dry	530,000	960,000	470,000	960,000	2,920,000	202,500	351,250	188,750	261,250	1,003,750	2,344,271	138,487	Dry
Average	700,000	1,220,000	610,000	1,240,000	3,770,000	240,558	400,393	212,769	306,060	1,159,780	2,885,477	218,636	Below Normal
Wet	1,090,000	1,840,000	960,000	1,830,000	5,720,000	369,375	530,938	291,563	453,438	1,645,313	4,152,583	300,923	Wet
Mar 11 Update													
Dry	520,000	930,000	450,000	920,000	2,820,000	240,558	400,393	212,769	306,060	1,159,780	2,315,477	136,526	Dry
Average	680,000	1,160,000	580,000	1,170,000	3,590,000	240,558	400,393	212,769	306,060	1,159,780	2,777,477	183,592	Below Normal
Wet	1,020,000	1,710,000	890,000	1,680,000	5,300,000	240,558	400,393	212,769	306,060	1,159,780	3,803,477	300,923	Wet
Mar 18 Update													
Dry	520,000	920,000	440,000	910,000	2,790,000	221,529	375,822	200,760	283,655	1,081,765	2,281,874	134,238	Dry
Average	670,000	1,130,000	560,000	1,140,000	3,500,000	221,529	375,822	200,760	283,655	1,081,765	2,707,874	164,129	Below Normal
Wet	980,000	1,620,000	850,000	1,590,000	5,040,000	221,529	375,822	200,760	283,655	1,081,765	3,631,874	300,923	Above Normal
Mar 25 Update													
Dry	500,000	890,000	420,000	870,000	2,680,000	221,529	375,822	200,760	283,655	1,081,765	2,215,874	129,743	Dry
Average	640,000	1,080,000	530,000	1,080,000	3,330,000	221,529	375,822	200,760	283,655	1,081,765	2,605,874	156,888	Below Normal
Wet	920,000	1,520,000	790,000	1,480,000	4,710,000	221,529	375,822	200,760	283,655	1,081,765	3,433,874	300,923	Above Normal
Apr 01 Forecast													
Dry	450,000	840,000	390,000	830,000	2,510,000	207,940	334,052	171,469	267,895	981,356	2,093,792	123,239	Critical
Average	590,000	1,010,000	490,000	1,040,000	3,130,000	207,940	334,052	171,469	267,895	981,356	2,465,792	146,943	Dry
Wet	840,000	1,400,000	730,000	1,380,000	4,350,000	207,940	334,052	171,469	267,895	981,356	3,197,792	300,923	Above Normal
Apr 08 Update													
Dry	440,000	830,000	380,000	810,000	2,460,000	207,940	334,052	171,469	267,895	981,356	2,063,792	121,804	Critical
Average	570,000	980,000	470,000	1,010,000	3,030,000	207,940	334,052	171,469	267,895	981,356	2,405,792	142,684	Dry
Wet	790,000	1,320,000	680,000	1,310,000	4,100,000	207,940	334,052	171,469	267,895	981,356	3,047,792	271,303	Below Normal
Apr 15 Update													
Dry	430,000	800,000	370,000	780,000	2,380,000	207,940	334,052	171,469	267,895	981,356	2,015,792	119,508	Critical
Average	550,000	940,000	450,000	970,000	2,910,000	207,940	334,052	171,469	267,895	981,356	2,333,792	137,773	Dry
Wet	730,000	1,230,000	630,000	1,230,000	3,820,000	207,940	334,052	171,469	267,895	981,356	2,879,792	216,791	Below Normal
Apr 22 Update													
Dry	420,000	790,000	360,000	760,000	2,330,000	207,940	334,052	171,469	267,895	981,356	1,985,792	118,073	Critical
Average	530,000	910,000	430,000	940,000	2,810,000	207,940	334,052	171,469	267,895	981,356	2,273,792	133,688	Dry
Wet	680,000	1,150,000	580,000	1,160,000	3,570,000	207,940	334,052	171,469	267,895	981,356	2,729,792	168,119	Below Normal
May 01 Forecast													
Dry	410,000	770,000	340,000	730,000	2,250,000	207,940	334,052	171,469	267,895	981,356	1,937,792	116,272	Critical
Average	500,000	870,000	400,000	880,000	2,650,000	207,940	334,052	171,469	267,895	981,356	2,177,792	127,256	Dry
Wet	600,000	1,040,000	510,000	1,050,000	3,200,000	207,940	334,052	171,469	267,895	981,356	2,507,792	149,925	Below Normal
May 13 Update													

Table 1

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

602020 INDEX

	APRIL-JULY RUNOFF (AF)					OCTOBER-MARCH RUNOFF (AF)					602020	TUOLUMNE RIVER	San Joaquin Index (not the FERC Index)	
YEAR	STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	INDEX	MINIMUM FLOW REQUIREMENT		RANKING
Dry	420,000	770,000	350,000	740,000	2,280,000	207,940	334,052	171,469	267,895	981,356	1,955,792	116,789	Critical	
Average	490,000	850,000	400,000	870,000	2,610,000	207,940	334,052	171,469	267,895	981,356	2,153,792	126,108	Dry	
Wet	570,000	990,000	480,000	1,010,000	3,050,000	207,940	334,052	171,469	267,895	981,356	2,417,792	143,536	Dry	
May 20 Update														
Dry	420,000	770,000	350,000	750,000	2,290,000	207,940	334,052	171,469	267,895	981,356	1,961,792	116,962	Critical	
Average	480,000	840,000	400,000	870,000	2,590,000	207,940	334,052	171,469	267,895	981,356	2,141,792	125,534	Dry	
Wet	550,000	970,000	470,000	1,000,000	2,990,000	207,940	334,052	171,469	267,895	981,356	2,381,792	141,042	Dry	
May 27 Update														
Dry	420,000	750,000	350,000	750,000	2,270,000	207,940	334,052	171,469	267,895	981,356	1,949,792	116,617	Critical	
Average	490,000	840,000	400,000	880,000	2,610,000	207,940	334,052	171,469	267,895	981,356	2,153,792	126,108	Dry	
Wet	560,000	950,000	470,000	1,010,000	2,990,000	207,940	334,052	171,469	267,895	981,356	2,381,792	141,042	Dry	
Jun 03 Update														
Dry	400,000	710,000	360,000	740,000	2,210,000	207,940	334,052	171,469	267,895	981,356	1,913,792	115,582	Critical	
Average	450,000	810,000	400,000	860,000	2,520,000	207,940	334,052	171,469	267,895	981,356	2,099,792	123,526	Critical	
Wet	510,000	910,000	460,000	980,000	2,860,000	207,940	334,052	171,469	267,895	981,356	2,303,792	135,730	Dry	
Jun 10 Update														
Dry	410,000	710,000	370,000	750,000	2,240,000	207,940	334,052	171,469	267,895	981,356	1,931,792	116,099	Critical	
Average	450,000	810,000	400,000	860,000	2,520,000	207,940	334,052	171,469	267,895	981,356	2,099,792	123,526	Critical	
Wet	500,000	910,000	450,000	970,000	2,830,000	207,940	334,052	171,469	267,895	981,356	2,285,792	134,505	Dry	
Final	441,300	785,350	409,943	824,581	2,461,174	207,940	334,052	171,469	267,895	981,356	2,064,496	121,838	Critical	

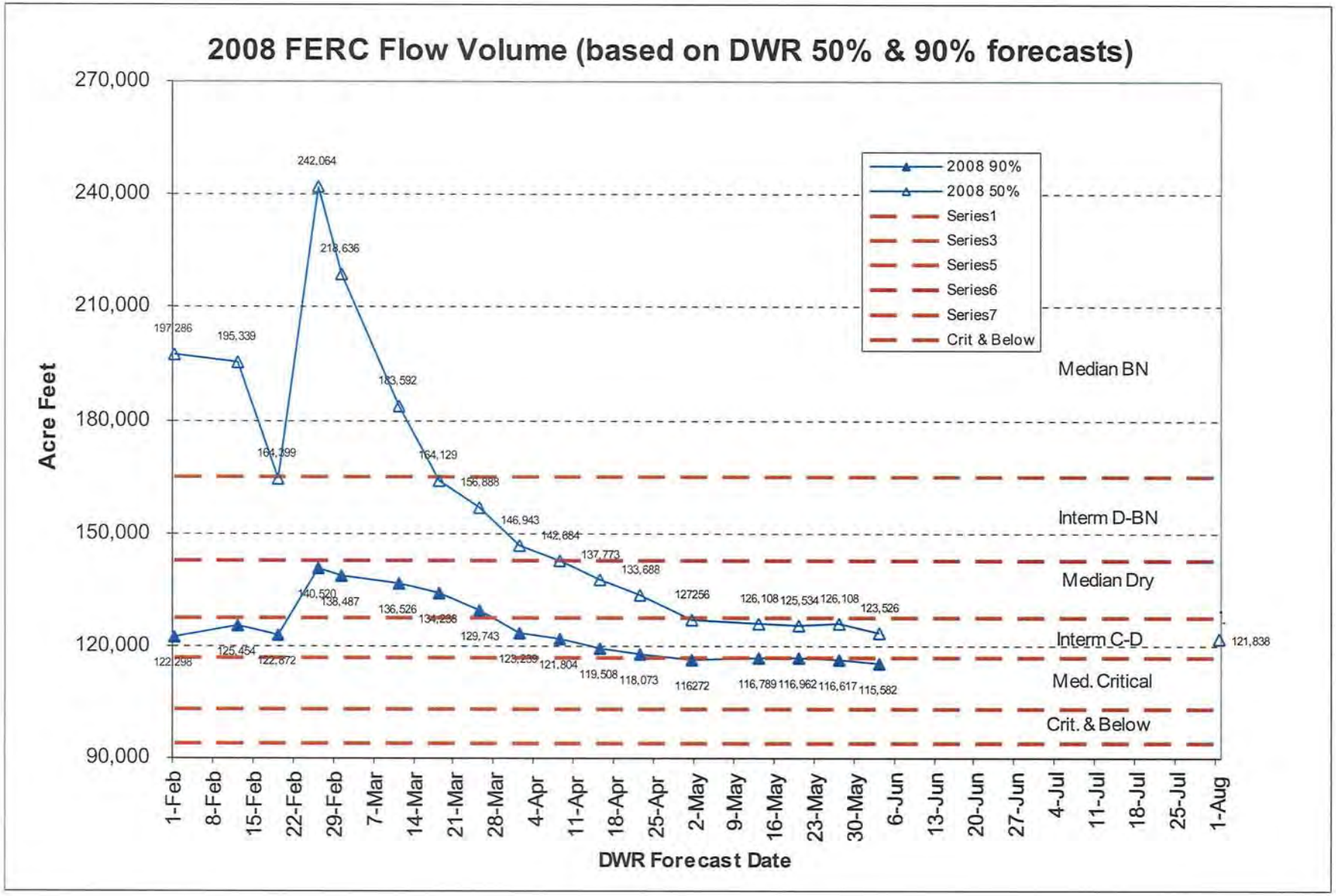
TABLE 2

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

DATE		Number of	Flow for Average														
			Flow			Pulse Flows			Interpolation 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	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2008	15-Apr-2008	1	150	298	298	0	0	0	0	0	0	0	0	0	150	298
16-Apr-2008	16-Apr-2008	1	150	298	595	0	0	0	0	0	0	0	0	0	150	595
17-Apr-2008	17-Apr-2008	1	150	298	893	0	0	0	0	0	0	0	0	0	150	893
18-Apr-2008	18-Apr-2008	1	150	298	1,190	0	0	0	0	0	0	0	0	0	150	1,190
19-Apr-2008	19-Apr-2008	1	150	298	1,488	0	0	0	0	0	0	0	0	0	150	1,488
20-Apr-2008	20-Apr-2008	1	150	298	1,785	950	1,884	1,884	0	0	0	0	0	0	1,100	3,669
21-Apr-2008	21-Apr-2008	1	150	298	2,083	950	1,884	3,769	0	0	0	0	0	0	1,100	5,851
22-Apr-2008	22-Apr-2008	1	150	298	2,380	950	1,884	5,653	0	0	0	0	0	0	1,100	8,033
23-Apr-2008	23-Apr-2008	1	150	298	2,678	950	1,884	7,537	0	0	0	0	0	0	1,100	10,215
24-Apr-2008	24-Apr-2008	1	150	298	2,975	950	1,884	9,421	0	0	0	0	0	0	1,100	12,397
25-Apr-2008	25-Apr-2008	1	150	298	3,273	750	1,488	10,909	0	0	0	0	0	0	900	14,182
26-Apr-2008	26-Apr-2008	1	150	298	3,570	600	1,190	12,099	0	0	0	0	0	0	750	15,669
27-Apr-2008	27-Apr-2008	1	150	298	3,868	500	992	13,091	0	0	0	0	0	0	650	16,959
28-Apr-2008	28-Apr-2008	1	150	298	4,165	400	793	13,884	0	0	0	0	0	0	550	18,050
29-Apr-2008	29-Apr-2008	1	150	298	4,463	400	793	14,678	0	0	0	0	0	0	550	19,140
30-Apr-2008	30-Apr-2008	1	150	298	4,760	400	793	15,471	0	0	0	0	0	0	550	20,231
01-May-2008	01-May-2008	1	150	298	5,058	400	793	16,264	0	0	0	0	0	0	550	21,322
02-May-2008	02-May-2008	1	150	298	5,355	400	793	17,058	0	0	0	0	0	0	550	22,413
03-May-2008	03-May-2008	1	150	298	5,653	400	793	17,851	0	0	0	0	0	0	550	23,504
04-May-2008	04-May-2008	1	150	298	5,950	400	793	18,645	0	0	0	0	0	0	550	24,595
05-May-2008	05-May-2008	1	150	298	6,248	950	1,884	20,529	0	0	0	0	0	0	1,100	26,777
06-May-2008	06-May-2008	1	150	298	6,545	950	1,884	22,413	0	0	0	0	0	0	1,100	28,959
07-May-2008	07-May-2008	1	150	298	6,843	950	1,884	24,298	0	0	0	0	0	0	1,100	31,140
08-May-2008	08-May-2008	1	150	298	7,140	950	1,884	26,182	0	0	0	0	0	0	1,100	33,322
09-May-2008	09-May-2008	1	150	298	7,438	950	1,884	28,066	0	0	0	0	0	0	1,100	35,504
10-May-2008	10-May-2008	1	150	298	7,736	750	1,488	29,554	0	0	0	0	0	0	900	37,289
11-May-2008	11-May-2008	1	150	298	8,033	600	1,190	30,744	0	0	0	0	0	0	750	38,777
12-May-2008	12-May-2008	1	150	298	8,331	500	992	31,736	0	0	0	0	0	0	650	40,066
13-May-2008	13-May-2008	1	150	298	8,628	400	793	32,529	0	0	0	0	0	0	550	41,157
14-May-2008	14-May-2008	1	150	298	8,926	400	793	33,322	0	0	0	0	0	0	550	42,248
15-May-2008	15-May-2008	1	150	298	9,223	400	793	34,116	0	0	0	0	0	0	550	43,339
16-May-2008	16-May-2008	1	150	298	9,521	400	793	34,909	0	0	0	0	0	0	550	44,430
17-May-2008	17-May-2008	1	150	298	9,818	400	793	35,702	0	0	0	0	0	0	550	45,521
18-May-2008	18-May-2008	1	150	298	10,116	300	595	36,298	0	0	0	0	0	0	450	46,413
19-May-2008	19-May-2008	1	150	298	10,413	200	397	36,694	0	0	0	0	0	0	350	47,107
20-May-2008	20-May-2008	1	150	298	10,711	125	248	36,942	0	0	0	0	0	0	275	47,653
21-May-2008	21-May-2008	1	150	298	11,008	60	119	37,061	0	0	0	0	0	0	210	48,069
22-May-2008	22-May-2008	1	150	298	11,306	0	0	37,061	0	0	0	0	0	0	150	48,367
23-May-2008	23-May-2008	1	150	298	11,603	0	0	37,061	0	0	0	0	0	0	150	48,664
24-May-2008	24-May-2008	1	150	298	11,901	0	0	37,061	0	0	0	0	0	0	150	48,962
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,061	0	0	0	0	0	0	150	49,260
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,061	0	0	0	0	0	0	150	49,557
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,061	0	0	0	0	0	0	150	49,855
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,061	0	0	0	0	0	0	150	50,152
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,061	0	0	0	0	0	0	150	50,450
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,061	0	0	0	0	0	0	150	50,747
31-May-2008	31-May-2008	1	150	298	13,983		0	37,061	0	0	0	-35	(69)	(69)	115	50,975
01-Jun-2008	01-Jun-2008	1	50	99	14,083		0	37,061	0	0	0	35	69	0	85	51,144
02-Jun-2008	02-Jun-2008	1	50	99	14,182		0	37,061	0	0	0	0	0	0	50	51,243
03-Jun-2008	03-Jun-2008	1	50	99	14,281		0	37,061	0	0	0	0	0	0	50	51,342
04-Jun-2008	04-Jun-2008	1	50	99	14,380		0	37,061	0	0	0	0	0	0	50	51,441
05-Jun-2008	30-Jun-2008	26	50	2,579	16,959		0	37,061	0	0	0	0	0	0	50	54,020
01-Jul-2008	31-Jul-2008	31	50	3,074	20,033		0	37,061	0	0	0	0	0	0	50	57,094
01-Aug-2008	31-Aug-2008	31	50	3,074	23,107		0	37,061	0	0	0	0	0	0	50	60,169
01-Sep-2008	10-Sep-2008	10	50	992	24,099		0	37,061	0	0	0	0	0	0	50	61,160
11-Sep-2008	13-Sep-2008	3	50	298	24,397		0	37,061	0	0	0	0	0	0	50	61,458
14-Sep-2008	30-Sep-2008	17	50	1,686	26,083		0	37,061	0	0	0	0	0	0	50	63,144
01-Oct-2008	05-Oct-2008	5	150	1,488	27,570		0	37,061	0	0	0	0	0	0	150	64,631
06-Oct-2008	10-Oct-2008	5	150	1,488	29,058	0	0	37,061	0	0	0	0	0	0	150	66,119
11-Oct-2008	20-Oct-2008	10	150	2,975	32,033		0	37,061	0	0	0	0	0	0	150	69,094
21-Oct-2008	22-Oct-2008	2	150	595	32,628		0	37,061	96	380	380	0	0	0	246	70,069
23-Oct-2008	23-Oct-2008	1	150	298	32,926		0	37,061	0	0	380	0	0	0	150	70,367
24-Oct-2008	24-Oct-2008	1	150	298	33,223		0	37,061	0	0	380	0	0	0	150	70,664
25-Oct-2008	31-Oct-2008	7	150	2,083	35,306		0	37,061	0	0	380	0	0	0	150	72,747
01-Nov-2008	16-Nov-2008	16	150	4,760	40,066		0	37,061	0	0	380	0	0	0	150	77,507
17-Nov-2008	30-Nov-2008	14	150	4,165	44,231		0	37,061	0	0	380	0	0	0	150	81,673
01-Dec-2008	31-Dec-2008	31	150	9,223	53,455		0	37,061	0	0	380	0	0	0	150	90,896
01-Jan-2009	31-Jan-2009	31	150	9,223	62,678		0	37,061	0	0	380	0	0	0	150	100,119
01-Feb-2009	28-Feb-2009	28	150	8,331	71,008		0	37,061	0	0	380	0	0	0	150	108,449
01-Mar-2009	31-Mar-2009	31	150	9,223	80,231		0	37,061	0	0	380	0	0	0	150	117,673
01-Apr-2009	14-Apr-2009	14	150	4,165	84,397		0	37,061	0	0	380	0	0	0	150	121,838
No. of days		365	(April 15 through April 14)											Total =		121,838

Figure 1.


2008 FERC Flow Volume (based on DWR 50% & 90% forecasts)
Acre Feet
DWR Forecast Date
270,000
240,000
210,000
180,000
150,000
120,000
90,000
1-Feb
8-Feb
15-Feb
22-Feb
29-Feb
7-Mar
14-Mar
21-Mar
28-Mar
4-Apr
11-Apr
18-Apr
25-Apr
2-May
9-May
16-May
23-May
30-May
6-Jun
13-Jun
20-Jun
27-Jun
4-Jul
11-Jul
18-Jul
25-Jul
1-Aug
2008 90%
2008 50%
Series1
Series3
Series5
Series6
Series7
Crit & Below
Median BN
Interm D-BN
Median Dry
Interm C-D
Med. Critical
Crit. & Below
197,286
195,339
164,299
242,064
218,636
183,592
164,129
156,888
146,943
142,684
137,773
133,688
127256
126,108
125,534
126,108
123,526
121,838
122,298
125,454
122,672
140,520
138,487
136,526
134,236
129,743
123,239
121,804
119,508
118,073
116272
116,789
116,962
116,617
115,582

ORIGINAL

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

Don Pedro Dam and Powerhouse

October 30, 2008

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

RE: Project 2299 – Update of Water Year Classification Index

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 2008 (Table 1). While the frequency distribution remains the same, some index numbers may change slightly with each annual update to maintain the frequency distribution.

Also attached is an updated table (Table 2) regarding the minimum flow for the rest of the Fish Flow Year 2008-2009. The interpolation flow was moved from October 21st and 22nd to October 25th and 26th.

