TURLOCK IRRIGATION DISTRICT
MODESTO IRRIGATION DISTRICT

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March 27, 2006

Honorable Magalie R. Salas
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

Dear Secretary Salas:

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 2005 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

Allen Short
General Manager

TURLOCK IRRIGATION DISTRICT

Larry Weis

Larry Weis
General Manager

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

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

2005 LOWER TUOLUMNE RIVER ANNUAL REPORT

2005 Annual Summary Report

- Introduction
- Tuolumne River Technical Advisory Committee (TRTAC)
- Program Goals and Comparative Salmon Population Goals
- Flow Schedules and Operations
- Monitoring Information
- Non-flow Measure Activities in 2005
- Anticipated Non-flow Measure Activities in 2006
- Other FERC Settlement Agreement Activities
- Program Expenses through 2005
- References

Exhibits: Spawning run estimates, Ocean catch data, and Delta salmon salvage data

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

Attachment B: 2004 Technical Advisory Committee Materials

Attachment C: 2005 Technical Advisory Committee Materials

Report 2005-1: 2005 Spawning Survey Report (*Not Available for Submittal*)

Report 2005-2: Spawning Survey Summary Update (*Not Available for Submittal*)

Report 2005-3: 2005 Seine/Snorkel Report and Summary Update

Report 2005-4: 2005 Grayson Screw Trap Report

Report 2005-5: Rotary Screw Trap Summary Update

Report 2005-6: Coded-wire Tag Summary Update

Report 2005-7: Bobcat Flat/River Mile 43: Phase I Project Completion Report

- FERC PROJECT NO. 2299 -

2005 ANNUAL SUMMARY REPORT

Turlock and Modesto Irrigation Districts

By
Tim Ford
Aquatic Biologist

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

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Attachment C: 2005 Technical Advisory Committee Materials

List of Acronym and Abbreviations

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

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

1 – Introduction

This is the tenth annual report to the Federal Energy Regulatory Commission (FERC) since the 31Jul1996 FERC Order on Project License 2299 and the 1995 Don Pedro Project FERC Settlement Agreement (FSA).

This report covers the 2005 calendar year and contains:

(1) A summary of 2005 TRTAC/FSA activities
(2) 2004 TRTAC materials not contained in the 2004 annual report
(3) Additional monitoring and other reports.

The License 2299 Article 58 reporting requirement called for a summary report to be filed by 01APR2005. This is the first annual report to follow the 2005 10-Year Summary Report submitted in March 2005. Several filings with FERC were made by various parties in 2005 following the submittal of the 10-Year Summary Report in response to comment periods closing in Jul, Aug, Nov, and Dec.

2 - Tuolumne River Technical Advisory Committee (TRTAC)

The TRTAC is a key element in implementing the 1996 FERC Order and the FSA. The TRTAC is responsible for coordinating monitoring activities and non-flow measures and developing adaptive management strategies. The TRTAC also provides input into flow schedule decisions by the Districts, CDFG, and USFWS. TRTAC meetings in 2005 were on 10Mar, 13Jul, 21Sep, 13Oct, 04Nov, and 08Dec.

3 - Program Goals And Comparative Population Goals

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

Relating to FSA Section 8 Program Goal 1, FSA Section 9 recognized that many factors affecting the Tuolumne salmon population are beyond the control of the FSA participants. Thus the FSA established narrative comparative population goals: (1) Improvements in smolt survival and successful escapement in the Tuolumne River; (2) increase in naturally reproducing chinook salmon in this subbasin; (3) barring events outside the control of the participants to the settlement, by 2005 the salmon population should be at levels where there is some resiliency so that some of the management measures described herein may be tested, on an experimental basis.

The 2005 Ten-Year Summary Report provided more information on the status of implementing the FSA strategy and meeting the FSA goals. Detailed background in this annual report is provided in summary updates in Reports 2004-3,5, and 6, and in other sections of this report, to further gauge progress.

3.1 - Salmon Population

Our preliminary 2005 Tuolumne fall-run chinook population estimate (modified Peterson estimate through Week 11 plus live count) was about 800 salmon (initial CDFG Schaefer estimate was about 700), a decrease from the 1,700 (CDFG Schaefer) estimated for the 2004 run. CDFG provided a preliminary data summary (see Exhibit 1). The survey period was shortened due to flood management releases in December, with the final survey period (Week 12) not being comparable due to high flows. The carcass recovery rate during the survey was somewhat lower than in recent years and peak weekly live and redd counts were less than 130 each. Initial run estimates for the Stanislaus (3,500) and Merced Rivers (2,500 river and 400 hatchery), resulted in a combined 3-river total of about 7,200, as compared to about 11,300 in 2004.

Production is the total of harvest plus escapement for a given brood year (cohort). This is obtained by summing up for several years (e.g. from 2-5 years following a given fall run for the Tuolumne) the annual numbers from a single cohort. The length of known-age salmon can be used to assist in the assignment of age classes from the carcass length data. The Districts have requested such information from DFG over several years for use in refining age class distribution of the runs and developing better cohort production estimates – no information has yet been provided. Although production estimates are inherently imprecise, they can be useful for identifying general trends, including overall cohort-specific survival.

Hatchery fish can prevent the accurate development of natural production estimates in several ways. This is further complicated by the release of unmarked hatchery production. Returns of CWT released in 2002 in the Tuolumne can be expected through 2006 and also starting in 2006 for the release done in 2005.

3.2 - Outside Factors

The FSA (Section 10) recognized there are factors outside the control of the Districts and outside the Tuolumne River that affect the Chinook salmon population, including juvenile mortality associated with south Delta water export operations and ocean salmon harvest. Other outside factors, such as ocean conditions and San Joaquin River/Delta water quality, including periods of low dissolved oxygen levels near Stockton, can also affect salmon populations.

3.2.1 - Ocean Harvest

Preliminary 2005 ocean harvest and Central Valley escapement (spawning run) data are available from the Pacific Fishery Management Council (PFMC 2006). The PFMC reported a lower 2005 ocean catch of 391,700 Chinook salmon landed south of Pt. Arena as compared to 538,000 in 2004. The estimated 2005 Central Valley total "adult" escapement (including hatchery) of 451,600 salmon was higher than the 331,600 salmon estimated for 2004.

The total 2005 Central Valley Abundance Index, comprising the sum of catch and "adult" (estimated age 3+ salmon) escapement, of 843,300 was similar to 2003 (896,700) and 2004 (869,600). The 2005 catch and escapement values resulted in an estimated Central Valley

"Harvest Rate Index" (HRI) of 46% in 2005, lower than the 62% of 2004. The portion of total California Chinook landings made south of Pt. Arena was 81%, up from 74% in 2004. River-specific ocean harvest data are not available for this mixed-stock fishery. Graphs of the PFMC data are in Exhibit 2.

3.2.2 - Salmon Salvage and Losses at Delta Water Export Pumps

Exhibit 3 contains export salmon salvage and loss information. Natural/unmarked salmon salvage and losses for Jan-Jun at the State (SWP) and Federal (CVP) Delta water export facilities were somewhat higher in 2005 with combined facility estimates for Jan-Jun2005 of about 30,000 salmon salvaged and about 61,000 in losses. Monthly average density (combined salvage and loss/1000 AF) was highest in April at the CVP and in May at the SWP. The reported numbers do not include associated indirect losses within the Delta and the salvage and loss estimates for fry (mostly in Jan-Mar) are low due to reduced screening efficiency. It is not certain how many of these salmon were from the San Joaquin basin as there is presently no method to ascertain specific origins. However, comparison of salmon size and timing with tributary and mainstem seine, screw trap, and trawl catch data clearly indicate the potential interception of many San Joaquin basin salmon at the facilities.

Salmon <70mm were mainly evident at the facilities starting in February, with fry <50mm reported through mid-Mar. There was a dominant salvage period of larger juveniles/smolts (70-110 mm) from late Mar through mid-June. The highest salvage and losses at CVP were in early Feb and in late March to early May, highest for SWP were during mid-Apr to mid-Jun.

Salvage and loss data on weekly intervals from Jan-Jun were presented in the 2005 VAMP Report (SJRGA 2005), which is available in PDF format, along with prior annual reports, at http://www.sjrg.org/technicalreport/default.htm.

3.2.3 - SJRA/VAMP

CWT hatchery salmon releases to evaluate San Joaquin Delta smolt survival began in 1986. Feather River Hatchery (Sacramento basin) salmon were used during 1989-98 and Merced River Hatchery salmon have been used in 1986, 87, 89, and 1996-2005. A spring HORB has been installed for varying periods in 1992, 94, 96, 97, and 2000-2004 with culverts placed in the barrier since 1997 to pass limited flows into Old River for irrigation needs. Chipps Island has been a CWT salmon recovery trawl location in all years and an additional trawl site has been either at Jersey Point (1997-99) or Antioch (2000-2005).

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 10-12 year period. 2005 was the sixth year of formal compliance with SWRCB Decision 1641, revised in Mar2000. The program includes a 31-day period, usually mid-Apr to mid-May with an experimental combination of salmon protective measures: HORB, specified San Joaquin River flows at Vernalis, and reduced State and Federal delta exports. An additional Tuolumne River spring pulse flow volume of up to 22,000 acre-feet (AF) from TID/MID, supplemental to FERC pulse allocation, can be required

under the SJRA to help meet target flows at Vernalis, with more pulse flow potentially added to the Tuolumne River through a water sharing arrangement with other parties to the SJRA.

As reported in SJRGA 2005, the 2005 VAMP implementation had no HORB due to high flows and occurred during the month of May (average Vernalis flow of 10,400 cfs) when exports were reduced to an average of 3,000 cfs. The "combined differential recovery rate" (CDRR) indices for Dos Reis and Durham Ferry releases to Jersey Point (recovered at Antioch and Chipps Island) were low again in 2005 and ranged from 5–7% with the overall CDRR of 6%. This is very low for a high flow condition and follows lower CDRR survival results in 2003 and 2004 of 2-3%.

3.3 - ESA Actions

National Marine Fisheries Service (NOAA Fisheries) first determined "threatened" status for anadromous forms of rainbow trout (steelhead), *Oncorhynchus mykiss*, in the California Central Valley ESU in 1998 (63 FR 13347). Several parties, including the Districts, in Dec2002, filed a lawsuit against the listing of California Central Valley *Oncorhynchus mykiss*. The court ruling issued on 12May2004 found the listing to be flawed and determined that NOAA Fisheries had to reinstate a proper listing by Jun2005 or the listing would be vacated. Some NOAA Fisheries actions in 2005 regarding their listing of California Central Valley steelhead included:

- 28Jun: NOAA Fisheries published 6-month extension of final listing determination
http://www.nwr.noaa.gov/Publications/FR-Notices/2005/upload/70FR37219.pdf
- 02Sep: NOAA Fisheries publishes final rule designating critical habitat
http://www.nwr.noaa.gov/Publications/FR-Notices/2005/upload/70FR542487.pdf
- 04Nov: NOAA fisheries proposes use of DPS policy for steelhead listing
http://www.nwr.noaa.gov/Publications/FR-Notices/2005/upload/70frn67130.pdf

The final rule on the listing determination using the DPS policy was published on 05Jan2006: http://www.nwr.noaa.gov/Publications/FR-Notices/2006/upload/71fr834.pdf. Legal action continues in 2006 with respect to the new listing status.

4 - Flow Schedules And Operations

Calendar year 2005 included minimum flow and pulse flow requirements of Article 37 spanning the 2004-2005 and 2005-2006 "fish flow years", which are from about 15Apr-14Apr, although some spring pulse flow can begin as early as 12Apr to coincide with timing of flow needs at Vernalis on the San Joaquin River. Attachment A contains the FERC flow schedule correspondence. The 2005-2006 "fish flow year" was the first in five years with the highest annual Article 37 flow requirement of 300,923 AF.

The 2005 calendar year included part of the 2005 and 2006 "water years (WY)" which run from Oct-Sep. WY2005 (Oct2004-Sep2005) Tuolumne River computed natural runoff volume of 2,984,115 AF was 157% of the long-term average, up from 69% in WY2004. The April 1 San Joaquin Basin 60-20-20 Water Supply Index 50% Exceedence Forecast was 4.330. The daily average computed natural flow, actual La Grange flows, and FERC minimum flow schedules for

WY2005/2006 are graphed in Attachment A. Actual flows at other basin locations, Don Pedro Reservoir storage, and snow and precipitation data are included as well.

Flood management flows were required much of the year, with flows at La Grange exceeding 1000 cfs from February to early August and again in December. The fall pulse flow using 5,950 AF was scheduled as 400-500 cfs for 12-27Oct.

5 - Monitoring Information

FERC License 2299 Article 58 and FSA Section 13 listed several monitoring elements. Section 13 funding allocation total was reached in 2004, but the Districts have continued to support extensive monitoring efforts in 2005. CALFED notified the Districts in September that their application on behalf of the TRTAC for a 3-year monitoring effort had been approved for funding.

5.1 – Salmon Spawning Escapement

The California Department of Fish and Game (CDFG) conducts the spawning surveys each fall. The Districts again provided assistance to CDFG in conducting the 2005 spawning survey by funding additional field personnel through consultant SP Cramer. The CDFG Report 2005-1, copies of field data sheets, and detailed spreadsheet data summaries have not been provided, consequently the Districts could not prepare Report 2005-2 at this time.

5.2 - Quality and Condition of Spawning Habitat

The consultant report on the Bobcat Flat/River Mile 43 Project is Report 2005-7. Another consultant report on monitoring for other completed projects (7-11 Reach and SRP 9) is near completion.

5.3 - Relative Salmon Fry Density/Female Spawners

Tuolumne River peak salmon fry density from seining in 2005 was similar in timing (Feb) to 1998-2004, but was relatively low (Report 2005-3). Overall fry density was typical for the number of female spawners.

5.4 – Salmon Fry Distribution and Survival

Higher flood management flows began in February, resulting in movement of salmon fry ($\leq$50 mm) to the middle and lower river sections as found in the seining survey (Report 2005-3). Screw trap sampling at Grayson Ranch in 2005 was limited to the Apr-Jun period, when fry are not as abundant.

5.5 - Juvenile Salmon Distribution and Temperature Relationships

Seine sampling monitored the winter/spring distribution of juvenile salmon (>50 mm) and other fishes in the Tuolumne River (Report 2005-3). Peak juvenile density was in mid-Mar and the

lower section had the highest density since 2000. The Sep snorkel survey recorded 5 Chinook salmon and 139 rainbow trout (Report 2005-3) – no June snorkel survey was conducted due to high flows.

SP Cramer conducted rotary screw trap monitoring at Grayson Ranch during Apr-Jun in 2005 and the results are in Report 2005-4. A total of 1, 317 wild salmon were caught, as compared to 509 in 2004, and 355 CWT smolts were caught (none were released in 2004). All wild salmon caught were >50 mm, with most (52%) in the 90-99 mm fork length range, and 99% were classified as smolts. The peak daily catches were from mid-Apr to late May during continuing high flows and catches continued into June. Estimated passage during the sampling period was about 78,000 wild salmon (13,000 in 2004) and 20,000 CWT salmon.

The thermograph data for the Tuolumne and San Joaquin Rivers, along with other monitoring data are posted at http://www.sanjoaquinbasin.com/. Figures for 2005 daily average thermograph data are also in Attachment A.