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

Sincerely,

Robert M. Nees
Director of Water Resources and Regulatory Affairs

C: Larry Weis - TID
Allen Short – MID
Michael Carlin – CCSF
Maria Rea - NMFS
FERC Secretary

TID

TABLE 1
DETERMINATION OF WATER YEAR CLASSIFICATION THRESHOLDS
Water Year Classification

Water Year Classification	Cumulative Occurrence				930020 Index (x 1000)													
					Settlement Agreement	1986	1987	1988	1989	2000	2001	2002	2003	2004	2005	2006	2007	2008
Critical Water Year and Below	0.0%	-	6.4%	<	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	1,476
Median Critical Water Year	6.4%	<	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	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	1,964
Median Dry	20.5%	<	31.3%	=	2200	2,159	2,159	2,163	2,163	2,163	2,163	2,163	2,187	2,187	2,187	2,187	2,163	2,163
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	2,403
Median Below Normal	40.4%	<	50.7%	=	2700	2,696	2,720	2,720	2,720	2,763	2,720	2,720	2,720	2,696	2,720	2,720	2,720	2,696
* Intermediate Below Normal-Above Normal	50.7%	<	66.2%	=	3100	3,139	3,139	3,163	3,163	3,225	3,163	3,163	3,139	3,139	3,139	3,163	3,139	3,139
Median Above Normal	66.2%	<	71.3%	=	3100	3,696	3,696	3,740	3,740	3,696	3,696	3,696	3,696	3,696	3,696	3,696	3,696	3,696
Intermediate Above Normal-Wet	71.3%	<	86.7%	=	3100	3,696	3,903	4,028	4,028	3,903	3,903	3,903	3,696	3,696	3,903	4,028	3,903	3,903
Median Wet/Maximum	86.7%	<	100.0%	=	3100	4,583	4,653	4,653	4,653	4,653	4,653	4,653	4,583	4,583	4,653	4,730	4,730	4,730

* Maximum index value for flat flow year is not to go above value shown in this row.
** The Index in the Settlement Agreement was based on Water Years 1906-1965

TABLE 2

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

DATE		Number of DAYS	Flow for Agreement: Flow			Pulse Flows			Interpolation Flow			Other Adjusted Flow			Total FERC Flow	
From:	To:		CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2008	15-Apr-2008	1	150	298	298	0	0	0	0	0	0	0	0	0	150	298
16-Apr-2008	16-Apr-2008	1	150	298	595	0	0	0	0	0	0	0	0	0	150	595
17-Apr-2008	17-Apr-2008	1	150	298	893	0	0	0	0	0	0	0	0	0	150	893
18-Apr-2008	18-Apr-2008	1	150	298	1,190	0	0	0	0	0	0	0	0	0	150	1,190
19-Apr-2008	19-Apr-2008	1	150	298	1,488	0	0	0	0	0	0	0	0	0	150	1,488
20-Apr-2008	20-Apr-2008	1	150	298	1,785	950	1,884	1,884	0	0	0	0	0	0	1,100	3,669
21-Apr-2008	21-Apr-2008	1	150	298	2,083	950	1,884	3,769	0	0	0	0	0	0	1,100	5,851
22-Apr-2008	22-Apr-2008	1	150	298	2,380	950	1,884	5,653	0	0	0	0	0	0	1,100	8,033
23-Apr-2008	23-Apr-2008	1	150	298	2,678	950	1,884	7,537	0	0	0	0	0	0	1,100	10,215
24-Apr-2008	24-Apr-2008	1	150	298	2,975	950	1,884	9,421	0	0	0	0	0	0	1,100	12,397
25-Apr-2008	25-Apr-2008	1	150	298	3,273	750	1,488	10,909	0	0	0	0	0	0	900	14,182
26-Apr-2008	26-Apr-2008	1	150	298	3,570	600	1,190	12,099	0	0	0	0	0	0	750	15,669
27-Apr-2008	27-Apr-2008	1	150	298	3,868	500	992	13,091	0	0	0	0	0	0	650	16,959
28-Apr-2008	28-Apr-2008	1	150	298	4,165	400	793	13,884	0	0	0	0	0	0	550	18,050
29-Apr-2008	29-Apr-2008	1	150	298	4,463	400	793	14,677	0	0	0	0	0	0	550	19,140
30-Apr-2008	30-Apr-2008	1	150	298	4,760	400	793	15,471	0	0	0	0	0	0	550	20,231
01-May-2008	01-May-2008	1	150	298	5,058	400	793	16,264	0	0	0	0	0	0	550	21,322
02-May-2008	02-May-2008	1	150	298	5,355	400	793	17,058	0	0	0	0	0	0	550	22,413
03-May-2008	03-May-2008	1	150	298	5,653	400	793	17,851	0	0	0	0	0	0	550	23,504
04-May-2008	04-May-2008	1	150	298	5,950	400	793	18,645	0	0	0	0	0	0	550	24,595
05-May-2008	05-May-2008	1	150	298	6,248	950	1,884	20,529	0	0	0	0	0	0	1,100	26,777
06-May-2008	06-May-2008	1	150	298	6,545	950	1,884	22,413	0	0	0	0	0	0	1,100	28,959
07-May-2008	07-May-2008	1	150	298	6,843	950	1,884	24,298	0	0	0	0	0	0	1,100	31,140
08-May-2008	08-May-2008	1	150	298	7,140	950	1,884	26,182	0	0	0	0	0	0	1,100	33,322
09-May-2008	09-May-2008	1	150	298	7,438	950	1,884	28,066	0	0	0	0	0	0	1,100	35,504
10-May-2008	10-May-2008	1	150	298	7,736	750	1,488	29,554	0	0	0	0	0	0	900	37,389
11-May-2008	11-May-2008	1	150	298	8,033	600	1,190	30,744	0	0	0	0	0	0	750	38,777
12-May-2008	12-May-2008	1	150	298	8,331	500	992	31,736	0	0	0	0	0	0	650	40,066
13-May-2008	13-May-2008	1	150	298	8,628	400	793	32,529	0	0	0	0	0	0	550	41,157
14-May-2008	14-May-2008	1	150	298	8,926	400	793	33,322	0	0	0	0	0	0	550	42,248
15-May-2008	15-May-2008	1	150	298	9,223	400	793	34,116	0	0	0	0	0	0	550	43,339
16-May-2008	16-May-2008	1	150	298	9,521	400	793	34,909	0	0	0	0	0	0	550	44,430
17-May-2008	17-May-2008	1	150	298	9,818	400	793	35,702	0	0	0	0	0	0	550	45,521
18-May-2008	18-May-2008	1	150	298	10,116	300	595	36,298	0	0	0	0	0	0	450	46,413
19-May-2008	19-May-2008	1	150	298	10,413	200	397	36,694	0	0	0	0	0	0	350	47,307
20-May-2008	20-May-2008	1	150	298	10,711	150	248	36,942	0	0	0	0	0	0	300	47,653
21-May-2008	21-May-2008	1	150	298	11,008	60	119	37,061	0	0	0	0	0	0	210	48,088
22-May-2008	22-May-2008	1	150	298	11,306	0	0	37,061	0	0	0	0	0	0	150	48,597
23-May-2008	23-May-2008	1	150	298	11,603	0	0	37,061	0	0	0	0	0	0	150	48,664
24-May-2008	24-May-2008	1	150	298	11,901	0	0	37,061	0	0	0	0	0	0	150	48,730
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,061	0	0	0	0	0	0	150	48,797
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,061	0	0	0	0	0	0	150	48,864
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,061	0	0	0	0	0	0	150	48,931
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,061	0	0	0	0	0	0	150	48,997
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,061	0	0	0	0	0	0	150	49,064
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,061	0	0	0	0	0	0	150	49,131
31-May-2008	31-May-2008	1	150	298	13,983	0	0	37,061	0	0	0	-35	(69)	(69)	115	49,175
01-Jun-2008	01-Jun-2008	1	50	99	14,082	0	0	37,061	0	0	0	35	69	0	85	49,244
02-Jun-2008	02-Jun-2008	1	50	99	14,181	0	0	37,061	0	0	0	0	0	0	50	49,343
03-Jun-2008	03-Jun-2008	1	50	99	14,280	0	0	37,061	0	0	0	0	0	0	50	49,443
04-Jun-2008	04-Jun-2008	1	50	99	14,379	0	0	37,061	0	0	0	0	0	0	50	49,542
05-Jun-2008	30-Jun-2008	26	50	2,579	16,959	0	0	37,061	0	0	0	0	0	0	50	52,122
01-Jul-2008	31-Jul-2008	31	50	3,074	20,033	0	0	37,061	0	0	0	0	0	0	50	55,195
01-Aug-2008	31-Aug-2008	31	50	3,074	23,107	0	0	37,061	0	0	0	0	0	0	50	58,269
01-Sep-2008	10-Sep-2008	10	50	992	24,099	0	0	37,061	0	0	0	0	0	0	50	59,260
11-Sep-2008	13-Sep-2008	3	50	298	24,397	0	0	37,061	0	0	0	0	0	0	50	59,558
14-Sep-2008	30-Sep-2008	17	50	1,686	26,083	0	0	37,061	0	0	0	0	0	0	50	61,144
01-Oct-2008	05-Oct-2008	5	150	1,488	27,570	0	0	37,061	0	0	0	0	0	0	150	64,631
06-Oct-2008	10-Oct-2008	5	150	1,488	29,058	0	0	37,061	0	0	0	0	0	0	150	66,119
11-Oct-2008	24-Oct-2008	14	150	4,165	33,223	0	0	37,061	0	0	0	0	0	0	150	70,284
25-Oct-2008	26-Oct-2008	2	150	595	33,818	0	0	37,061	95	380	380	0	0	0	245	71,259
27-Oct-2008	27-Oct-2008	1	150	298	34,116	0	0	37,061	0	0	380	0	0	0	150	71,557
28-Oct-2008	30-Oct-2008	3	150	595	34,710	0	0	37,061	0	0	380	0	0	0	150	72,152
31-Oct-2008	31-Oct-2008	1	150	298	35,008	0	0	37,061	0	0	380	0	0	0	150	72,747
01-Nov-2008	16-Nov-2008	16	150	4,760	39,768	0	0	37,061	0	0	380	0	0	0	150	77,507
17-Nov-2008	30-Nov-2008	14	150	4,165	43,933	0	0	37,061	0	0	380	0	0	0	150	81,672
01-Dec-2008	31-Dec-2008	31	150	9,223	53,156	0	0	37,061	0	0	380	0	0	0	150	90,895
01-Jan-2009	31-Jan-2009	31	150	9,223	62,379	0	0	37,061	0	0	380	0	0	0	150	100,119
01-Feb-2009	28-Feb-2009	28	150	8,331	71,000	0	0	37,061	0	0	380	0	0	0	150	108,449
01-Mar-2009	31-Mar-2009	31	150	9,223	80,331	0	0	37,061	0	0	380	0	0	0	150	117,673
01-Apr-2009	14-Apr-2009	14	150	4,165	84,397	0	0	37,061	0	0	380	0	0	0	150	121,858
No. of days		[redacted] (April 15 through April 14)												Total =		121,858

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

January 21, 2009

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

RE: Project 2299 - Article 38 45-Day Period and Fall Pulse Flow Requirement

Dear Fishery Agency Representatives:

The Article 38 '45-Day Period' in fall 2008 began October 17 and ended November 30, as has been the standard practice for many years since being established 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 cfs for the 2008 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 77 cfs as shown on Table 1. The current minimum flow requirement exceeds 77 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 was no fall pulse flow allocation required in the 2008-2009 fish flow year type (Intermediate Critical - Dry) per the 1996 Amended Article 37.

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

Sincerely,

Robert M. Nees
Director of Water Resources and Regulatory Affairs

C: Larry Weis - TID
Allen Short - MID
Maria Rea - NMFS
FERC Secretary

WATER & POWER

TURLOCK IRRIGATION DISTRICT

October 17 - November 30, 2008 Average Flow

Tuolumne River Below La Grange Dam Near La Grange

ACTUAL FLOWS (Provisional USGS Numbers)

DATE	FLOW CFS	DATE	FLOW CFS
17-Oct	161	08-Nov	162
18-Oct	162	09-Nov	168
19-Oct	162	10-Nov	164
20-Oct	162	11-Nov	160
21-Oct	162	12-Nov	162
22-Oct	163	13-Nov	159
23-Oct	164	14-Nov	161
24-Oct	184	15-Nov	161
25-Oct	257	16-Nov	159
26-Oct	258	17-Nov	160
27-Oct	236	18-Nov	158
28-Oct	163	19-Nov	159
29-Oct	163	20-Nov	167
30-Oct	163	21-Nov	168
31-Oct	167	22-Nov	168
01-Nov	169	23-Nov	167
02-Nov	167	24-Nov	168
03-Nov	167	25-Nov	168
04-Nov	159	26-Nov	163
05-Nov	162	27-Nov	167
06-Nov	162	28-Nov	166
07-Nov	170	29-Nov	166
		30-Nov	166
		TOTAL RELEASE=	7,650

45 day average = 170 cfs = 169.60 ft elevation *

Less 4 inches -0.33

Minimum Flow = 77 CFS = 169.27 ft elevation *

*

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

Attachment -B-

2008 Tuolumne River
Technical Advisory Committee Materials:

- List of 2008 TRTAC Activities/Materials
- March Meeting
- June Meeting
- September Meeting
- December Meeting

2008 TRTAC Activities & Materials

14Dec2007-13Mar2008 Postings to TRTAC website http://tuolumnerivertac.com/

- Meetings
  - December 2007 TRTAC meeting summary and handouts
  - March 2008 TRTAC meeting agenda and restoration update

- Correspondence
  - Turbidity issue notification and comments
  - Comment letters to FERC

- Documents
  - Draft 2007 Seine and Snorkel Report

- Data/Monitoring/Photos
  - 2008 seine and screw trap data
  - Thermograph data through 13Feb2008
  - 2008 turbidity data
  - Updates of basin monitoring newsletter
  - February 2008 turbidity photos

13Mar-12Jun 2008 Changes to TRTAC website http://tuolumnerivertac.com/

- Updated flow schedules and participant list

- Meetings
  - March 2008 TRTAC meeting notes, handouts, and restoration update
  - June 2008 TRTAC meeting agenda and restoration update

- Correspondence
  - Flow schedule letters
  - FERC Orders of 03Apr and 02Jun
  - Rehearing comment letters to FERC

- Documents
  - 2007 FERC Report and Technical Reports
  - Zimmerman report on *O. mykiss* otolith study
  - 2007 VAMP Report
  - 2008 VAMP daily operation plans

- Data/Monitoring
  - Updates of 2008 seine and screw trap data
  - Updates of basin monitoring newsletter
  - Photos of fish and screw trapping

13Jun-11Sep 2008 Changes to TRTAC website http://tuolumnerivertac.com/

- Updated flow schedule and participant list

- Meetings
  - June 2008 TRTAC meeting notes, handouts, attendance list, and restoration update
  - Sep 2008 TRTAC meeting agenda

- Correspondence
  - Flow schedule letter
  - Select filings with FERC
  - Letters regarding FERC Order studies and study plan for trout population estimate

- Documents
  - 2008 Draft Seine Report
  - Newman 2008 - An evaluation of four delta juvenile salmon survival studies

- Data/Monitoring
  - June 2008 snorkel survey data
  - Thermograph data for Feb 14 - June 24

12Sep-11Dec 2008 Changes to TRTAC website http://tuolumnerivertac.com/

- Final flow schedule

- Meetings
  - Sep and Dec 2008 TRTAC meeting materials

- Correspondence
  - Letter of 05Nov on Water year Classification and minimum flow schedule
  - 28Sep Friends of the Tuolumne comments on O. mykiss study plan

- Documents
  - 2008 screw trap report
  - July O. mykiss population estimate report
  - Sep16 FWS Report on Flow-Overbank Inundation
  - Nov McBain & Trush Peaslee Creek Tech Memo

- Data/Monitoring/Maps/Photos
  - Thermograph maps with data links
  - Thermograph data for 24Jun-08Oct
  - 2008 habitat survey photo maps
  - 2004 M&T mesohabitat maps
  - 2001 CDFG riffle atlas maps and photos
  - Fish species photos
  - Screw trap photos

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 March 2008
9:30 AM
Turlock Irrigation District
Room 152 (1st floor – Civil Engineering/Water Resources)

REVISED DRAFT AGENDA

1. Introduction and Announcements
2. Comments on agenda; approve prior meeting summary (at http://tuolumnerivertac.com/); items since last meeting
3. 2007 FERC Report: contents and status, including 2007 fall run survey results
4. Monitoring: current activities: screw traps and seine; status of TRTAC grant from CALFED/DFG
5. March 1 DWR basin index forecast: potential annual fish flow volume and schedules; spring flow operations
6. VAMP: 2007 results (report at http://www.sjrg.org/); 2008 study plan and flows
7. Severe sediment runoff at River Mile 45 from Peaslee Creek watershed: monitoring and status of actions taken
8. Restoration update and status of TRTAC grants from CALFED/DFG
9. Agency/NGO updates
10. Additional items
11. Next meeting dates – Quarterly on 2nd Thursday: June 12, September 11, December 11

See also postings to TRTAC website http://tuolumnerivertac.com/

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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Email: tjford@tid.org

TECHNICAL ADVISORY COMMITTEE MEETING

13 March 2008
9:30 AM
Turlock Irrigation District, Room 152

Draft Summary

1. Introduction and Announcements - NMFS in attendance in part due to the reported problem of sedimentation/turbidity

2. A. Comments on agenda
   B. Dec meeting summary was approved with minor wording change to Item 4
   C. Items since last meeting Dec were reviewed in handout listing the additions of material posted at http://tuolumnerivertac.com/

3. 2007 FERC Report: Draft table of contents in handout was reviewed; standard items planned plus (1) 5-yr update on flow, export, temperature, and water quality data, (2) update of rainbow trout data since 2003; invertebrate report will be completed later

4. Monitoring
   A. 2007 fall run: preliminary TID estimate is 180 salmon, but awaiting CDFG numbers; estimate of about 1200 total for all three rivers; low numbers for entire Central Vally with Stuart reporting few 2-year olds seen in general which may not be good for next fall returns
   B. Seine summary data in handout – low abundance to date is similar to last year and consistent with low parent run numbers
   C. Screw traps: data in handouts; several fry (and smolt) pulses at Waterford and 2 pulses at Grayson (lower numbers); larger sizes present in winter months indicate other than fall run timing – will examine further in analysis; Grayson operation was delayed by wet conditions for installation until Jan 22 when alternate site was used to assemble traps and then traps were moved down to sampling site
   D. TRTAC monitoring grant status: still no news, but C. Charles commented she would check with CDFG

5. March 1 DWR basin index forecast
   A. Handout reviewed range of potential annual fish flow volume for next fish flow year based on forecast; current flow requirement is 150 cfs through April 14

B. Forecast did not account for dry days to date in March – another forecast due this week which should have lower numbers
C. Reviewed determination of flow volumes based on index forecasts

6. VAMP

A. 2007 results in report at http://www.sjrg.org/; several major mortality/predation sites within the Delta were found based on acoustic tag study results – sites included near Stockton wastewater plant and in front of CVP trash racks

B. 2008 study plan: plan to study reach losses using about 1000 tagged fish total in two paired release studies; more monitoring sites to be installed including Jersey Point and Chipps Island areas; probably no head of Old River barrier installed, unlike in 2007

C. 2008 study may include water quality assessment still under consideration

7. Severe sediment runoff from Peaslee Creek watershed
   A. Reviewed handout summarizing data gathered by Districts; information included rainfall amount and timing, local runoff data, and elevated turbidity documented in river and tributary monitoring
   B. Some photos have been posted to website
   C. NFMS will consider enforcement action following field review
   D. Unknown if CDFG has taken any action

8. Restoration and status of grants
   A. Handout of updated TRTAC project status from Fryer (TID) was reviewed
   B. No change in TRTAC restoration grants for gravel additions and for mining reach projects – CDFG has not responded to submittal of documents
   C. Part of Gasburg Project payment is in dispute with CDFG

9. Agency and NGO updates: Stuart reported that completion report on the Zimmerman trout otolith study for CDFG was available and he will provide it to the Districts; some evidence of anadromy was found in all local rivers

10. Additional items

02Apr: Corps of Engineers will have open house on Stockton Deepwater Ship Channel Project to deepen channel for ships (Stuart)

11. Next meeting dates
    - Quarterly on 2nd Thursday: June 12, September 11, December 11

FERC 2299 TRTAC Meeting
13 March 2008

Name	Organization
Tim Ford	TID/MID
Robert Nees	TID
Jeff Barton	TID
Roger Masuda	TID
Walter Ward	MID
Bill Sears	CCSF
Ron Yoshiyama	CCSF
Jeff Stuart	NMFS
Janiel Grinder	NOAA Office of Law Enforcement
Noah Hume	Stillwater Sciences
Cindy Charles	GWWF/NCCFFF

2008 TRTAC Activities & Materials

Activities/Materials 14Dec2007-13Mar2008

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

- Meetings
  - December 2007 TRTAC meeting summary and handouts
  - March 2008 TRTAC meeting agenda and restoration update

- Correspondence
  - Turbidity issue notification and comments
  - Comment letters to FERC

- Documents
  - Draft 2007 Seine and Snorkel Report

- Data/Monitoring
  - 2008 seine and screw trap data
  - Thermograph data through 13Feb2008
  - 2008 turbidity data
  - Updates of basin monitoring newsletter

- Photos
  - February 2008 turbidity

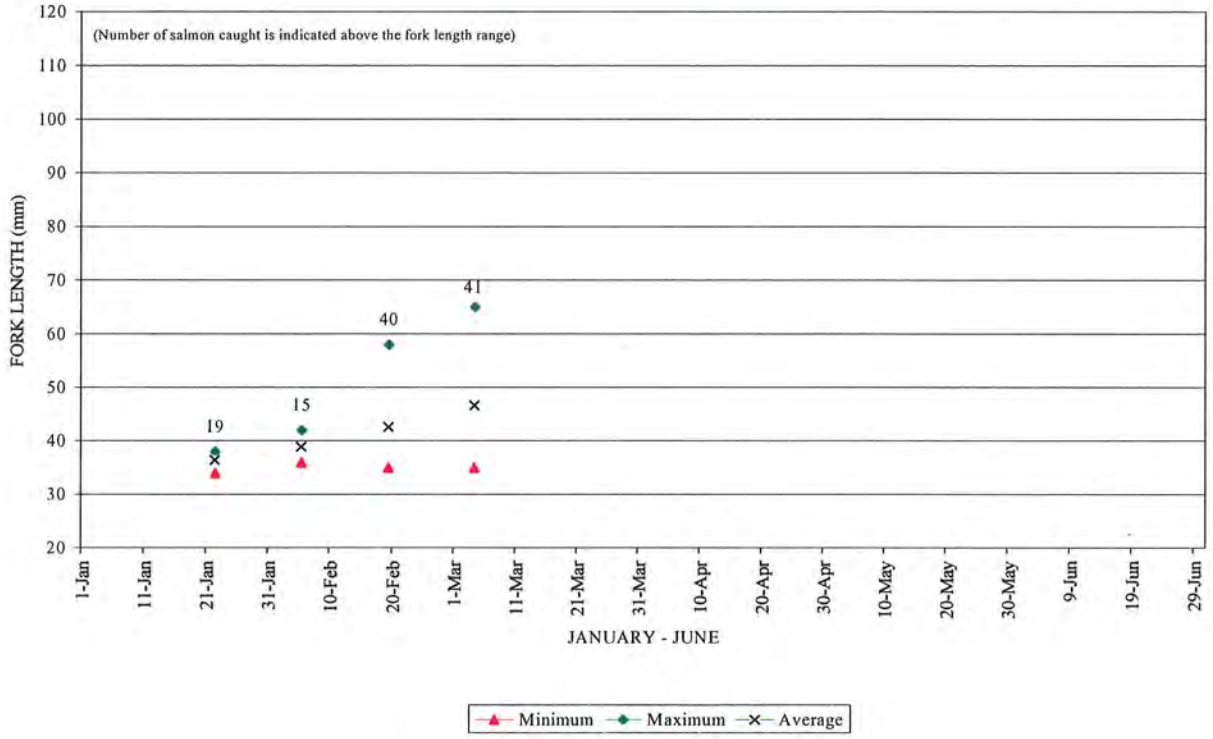
- FERC PROJECT NO. 2299 –
2007 LOWER TUOLUMNE RIVER ANNUAL REPORT

TABLE OF CONTENTS

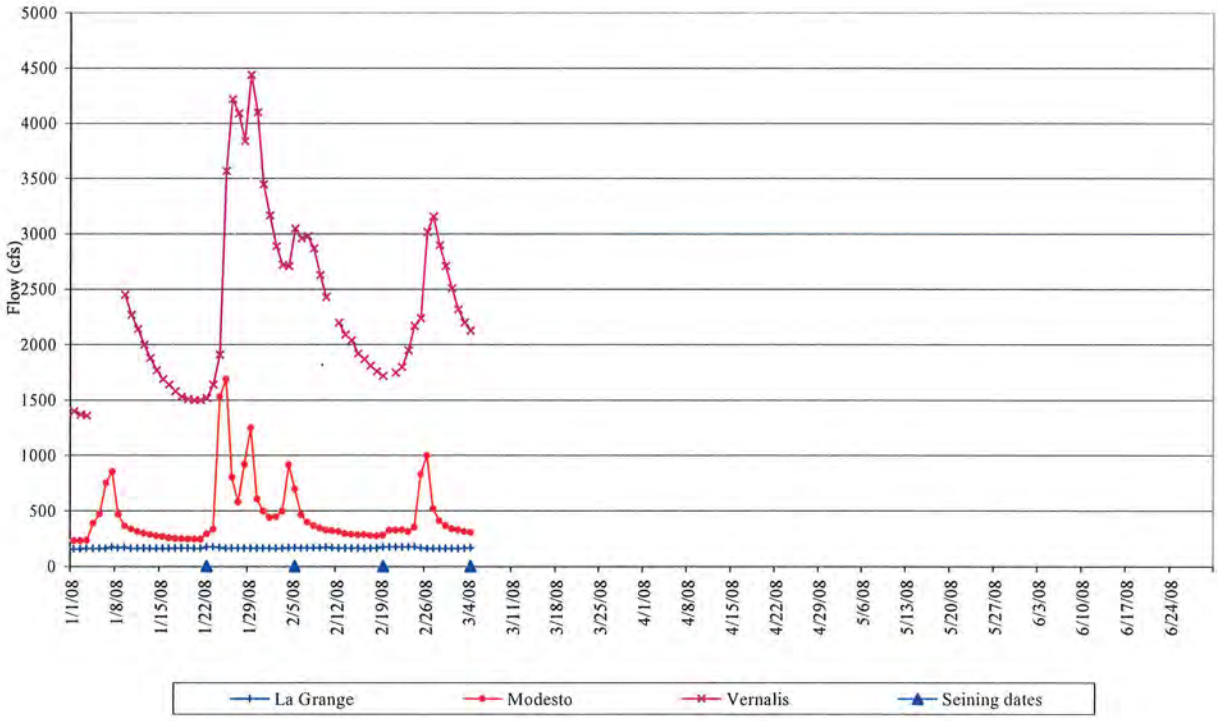
Draft Cover - Mar 2008

March 2008

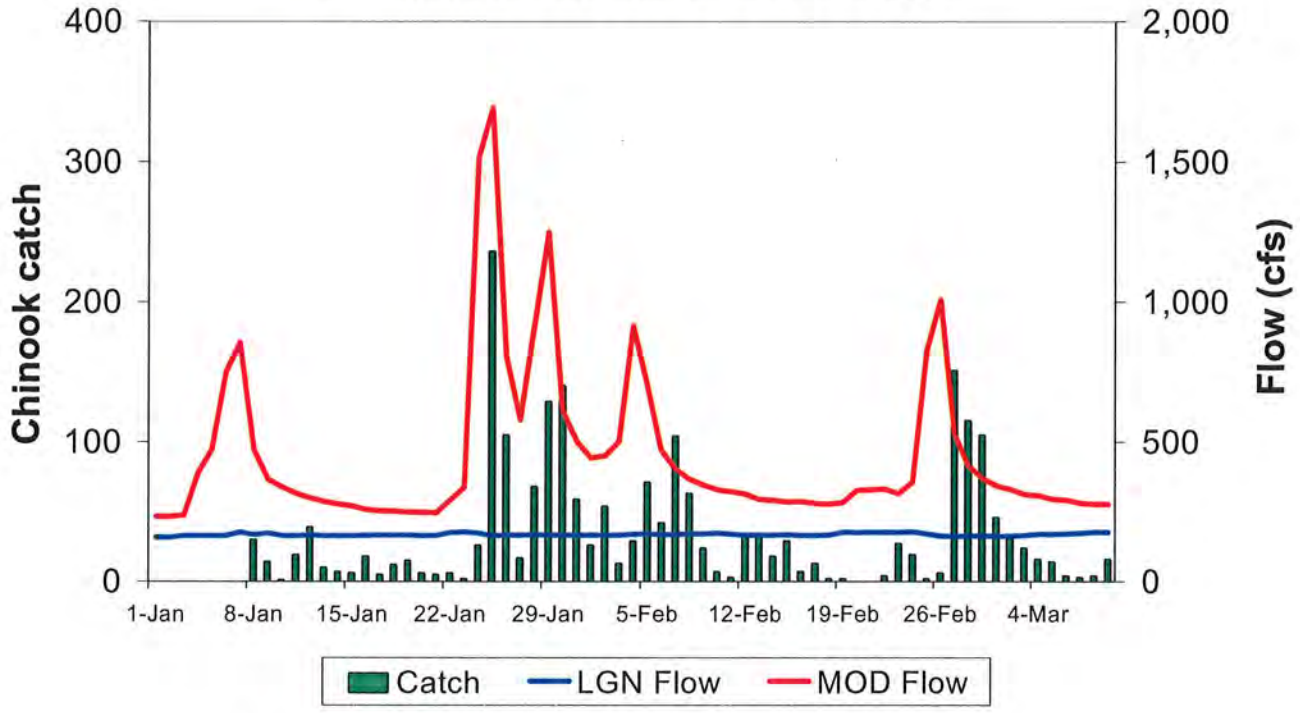
2008 TUOLUMNE RIVER JUVENILE SALMON SEINING STUDY



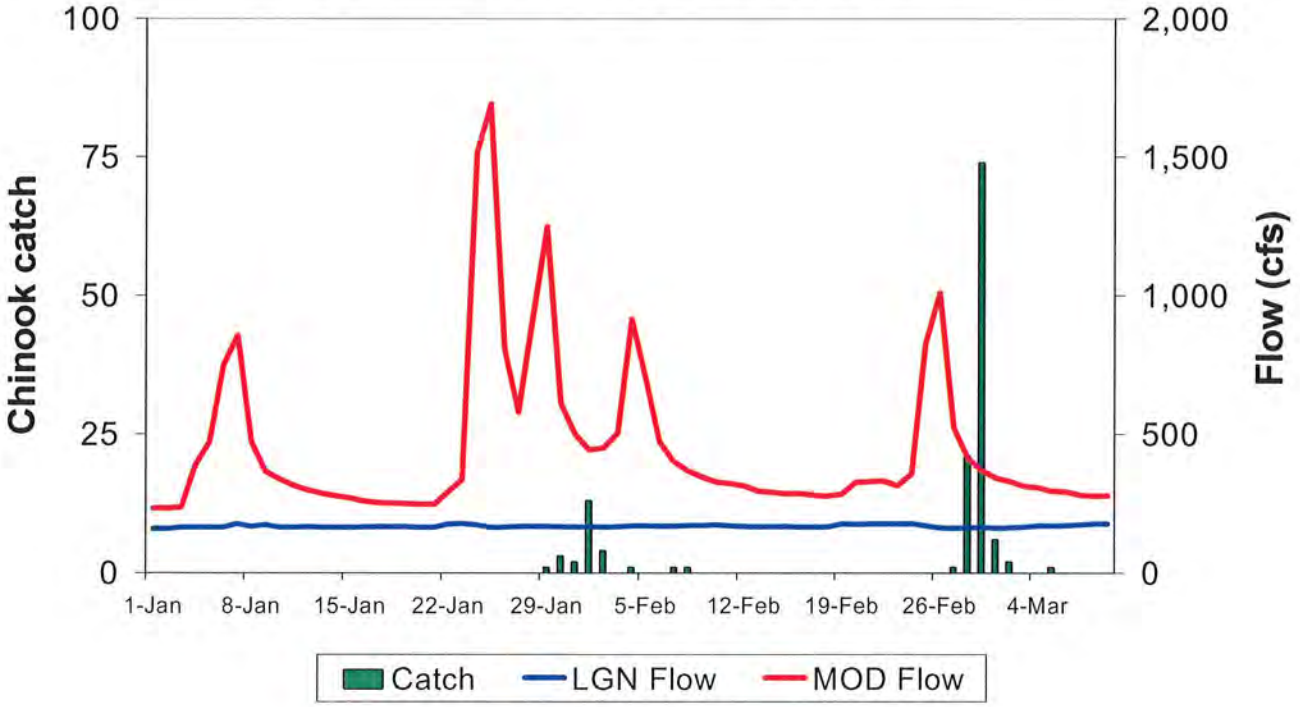
2008 Tuolumne and San Joaquin River daily mean flow
Provisional USGS data



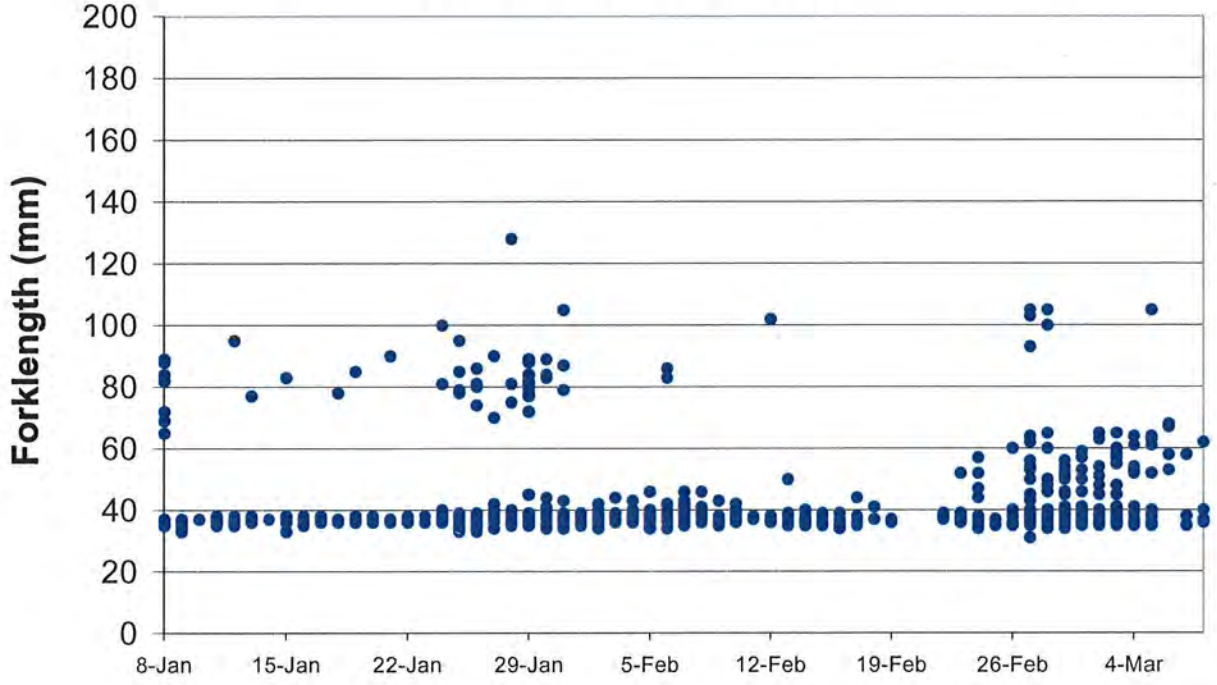
2008 Chinook Catch at Waterford and Tuolumne River Flow at La Grange



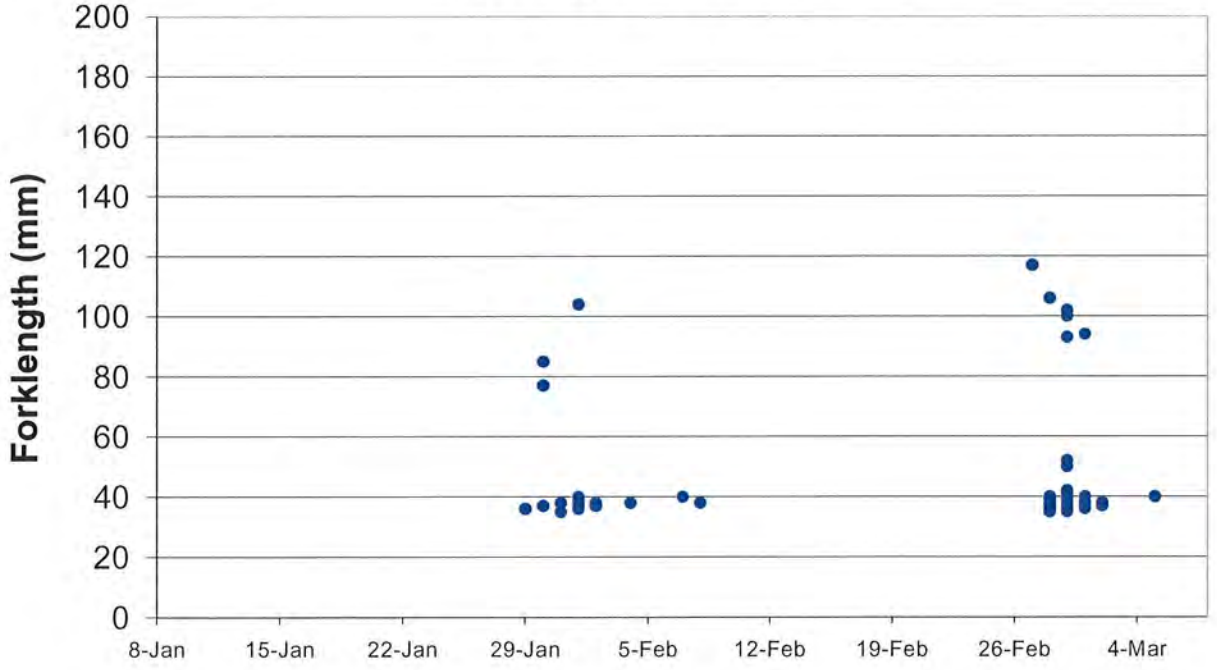
2008 Chinook Catch at Grayson and Tuolumne River Flow at Modesto