5.6 – Salmon Smolt Survival

Although TRTAC CWT smolt survival studies ended in 2002, there was a Tuolumne River CWT smolt survival evaluation conducted with flows of 3000-4000 cfs by CDFG in Apr2005 and the available juvenile recovery data and juvenile survival indices (ranging from 0.49 –1.24) are in Report 2005-6 – Mossdale data from CDFG have not been provided. Survival indices from additional ocean catch and adult returns from the earlier CWT releases made through 2002 are updated in Report 2005-6.

5.7 – Project-related Monitoring

See Report 2005-7 on the Bobcat Flat/River Mile 43 work in 2005.

5.8 - Other Monitoring Information

Aquatic invertebrate sampling continued by the Districts on 30Aug-01Sep2005, using the sites and methods employed in 2004. Sampling was postponed from July due to high flows and no analyses of those samples have been made.

6 - Non-Flow Measure Activities In 2005

Primary fieldwork on non-flow measures in 2005 was completion of the River Mile 43 Project at Bobcat Flat (Report 2005-7); work on other projects was related to pre-construction activities such as permitting, environmental review, design, and appraisal.

7 - Anticipated Non-Flow Measure Activities In 2006

The TRTAC specifically reviewed the status of the ten identified priority projects in Dec2005. It was decided to not make any changes to the list, although recognizing continuing difficulties in finalizing appraisals, reaching landowner agreements, and expiring funding commitments make

some projects very problematic. There are six projects that can be considered active, as the Reed project (Gravel Mining Reach Phase IV) has had no work done and there is no current funding. Projects that have been developed such that field activities could proceed in 2006 are:

- Gravel Mining Reach Phase II (Ruddy segment)
- Gravel Cleaning
- Gasburg Creek basin

It is anticipated that some TRTAC Gravel Addition projects will proceed in 2007. Design, permitting, and other pre-construction work may continue on the SRP 10 and Gravel Mining Reach Phase III projects in 2006. CDFG plans to do a small amount of gravel addition in 2006 near La Grange.

8 - Other FERC Settlement Agreement Activities

8.1 - Section 11 - Flood Management

Flood management releases were made in 2005 to maintain flood reservation space in Don Pedro Reservoir from early February into August and started again in mid-December (see flow graphs and Don Pedro Reservoir storage graph in Attachment A).

8.2 - Section 19 – Riparian Habitat and Recreation

The East Stanislaus Resource Conservation District (ESRCD) continued as the public agency initially funded with the $500,000 from CCSF pursuant to FSA Section 19. The ESRCD receives assistance from the Natural Resources Conservation Service (NRCS). An unallocated balance of about $150,000 remained as no expenses were incurred in 2005.

9 - Program Expenses Through 2005

Overall funding obligations of FSA costs shared by the Districts and City and County of San Francisco (CCSF) were up to $1,000,000 for non-flow options (Section 12) and $1,355,000 for monitoring (Section 13). Although the Section 13 allocation was reached in 2004, the Districts and CCSF maintained continuation of monitoring in 2005. The Section 12 expenses were $4,435 in 2005, leaving about $19,300 in this category.

10 - References

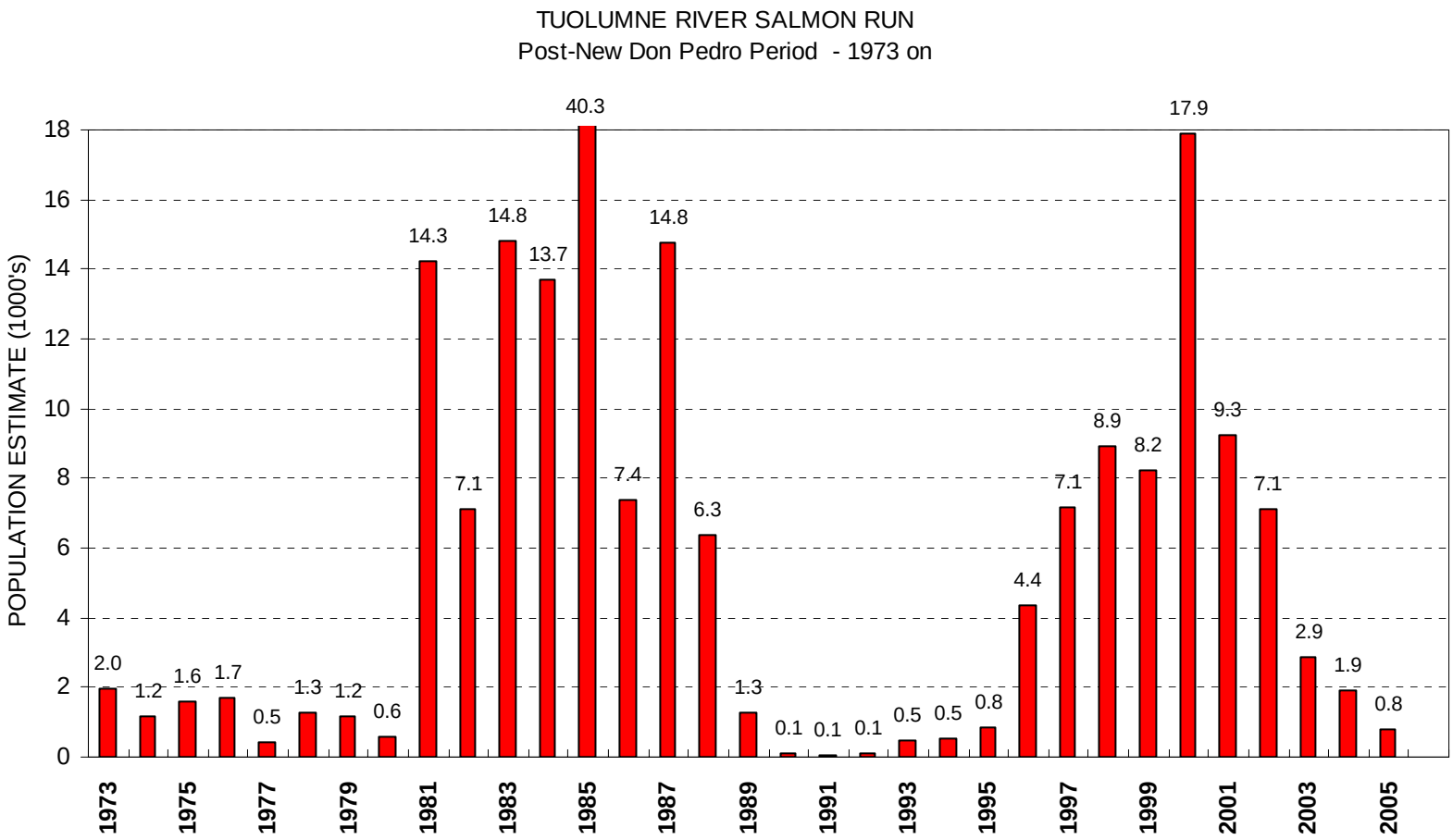
Pacific Fishery Management Council. 2006. *Review of 2005 Ocean Salmon Fisheries* and *Preseason Report 1: stock abundance analysis for 2006 ocean salmon fisheries*. Portland, OR

San Joaquin River Group Authority. 2006. *2005 Annual Technical Report.* Prepared for California State Water Resources Control Board in Compliance with D-1641.

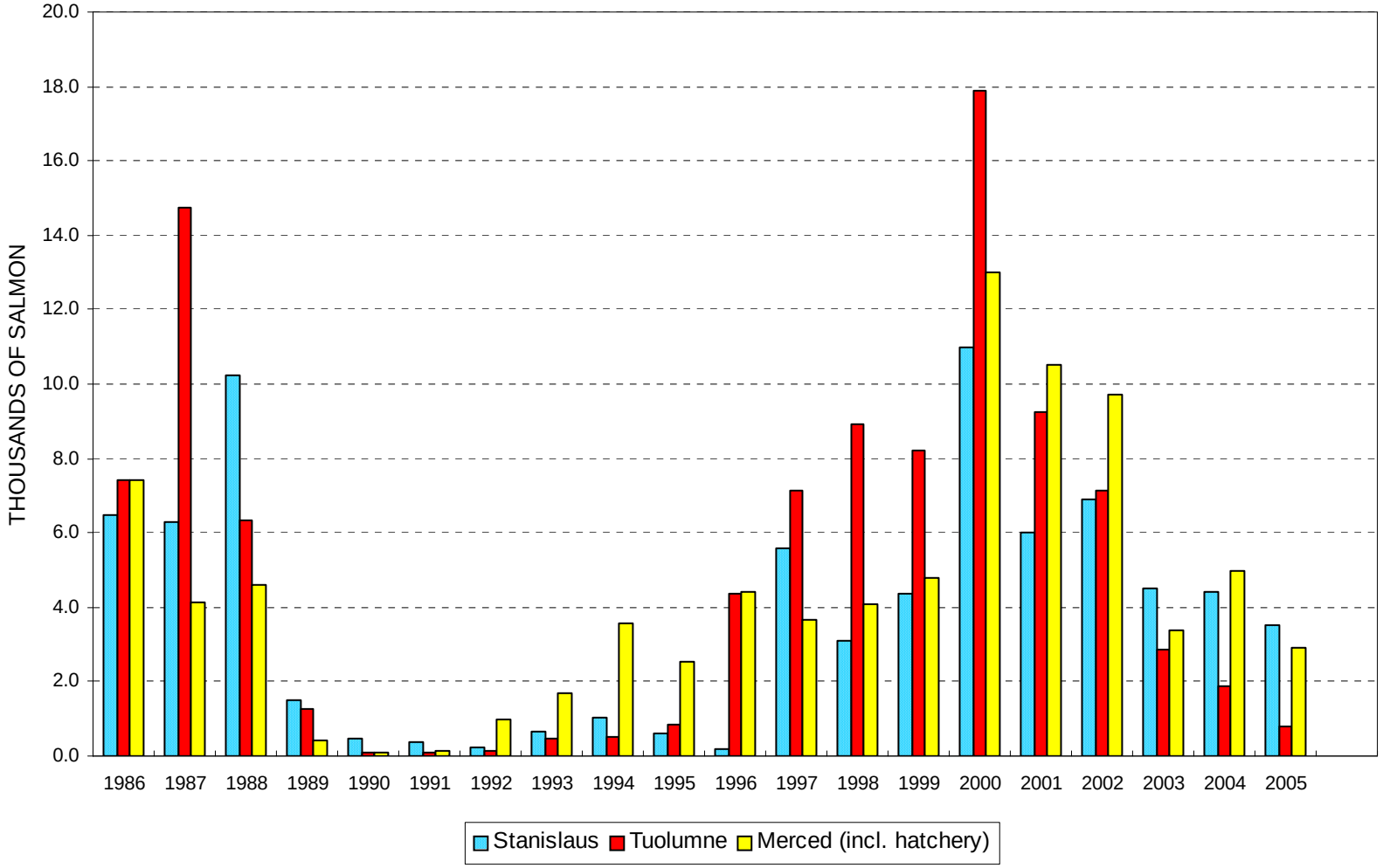
Exhibits

1 - Spawning run estimates and data
2 - Ocean catch and harvest rate data
3 - Delta salmon salvage data

Exhibit 1 - Spawning run estimates and data



San Joaquin Tributary Salmon Run Estimates



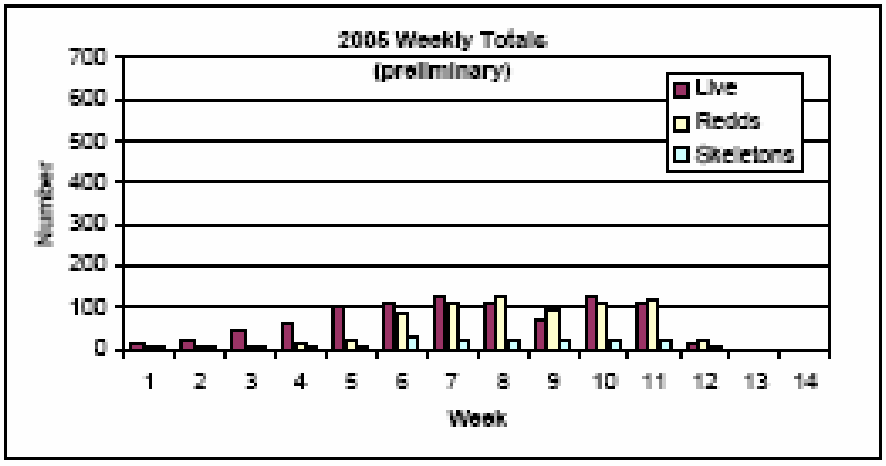
2005 Tuolumne River Escapement Survey Summary

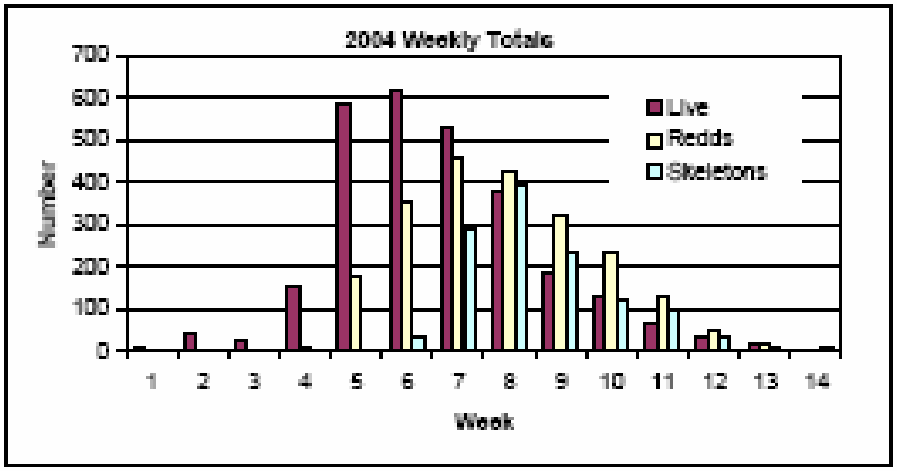
(Preliminary Data)