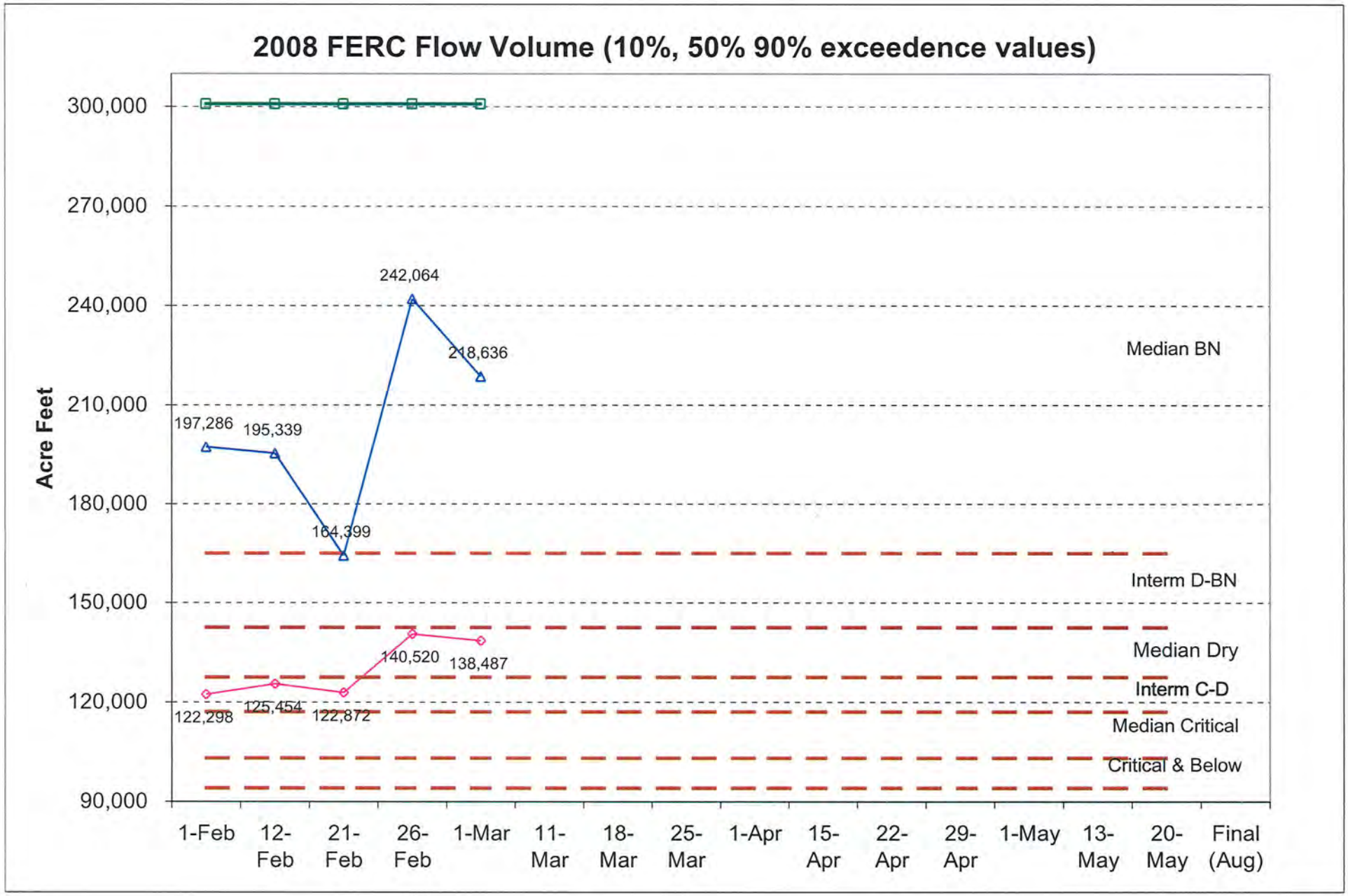


Individual Lengths of Chinook Captured at Waterford - 2008

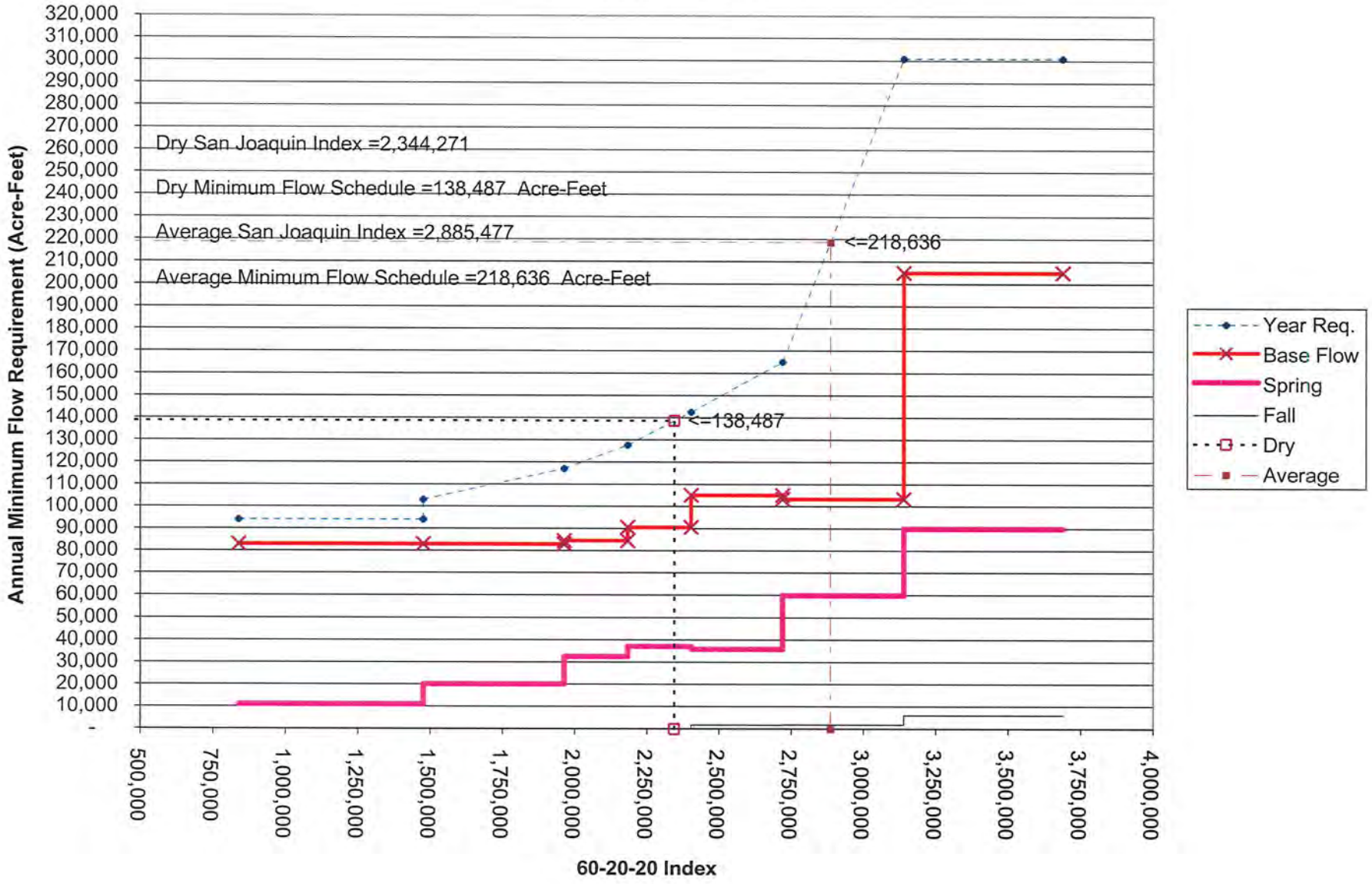


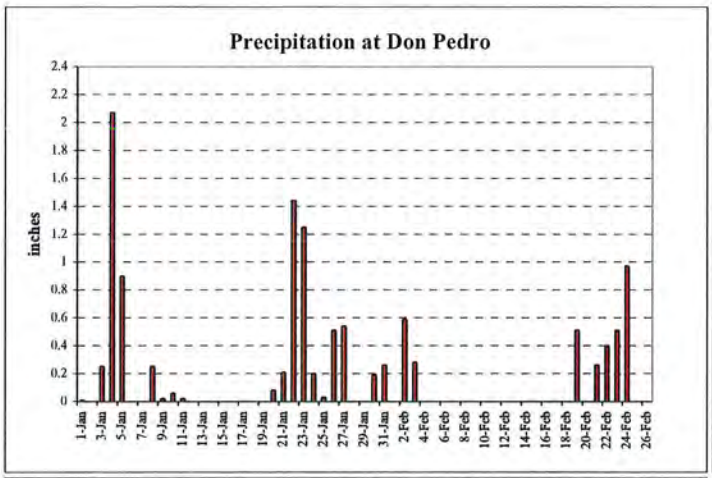
Individual Lengths of Chinook Captured at Grayson - 2008

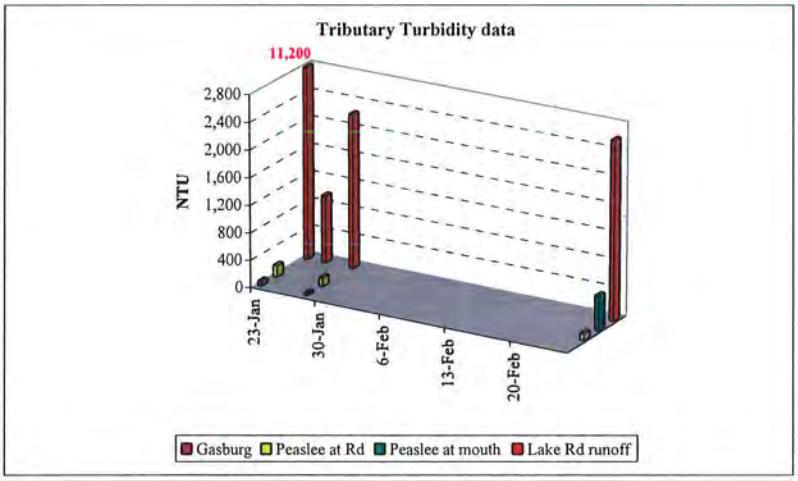


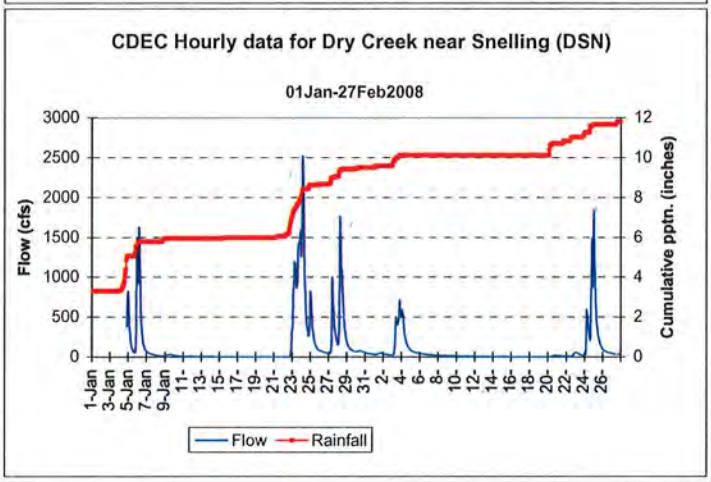

2008 FERC Flow Volume (10%, 50% 90% exceedence values)
Acre Feet
300,000
270,000
240,000
210,000
180,000
150,000
120,000
90,000
242,064
218,636
197,286
195,339
164,399
140,520
138,487
122,298
125,454
122,872
Median BN
Interm D-BN
Median Dry
Interm C-D
Median Critical
Critical & Below
1-Feb
12-Feb
21-Feb
26-Feb
1-Mar
11-Mar
18-Mar
25-Mar
1-Apr
15-Apr
22-Apr
29-Apr
1-May
13-May
20-May
Final (Aug)

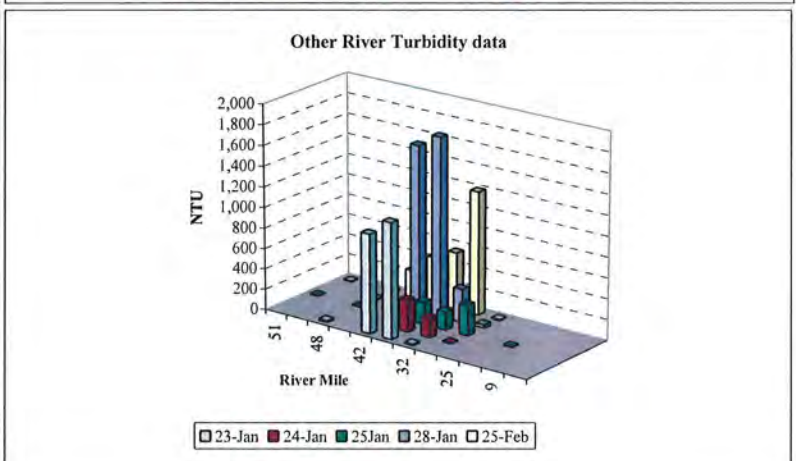
TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT
March 1, 2008 Forecast

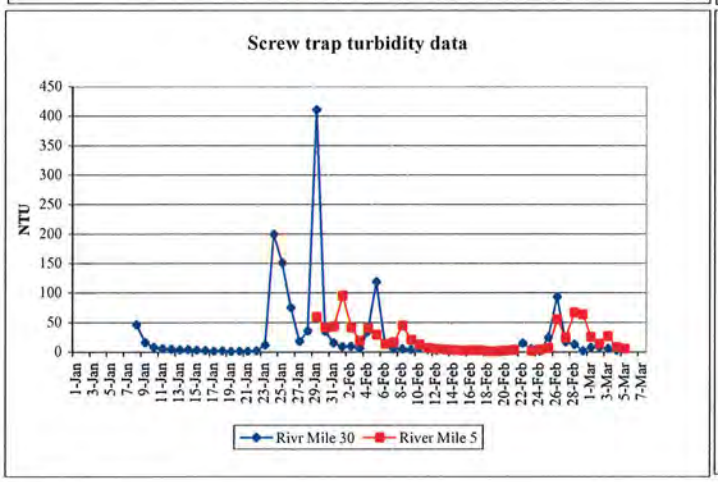


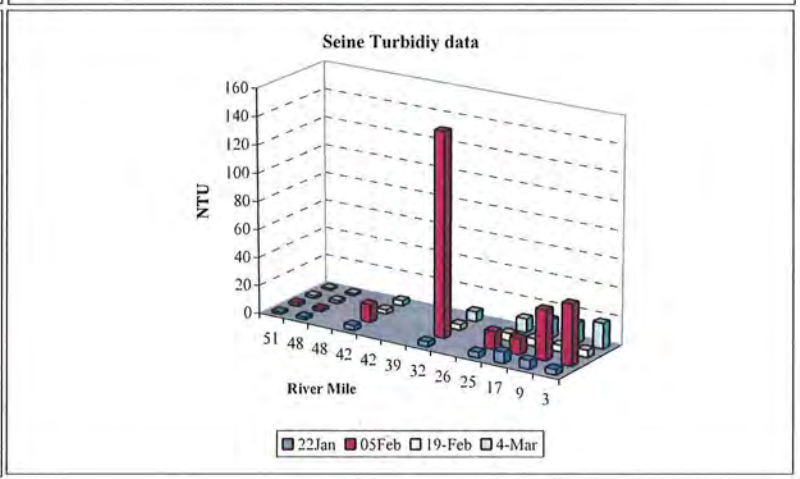

Precipitation at Don Pedro
inches


Tributary Turbidity data
11,200
NTU
23-Jan
30-Jan
6-Feb
13-Feb
20-Feb
Gasburg
Peaslee at Rd
Peaslee at mouth
Lake Rd runoff


CDEC Hourly data for Dry Creek near Snelling (DSN)
01Jan-27Feb2008
Flow (cfs)
Cumulative pptn. (inches)
Flow
Rainfall


Other River Turbidity data
NTU
River Mile
23-Jan
24-Jan
25Jan
28-Jan
25-Feb


Screw trap turbidity data
NTU
Rivr Mile 30
River Mile 5


Seine Turbidiy data
NTU
River Mile
22Jan
05Feb
19-Feb
4-Mar

Tuolumne River Turbidity Issue Photos

11Jan2008 - Lake Road looking SW at graded watershed runoff channel showing displaced wattle and manure piles; flow had backed up at culvert

11Jan2008 - Lake Road looking south at eroding graded slope

23Jan2008 – Tributary of Peaslee Creek from graded area at Lake Road

23Jan2008 - Turlock Lake State Recreation Area campground at river mile 42 below Peaslee Creek

TURLOCK IRRIGATION DISTRICT

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

TO: TRTAC
FROM: Wilton Fryer
DATE: 12 March 2008
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. Since construction DFG has raised procedural questions regarding transferring of funds between tasks to pay for the work. To resolve the issue per the contract, 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 transfer of funds to DFG for completion of the revegetation work. On 14 November the amendment was pulled by DFG. DFG did not reschedule the amendment for the 14 Feb 08 ERP amendments hearing. At this date DFG has held up reimbursement of $469,836 in invoices that have been submitted for the construction work and release of the project retention funds. DFG did spread the seed previously provided and re-hydromulched the site in early January. They had to use internal DFG funds as funds were not available from the project. No other revegetation work has been done at the site.
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 07. 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.
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.

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

12 June 2008 at 9:30 AM

Turlock Irrigation District, Lunch Room (2nd floor)

DRAFT AGENDA

1. INTRODUCTION AND ANNOUNCEMENTS

2. ADMINISTRATIVE ITEMS:
   - Review/Revise agenda
   - Approve notes from March 13, 2008 meeting
   - Items produced since last meeting

3. 2007 REPORT TO FERC: Discuss submittal to FERC and provide hardcopies

4. MONITORING:
   - Review screw trap and seine results
   - Discuss summer work, incl. trout studies
   - Discuss status of TRTAC monitoring grant

5. FLOW REQUIREMENTS:
   - Review of spring flow operations
   - Discuss status of DWR basin index forecast, the annual fish flow volume, and current flow schedule

6. VAMP:
   - Discuss 2008 study and flows
   - Review preliminary Mossdale trawl data

7. PEASLEE CREEK WATERSHED SEDIMENT ISSUES:
   - Discuss winter sediment runoff from Peaslee Creek watershed, monitoring being conducted to evaluate impacts, and status of actions taken

8. RESTORATION :
   - Review update of projects
   - Discuss status of TRTAC grants for gravel additions and mining reach restoration

9. AGENCY/NGO UPDATES

10. ADDITIONAL ITEMS

11. NEXT MEETING DATES – QUARTERLY ON 2ND THURSDAY: SEPTEMBER 11, DECEMBER 11

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

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Phone: (209) 883-8275
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Email: tjford@tid.org

TECHNICAL ADVISORY COMMITTEE MEETING

12 June 2008 at 9:30 AM

Turlock Irrigation District, Lunch Room (2nd floor)

Summary

1. INTRODUCTION AND ANNOUNCEMENTS

   No fishery agencies were present

2. ADMINISTRATIVE ITEMS:
   - Review/Revise agenda – no changes
   - Approve notes from March 13, 2008 meeting – no changes
   - Items produced since last meeting – reviewed the handout listing material posted at http://tuolumnerivertac.com/

3. 2007 REPORT TO FERC

   Copy was provided to those that did not already have one

4. MONITORING:
   - Review screw trap and seine results – several handouts were reviewed
     - Screw trap catches at both sites had fry pulses timed with winter runoff events; both sites had some larger-sized winter outmigrants (non-fall run?); catch at Waterford was higher and more consistent relative to Grayson, but sizes were comparable; DFG provided some efficiency test fish only for Grayson; Waterford catch was used for limited efficiency tests there
     - Seine catch density was very low and size range during season was typical
     - Discuss summer work, incl. trout studies – trout data summary is in FERC Report; Hume stated some preliminary FERC trout study details, which are still being developed; permit aspects were mentioned as a potential limiting issue for implementation
   - Discuss status of TRTAC monitoring grant – DFG has not provided any of the $1.26 million in approved CALFED funds; Districts have continued to conduct some monitoring that would be funded from that TRTAC grant submittal

5. FLOW REQUIREMENTS:
   - Review of spring flow operations – graph of pulse flow was reviewed; two peaks at about 1300 cfs were provided with 800 cfs following; includ VAMP supplemental flow
   - Discuss status of DWR basin index forecast, the annual fish flow volume, and

current flow schedule
  - 2008 volumes based on 50% and 90% index forecasts were compared with 2004 and 2007 (other dry years with dry spring periods) – 2008 appears to be between those two years
  - Summer minimum requirement is 50 cfs with no fall pulse required in each case
  - 90% result would mean reduction in fall/winter base flow requirement of 11 cfs (down to 139 cfs from 150 cfs) due to higher volume chosen by agencies for spring pulse release

6. VAMP:
   - Discuss 2008 study and flows
     - Using higher Tuolumne pulse partly enabled a Vernalis flow target of 3200 cfs instead of 2000 cfs – result was supplemental flows for higher VAMP target
     - Exports were about 1500 cfs during VAMP and were lower overall this year due to delta smelt requirements
     - Acoustic tag study results not available yet, but some problems were initially reported for tags and receivers
   - Review preliminary Mossdale trawl data
     - Handout of Apr-May average salmon catch/tow was reviewed (no size data yet)
     - Peak catch rate was in mid-May, but two days were not sampled within the peak period

7. PEASLEE CREEK WATERSHED SEDIMENT ISSUES:
   - Discuss winter sediment runoff from Peaslee Creek watershed, monitoring being conducted to evaluate impacts, and status of actions taken
     - Districts are having assessment done by McBain and Trush (sediment and invertebrates sampled in late May)
     - Primary regulatory action to date is Regional Board's Cleanup and Abatement Order, but that does not deal with river impacts; status of any fishery agency action is unknown
     - FOT wants to pursue better enforcement and is concerned about impacts on trout spawning; also concerned about floodplain encroachment of nursery near Waterford
     - A recommendation was made to document various impacts along entire river

8. RESTORATION :
   - Review update of projects (see handout from Fryer for details)
     - DFG is withholding $469,836 in reimbursement on the Gasburg Creek Project
   - Discuss status of TRTAC grants for gravel additions and mining reach restoration
     - DFG has not provided CALFED funds for TRTAC projects: Gravel Addition Project (about $3.98 million) and Mining Reach Project (about $10.8 million)

9. AGENCY/NGO UPDATES
   - FOT
     - Lot line adjustment enabling 34-acre land purchase in Bobcat Flat area using funds through ESRCD
     - Grayson tour on Monday morning

- AFRP grant application for $200K for more gravel additions at lower Bobcat Flat; would use about $175 of onsite sorted gravel as their contribution; using McBain and Trush for design; will seek more funds if grant is approved
- River Partners
  - Restoring area near Caswell State Park; they are already restoring a large area on another part of the SJR refuge project on the west side

10. ADDITIONAL ITEMS

11. NEXT MEETING DATES – QUARTERLY ON 2ND THURSDAY: SEPTEMBER 11, DECEMBER 11

FERC 2299 TRTAC Meeting
12 June 2008

	Name	Organization
1.	Tim Ford	TID/MID
2.	Robert Nees	TID
3.	Jeff Barton	TID
4.	Roger Masuda	TID
5.	Debbie Liebersbach	TID
6.	Walter Ward	MID
7.	Bill Sears	CCSF
8.	Ron Yoshiyama	CCSF
9.	Noah Hume	Stillwater Sciences
10.	Allison Boucher	Friends of the Tuolumne
11.	Stacy Small	River Partners

2008 TRTAC Activities & Materials

14Dec2007-13Mar2008 Postings to TRTAC website http://tuolumnerivertac.com/

- Meetings
  - December 2007 TRTAC meeting summary and handouts
  - March 2008 TRTAC meeting agenda and restoration update

- Correspondence
  - Turbidity issue notification and comments
  - Comment letters to FERC

- Documents
  - Draft 2007 Seine and Snorkel Report

- Data/Monitoring/Photos
  - 2008 seine and screw trap data
  - Thermograph data through 13Feb2008
  - 2008 turbidity data
  - Updates of basin monitoring newsletter
  - February 2008 turbidity photos

13Mar-12Jun2008 Changes to TRTAC website http://tuolumnerivertac.com/

- Updated flow schedules and participant list

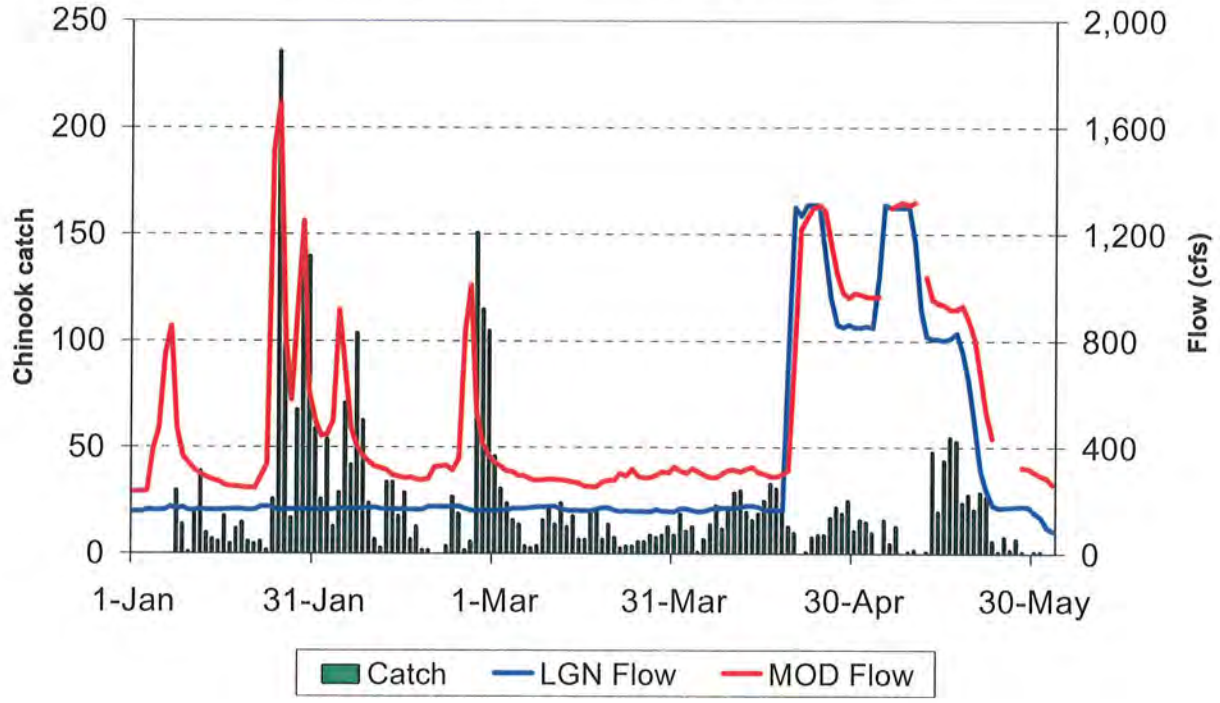
- Meetings
  - March 2008 TRTAC meeting notes, handouts, and restoration update
  - June 2008 TRTAC meeting agenda and restoration update

- Correspondence
  - Flow schedule letters
  - FERC Orders of 03Apr and 02Jun
  - Rehearing comment letters to FERC

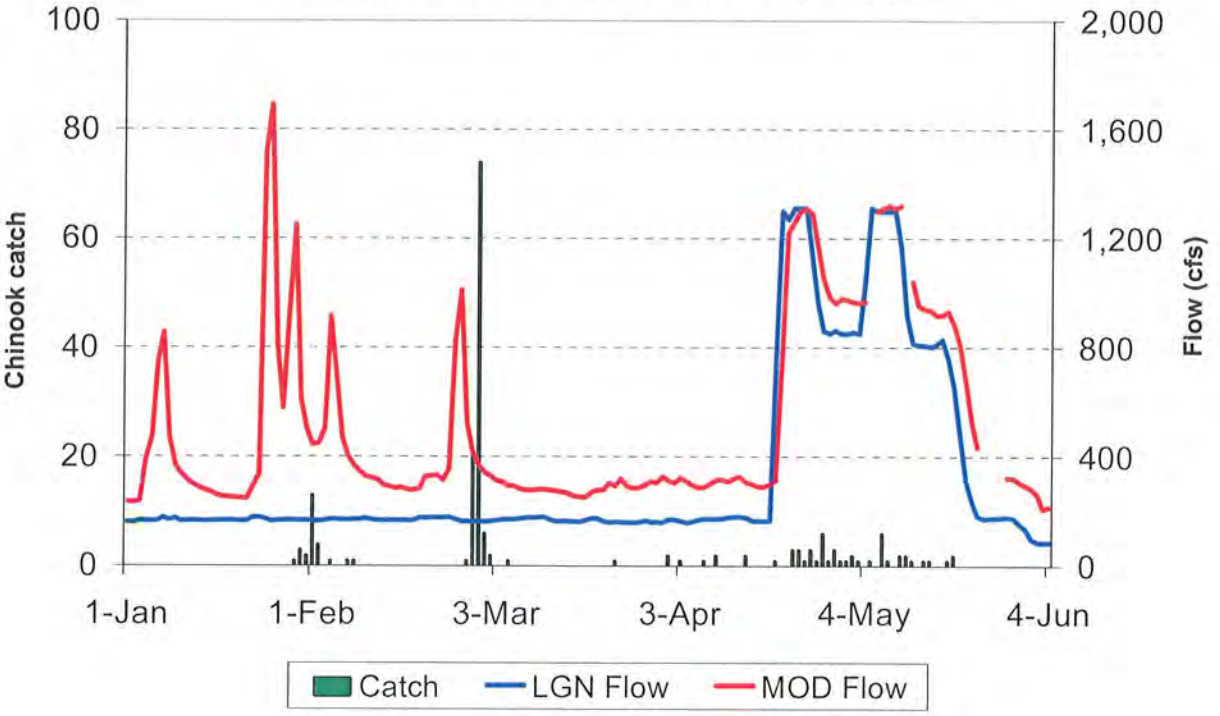
- Documents
  - 2007 FERC Report and Technical Reports
  - Zimmerman report on *O. mykiss* otolith study
  - 2007 VAMP Report
  - 2008 VAMP daily operation plans

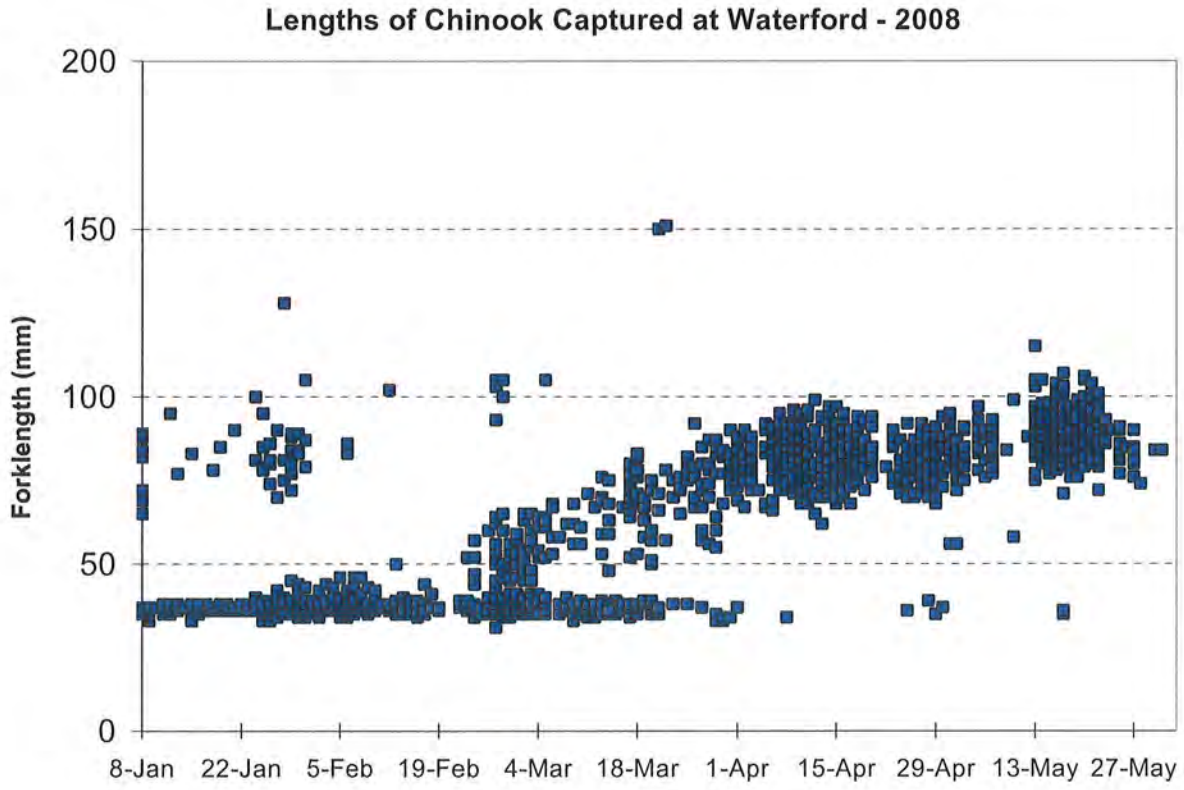
- Data/Monitoring
  - Updates of 2008 seine and screw trap data
  - Updates of basin monitoring newsletter
  - Photos of fish and screw trapping

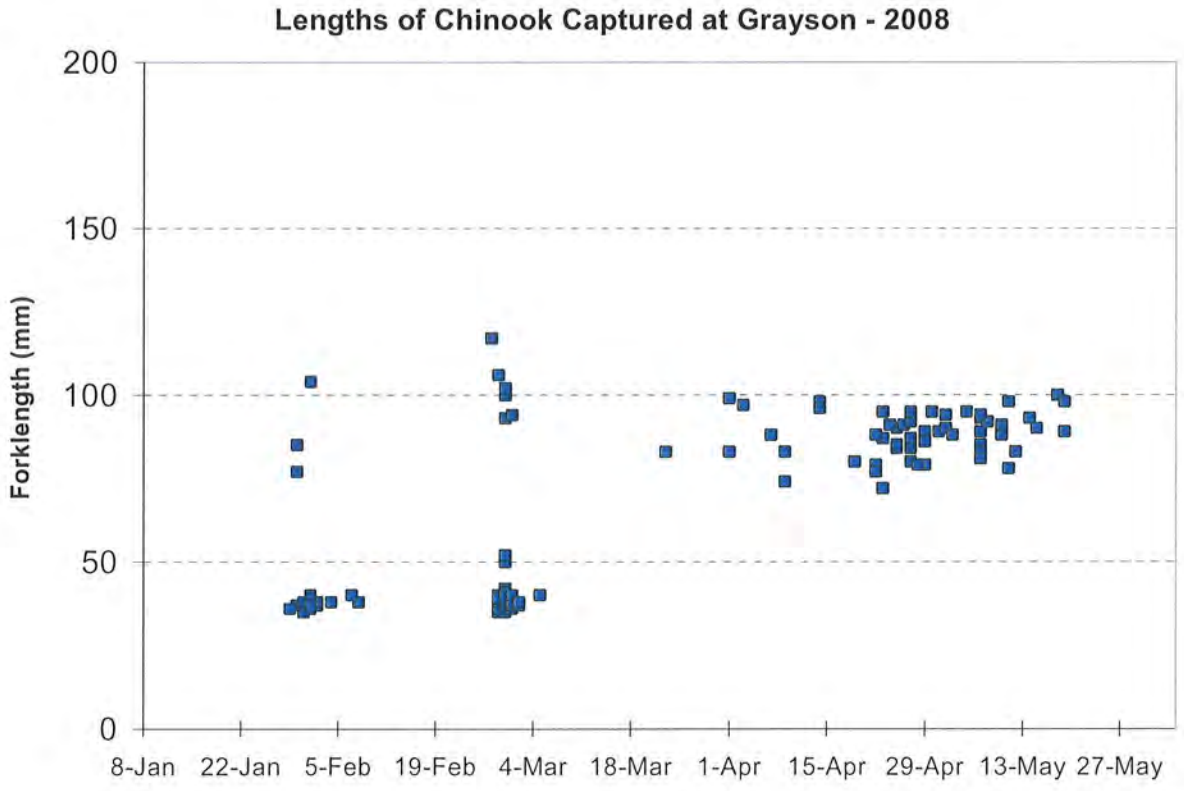
2008 Chinook Catch at Waterford and Tuolumne River Flow at La Grange and Modesto



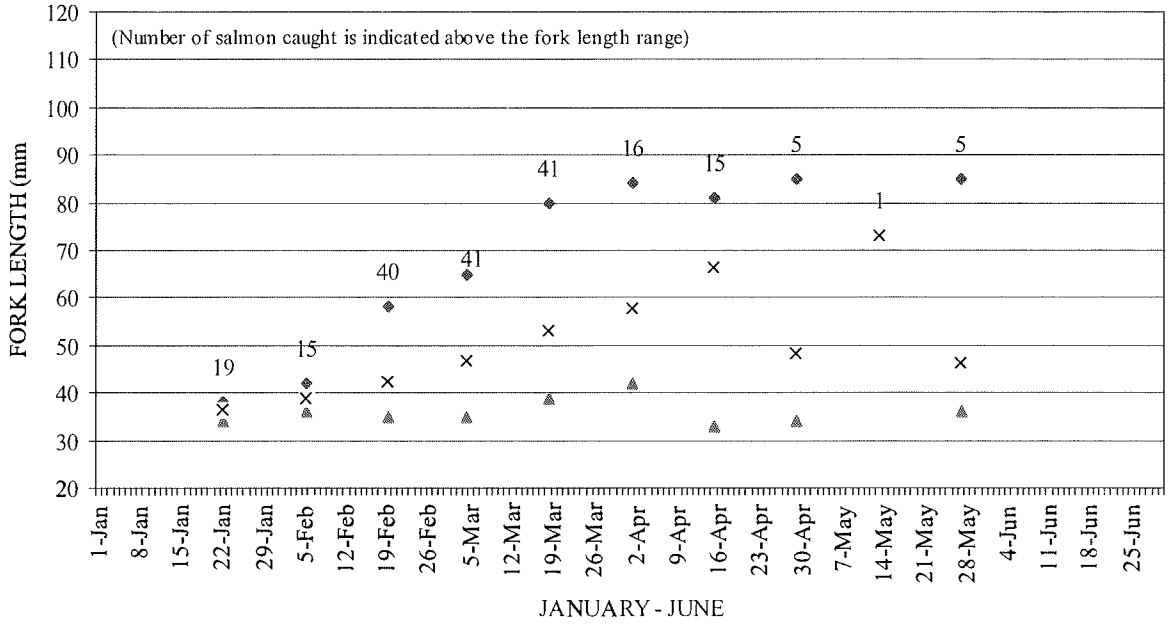
2008 Chinook Catch at Grayson and Tuolumne River Flow at La Grange and Modesto



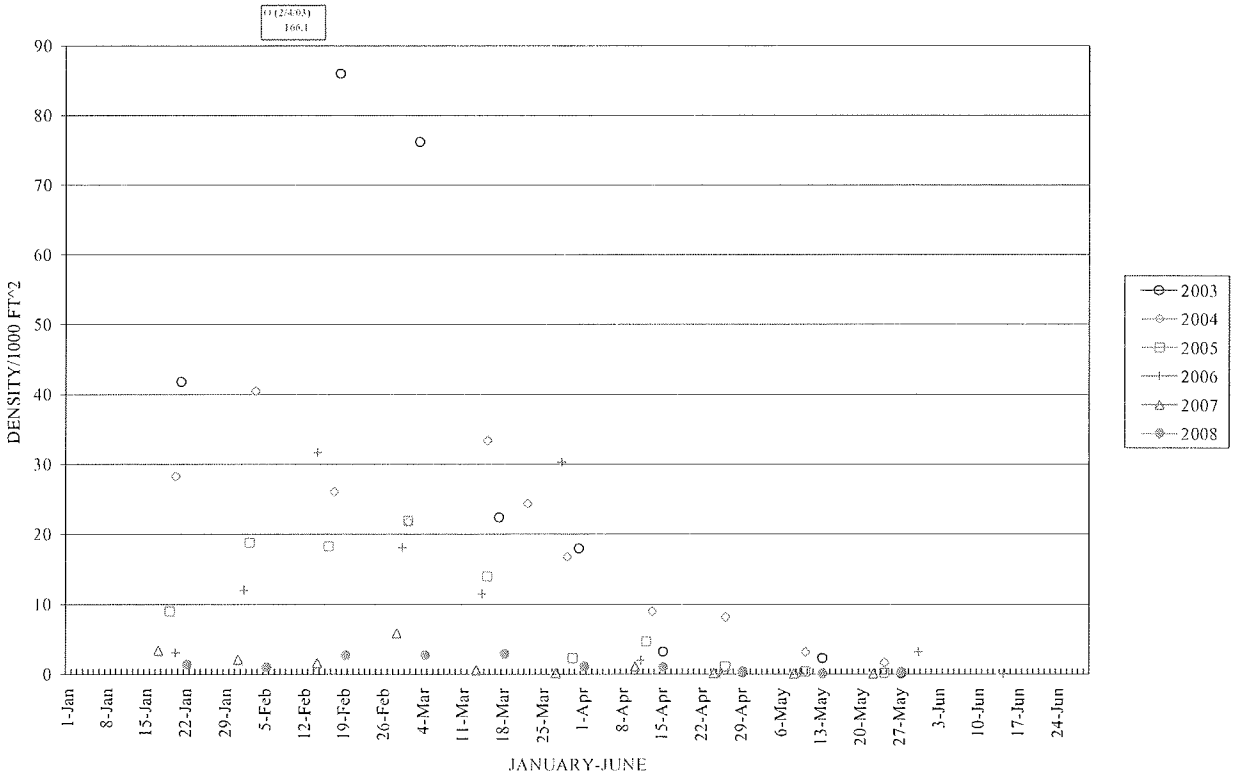

Lengths of Chinook Captured at Waterford - 2008
Forklength (mm)
200
150
100
50
0
8-Jan
22-Jan
5-Feb
19-Feb
4-Mar
18-Mar
1-Apr
15-Apr
29-Apr
13-May
27-May


Lengths of Chinook Captured at Grayson - 2008
Forklength (mm)
200
150
100
50
0
8-Jan
22-Jan
5-Feb
19-Feb
4-Mar
18-Mar
1-Apr
15-Apr
29-Apr
13-May
27-May

2008 TUOLUMNE RIVER JUVENILE SALMON SEINING STUDY

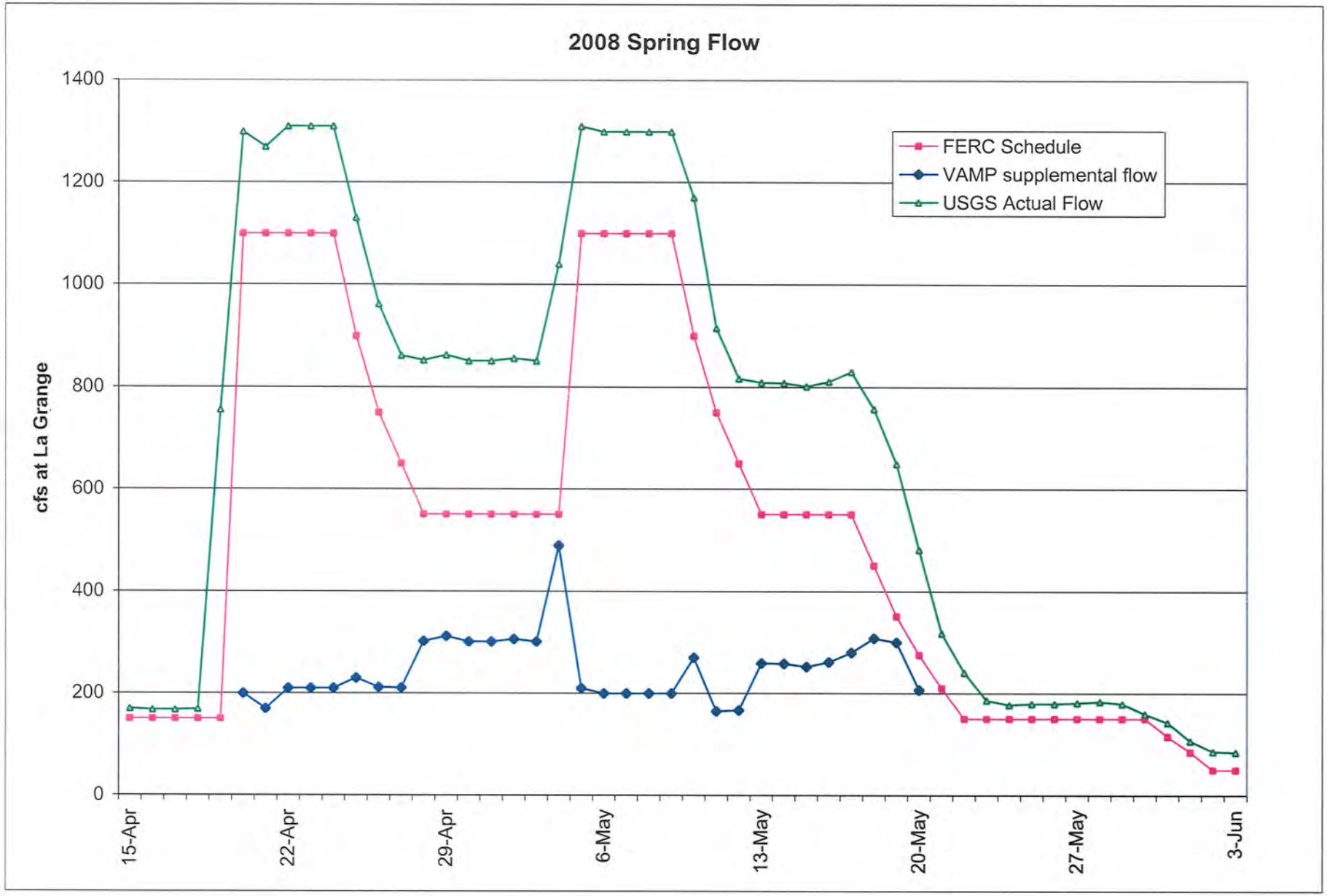


2003-2008 TUOLUMNE RIVER SEINING
COMBINED FRY AND JUVENILE SALMON DENSITY INDEX



For 12June2008 TRTAC Agenda Items 4 & 8

Original Amount	
$4,350,000	Tuolumne River Spawning Gravel Project - $3,898,989 remaining
$10,839,000	Tuolumne Mining Reach Restoration Project Construction Funds
$2,430,400	Tuolumne River Restoration Monitoring – adjusted to $1,263,900
$17,619,400	Total remaining: $16,102,900