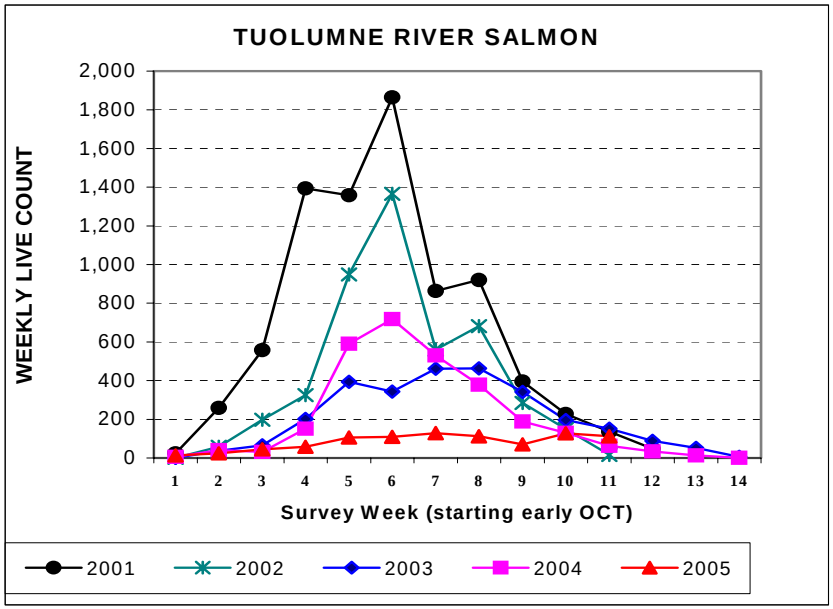
Week	Date	Section	Live	Redds	Skeletons	Tagged	Recovered
1	10/3/2005	1	9	0	2	0	-
	10/3/2005	2	4	1	0	0	-
	10/4/2005	3	0	0	0	0	-
	10/4/2005	4	0	0	0	0	-
2	10/11/2005	1	15	1	2	4	0
	10/11/2005	2	7	2	0	1	0
	10/12/2005	3	1	1	0	0	0
	10/12/2005	4	1	2	0	0	0
3	10/17/2005	1	25	0	1	0	1
	10/17/2005	2	16	1	0	0	0
	10/18/2005	3	3	1	0	0	0
	10/18/2005	4	1	1	0	0	0
4	10/24/2005	1	34	6	1	0	0
	10/24/2005	2	14	3	0	0	0
	10/25/2005	3	10	3	1	0	0
	10/25/2005	4	0	0	0	0	0
5	10/31/2005	1	73	12	2	2	0
	10/31/2005	2	14	4	0	1	0
	11/1/2005	3	16	6	0	1	0
	11/1/2005	4	3	1	0	0	0
6	11/8/2005	1	79	49	22	17	1
	11/8/2005	2	12	6	0	4	0
	11/10/2005	3	19	29	3	2	0
	11/10/2005	4	0	3	0	1	0
7	11/14/2005	1	88	56	12	12	8
	11/14/2005	2	11	8	1	3	0
	11/16/2005	3	30	43	4	4	1
	11/16/2005	4	0	3	0	1	0
8	11/21/2005	1	74	69	18	24	2
	11/21/2005	2	13	8	2	0	1
	11/22/2005	3	20	44	0	1	2
	11/22/2005	4	5	3	0	0	0
9	11/28/2005	1	37	44	22	24	14
	11/28/2005	2	16	11	0	1	1
	11/29/2005	3	13	33	1	2	1
	11/29/2005	4	4	6	1	0	0
10	12/6/2005	1	82	42	15	23	14
	12/6/2005	2	7	6	0	1	0
	12/7/2005	3	19	40	2	4	0
	12/7/2005	4	19	21	1	1	0
11	12/12/2005	1	69	59	19	31	12
	12/12/2005	2	13	8	0	1	1
	12/13/2005	3	16	31	1	7	0
	12/113/05	4	14	22	1	0	0
12	12/21/2005	1	6	5	2	2	0
	12/21/2005	2	0	0	0	0	0
	12/22/2005	3	2	7	0	0	0
	12/22/2005	4	1	5	0	1	0
13		1					
		2					
		3					
		4					
14		1					
		2					
		3					
		4					

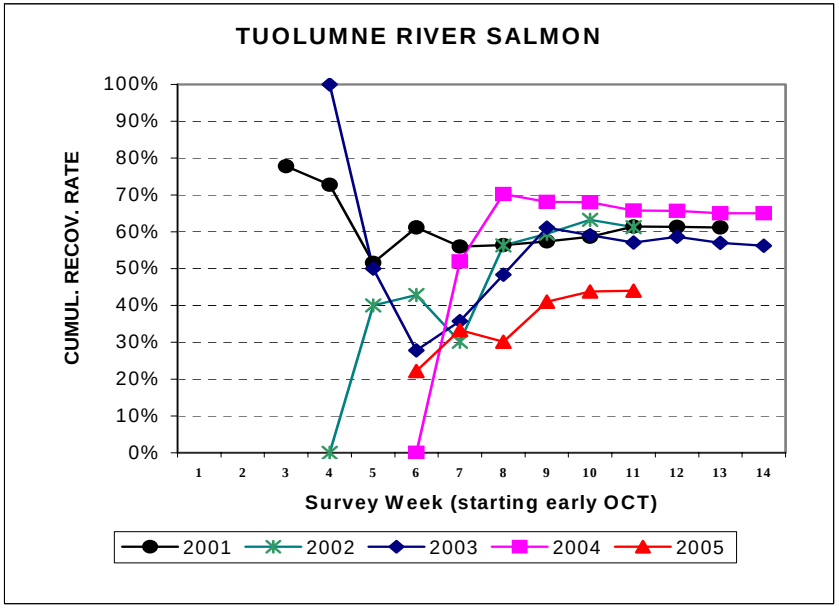
2005 Weekly Totals (Preliminary Data)					
Week	Live	Redds	Skeletons	Tagged	Recoveries
1	13	1	2	0	0
2	24	6	2	5	0
3	45	3	1	0	1
4	58	12	2	0	0
5	106	23	2	4	0
6	110	87	25	24	1
7	129	110	17	20	9
8	112	124	20	25	5
9	70	94	24	27	16
10	127	109	18	29	14
11	112	120	21	39	13
12	9	17	2	3	0
13	0	0	0	0	0
14	0	0	0	0	0

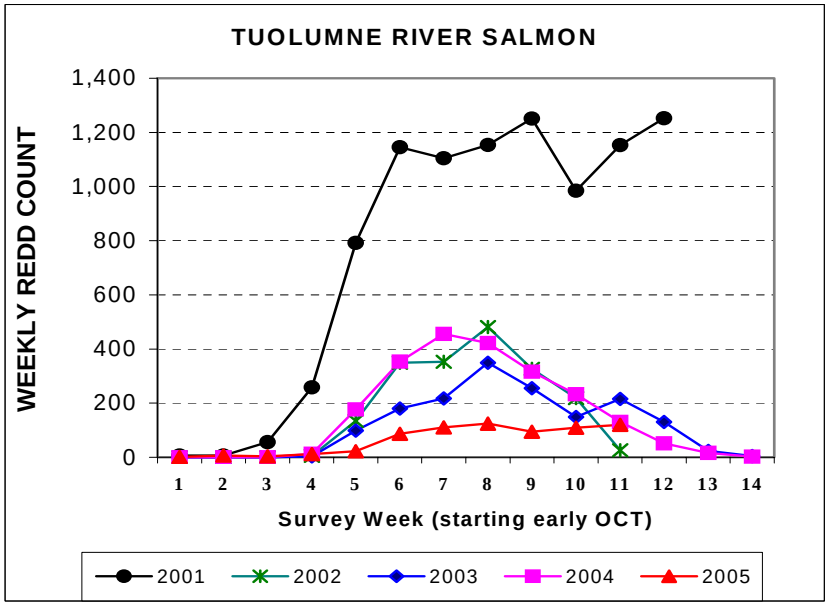
Section 1 - From La Grange Dam (RM 51.9) downstream to Basso Bridge (RM 47.5)
Section 2 - From Basso Bridge to Turlock Lake State Recreation Area (RM 41.9)
Section 3 - From TLSRA to Riffle S1 (RM 33.7)
Section 4 - From Riffle S1 to Fox Grove Park (RM 26)






TUOLUMNE RIVER SALMON
WEEKLY LIVE COUNT
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14
Survey Week (starting early OCT)
2001 2002 2003 2004 2005


TUOLUMNE RIVER SALMON
CUMUL. RECOV. RATE
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1 2 3 4 5 6 7 8 9 10 11 12 13 14
Survey Week (starting early OCT)
2001 2002 2003 2004 2005


TUOLUMNE RIVER SALMON
WEEKLY REDD COUNT
1,400
1,200
1,000
800
600
400
200
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14
Survey Week (starting early OCT)
2001 2002 2003 2004 2005

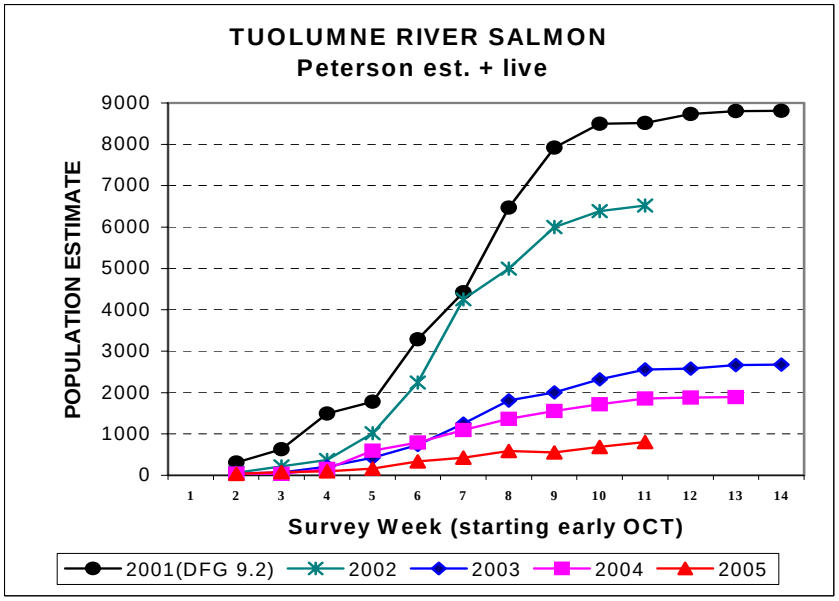
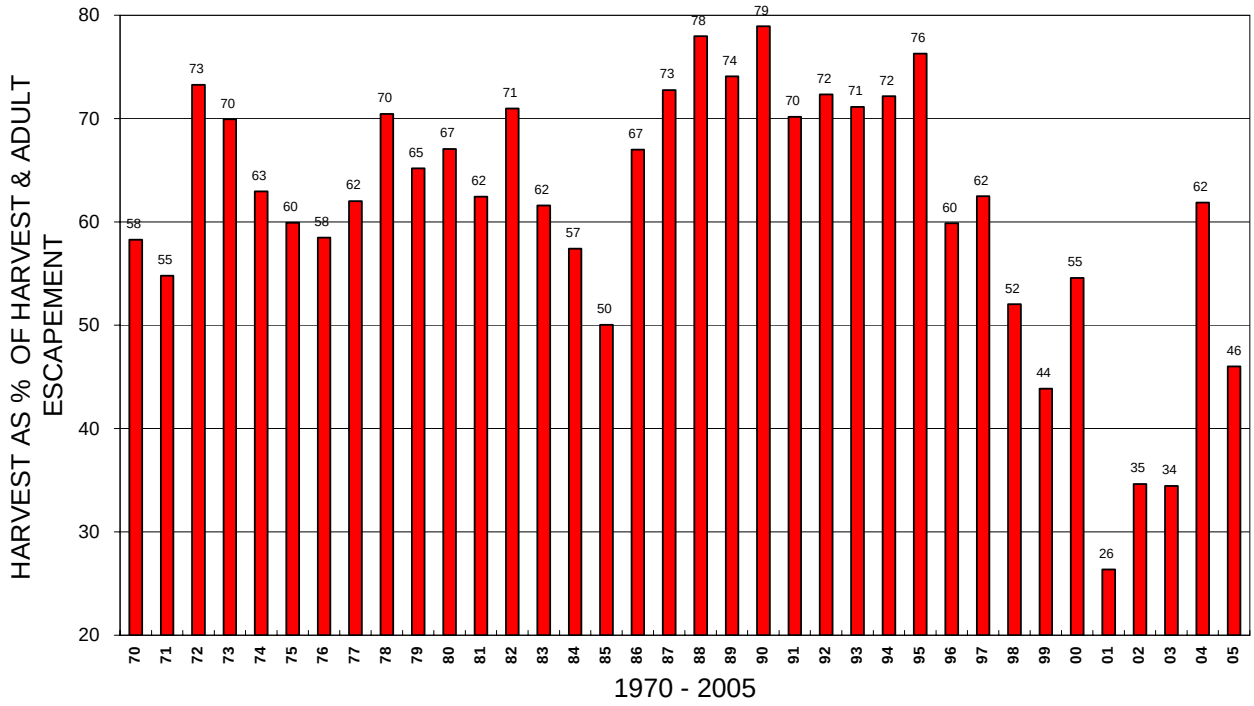
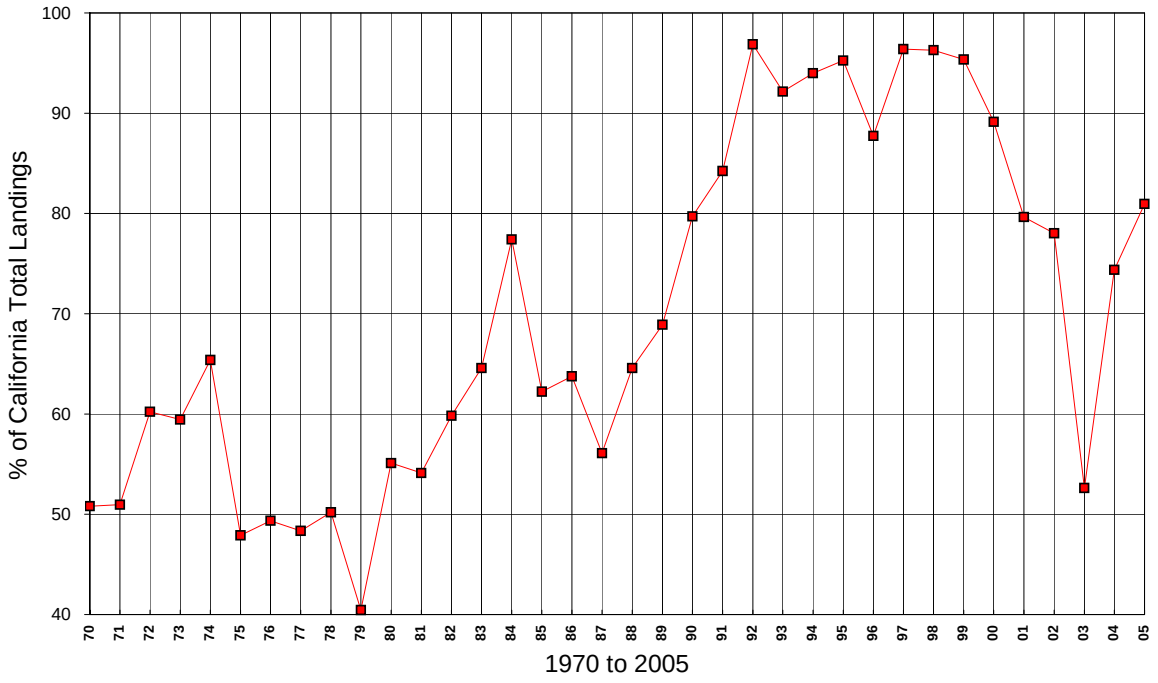

TUOLUMNE RIVER SALMON
Peterson est. + live
POPULATION ESTIMATE
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14
Survey Week (starting early OCT)
2001(DFG 9.2) 2002 2003 2004 2005