2008 Spring Flow
cfs at La Grange
1400
1200
1000
800
600
400
200
0
15-Apr
22-Apr
29-Apr
6-May
13-May
20-May
27-May
3-Jun
FERC Schedule
VAMP supplemental flow
USGS Actual Flow

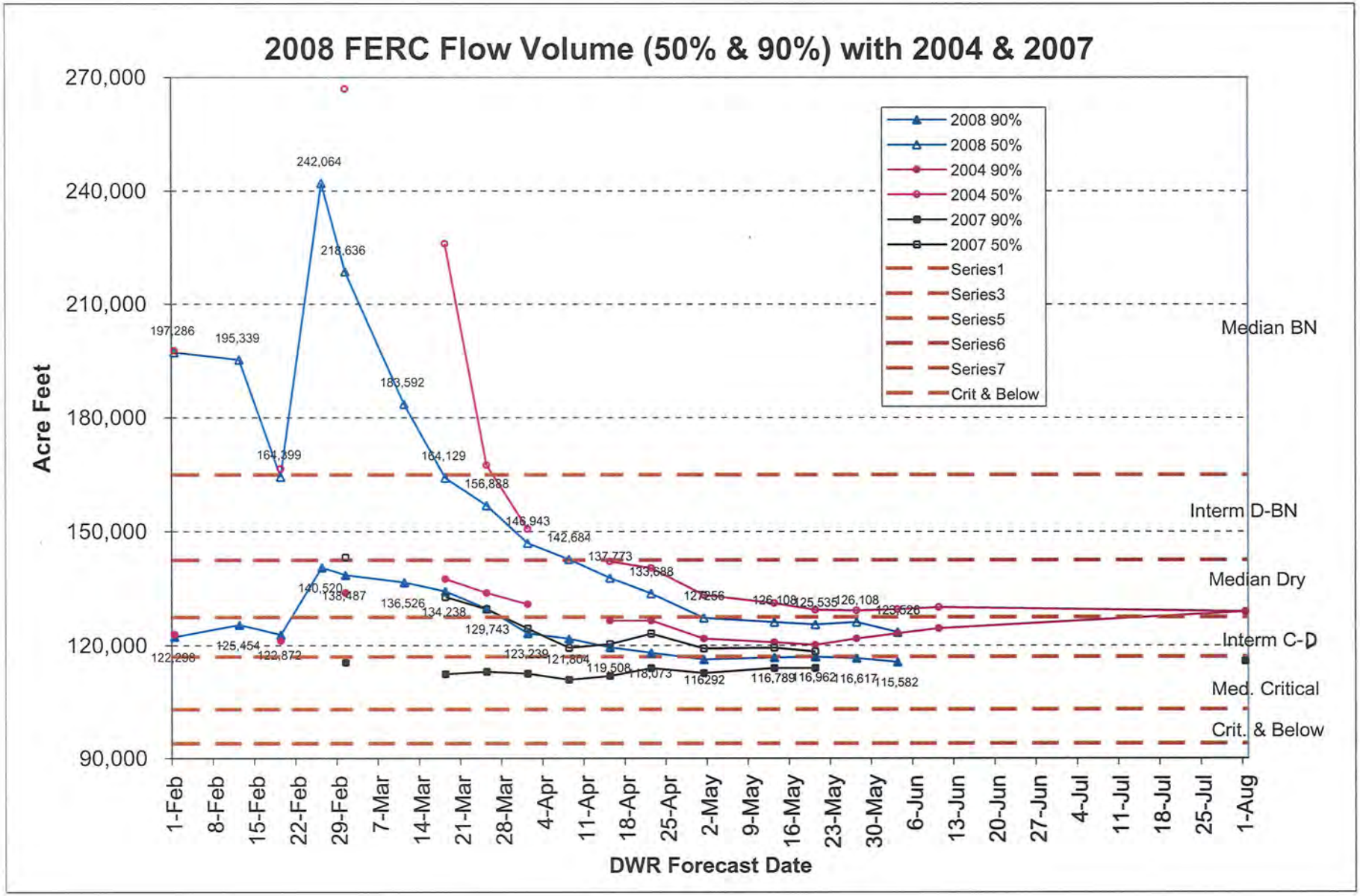

2008 FERC Flow Volume (50% & 90%) with 2004 & 2007
Acre Feet
DWR Forecast Date
270,000
240,000
210,000
180,000
150,000
120,000
90,000
1-Feb
8-Feb
15-Feb
22-Feb
29-Feb
7-Mar
14-Mar
21-Mar
28-Mar
4-Apr
11-Apr
18-Apr
25-Apr
2-May
9-May
16-May
23-May
30-May
6-Jun
13-Jun
20-Jun
27-Jun
4-Jul
11-Jul
18-Jul
25-Jul
1-Aug
2008 90%
2008 50%
2004 90%
2004 50%
2007 90%
2007 50%
Series1
Series3
Series5
Series6
Series7
Crit & Below
Median BN
Interm D-BN
Median Dry
Interm C-D
Med. Critical
Crit. & Below
197,286
195,339
164,399
242,064
218,636
183,592
164,129
156,888
146,943
142,684
137,773
133,688
127,256
126,108
125,535
126,108
123,626
140,520
138,487
136,526
134,238
129,743
123,239
121,604
119,508
118,073
116292
116,789
116,962
116,617
115,582
122,298
125,454
122,872

TABLE 2

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

DATE		Number of	Flow for Average																
			Flow			Pulse Flows			Interpolation 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	AF	ACCUM. A.F.	CFS	ACCUM. A.F.			
15-Apr-2008	15-Apr-2008	1	150	298	298	0	0	0	0	0	0	0	0	0	150	298			
16-Apr-2008	16-Apr-2008	1	150	298	595	0	0	0	0	0	0	0	0	0	150	595			
17-Apr-2008	17-Apr-2008	1	150	298	893	0	0	0	0	0	0	0	0	0	150	893			
18-Apr-2008	18-Apr-2008	1	150	298	1,190	0	0	0	0	0	0	0	0	0	150	1,190			
19-Apr-2008	19-Apr-2008	1	150	298	1,488	0	0	0	0	0	0	0	0	0	150	1,488			
20-Apr-2008	20-Apr-2008	1	150	298	1,785	950	1,884	1,884	0	0	0	0	0	0	1,100	3,669			
21-Apr-2008	21-Apr-2008	1	150	298	2,083	950	1,884	3,769	0	0	0	0	0	0	1,100	5,851			
22-Apr-2008	22-Apr-2008	1	150	298	2,380	950	1,884	5,653	0	0	0	0	0	0	1,100	8,033			
23-Apr-2008	23-Apr-2008	1	150	298	2,678	950	1,884	7,537	0	0	0	0	0	0	1,100	10,215			
24-Apr-2008	24-Apr-2008	1	150	298	2,975	950	1,884	9,421	0	0	0	0	0	0	1,100	12,397			
25-Apr-2008	25-Apr-2008	1	150	298	3,273	750	1,488	10,909	0	0	0	0	0	0	900	14,182			
26-Apr-2008	26-Apr-2008	1	150	298	3,570	600	1,190	12,099	0	0	0	0	0	0	750	15,669			
27-Apr-2008	27-Apr-2008	1	150	298	3,868	500	992	13,091	0	0	0	0	0	0	650	16,959			
28-Apr-2008	28-Apr-2008	1	150	298	4,165	400	793	13,884	0	0	0	0	0	0	550	18,050			
29-Apr-2008	29-Apr-2008	1	150	298	4,463	400	793	14,678	0	0	0	0	0	0	550	19,140			
30-Apr-2008	30-Apr-2008	1	150	298	4,760	400	793	15,471	0	0	0	0	0	0	550	20,231			
01-May-2008	01-May-2008	1	150	298	5,058	400	793	16,264	0	0	0	0	0	0	550	21,322			
02-May-2008	02-May-2008	1	150	298	5,355	400	793	17,058	0	0	0	0	0	0	550	22,413			
03-May-2008	03-May-2008	1	150	298	5,653	400	793	17,851	0	0	0	0	0	0	550	23,504			
04-May-2008	04-May-2008	1	150	298	5,950	400	793	18,645	0	0	0	0	0	0	550	24,595			
05-May-2008	05-May-2008	1	150	298	6,248	950	1,884	20,529	0	0	0	0	0	0	1,100	26,777			
06-May-2008	06-May-2008	1	150	298	6,545	950	1,884	22,413	0	0	0	0	0	0	1,100	28,959			
07-May-2008	07-May-2008	1	150	298	6,843	950	1,884	24,298	0	0	0	0	0	0	1,100	31,140			
08-May-2008	08-May-2008	1	150	298	7,140	950	1,884	26,182	0	0	0	0	0	0	1,100	33,322			
09-May-2008	09-May-2008	1	150	298	7,438	950	1,884	28,066	0	0	0	0	0	0	1,100	35,504			
10-May-2008	10-May-2008	1	150	298	7,736	750	1,488	29,554	0	0	0	0	0	0	900	37,289			
11-May-2008	11-May-2008	1	150	298	8,033	600	1,190	30,744	0	0	0	0	0	0	750	38,777			
12-May-2008	12-May-2008	1	150	298	8,331	500	992	31,736	0	0	0	0	0	0	650	40,066			
13-May-2008	13-May-2008	1	150	298	8,628	400	793	32,529	0	0	0	0	0	0	550	41,157			
14-May-2008	14-May-2008	1	150	298	8,926	400	793	33,322	0	0	0	0	0	0	550	42,248			
15-May-2008	15-May-2008	1	150	298	9,223	400	793	34,116	0	0	0	0	0	0	550	43,339			
16-May-2008	16-May-2008	1	150	298	9,521	400	793	34,909	0	0	0	0	0	0	550	44,430			
17-May-2008	17-May-2008	1	150	298	9,818	400	793	35,702	0	0	0	0	0	0	550	45,521			
18-May-2008	18-May-2008	1	150	298	10,116	300	595	36,298	0	0	0	0	0	0	450	46,413			
19-May-2008	19-May-2008	1	150	298	10,413	200	397	36,694	0	0	0	0	0	0	350	47,107			
20-May-2008	20-May-2008	1	150	298	10,711	125	248	36,942	0	0	0	0	0	0	275	47,653			
21-May-2008	21-May-2008	1	150	298	11,008	60	119	37,061	0	0	0	0	0	0	210	48,069			
22-May-2008	22-May-2008	1	150	298	11,306	0	0	37,061	0	0	0	0	0	0	150	48,367			
23-May-2008	23-May-2008	1	150	298	11,603	0	0	37,061	0	0	0	0	0	0	150	48,664			
24-May-2008	24-May-2008	1	150	298	11,901	0	0	37,061	0	0	0	0	0	0	150	48,962			
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,061	0	0	0	0	0	0	150	49,260			
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,061	0	0	0	0	0	0	150	49,557			
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,061	0	0	0	0	0	0	150	49,855			
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,061	0	0	0	0	0	0	150	50,152			
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,061	0	0	0	0	0	0	150	50,450			
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,061	0	0	0	0	0	0	150	50,747			
31-May-2008	31-May-2008	1	150	298	13,983		0	37,061	0	0	0	-35	(69)	(69)	115	50,975			
01-Jun-2008	01-Jun-2008	1	50	99	14,083		0	37,061	0	0	0	35	69	0	85	51,144			
02-Jun-2008	02-Jun-2008	1	50	99	14,182		0	37,061	0	0	0	0	0	0	50	51,243			
03-Jun-2008	03-Jun-2008	1	50	99	14,281		0	37,061	0	0	0	0	0	0	50	51,342			
04-Jun-2008	04-Jun-2008	1	50	99	14,380		0	37,061	0	0	0	0	0	0	50	51,441			
05-Jun-2008	30-Jun-2008	26	50	2,579	16,959		0	37,061	0	0	0	0	0	0	50	54,020			
01-Jul-2008	31-Jul-2008	31	50	3,074	20,033		0	37,061	0	0	0	0	0	0	50	57,094			
01-Aug-2008	31-Aug-2008	31	50	3,074	23,107		0	37,061	0	0	0	0	0	0	50	60,169			
01-Sep-2008	10-Sep-2008	10	50	992	24,099		0	37,061	0	0	0	0	0	0	50	61,160			
11-Sep-2008	13-Sep-2008	3	50	298	24,397		0	37,061	0	0	0	0	0	0	50	61,458			
14-Sep-2008	30-Sep-2008	17	50	1,686	26,083		0	37,061	0	0	0	0	0	0	50	63,144			
01-Oct-2008	05-Oct-2008	5	150	1,488	27,570		0	37,061	0	0	0	0	0	0	150	64,631			
06-Oct-2008	10-Oct-2008	5	150	1,488	29,058	0	0	37,061	0	0	0	0	0	0	150	66,119			
11-Oct-2008	26-Oct-2008	16	150	4,760	33,818		0	37,061	0	0	0	0	0	0	150	70,879			
27-Oct-2008	28-Oct-2008	2	150	595	34,413		0	37,061	0	0	0	0	0	0	150	71,474			
29-Oct-2008	29-Oct-2008	1	150	298	34,711		0	37,061	0	0	0	0	0	0	150	71,772			
30-Oct-2008	30-Oct-2008	1	150	298	35,008		0	37,061	0	0	0	0	0	0	150	72,069			
31-Oct-2008	31-Oct-2008	1	150	298	35,306		0	37,061	0	0	0	0	0	0	150	72,367			
01-Nov-2008	16-Nov-2008	16	150	4,760	40,066		0	37,061	0	0	0	0	0	0	150	77,127			
17-Nov-2008	30-Nov-2008	14	150	4,165	44,231		0	37,061	0	0	0	0	0	0	150	81,293			
01-Dec-2008	31-Dec-2008	31	150	9,223	53,455		0	37,061	0	0	0	0	0	0	150	90,516			
01-Jan-2009	31-Jan-2009	31	150	9,223	62,678		0	37,061	0	0	0	0	0	0	150	99,739			
01-Feb-2009	28-Feb-2009	28	150	8,331	71,008		0	37,061	0	0	0	0	0	0	150	108,069			
01-Mar-2009	31-Mar-2009	31	150	9,223	80,231		0	37,061	0	0	0	0	0	0	150	117,293			
01-Apr-2009	14-Apr-2009	14	150	4,165	84,397		0	37,061	0	0	0	0	0	0	150	121,458			
No. of days		365	(April 15 through April 14)						Interpolation Water =		2,068				Total =				