Exhibit 2 - Ocean catch and harvest rate data

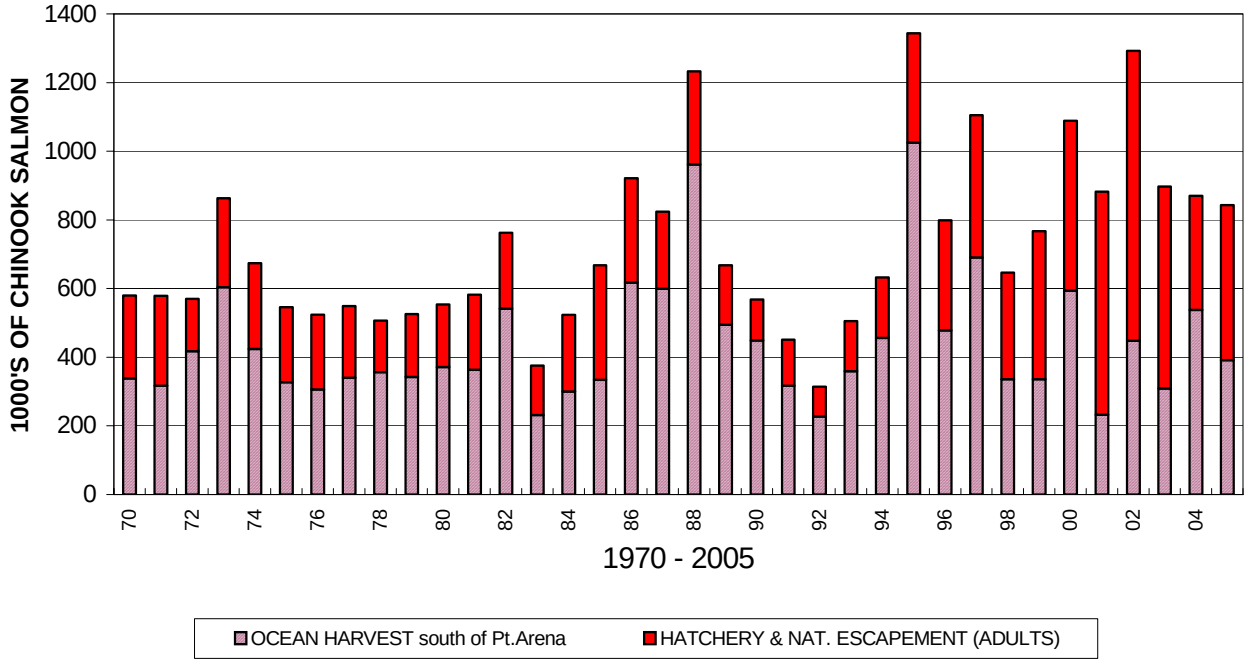
Central Valley Ocean Harvest Rate
Index (south of Pt. Arena)



California Chinook Landings
South of Pt. Arena as % of CA total



CENTRAL VALLEY CHINOOK ABUNDANCE INDEX
RIVER AND OCEAN TOTALS



HATCHERY AND NATURAL ESCAPEMENT
CENTRAL VALLEY ADULTS

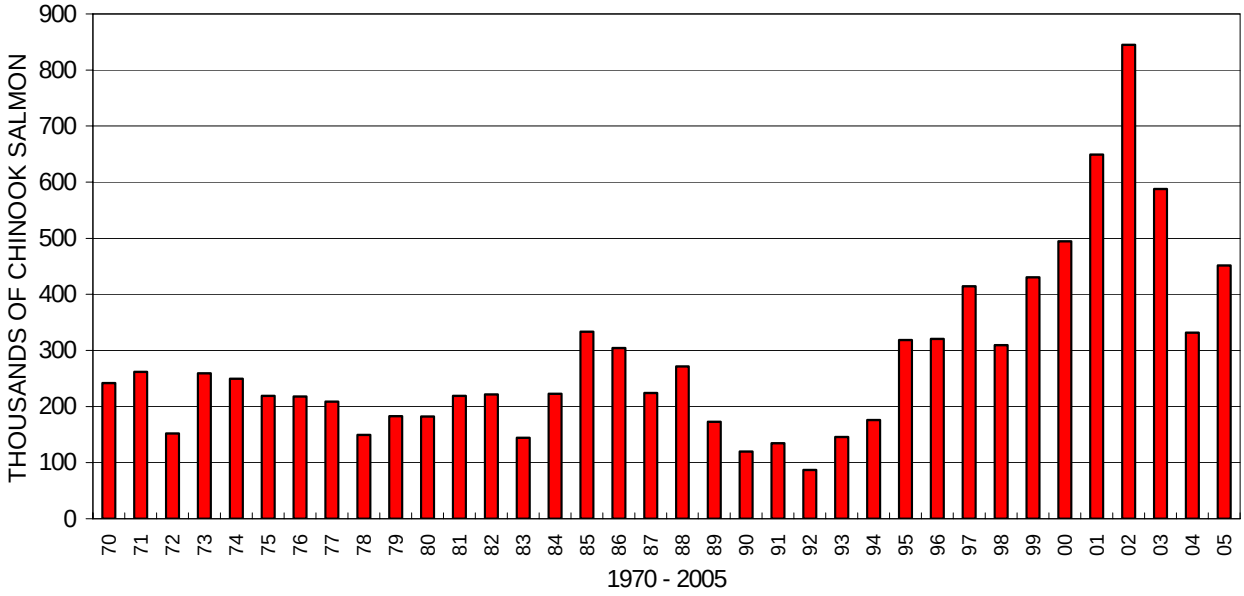


Exhibit 3 - Delta salmon salvage data

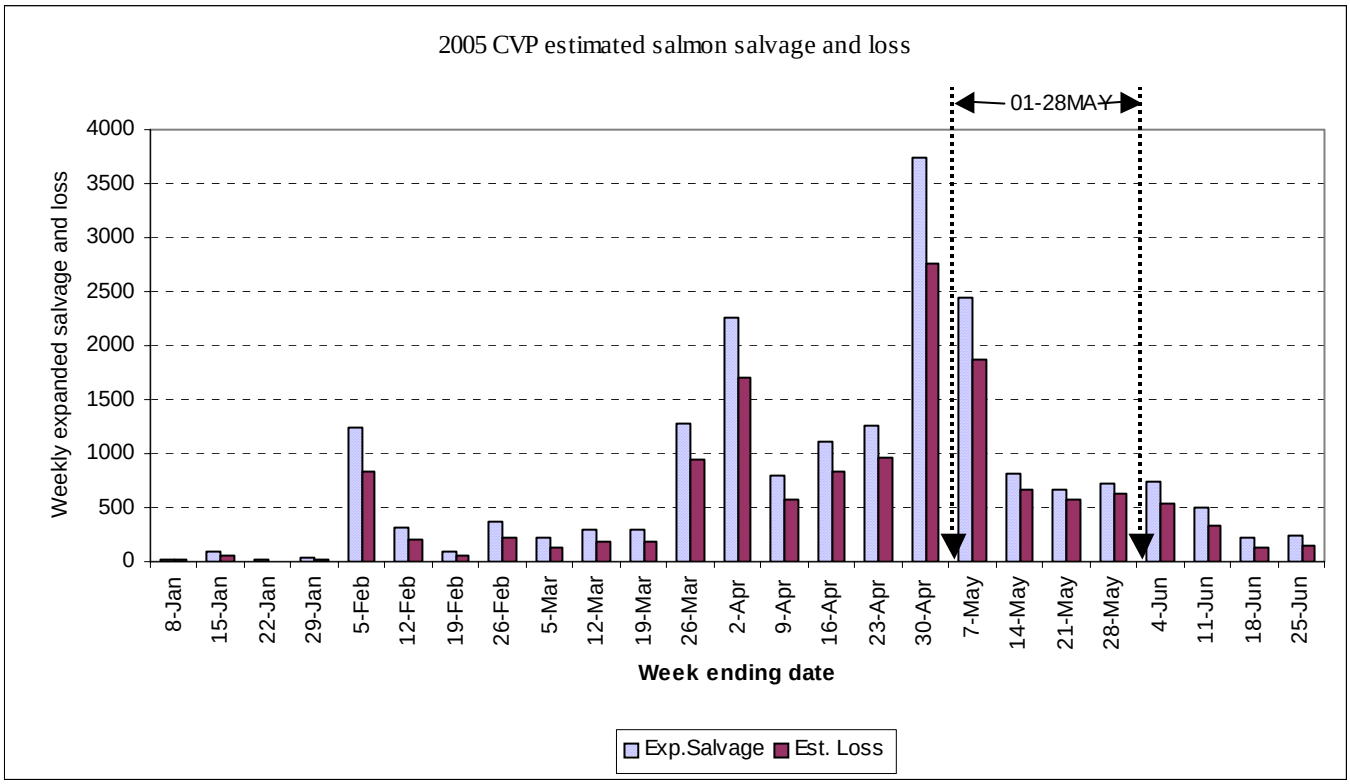
Monthly salvage and export data

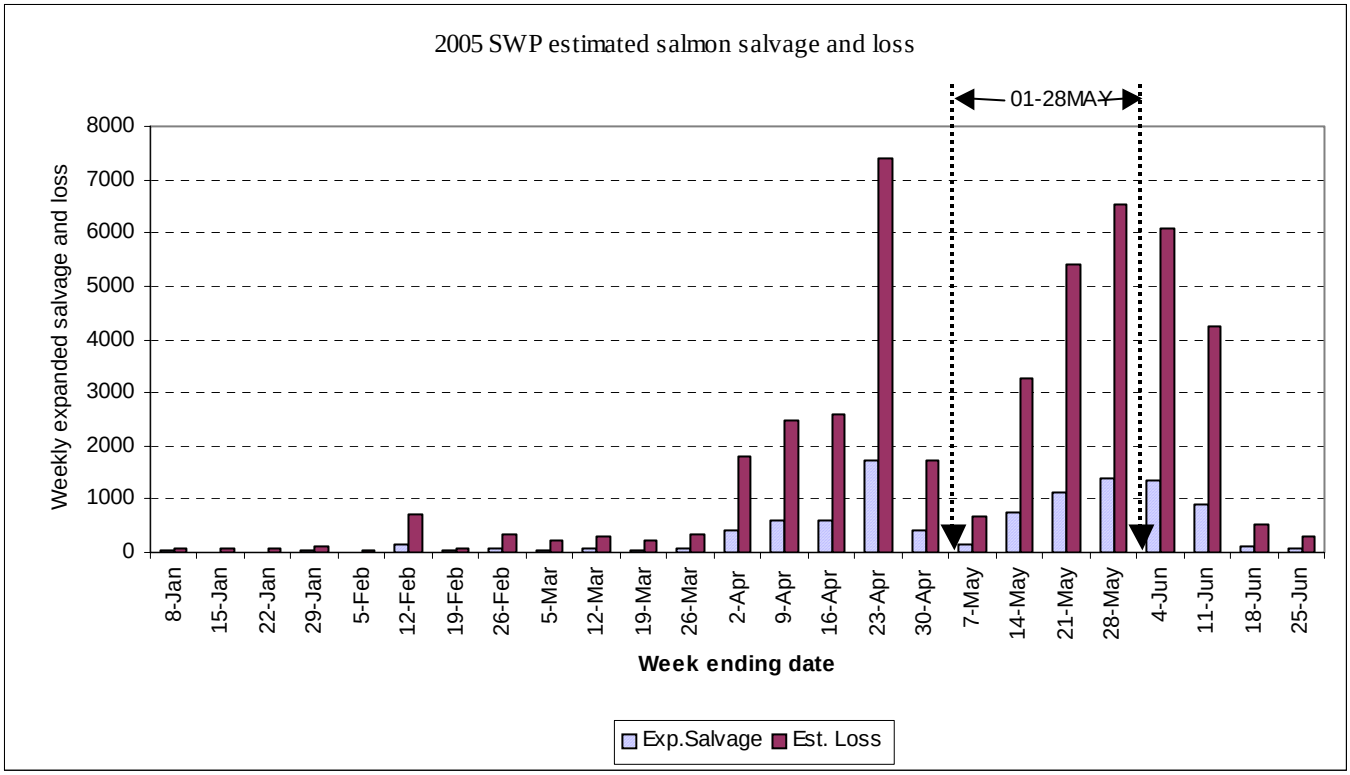
STATE WATER PROJECT								
							Expanded	Combined
2005	Total chinook salvage (no clip)			Combined	Ave. cfs	Acre ft.	salmon /	salvage & loss
	Observed	Expanded	Est. Loss	salvage & loss	Export	Export	1000 ac.ft.	per 1000 ac.ft.
JANUARY	13	75	328	403	7,783	478,444	0.2	0.8
FEBRUARY	62	304	1,289	1,593	4,987	276,898	1.1	5.8
MARCH	103	500	2,141	2,641	3,621	222,594	2.2	11.9
APRIL	704	3,496	14,858	18,354	3,760	223,682	15.6	82.1
MAY	864	4,318	19,979	24,297	1,971	121,163	35.6	200.5
JUNE	329	1,610	7,411	9,021	5,493	337,690	4.8	26.7
TOT & AVG	2,075	10,303	46,006	56,309	4,603	1,660,472	6.2	33.9
CENTRAL VALLEY PROJECT								
							Expanded	Combined
2005	Total chinook salvage (no clip)				Ave. cfs	Acre ft.	salmon /	salvage & loss
	Observed	Expanded	Est. Loss		Export	Export	1000 ac.ft.	per 1000 ac.ft.
JANUARY	23	253	158	411	4,217	259,232	1.0	1.6
FEBRUARY	209	2001	1,303	3,304	3,889	215,933	9.3	15.3
MARCH	342	4,050	2,916	6,966	3,377	207,594	19.5	33.6
APRIL	598	7,155	5,308	12,463	1,102	65,558	109.1	190.1
MAY	445	4,848	3,900	8,748	1,071	65,838	73.6	132.9
JUNE	125	1,500	978	2,478	4,164	255,945	5.9	9.7
TOT & AVG	1,742	19,807	14,563	34,370	2,970	1,070,099	18.5	32.1
SWP + CVP								
TOT & AVG	3,817	30,110	60,569	90,679	7,572	2,730,571	11.0	33.2