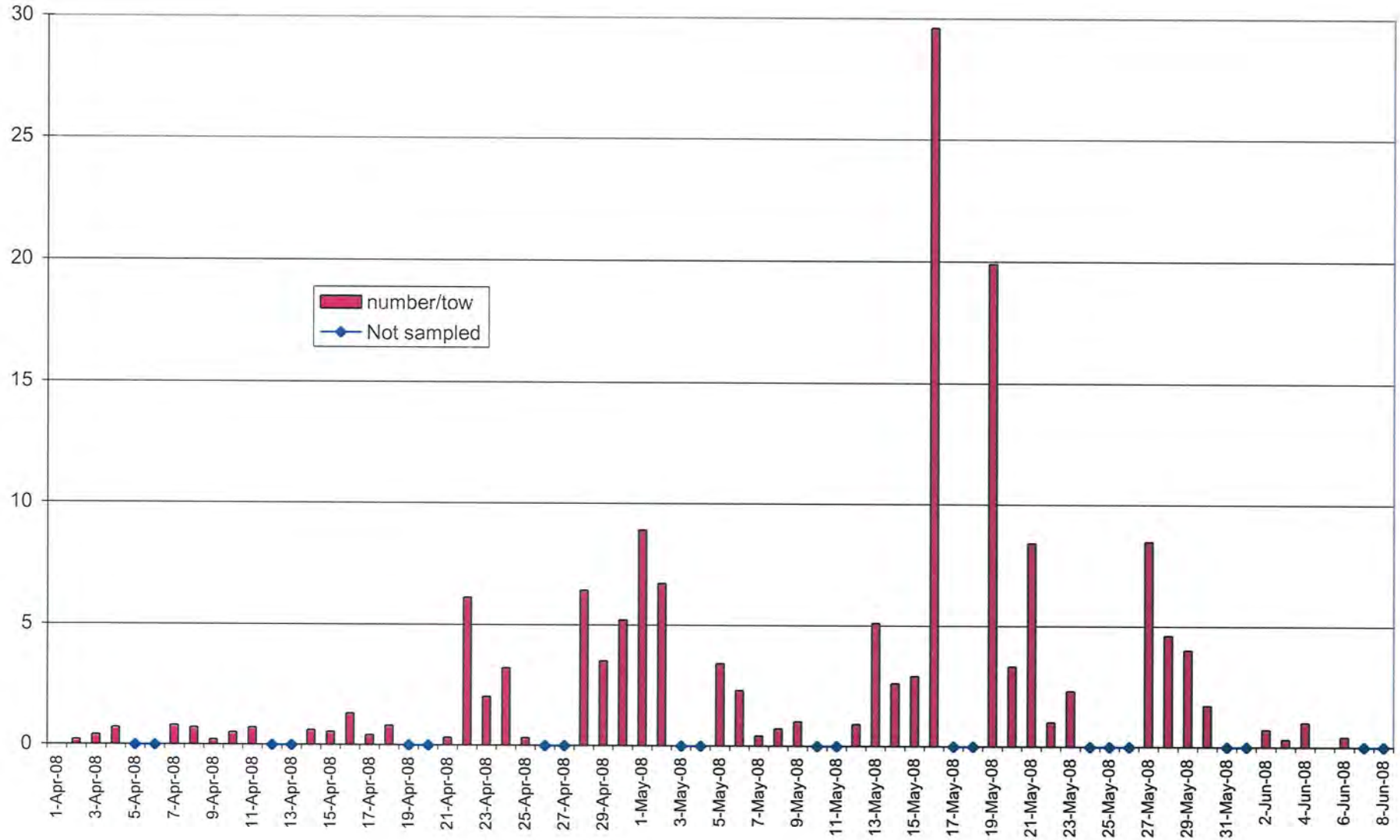
TABLE 3

Tuolumne River Flow Schedule

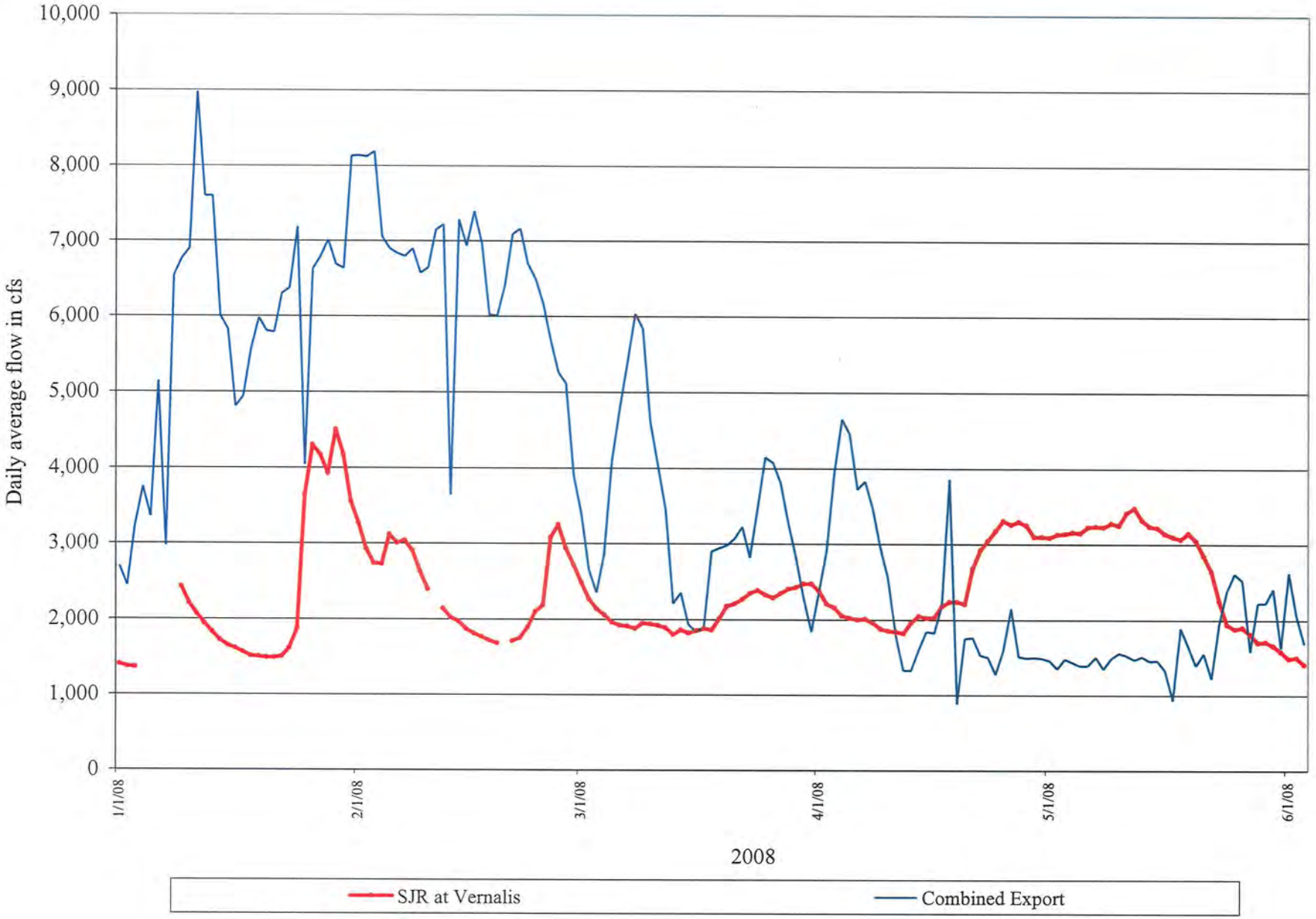
SCHEDULE FOR 2008 - 2009 Fish Flow Year

			Flow for Dry														
			Flow			Pulse Flows			Interpolation Flow			Other Adjusted Flow			Total FERC Flow	
DATE		Number of			ACCUM.			ACCUM.			ACCUM.			ACCUM.		ACCUM.
From:	To:	DAYS	CFS	AF	A.F.	CFS	AF	A.F.	CFS	AF	A.F.	CFS	AF	A.F.	CFS	A.F.
15-Apr-2008	15-Apr-2008	1	150	298	298	0	0	0	0	0	0	0	0	0	150	298
16-Apr-2008	16-Apr-2008	1	150	298	595	0	0	0	0	0	0	0	0	0	150	595
17-Apr-2008	17-Apr-2008	1	150	298	893	0	0	0	0	0	0	0	0	0	150	893
18-Apr-2008	18-Apr-2008	1	150	298	1,190	0	0	0	0	0	0	0	0	0	150	1,190
19-Apr-2008	19-Apr-2008	1	150	298	1,488	0	0	0	0	0	0	0	0	0	150	1,488
20-Apr-2008	20-Apr-2008	1	150	298	1,785	950	1,884	1,884	0	0	0	0	0	0	1,100	3,669
21-Apr-2008	21-Apr-2008	1	150	298	2,083	950	1,884	3,769	0	0	0	0	0	0	1,100	5,851
22-Apr-2008	22-Apr-2008	1	150	298	2,380	950	1,884	5,653	0	0	0	0	0	0	1,100	8,033
23-Apr-2008	23-Apr-2008	1	150	298	2,678	950	1,884	7,537	0	0	0	0	0	0	1,100	10,215
24-Apr-2008	24-Apr-2008	1	150	298	2,975	950	1,884	9,421	0	0	0	0	0	0	1,100	12,397
25-Apr-2008	25-Apr-2008	1	150	298	3,273	750	1,488	10,909	0	0	0	0	0	0	900	14,182
26-Apr-2008	26-Apr-2008	1	150	298	3,570	600	1,190	12,099	0	0	0	0	0	0	750	15,669
27-Apr-2008	27-Apr-2008	1	150	298	3,868	500	992	13,091	0	0	0	0	0	0	650	16,959
28-Apr-2008	28-Apr-2008	1	150	298	4,165	400	793	13,884	0	0	0	0	0	0	550	18,050
29-Apr-2008	29-Apr-2008	1	150	298	4,463	400	793	14,678	0	0	0	0	0	0	550	19,140
30-Apr-2008	30-Apr-2008	1	150	298	4,760	400	793	15,471	0	0	0	0	0	0	550	20,231
01-May-2008	01-May-2008	1	150	298	5,058	400	793	16,264	0	0	0	0	0	0	550	21,322
02-May-2008	02-May-2008	1	150	298	5,355	400	793	17,058	0	0	0	0	0	0	550	22,413
03-May-2008	03-May-2008	1	150	298	5,653	400	793	17,851	0	0	0	0	0	0	550	23,504
04-May-2008	04-May-2008	1	150	298	5,950	400	793	18,645	0	0	0	0	0	0	550	24,595
05-May-2008	05-May-2008	1	150	298	6,248	950	1,884	20,529	0	0	0	0	0	0	1,100	26,777
06-May-2008	06-May-2008	1	150	298	6,545	950	1,884	22,413	0	0	0	0	0	0	1,100	28,959
07-May-2008	07-May-2008	1	150	298	6,843	950	1,884	24,298	0	0	0	0	0	0	1,100	31,140
08-May-2008	08-May-2008	1	150	298	7,140	950	1,884	26,182	0	0	0	0	0	0	1,100	33,322
09-May-2008	09-May-2008	1	150	298	7,438	950	1,884	28,066	0	0	0	0	0	0	1,100	35,504
10-May-2008	10-May-2008	1	150	298	7,736	750	1,488	29,554	0	0	0	0	0	0	900	37,289
11-May-2008	11-May-2008	1	150	298	8,033	600	1,190	30,744	0	0	0	0	0	0	750	38,777
12-May-2008	12-May-2008	1	150	298	8,331	500	992	31,736	0	0	0	0	0	0	650	40,066
13-May-2008	13-May-2008	1	150	298	8,628	400	793	32,529	0	0	0	0	0	0	550	41,157
14-May-2008	14-May-2008	1	150	298	8,926	400	793	33,322	0	0	0	0	0	0	550	42,248
15-May-2008	15-May-2008	1	150	298	9,223	400	793	34,116	0	0	0	0	0	0	550	43,339
16-May-2008	16-May-2008	1	150	298	9,521	400	793	34,909	0	0	0	0	0	0	550	44,430
17-May-2008	17-May-2008	1	150	298	9,818	400	793	35,702	0	0	0	0	0	0	550	45,521
18-May-2008	18-May-2008	1	150	298	10,116	300	595	36,298	0	0	0	0	0	0	450	46,413
19-May-2008	19-May-2008	1	150	298	10,413	200	397	36,694	0	0	0	0	0	0	350	47,107
20-May-2008	20-May-2008	1	150	298	10,711	125	248	36,942	0	0	0	0	0	0	275	47,653
21-May-2008	21-May-2008	1	150	298	11,008	60	119	37,061	0	0	0	0	0	0	210	48,069
22-May-2008	22-May-2008	1	150	298	11,306	0	0	37,061	0	0	0	0	0	0	150	48,367
23-May-2008	23-May-2008	1	150	298	11,603	0	0	37,061	0	0	0	0	0	0	150	48,664
24-May-2008	24-May-2008	1	150	298	11,901	0	0	37,061	0	0	0	0	0	0	150	48,962
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,061	0	0	0	0	0	0	150	49,260
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,061	0	0	0	0	0	0	150	49,557
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,061	0	0	0	0	0	0	150	49,855
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,061	0	0	0	0	0	0	150	50,152
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,061	0	0	0	0	0	0	150	50,450
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,061	0	0	0	0	0	0	150	50,747
31-May-2008	31-May-2008	1	150	298	13,983		0	37,061	0	0	0	-35	(69)	(69)	115	50,975
01-Jun-2008	01-Jun-2008	1	50	99	14,083		0	37,061	0	0	0	35	69	0	85	51,144
02-Jun-2008	02-Jun-2008	1	50	99	14,182		0	37,061	0	0	0	0	0	0	50	51,243
03-Jun-2008	03-Jun-2008	1	50	99	14,281		0	37,061	0	0	0	0	0	0	50	51,342
04-Jun-2008	04-Jun-2008	1	50	99	14,380		0	37,061	0	0	0	0	0	0	50	51,441
05-Jun-2008	30-Jun-2008	26	50	2,579	16,959		0	37,061	0	0	0	0	0	0	50	54,020
01-Jul-2008	31-Jul-2008	31	50	3,074	20,033		0	37,061	0	0	0	0	0	0	50	57,094
01-Aug-2008	31-Aug-2008	31	50	3,074	23,107		0	37,061	0	0	0	0	0	0	50	60,169
01-Sep-2008	10-Sep-2008	10	50	992	24,099		0	37,061	0	0	0	0	0	0	50	61,160
11-Sep-2008	13-Sep-2008	3	50	298	24,397		0	37,061	0	0	0	0	0	0	50	61,458
14-Sep-2008	30-Sep-2008	17	50	1,686	26,083		0	37,061	0	0	0	0	0	0	50	63,144
01-Oct-2008	05-Oct-2008	5	100	992	27,074		0	37,061	0	0	0	-11	(112)	(112)	89	64,024
06-Oct-2008	10-Oct-2008	5	100	992	28,066	0	0	37,061	0	0	0	-11	(112)	(224)	89	64,903
11-Oct-2008	15-Oct-2008	5	100	992	29,058		0	37,061	0	0	0	-11	(112)	(336)	89	65,783
16-Oct-2008	17-Oct-2008	2	150	595	29,653		0	37,061	0	0	0	-11	(45)	(381)	139	66,333
18-Oct-2008	18-Oct-2008	1	150	298	29,950		0	37,061	0	0	0	-11	(22)	(403)	139	66,609
19-Oct-2008	19-Oct-2008	1	150	298	30,248		0	37,061	0	0	0	-11	(22)	(425)	139	66,884
20-Oct-2008	31-Oct-2008	12	150	3,570	33,818		0	37,061	0	0	0	-11	(269)	(694)	139	70,185
01-Nov-2008	16-Nov-2008	16	150	4,760	38,579		0	37,061	0	0	0	-11	(358)	(1,052)	139	74,587
17-Nov-2008	30-Nov-2008	14	150	4,165	42,744		0	37,061	0	0	0	-11	(313)	(1,366)	139	78,439
01-Dec-2008	31-Dec-2008	31	150	9,223	51,967		0	37,061	0	0	0	-11	(694)	(2,060)	139	86,968
01-Jan-2009	31-Jan-2009	31	150	9,223	61,190		0	37,061	0	0	0	-11	(694)	(2,754)	139	95,498
01-Feb-2009	28-Feb-2009	28	150	8,331	69,521		0	37,061	0	0	0	-11	(627)	(3,381)	139	103,201
01-Mar-2009	31-Mar-2009	31	150	9,223	78,744		0	37,061	0	0	0	-11	(694)	(4,075)	139	111,730
01-Apr-2009	14-Apr-2009	14	150	4,165	82,909		0	37,061	0	0	0	-11	(313)	(4,388)	139	115,582
No. of days		365	(April 15 through April 14)						Interpolation Water =		0				Total =	115,582

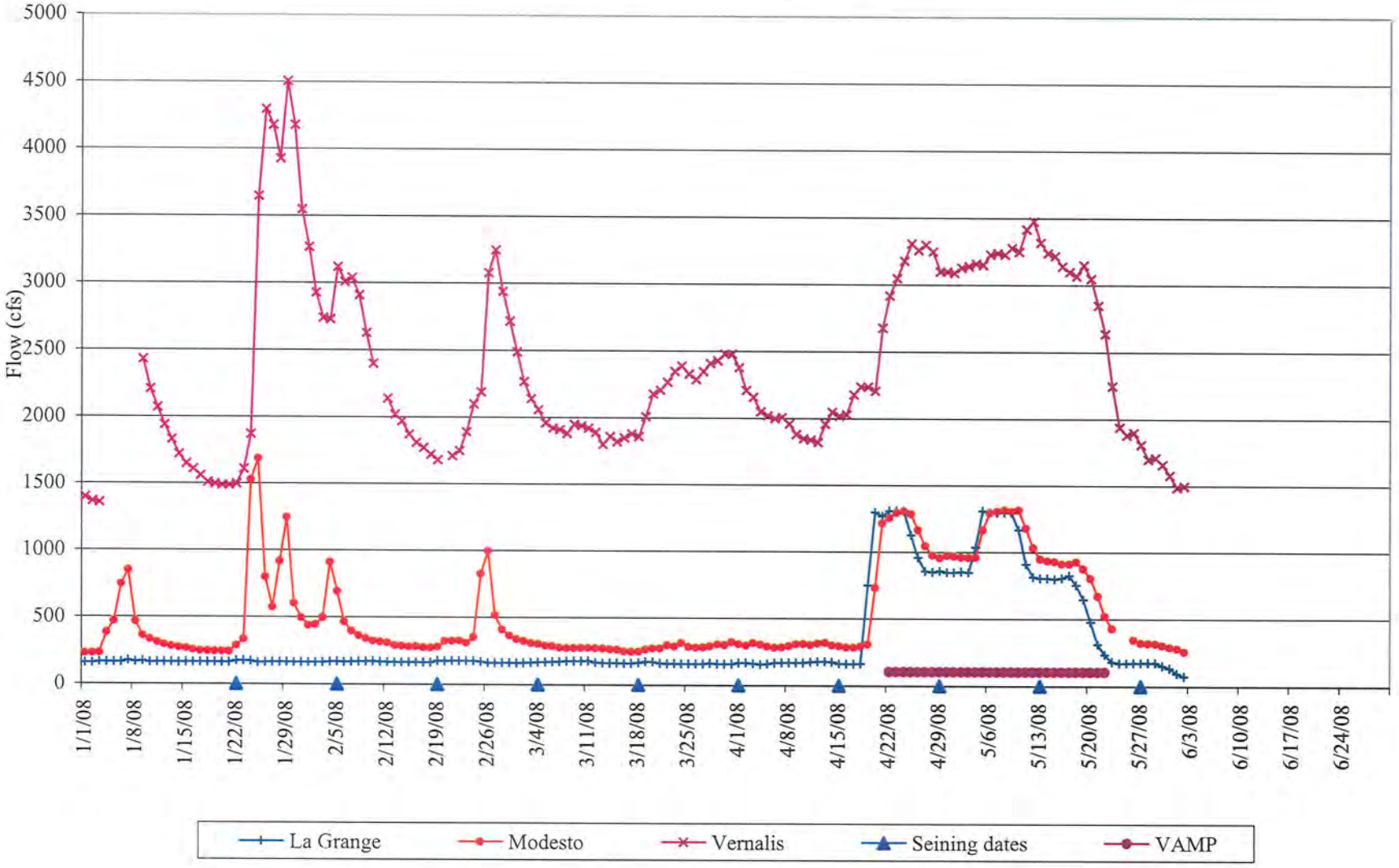
Mossdale Trawl unmarked salmon catch



Daily average flow at Vernalis (SJR) and combined CVP and SWP delta export



2008 Tuolumne and San Joaquin River daily mean flow
Provisional USGS data



TURLOCK IRRIGATION DISTRICT

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

TO: TRTAC
FROM: Wilton Fryer
DATE: 12 June 2008
RE: Restoration Projects - Status Update

Project	Funding	Status
Active Projects:		
Fine Sediment	Full	No Change. We continue to wait for DFG to respond to calls, letters, and emails regarding resolution of the disputed invoices. At this date DFG has held up reimbursement of $469,836 in invoices that have been submitted for the construction work and release of the project retention funds. The earthwork portion of the Gasburg Creek restoration construction was completed on 31 July. Since construction DFG has raised procedural questions regarding transferring of funds between tasks to pay for the work. To resolve the issue per the contract, an amendment was developed and submitted to the ERP for approval at their 15 Nov 07 meeting. On 14 November the amendment was pulled by DFG with no explanation to date as to why or what can be done to resolve the dispute.
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 07. However, DFG is progressing with gravel infusion maintenance work in the project area and DFG at 4-Pumps is supportive of the infusion proposed for this project. We continue to wait for the DFG to complete an assessment report for restoration projects on the Merced & Tuolumne Rivers that was due out at the end of December. 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.
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.

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
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TECHNICAL ADVISORY COMMITTEE MEETING

11 September 2008 at 9:30 AM

Turlock Irrigation District, Lunch Room (2nd floor)

DRAFT AGENDA

1. INTRODUCTION AND ANNOUNCEMENTS

2. ADMINISTRATIVE ITEMS:
   - Review/revise agenda
   - Approve notes from June 2008 meeting
   - Items since last meeting

3. MONITORING:
   - June snorkel survey and July population estimate survey
   - Discuss other trout studies: winter population estimate, tracking study, otolith study

4. FLOW OPERATIONS:
   - Review status of final basin index, annual fish flow volume, and flow schedule

5. RESTORATION: Review status of projects

6. AGENCY/NGO UPDATES

7. ADDITIONAL ITEMS

8. NEXT MEETING DATES – QUARTERLY ON 2ND THURSDAY: DECEMBER 11; MARCH 12, 2009

TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

DON PEDRO PROJECT - FERC LICENSE 2299

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TECHNICAL ADVISORY COMMITTEE MEETING

11 September 2008 at 9:30 AM

Turlock Irrigation District, Lunch Room (2nd floor)

Summary

1. INTRODUCTION AND ANNOUNCEMENTS
   - No fishery agencies were present.
   - Boucher noted that Mesick is expected to be leaving USFWS by 28 September and will be replaced by Zachary Jackson and Kim Webb.

2. ADMINISTRATIVE ITEMS:
   - Review/revise agenda – no changes
   - Approve notes from June 12, 2008 meeting – One typo to correct on p. 3, under AFRP Grant discussion, FOT contribution should be $175K – summary was approved.
   - Items since last meeting – reviewed handout listing the material posted at http://tuolumnerivertac.com/

3. MONITORING:
   - June snorkel survey and July population estimate survey
     - Discussed June snorkel survey – results had been posted
     - Preliminary findings of July population survey: *O. mykiss* were observed from approximately RM 52–41 with greater proportions of larger fish upstream. Hume stated initial estimates on "adults" are in 100's and juveniles were in 1000's. Boucher noted that it would be valuable to conduct these studies during wetter year types as well as the current conditions. Some discussion regarding adult Chinook observations upstream as well as adult striped bass reported being caught near Basso Bridge.
   - Discuss other trout studies
     - Planning for anadromy and tracking studies. Study plan description and commentary solicited from fishery agencies in letter of 26 August.
   - Results of May assessment of Peaslee Creek sediment in river expected in October. Boucher noted that much of the fine sediment appears to have infiltrated or been washed out. No invertebrate data summary available yet.

4. FLOW OPERATIONS:
   - Reviewed final basin index of 121,838 AF which corresponds to an Intermediate Critical-Dry Water Year Type. Only a small 2-day fall pulse at about 250 cfs using remainder of interpolation water.
   - Boucher discussed the flow schedule determination process and suggested that the

Fish Flow Appendix from the Ten Year Summary Report be posted on the TRTAC website: http://tuolumnerivertac.com/ [the appendices are posted]

5. RESTORATION :
   - No changes from June 12 Update by Wilton Fryer.
   - Proposal was submitted by FOT for ESRCD to administer $400k SFPUC funding for additional gravel augmentation at Bobcat Flat. Districts will consider a larger proposal for other gravel additions. Boucher noted that other agencies will be reviewing the proposals for the ESRCD
   - DFG has not provided CALFED funds for TRTAC projects: Gravel Addition Project (about $3.9 million) and Mining Reach Project (about $10.8 million). Discussion to pursue currently stalled gravel addition funding through the CBDA Amendment Committee.
   - Ford and Boucher discussed general areas for priority gravel implementation should funding be made available.

6. AGENCY/NGO UPDATES
   - FOT
     - Discussion of lot line adjustment and 34-acre land purchase in Bobcat Flat area using earlier CCSF funds through ESRCD; survey monuments needed
     - AFRP Grant funding to FOT for Bobcat Flat gravel addition was for $100k.

7. ADDITIONAL ITEMS
   - Infiltration Gallery Project decision expected by early next year.
   - VAMP study summary report expected by late October – peer review to follow.
   - Boucher suggested pursuing changes to the local fishing regulations to protect native fish by reducing or eliminating salmon allowance and relaxing limits on bass and non-native species.

8. NEXT MEETING DATES – QUARTERLY ON 2ND THURSDAY: DECEMBER 11, MARCH 12, 2009

TRTAC Meeting Attendees

	Name	Organization
1.	Tim Ford	TID/MID
2.	Robert Nees	TID
3.	Roger Masuda	TID
4.	Walter Ward	MID
5.	Ron Yoshiyama	CCSF
6.	Noah Hume	Stillwater Sciences
7.	Allison Boucher	Friends of the Tuolumne

2008 TRTAC Activities & Materials

14Dec2007-13Mar2008 Postings to TRTAC website http://tuolumnerivertac.com/

- Meetings
  - December 2007 TRTAC meeting summary and handouts
  - March 2008 TRTAC meeting agenda and restoration update

- Correspondence
  - Turbidity issue notification and comments
  - Comment letters to FERC

- Documents
  - Draft 2007 Seine and Snorkel Report

- Data/Monitoring/Photos
  - 2008 seine and screw trap data
  - Thermograph data through 13Feb2008
  - 2008 turbidity data
  - Updates of basin monitoring newsletter
  - February 2008 turbidity photos

13Mar-12Jun2008 Changes to TRTAC website http://tuolumnerivertac.com/

- Updated flow schedules and participant list

- Meetings
  - March 2008 TRTAC meeting notes, handouts, and restoration update
  - June 2008 TRTAC meeting agenda and restoration update

- Correspondence
  - Flow schedule letters
  - FERC Orders of 03Apr and 02Jun
  - Rehearing comment letters to FERC

- Documents
  - 2007 FERC Report and Technical Reports
  - Zimmerman report on *O. mykiss* otolith study
  - 2007 VAMP Report
  - 2008 VAMP daily operation plans

- Data/Monitoring
  - Updates of 2008 seine and screw trap data
  - Updates of basin monitoring newsletter
  - Photos of fish and screw trapping

13Jun-11Sep2008 Changes to TRTAC website http://tuolumnerivertac.com/

- Updated flow schedule and participant list

- Meetings
  - June 2008 TRTAC meeting notes, handouts, attendance list, and restoration update
  - Sep 2008 TRTAC meeting agenda

- Correspondence
  - Flow schedule letter
  - Select filings with FERC
  - Letters regarding FERC Order studies and study plan for trout population estimate

- Documents
  - 2008 Draft Seine Report
  - Newman 2008 - An evaluation of four delta juvenile salmon survival studies

- Data/Monitoring
  - June 2008 snorkel survey data
  - Thermograph data for Feb 14 - June 24

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TECHNICAL ADVISORY COMMITTEE MEETING

11 December 2008 at 9:30 AM

Turlock Irrigation District, Lunch Room (2nd floor)

DRAFT AGENDA

1. INTRODUCTION AND ANNOUNCEMENTS

2. ADMINISTRATIVE ITEMS:
   - Review/revise agenda
   - Approve notes from September 2008 meeting
   - Items since last meeting

3. MONITORING/REPORTS:
   - Status of salmon run data
   - Technical Reports for 2008 FERC Report
   - Discuss 2009 salmon and other studies
   - Discuss 2009 trout studies: population estimates, tracking study, etc.