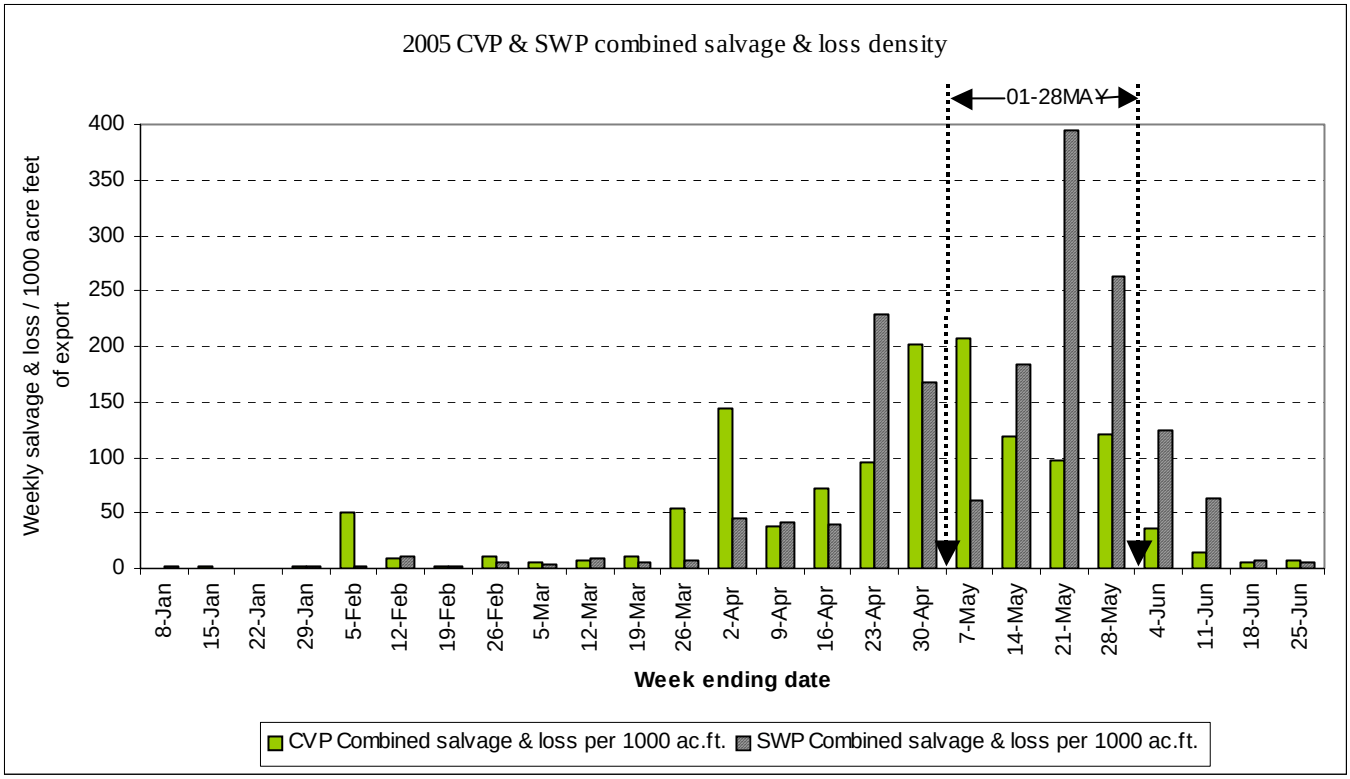
Weekly salvage and export data

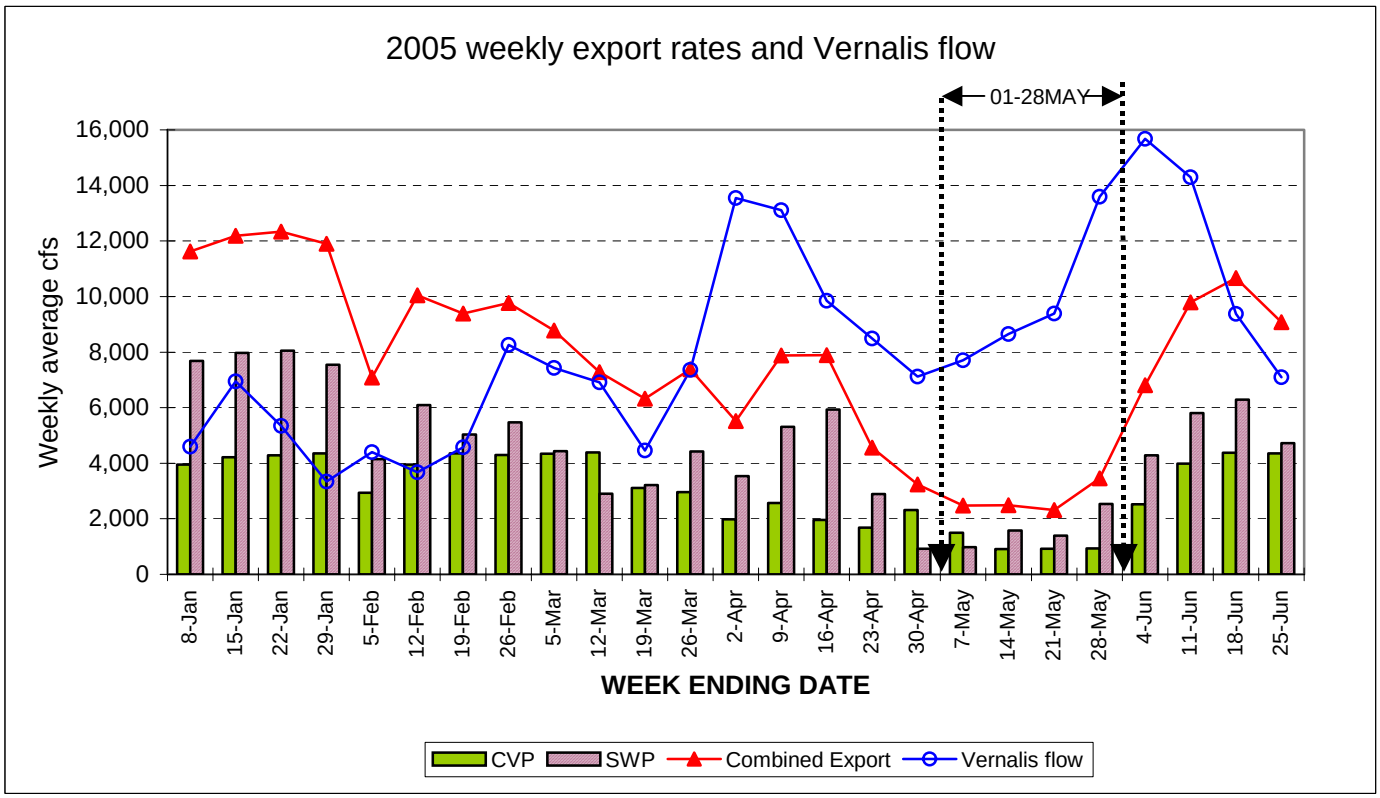
STATE WATER PROJECT			(VAMP weeks are shaded)				SWP	SWP	CVP&SWP
week ending							Expanded	Combined	average
date	Total chinook salvage			Combined	Ave. cfs	Acre ft.	salvage /	salvage & loss	export rate
	Observed	Exp.Salvage	Est. Loss	salvage & loss	Export	Export	1000 ac.ft.	per 1000 ac.ft.	(cfs)
8-Jan-2005	4	21	93	114	7,678	106,578	0.2	1.1	11,628
15-Jan-2005	2	15	65	80	7,976	110,715	0.1	0.7	12,192
22-Jan-2005	3	18	76	94	8,050	111,742	0.2	0.8	12,338
29-Jan-2005	4	21	94	115	7,548	104,774	0.2	1.1	11,898
5-Feb-2005	3	12	54	66	4,142	57,495	0.2	1.1	7,085
12-Feb-2005	34	166	696	862	6,092	84,563	2.0	10.2	10,044
19-Feb-2005	5	21	90	111	5,033	69,863	0.3	1.6	9,385
26-Feb-2005	15	81	343	424	5,471	75,943	1.1	5.6	9,766
5-Mar-2005	9	48	214	262	4,435	61,562	0.8	4.3	8,778
12-Mar-2005	14	69	298	367	2,900	40,255	1.7	9.1	7,284
19-Mar-2005	12	48	209	257	3,213	44,600	1.1	5.8	6,325
26-Mar-2005	17	84	351	435	4,423	61,396	1.4	7.1	7,389
2-Apr-2005	87	422	1,808	2,230	3,536	49,083	8.6	45.4	5,514
9-Apr-2005	119	595	2,496	3,091	5,306	73,653	8.1	42.0	7,877
16-Apr-2005	122	615	2,590	3,205	5,931	82,328	7.5	38.9	7,886
23-Apr-2005	353	1,740	7,404	9,144	2,888	40,088	43.4	228.1	4,566
30-Apr-2005	79	399	1,735	2,134	920	12,771	31.2	167.1	3,234
7-May-2005	30	156	683	839	984	13,659	11.4	61.4	2,480
14-May-2005	140	750	3,268	4,018	1,579	21,918	34.2	183.3	2,486
21-May-2005	216	1,134	5,401	6,535	1,392	16,562	68.5	394.6	2,310
28-May-2005	273	1,377	6,538	7,915	2,532	30,126	45.7	262.7	3,461
4-Jun-2005	289	1,339	6,070	7,409	4,281	59,425	22.5	124.7	6,808
11-Jun-2005	188	909	4,241	5,150	5,802	80,538	11.3	63.9	9,786
18-Jun-2005	22	116	523	639	6,292	87,339	1.3	7.3	10,665
25-Jun-2005	11	63	286	349	4,726	65,602	1.0	5.3	9,078
Tot&avg	**2,051**	**10,219**	**45,626**	**55,845**	**4,525**	**1,562,576**	**12.2**	**66.9**	**7,611**
VAMP	659	3,417	15,890	19,307	1,622	82,265	40.0	225.5	2,684

CENTRAL VALLEY PROJECT			(VAMP weeks are shaded)				CVP	CVP	
							Expanded	Combined	Vernalis
week ending	Total chinook salvage			Combined	Ave. cfs	Acre ft.	salvage/	salvage & loss	flow
date	Observed	Expanded	Est. Loss	salvage & loss	Export	Export	1000 ac.ft.	per 1000 ac.ft.	(cfs)
8-Jan-2005	2	24	16	40	3,950	54,830	0.4	0.7	4594
15-Jan-2005	8	85	54	139	4,216	58,522	1.5	2.4	6950
22-Jan-2005	1	12	7	19	4,288	59,522	0.2	0.3	5348
29-Jan-2005	4	36	23	59	4,350	60,382	0.6	1.0	3344
5-Feb-2005	145	1248	839	2087	2,943	40,852	30.5	51.1	4397
12-Feb-2005	28	321	210	531	3,952	54,858	5.9	9.7	3671
19-Feb-2005	8	96	57	153	4,352	60,410	1.6	2.5	4,577
26-Feb-2005	31	372	220	592	4,295	59,619	6.2	9.9	8,261
5-Mar-2005	18	216	127	343	4,343	60,285	3.6	5.7	7,425
12-Mar-2005	25	300	177	477	4,384	60,854	4.9	7.8	6,907
19-Mar-2005	29	294	179	473	3,112	43,198	6.8	10.9	4,456
26-Mar-2005	106	1,272	942	2,214	2,966	41,171	30.9	53.8	7,365
2-Apr-2005	189	2,268	1,707	3,975	1,978	27,457	82.6	144.8	13,552
9-Apr-2005	67	804	569	1,373	2,571	35,688	22.5	38.5	13,113
16-Apr-2005	92	1,104	828	1,932	1,955	27,137	40.7	71.2	9,849
23-Apr-2005	105	1,260	958	2,218	1,678	23,292	54.1	95.2	8,486
30-Apr-2005	313	3,735	2,764	6,499	2,314	32,121	116.3	202.3	7,119
7-May-2005	203	2,436	1,866	4,302	1,496	20,766	117.3	207.2	7,704
14-May-2005	87	819	674	1,493	907	12,590	65.1	118.6	8,652
21-May-2005	78	669	566	1,235	918	12,743	52.5	96.9	9,388
28-May-2005	60	720	624	1,344	929	11,053	65.1	121.6	13,588
4-Jun-2005	61	732	528	1260	2,527	35,077	20.9	35.9	15,673
11-Jun-2005	42	504	328	832	3,984	55,302	9.1	15.0	14,298
18-Jun-2005	18	216	136	352	4,373	60,702	3.6	5.8	9,379
25-Jun-2005	20	240	149	389	4,352	60,410	4.0	6.4	7,100
Tot&avg	**1,740**	**19,783**	**14,548**	**34,331**	**3,085**	**1,068,841**	**29.9**	**52.6**	**8,208**
VAMP	428	4,644	3,730	8,374	1,063	57,152	75.0	136.1	9,833

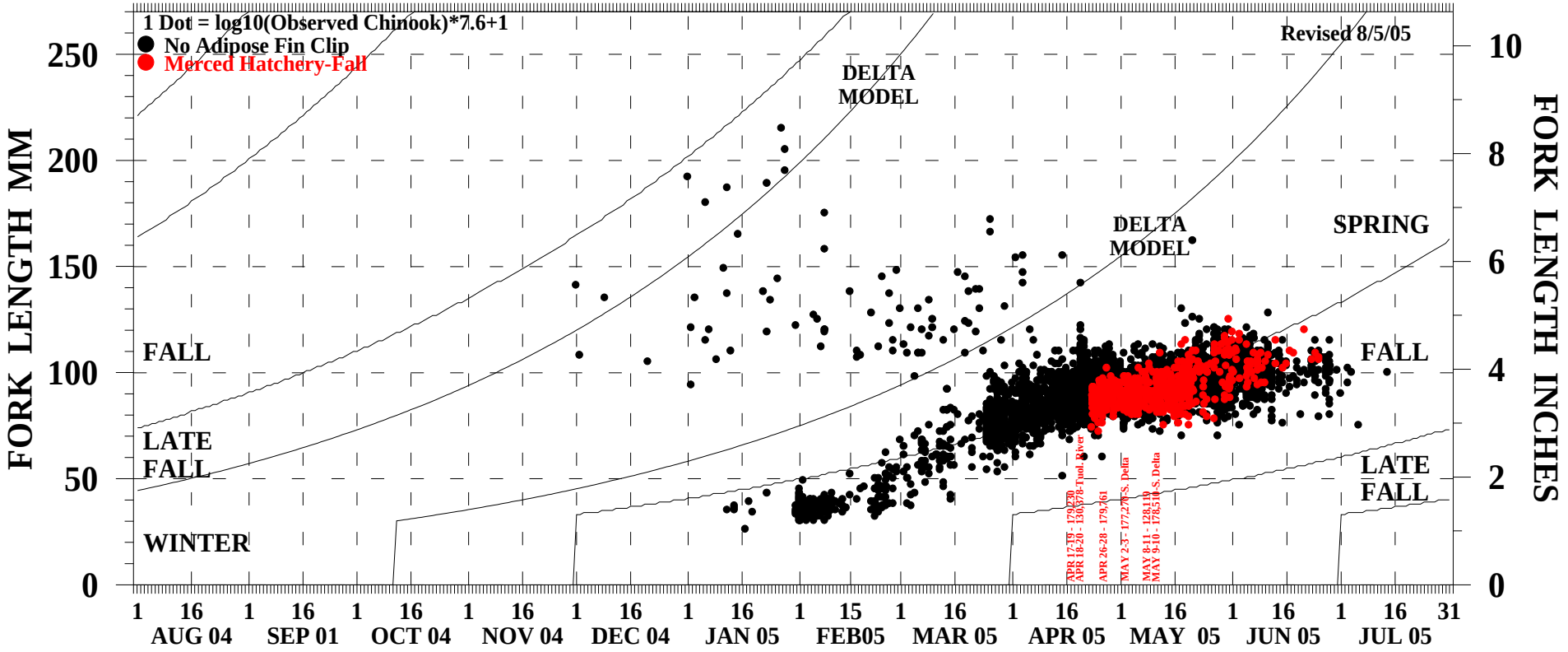

2005 CVP estimated salmon salvage and loss
01-28MAY
Weekly expanded salvage and loss
0
500
1000
1500
2000
2500
3000
3500
4000
8-Jan
15-Jan
22-Jan
29-Jan
5-Feb
12-Feb
19-Feb
26-Feb
5-Mar
12-Mar
19-Mar
26-Mar
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
Week ending date
Exp.Salvage
Est. Loss


2005 SWP estimated salmon salvage and loss
01-28MAY
Weekly expanded salvage and loss
0
1000
2000
3000
4000
5000
6000
7000
8000
8-Jan
15-Jan
22-Jan
29-Jan
5-Feb
12-Feb
19-Feb
26-Feb
5-Mar
12-Mar
19-Mar
26-Mar
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
Week ending date
Exp.Salvage
Est. Loss


2005 CVP & SWP combined salvage & loss density
01-28MAY
Weekly salvage & loss / 1000 acre feet of export
400
350
300
250
200
150
100
50
0
8-Jan
15-Jan
22-Jan
29-Jan
5-Feb
12-Feb
19-Feb
26-Feb
5-Mar
12-Mar
19-Mar
26-Mar
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
Week ending date
CVP Combined salvage & loss per 1000 ac.ft.
SWP Combined salvage & loss per 1000 ac.ft.


2005 weekly export rates and Vernalis flow
01-28MAY
Weekly average cfs
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
8-Jan
15-Jan
22-Jan
29-Jan
5-Feb
12-Feb
19-Feb
26-Feb
5-Mar
12-Mar
19-Mar
26-Mar
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
WEEK ENDING DATE
CVP
SWP
Combined Export
Vernalis flow

OBSERVED CHINOOK SALVAGE AT THE SWP & CVP DELTA FISH FACILITIES 8/1/04 THROUGH 7/31/05

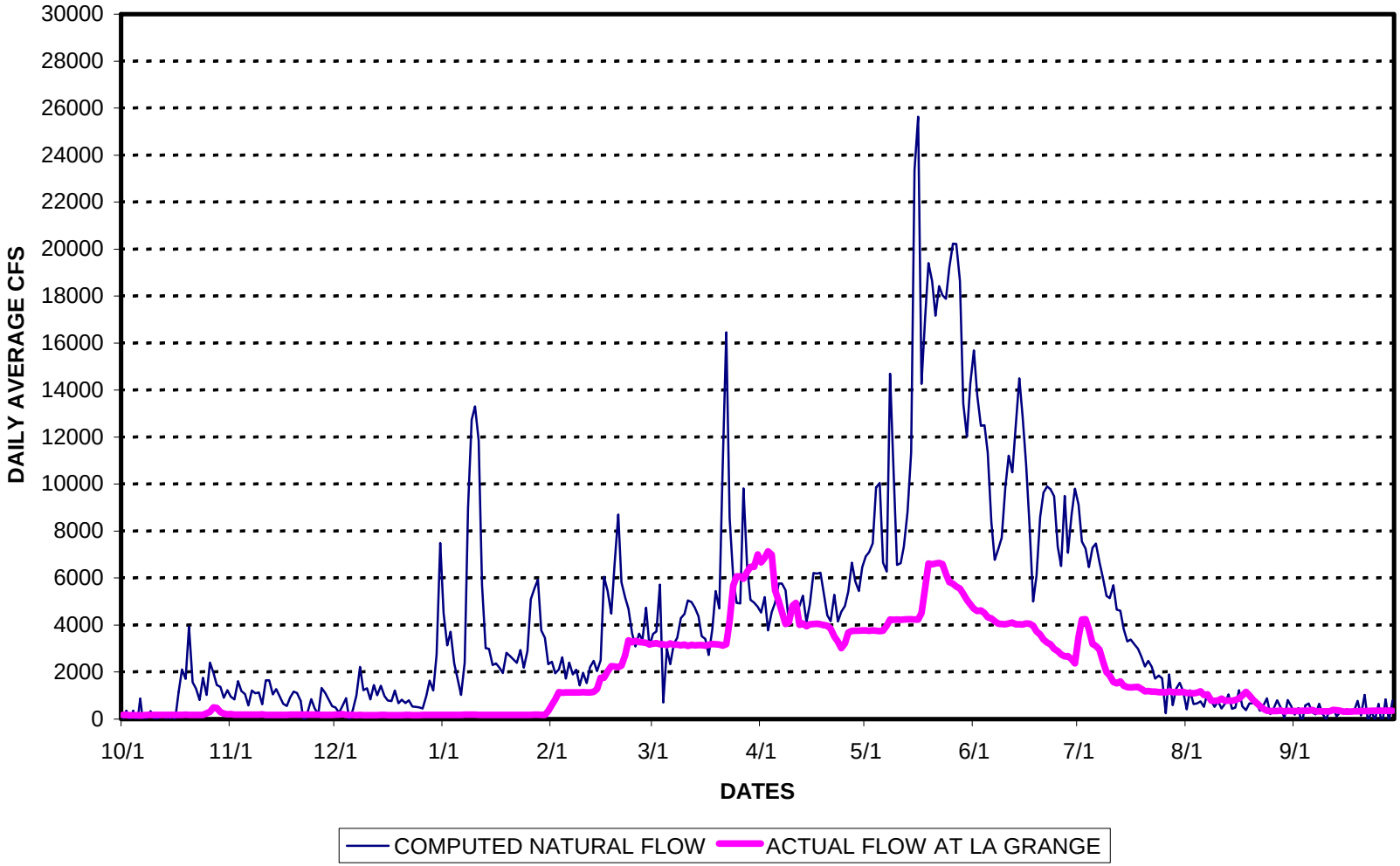


Attachment -A-

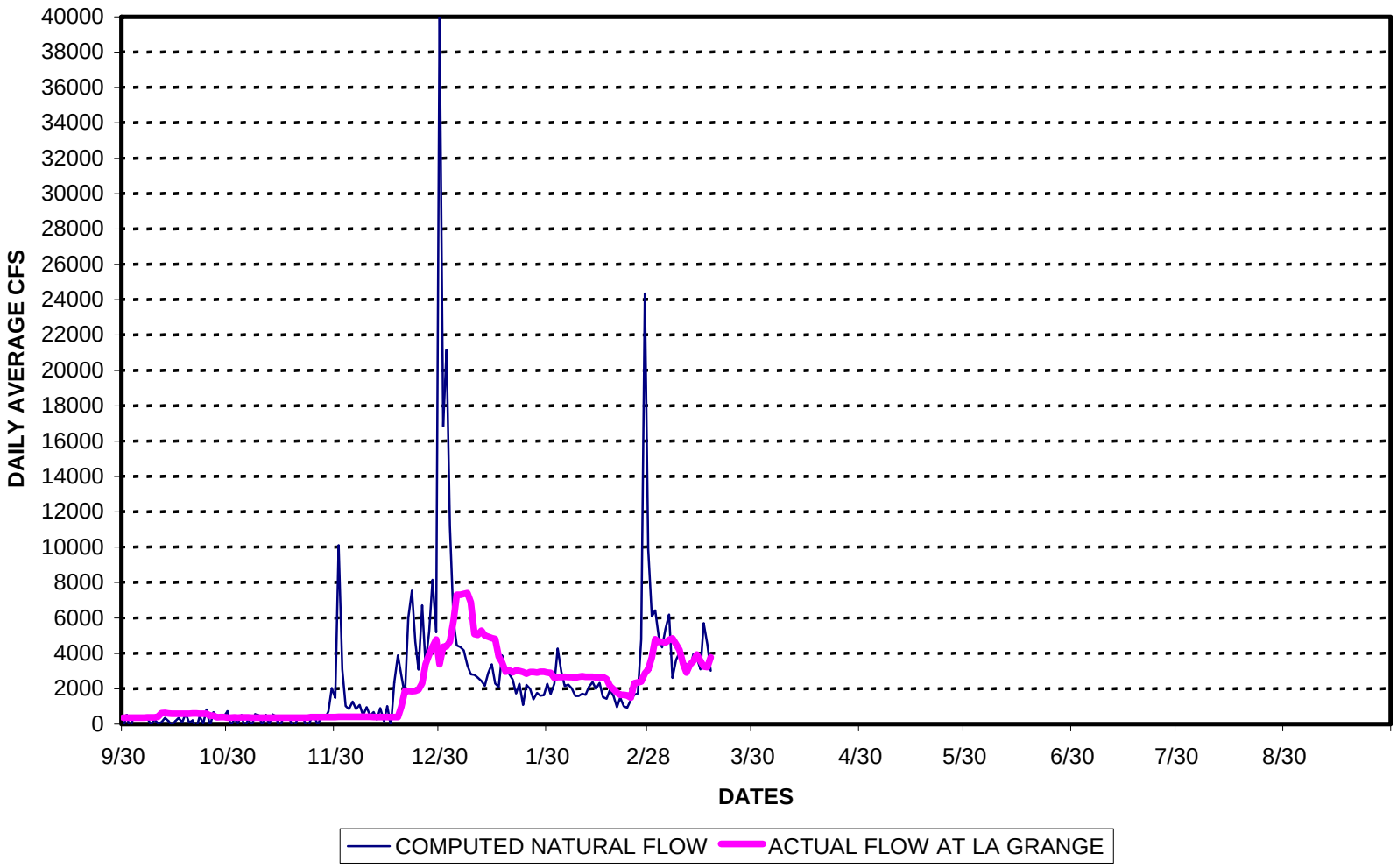
Water, Flows, Temperature, and Schedule Correspondence

1. Graphs of flows, FERC flow schedule, reservoir, and precipitation data
    - 2005/2006 Water Years daily average computed natural flow, actual flow, and FERC flow schedule at La Grange
    - 2005/2006 Water Years actual flow: Tuolumne at Modesto, Stanislaus at Ripon, Merced and San Joaquin at Stevinson, and San Joaquin at Vernalis
    - 2005/2006 Water Years Don Pedro Reservoir storage
    - 2005/2006 Precipitation Years (Sep-Aug) watershed precipitation index and snow sensor water content index as percent of average
2. Daily average water and air temperature graphs for Oct2004-Sep2005
3. Flow schedule correspondence in 2005
    - 27Jan – Review of Fall 2004 pulse flow and 45-day period
    - 08Apr – Initial 2005-2006 fish flow year schedule and basin index update
    - 20Apr – Proposed flow schedule from CDFG
    - 20May – Districts reply to proposed schedule
    - 30Sep – Final flow schedule

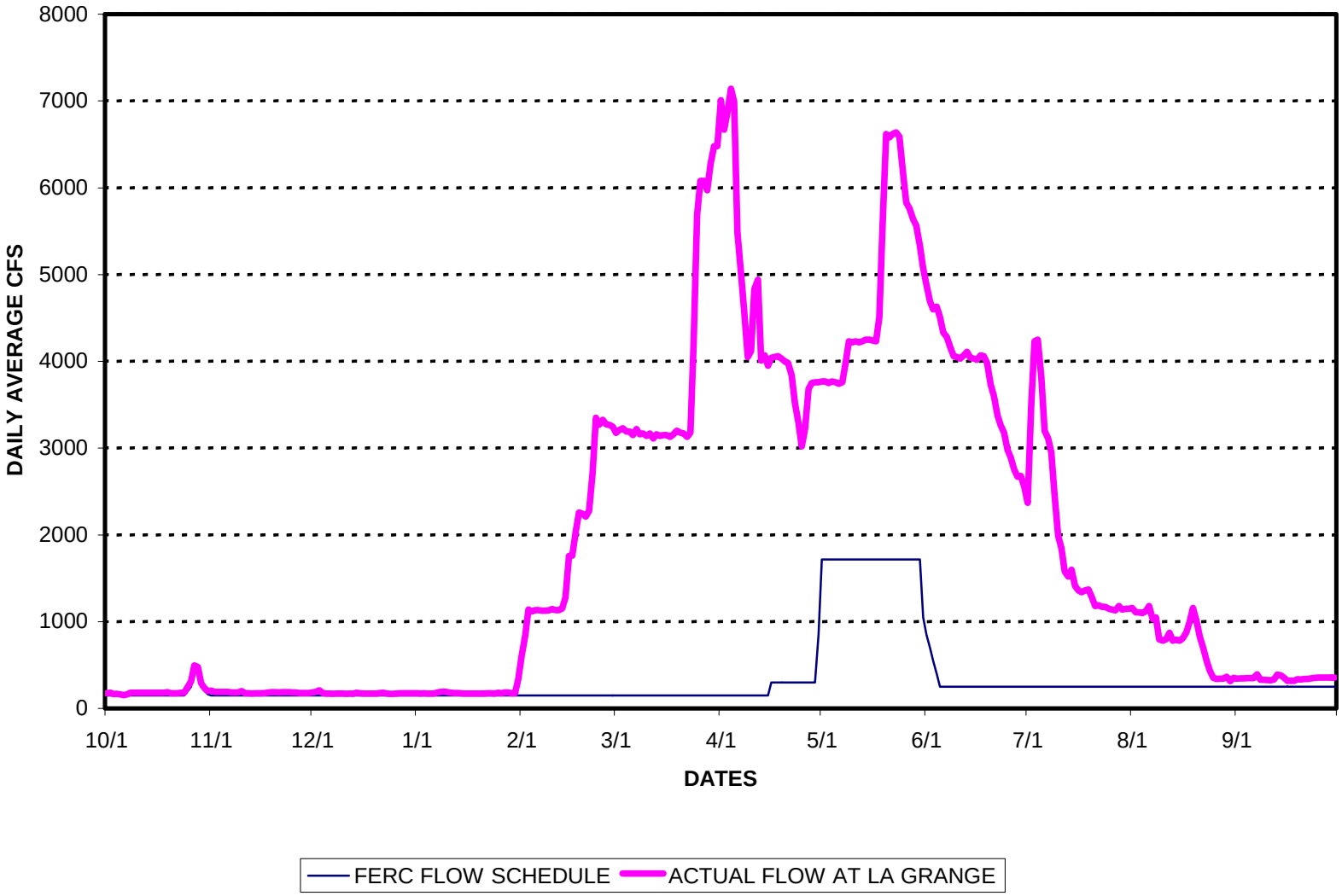
TUOLUMNE RIVER
DAILY AVERAGE FLOW WATER YEAR 2005
BASED ON USGS PROVISIONAL DATA