4. FLOW OPERATIONS:
   - Review status of final basin index, annual fish flow volume, and flow schedule

5. RESTORATION: Review status of TRTAC projects

6. AGENCY/NGO UPDATES

7. ADDITIONAL ITEMS

8. 2009 MEETING DATES – QUARTERLY ON 2ND THURSDAY: MARCH 12, JUNE 11, SEPTEMBER 10, DECEMBER 10

TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

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TECHNICAL ADVISORY COMMITTEE MEETING

11 December 2008 at 9:30 AM

Turlock Irrigation District, Lunch Room (2nd floor)

Final Summary

1. INTRODUCTION AND ANNOUNCEMENTS
   - No fishery agencies were present.
   - Jesse Roseman and Karlha Arias attended from the Tuolumne River Trust.

2. ADMINISTRATIVE ITEMS:
   - Review/Revise agenda – no changes
   - Review notes from 11SEP – no changes.
   - Items produced since last meeting – reviewed handout from Ford listing material posted at http://tuolumnerivertac.com/

3. MONITORING/REPORTS:
   - Salmon run data - Ford provided initial low salmon run estimates for the San Joaquin tributaries. Expected higher returns following the 2005-2006 wet water years did not occur and Delta survival has been low for the past 5-6 years of VAMP studies. The group discussed straying and ocean survival influences. Sears mentioned a NMFS study that indicated up to 90% of ocean harvest was of hatchery origin and that in the Mokelumne up to 97% of the returns were of hatchery origin. Yoshiyama asked whether CDFG maintains planting records in the Merced River to examine production vs. returns and to examine ocean and other life history phases. Sears recommended otolith approaches to examine tributary specific rearing vs. in-Delta rearing as a means of pursuing tributary-specific vs. basin-wide management.
   - Technical Reports for 2008 FERC Report. Ford provided a handout listing a draft Table of Contents for the 2008 FERC Report. Several of the technical reports were available on the TRTAC website (Seine, Screw Trap, July 2008 *O. mykiss* Population Estimate).
   - Discussion of McBain & Trush Memo on evaluation of Peaslee Creek sediment inputs resulting from January-February 2008 runoff events. Study results were somewhat inconclusive due to similarity in fine sediment intrusion and low invertebrate metrics at the riffle immediately upstream of Peaslee Creek when compared to Bobcat Flat riffles downstream and also due to timing of assessment after spring pulse flow. Ford described additional sediment controls have been implemented which may reduce potential for 2009 events, but stated that the ultimate responsibility lies with agencies such as CVRWQCB, NMFS and CDFG. Masuda and Sears suggested reviewing redd distribution information from CDFG. It was

also suggested the report be included in the 2008 FERC report.

- *O. mykiss* studies - the fishery agencies do not support sacrificial sampling for the otolith study. For the tracking study, the equipment system will be that used for the VAMP study. Planning is ongoing for the winter population estimate survey using snorkeling and electrofishing. Ford stated NMFS had recommended consideration of a weir on the Tuolumne for counting upmigrant *O. mykiss*.

4. FLOW OPERATIONS:
   - Ford provided a handout of the final flow schedule allocating 121,838 AF. Flow requirement will remain 150 cfs until next April.
   - A discussion of dry year forecasting as it relates to final required annual flow volume followed. Ford provided a handout showing the change from April 1 forecasted volumes at 50% and 90% exceedence to the final volume for dry years of 2002, 2004, 2007, and 2008. In those years the 90% forecast was the better estimator of final volume. For 2004 and 2008, the final volume was even less than the April 1 90% forecast, demonstrating the importance of anticipating extreme conditions in establishing spring pulse flow allocations in drier water year types.

5. RESTORATION :
   - A December 11 update handout by Wilton Fryer was briefly reviewed
   - CDFG continues to withhold nearly $470,000 in reimbursement to TID for invoices from 2007 for work done on the Gasburg Creek Fine Sediment Project.
   - CALFED grant funds for other TRTAC projects have still not been provided by CDFG: the Gravel Addition Project (about $3.9 million) and Mining Reach Project (about $10.8 million). CDFG Central Region (Region 4) did not support the Gravel Addition Project at a November 20 CALFED Amendment Committee meeting.

6. AGENCY/NGO UPDATES
   - TRT
     - Roseman/Arias discussed acquisition funds for the Dos Rios project and mentioned it as a possible State Park. They are currently considering whether to manage the property for Endangered Species or for public access. River Partners would hold title to the property and has a Draft Restoration Plan available.
   - USFWS
     - Although USFWS were not present at the meeting, Yoshiyama raised concerns regarding the interpretation of the recent USFWS overbank flow analysis report by Mark Gard. In particular, he suggested analysis of the locations and amounts of floodplain habitat should be considered. The USFWS analysis stops at Empire and does not encompass floodplain west of Modesto. Ford stated that the Districts were still reviewing the report. Much of the base information used for the report had been developed for prior fluctuation assessments.

7. ADDITIONAL ITEMS
   - None.

8. 2009 MEETING DATES - MARCH 12, JUNE 11, SEPTEMBER 10, DECEMBER 10

TRTAC Meeting Attendees

	Name	Organization
1.	Tim Ford	TID/MID
2.	Robert Nees	TID
3.	Roger Masuda	TID
4.	Walter Ward	MID
5.	Ron Yoshiyama	CCSF
6.	Bill Sears	SFPUC
7.	Noah Hume	Stillwater Sciences
8.	Jesse Roseman	Tuolumne River Trust
9.	Karlha Arias	Tuolumne River Trust

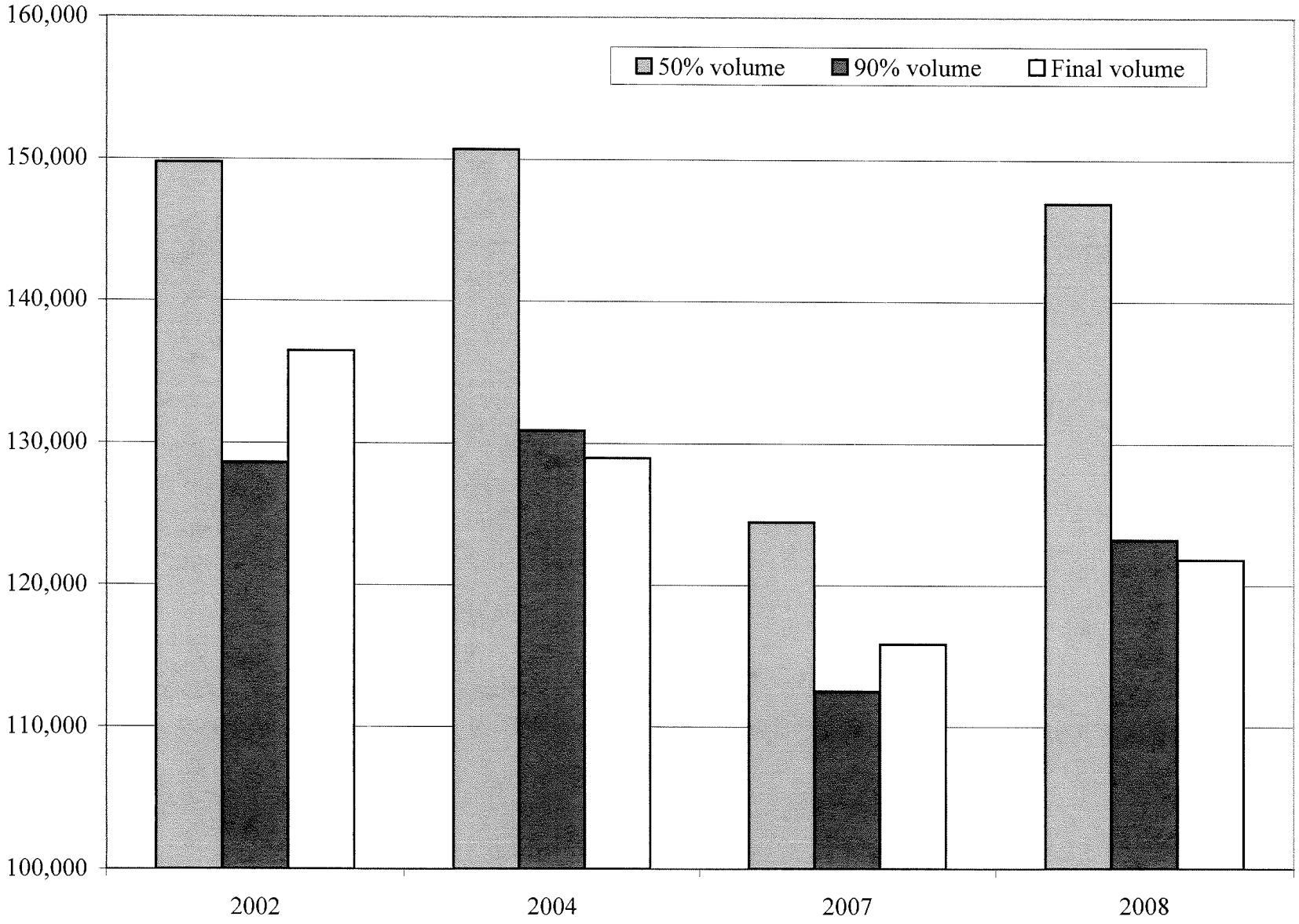
TABLE 2

Tuolumne River Flow Schedule

SCHEDULE FOR 2008 - 2009 Fish Flow Year

DATE		Number of	Flow for Average													
			Flow			Pulse Flows			Interpolation 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	AF	ACCUM A.F	CFS	ACCUM A.F
15-Apr-2008	15-Apr-2008	1	150	298	298	0	0	0	0	0	0	0	0	0	150	298
16-Apr-2008	16-Apr-2008	1	150	298	595	0	0	0	0	0	0	0	0	0	150	595
17-Apr-2008	17-Apr-2008	1	150	298	893	0	0	0	0	0	0	0	0	0	150	893
18-Apr-2008	18-Apr-2008	1	150	298	1,190	0	0	0	0	0	0	0	0	0	150	1,190
19-Apr-2008	19-Apr-2008	1	150	298	1,488	0	0	0	0	0	0	0	0	0	150	1,488
20-Apr-2008	20-Apr-2008	1	150	298	1,785	950	1,884	1,884	0	0	0	0	0	0	1,100	3,669
21-Apr-2008	21-Apr-2008	1	150	298	2,083	950	1,884	3,769	0	0	0	0	0	0	1,100	5,851
22-Apr-2008	22-Apr-2008	1	150	298	2,380	950	1,884	5,653	0	0	0	0	0	0	1,100	8,033
23-Apr-2008	23-Apr-2008	1	150	298	2,678	950	1,884	7,537	0	0	0	0	0	0	1,100	10,215
24-Apr-2008	24-Apr-2008	1	150	298	2,975	950	1,884	9,421	0	0	0	0	0	0	1,100	12,397
25-Apr-2008	25-Apr-2008	1	150	298	3,273	750	1,488	10,909	0	0	0	0	0	0	900	14,182
26-Apr-2008	26-Apr-2008	1	150	298	3,570	600	1,190	12,099	0	0	0	0	0	0	750	15,669
27-Apr-2008	27-Apr-2008	1	150	298	3,868	500	992	13,091	0	0	0	0	0	0	650	16,959
28-Apr-2008	28-Apr-2008	1	150	298	4,165	400	793	13,884	0	0	0	0	0	0	550	18,050
29-Apr-2008	29-Apr-2008	1	150	298	4,463	400	793	14,678	0	0	0	0	0	0	550	19,140
30-Apr-2008	30-Apr-2008	1	150	298	4,760	400	793	15,471	0	0	0	0	0	0	550	20,231
01-May-2008	01-May-2008	1	150	298	5,058	400	793	16,264	0	0	0	0	0	0	550	21,322
02-May-2008	02-May-2008	1	150	298	5,355	400	793	17,058	0	0	0	0	0	0	550	22,413
03-May-2008	03-May-2008	1	150	298	5,653	400	793	17,851	0	0	0	0	0	0	550	23,504
04-May-2008	04-May-2008	1	150	298	5,950	400	793	18,645	0	0	0	0	0	0	550	24,595
05-May-2008	05-May-2008	1	150	298	6,248	950	1,884	20,529	0	0	0	0	0	0	1,100	26,777
06-May-2008	06-May-2008	1	150	298	6,545	950	1,884	22,413	0	0	0	0	0	0	1,100	28,959
07-May-2008	07-May-2008	1	150	298	6,843	950	1,884	24,298	0	0	0	0	0	0	1,100	31,140
08-May-2008	08-May-2008	1	150	298	7,140	950	1,884	26,182	0	0	0	0	0	0	1,100	33,322
09-May-2008	09-May-2008	1	150	298	7,438	950	1,884	28,066	0	0	0	0	0	0	1,100	35,504
10-May-2008	10-May-2008	1	150	298	7,736	750	1,488	29,554	0	0	0	0	0	0	900	37,289
11-May-2008	11-May-2008	1	150	298	8,033	600	1,190	30,744	0	0	0	0	0	0	750	38,777
12-May-2008	12-May-2008	1	150	298	8,331	500	992	31,736	0	0	0	0	0	0	650	40,066
13-May-2008	13-May-2008	1	150	298	8,628	400	793	32,529	0	0	0	0	0	0	550	41,157
14-May-2008	14-May-2008	1	150	298	8,926	400	793	33,322	0	0	0	0	0	0	550	42,248
15-May-2008	15-May-2008	1	150	298	9,223	400	793	34,116	0	0	0	0	0	0	550	43,339
16-May-2008	16-May-2008	1	150	298	9,521	400	793	34,909	0	0	0	0	0	0	550	44,430
17-May-2008	17-May-2008	1	150	298	9,818	400	793	35,702	0	0	0	0	0	0	550	45,521
18-May-2008	18-May-2008	1	150	298	10,116	300	595	36,298	0	0	0	0	0	0	450	46,413
19-May-2008	19-May-2008	1	150	298	10,413	200	397	36,694	0	0	0	0	0	0	350	47,107
20-May-2008	20-May-2008	1	150	298	10,711	125	248	36,942	0	0	0	0	0	0	275	47,653
21-May-2008	21-May-2008	1	150	298	11,008	60	119	37,061	0	0	0	0	0	0	210	48,069
22-May-2008	22-May-2008	1	150	298	11,306	0	0	37,061	0	0	0	0	0	0	150	48,367
23-May-2008	23-May-2008	1	150	298	11,603	0	0	37,061	0	0	0	0	0	0	150	48,664
24-May-2008	24-May-2008	1	150	298	11,901	0	0	37,061	0	0	0	0	0	0	150	48,962
25-May-2008	25-May-2008	1	150	298	12,198	0	0	37,061	0	0	0	0	0	0	150	49,260
26-May-2008	26-May-2008	1	150	298	12,496	0	0	37,061	0	0	0	0	0	0	150	49,557
27-May-2008	27-May-2008	1	150	298	12,793	0	0	37,061	0	0	0	0	0	0	150	49,855
28-May-2008	28-May-2008	1	150	298	13,091	0	0	37,061	0	0	0	0	0	0	150	50,152
29-May-2008	29-May-2008	1	150	298	13,388	0	0	37,061	0	0	0	0	0	0	150	50,450
30-May-2008	30-May-2008	1	150	298	13,686	0	0	37,061	0	0	0	0	0	0	150	50,747
31-May-2008	31-May-2008	1	150	298	13,983		0	37,061	0	0	0	-35	(69)	(69)	115	50,975
01-Jun-2008	01-Jun-2008	1	50	99	14,083		0	37,061	0	0	0	35	69	0	85	51,144
02-Jun-2008	02-Jun-2008	1	50	99	14,182		0	37,061	0	0	0	0	0	0	50	51,243
03-Jun-2008	03-Jun-2008	1	50	99	14,281		0	37,061	0	0	0	0	0	0	50	51,342
04-Jun-2008	04-Jun-2008	1	50	99	14,380		0	37,061	0	0	0	0	0	0	50	51,441
05-Jun-2008	30-Jun-2008	26	50	2,579	16,959		0	37,061	0	0	0	0	0	0	50	54,020
01-Jul-2008	31-Jul-2008	31	50	3,074	20,033		0	37,061	0	0	0	0	0	0	50	57,094
01-Aug-2008	31-Aug-2008	31	50	3,074	23,107		0	37,061	0	0	0	0	0	0	50	60,169
01-Sep-2008	10-Sep-2008	10	50	992	24,099		0	37,061	0	0	0	0	0	0	50	61,160
11-Sep-2008	13-Sep-2008	3	50	298	24,397		0	37,061	0	0	0	0	0	0	50	61,458
14-Sep-2008	30-Sep-2008	17	50	1,686	26,083		0	37,061	0	0	0	0	0	0	50	63,144
01-Oct-2008	05-Oct-2008	5	150	1,488	27,570		0	37,061	0	0	0	0	0	0	150	64,631
06-Oct-2008	10-Oct-2008	5	150	1,488	29,058	0	0	37,061	0	0	0	0	0	0	150	66,119
11-Oct-2008	24-Oct-2008	14	150	4,165	33,223		0	37,061	0	0	0	0	0	0	150	70,284
25-Oct-2008	26-Oct-2008	2	150	595	33,818		0	37,061	96	380	380	0	0	0	246	71,259
27-Oct-2008	27-Oct-2008	1	150	298	34,116		0	37,061	0	0	380	0	0	0	150	71,557
28-Oct-2008	28-Oct-2008	1	150	298	34,413		0	37,061	0	0	380	0	0	0	150	71,854
29-Oct-2008	31-Oct-2008	3	150	893	35,306		0	37,061	0	0	380	0	0	0	150	72,747
01-Nov-2008	16-Nov-2008	16	150	4,760	40,066		0	37,061	0	0	380	0	0	0	150	77,507
17-Nov-2008	30-Nov-2008	14	150	4,165	44,231		0	37,061	0	0	380	0	0	0	150	81,673
01-Dec-2008	31-Dec-2008	31	150	9,223	53,455		0	37,061	0	0	380	0	0	0	150	90,896
01-Jan-2009	31-Jan-2009	31	150	9,223	62,678		0	37,061	0	0	380	0	0	0	150	100,119
01-Feb-2009	28-Feb-2009	28	150	8,331	71,008		0	37,061	0	0	380	0	0	0	150	108,449
01-Mar-2009	31-Mar-2009	31	150	9,223	80,231		0	37,061	0	0	380	0	0	0	150	117,673
01-Apr-2009	14-Apr-2009	14	150	4,165	84,397		0	37,061	0	0	380	0	0	0	150	121,838
No of days		365 (April 15 through April 14)													Total =	121,838

April 1 FERC flow forecasted volumes at 50% and 90% levels and final volume (in acre-feet)



TURLOCK IRRIGATION DISTRICT

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

TO: TRTAC
FROM: Wilton Fryer
DATE: 11 December 2008
RE: Restoration Projects - Status Update

Project	Funding	Status
Active Projects:		
Fine Sediment	Full	No Change. We continue to wait for DFG to respond to calls, letters, and emails regarding resolution of the disputed invoices. At this date DFG has continued to hold up reimbursement of $469,836 in invoices from 2007 that have been submitted for the construction work along with release of the project retention funds. The last comment from DFG was that the items submitted for the November 2007 amendment and the rest of the project invoices are still undergoing "review by legal staff" without benefit of discussing their contractual issues with the project contractor, TID. The earthwork portion of the Gasburg Creek restoration construction was completed on 31 July 07. Since construction DFG has raised procedural questions regarding transferring of funds between tasks to pay for the work. To resolve the issue per the contract, an amendment was developed and submitted to the ERP for approval at their 15 Nov 07 meeting. On 14 November the amendment was pulled by DFG with no explanation to date as to why or what can be done to resolve the dispute.
La Grange Gravel	Full	A two year time extension amendment, with minor task order budget adjustments, was presented to the ERP amendments subcommittee on 20 November. This was essentially the same amendment approved by that committee in March 2007, but the contract amendment documents were never executed by DFG. The DFG Region 4 staff at the meeting indicated Region 4 had directed the ERP to not execute the 2007 amendment and were not supportive of the current amendment. The current ERP amendment team indicated they would have a hard time approving any amendment without the

		full support of the regional DFG office. A final decision is due from the ERP management by 12 Dec. The contract expires 31 Dec 08. Region 4 indicted their opposition had much to do with that portion of the amendment regarding deletion of development of an off stream mining source for long term additions of aggregate. This project element had specifically been pulled off the table by the ERP in 2005 during the first amendment review process. The reasons for deletion of that project element were the same ones DFG ran into when developing the Merced River tailings they own for gravel infusion source materials. Region 4 also did not appear to favor more gravel additions for habitat, in contrast taken to the written support for such additions received from DFG working on the salmon mitigation for the 4-Pumps Project.
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.