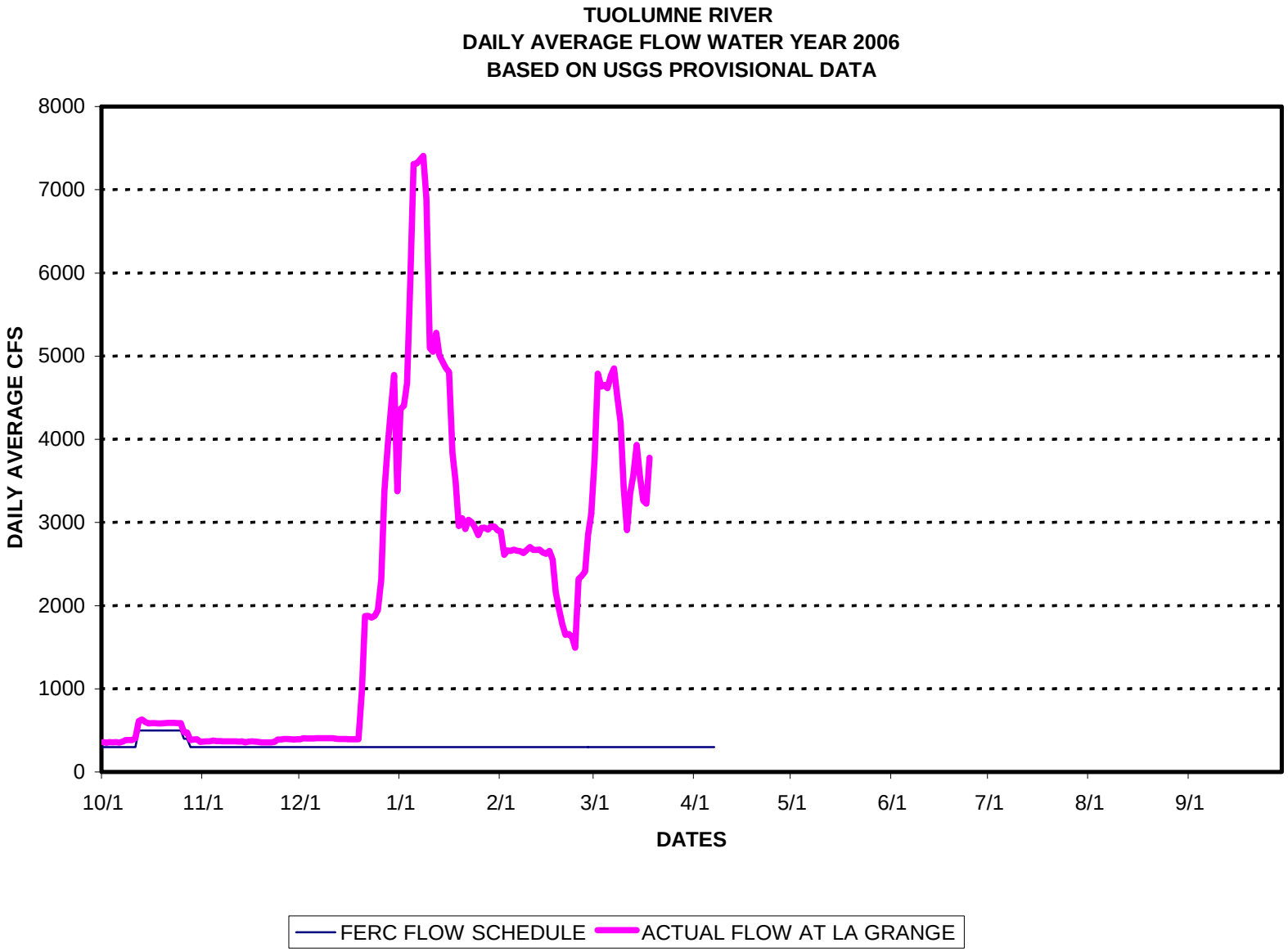


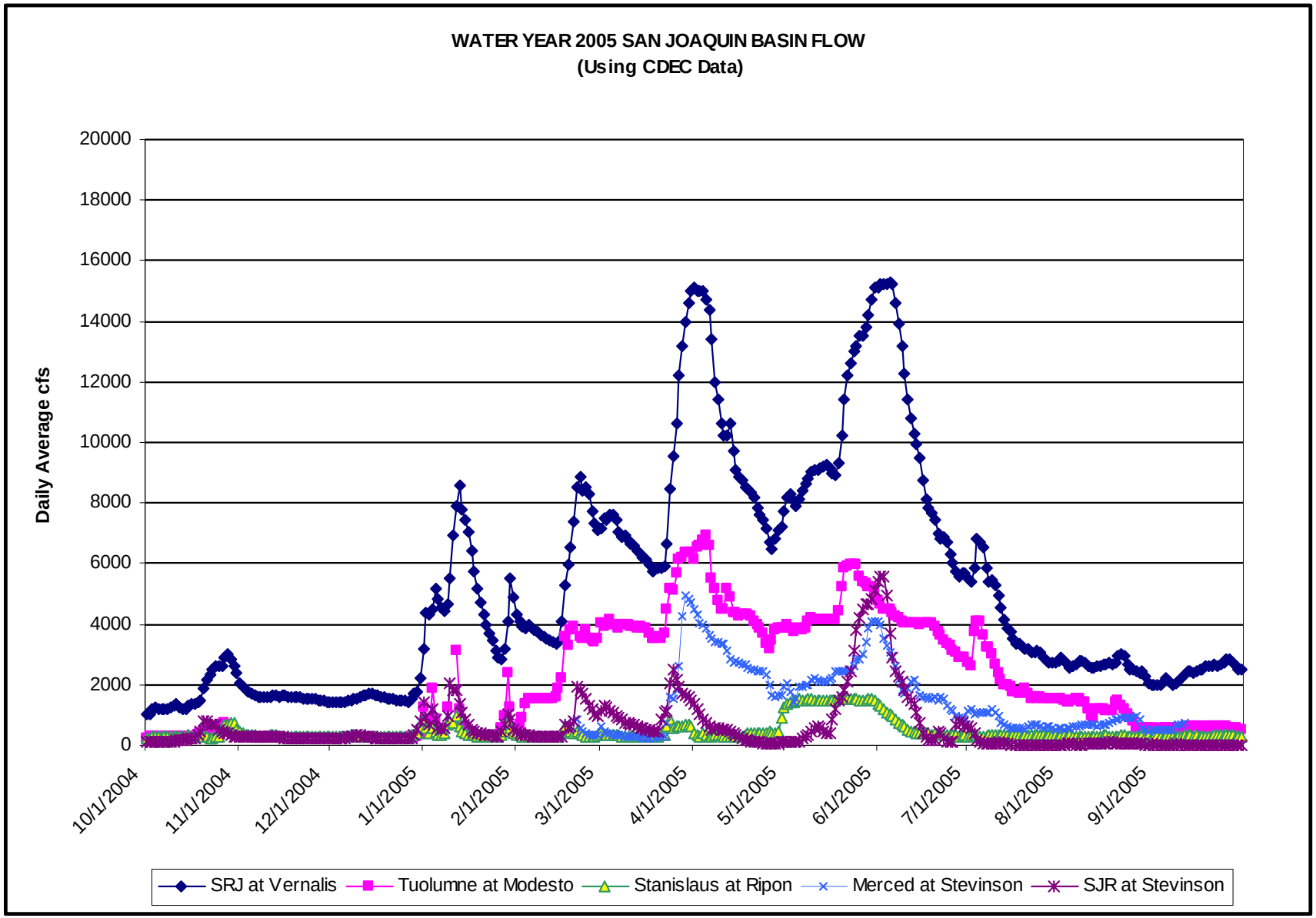
TUOLUMNE RIVER
DAILY AVERAGE FLOW WATER YEAR 2006
BASED ON USGS PROVISIONAL DATA

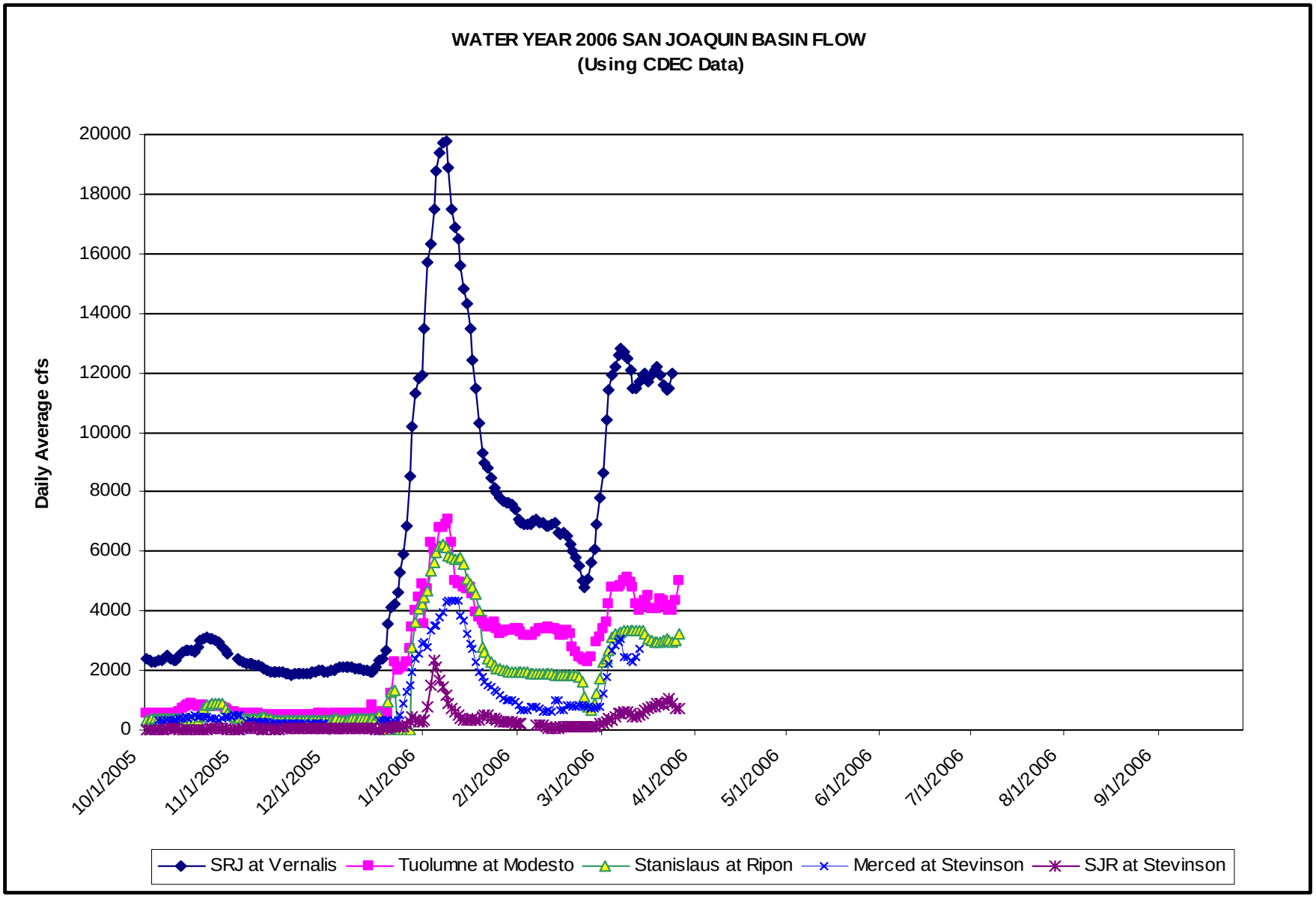


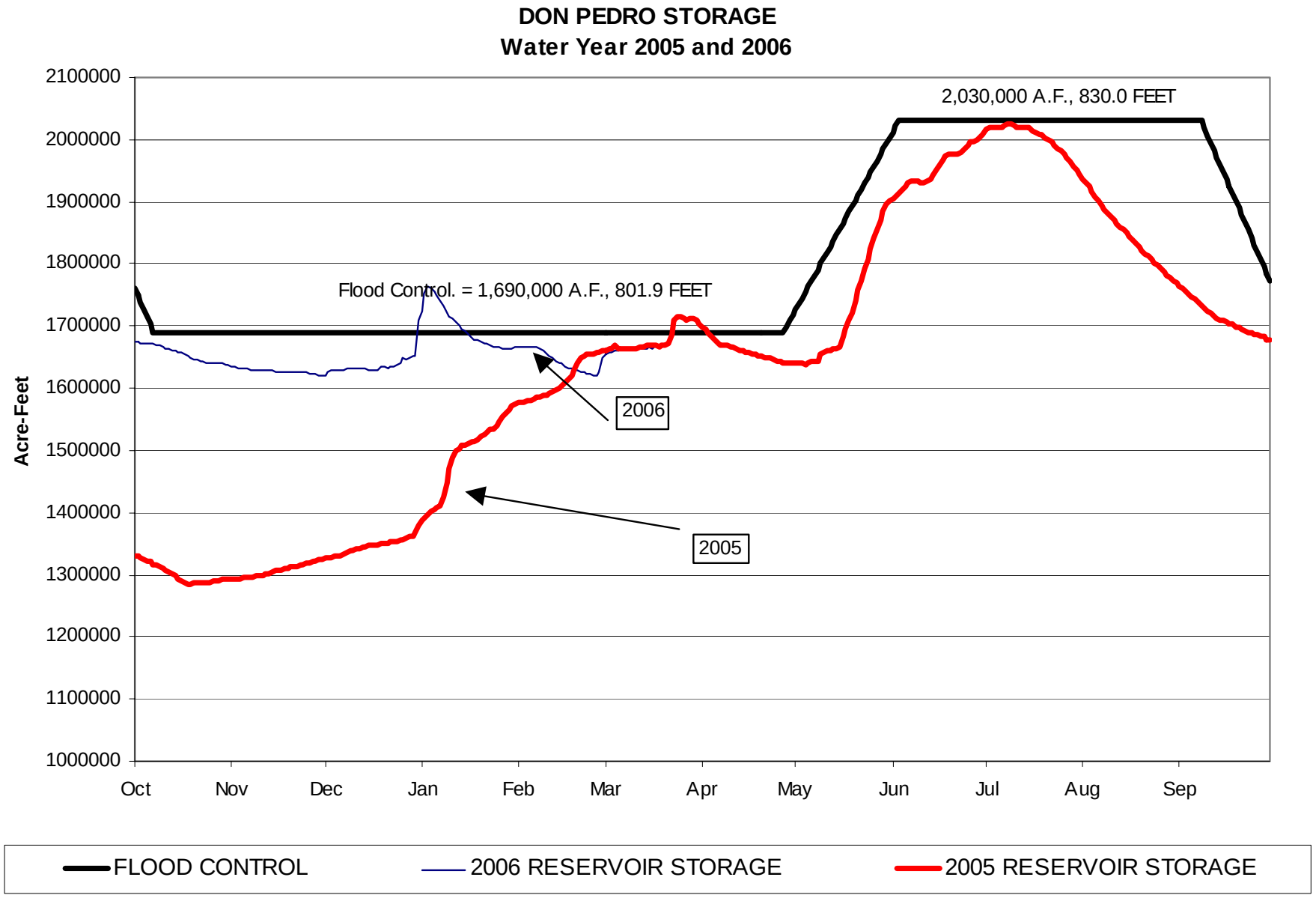
TUOLUMNE RIVER
DAILY AVERAGE FLOW WATER YEAR 2005
BASED ON USGS PROVISIONAL DATA

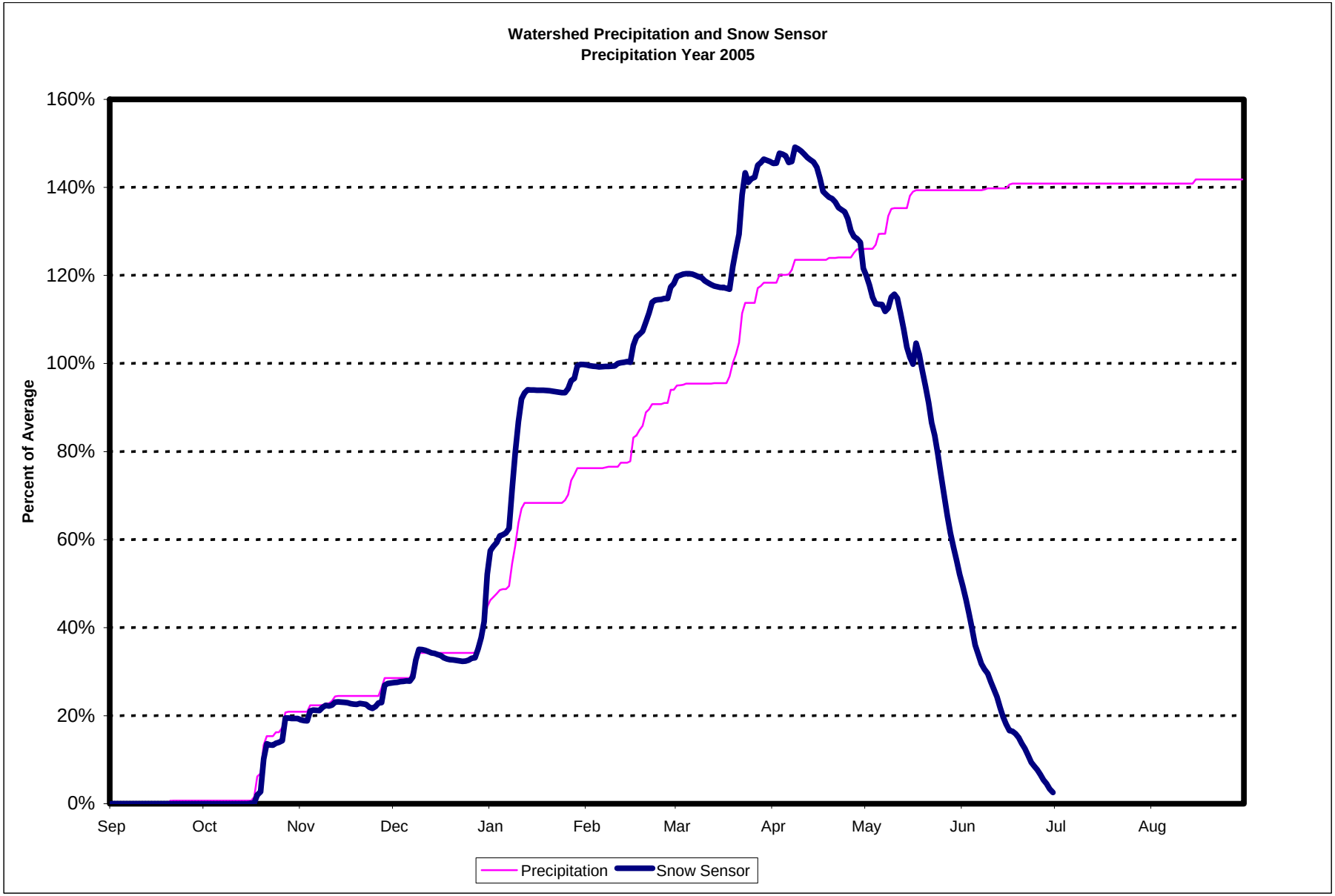


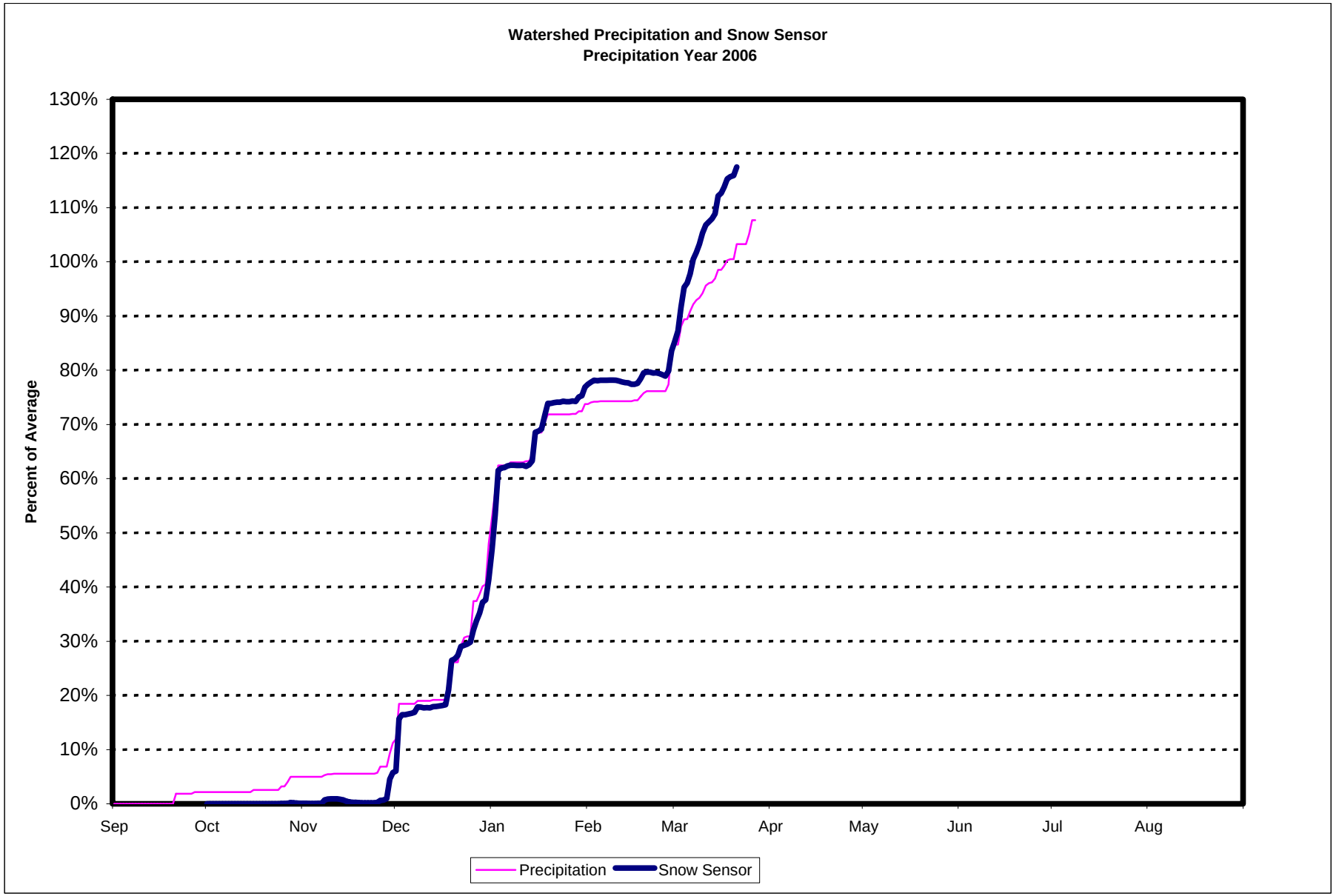

TUOLUMNE RIVER
DAILY AVERAGE FLOW WATER YEAR 2006
BASED ON USGS PROVISIONAL DATA
DAILY AVERAGE CFS
8000
7000
6000
5000
4000
3000
2000
1000
0
10/1
11/1
12/1
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
DATES
FERC FLOW SCHEDULE
ACTUAL FLOW AT LA GRANGE

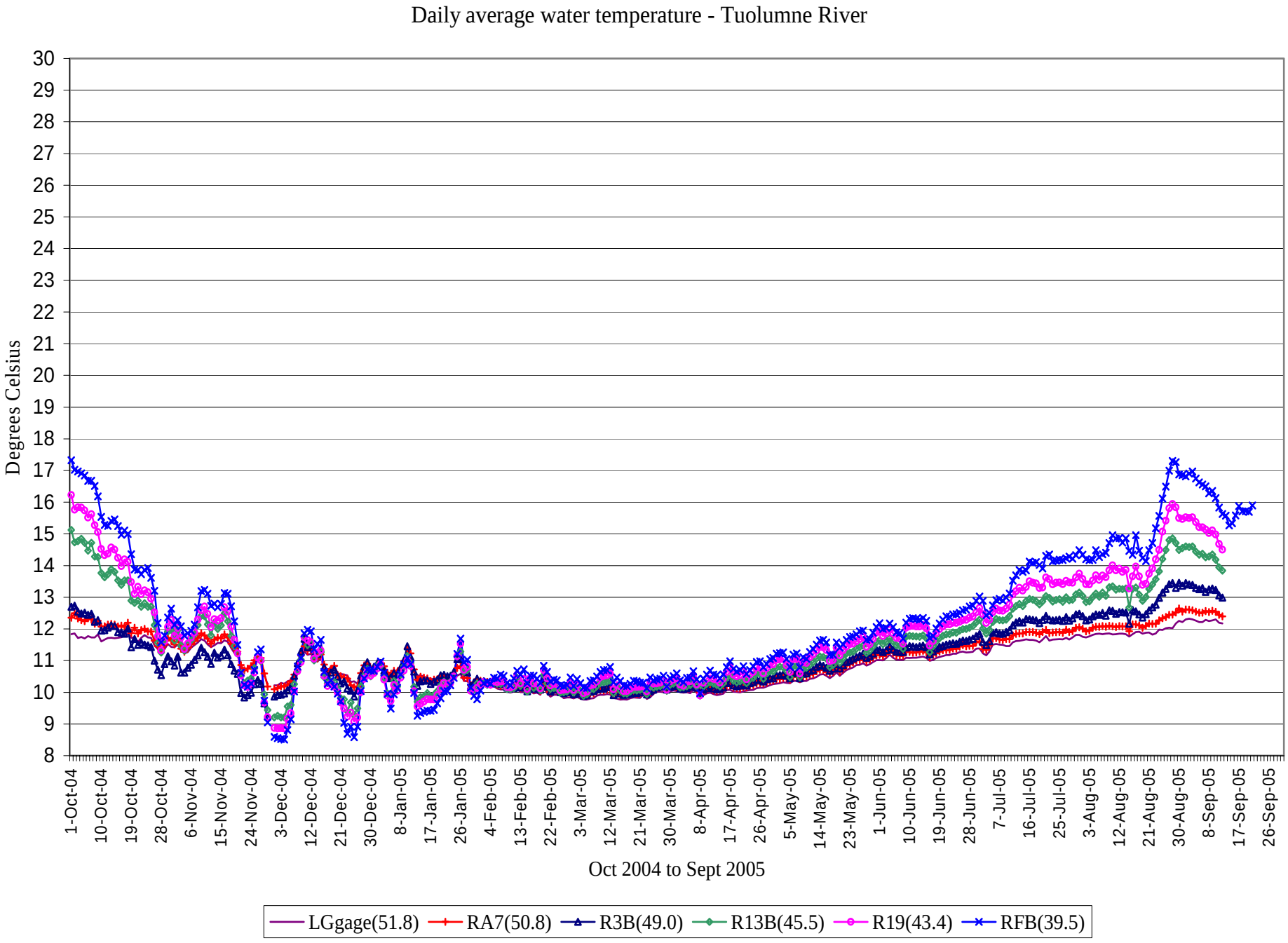

WATER YEAR 2005 SAN JOAQUIN BASIN FLOW
(Using CDEC Data)
Daily Average cfs
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
10/1/2004
11/1/2004
12/1/2004
1/1/2005
2/1/2005
3/1/2005
4/1/2005
5/1/2005
6/1/2005
7/1/2005
8/1/2005
9/1/2005
SRJ at Vernalis
Tuolumne at Modesto
Stanislaus at Ripon
Merced at Stevinson
SJR at Stevinson


WATER YEAR 2006 SAN JOAQUIN BASIN FLOW
(Using CDEC Data)
Daily Average cfs
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
10/1/2005
11/1/2005
12/1/2005
1/1/2006
2/1/2006
3/1/2006
4/1/2006
5/1/2006
6/1/2006
7/1/2006
8/1/2006
9/1/2006
SRJ at Vernalis
Tuolumne at Modesto
Stanislaus at Ripon
Merced at Stevinson
SJR at Stevinson

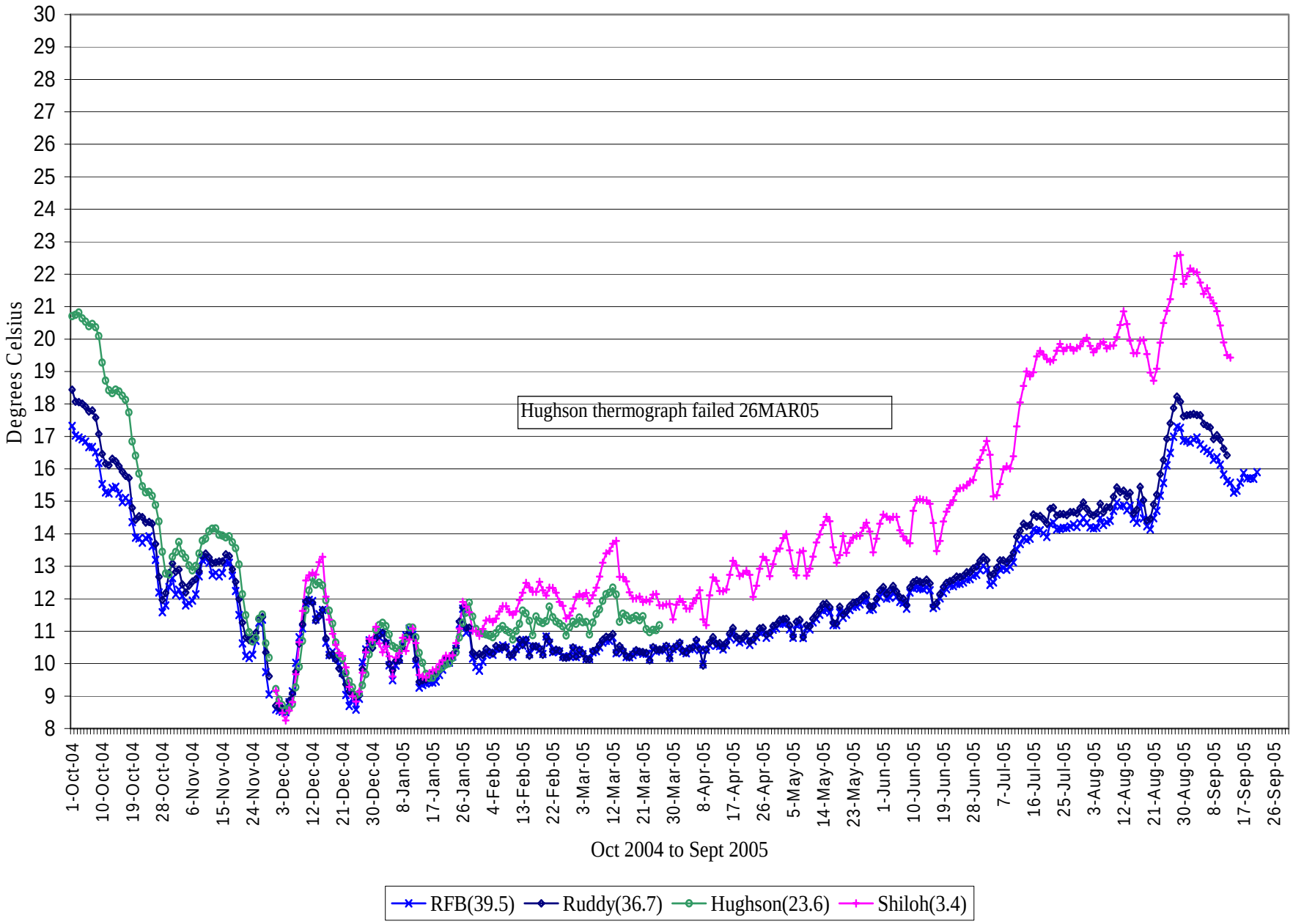

DON PEDRO STORAGE
Water Year 2005 and 2006
Acre-Feet
2100000
2000000
1900000
1800000
1700000
1600000
1500000
1400000
1300000
1200000
1100000
1000000
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
2,030,000 A.F., 830.0 FEET
Flood Control. = 1,690,000 A.F., 801.9 FEET
2006
2005
FLOOD CONTROL
2006 RESERVOIR STORAGE
2005 RESERVOIR STORAGE


Watershed Precipitation and Snow Sensor
Precipitation Year 2005
Percent of Average
160%
140%
120%
100%
80%
60%
40%
20%
0%
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Precipitation
Snow Sensor

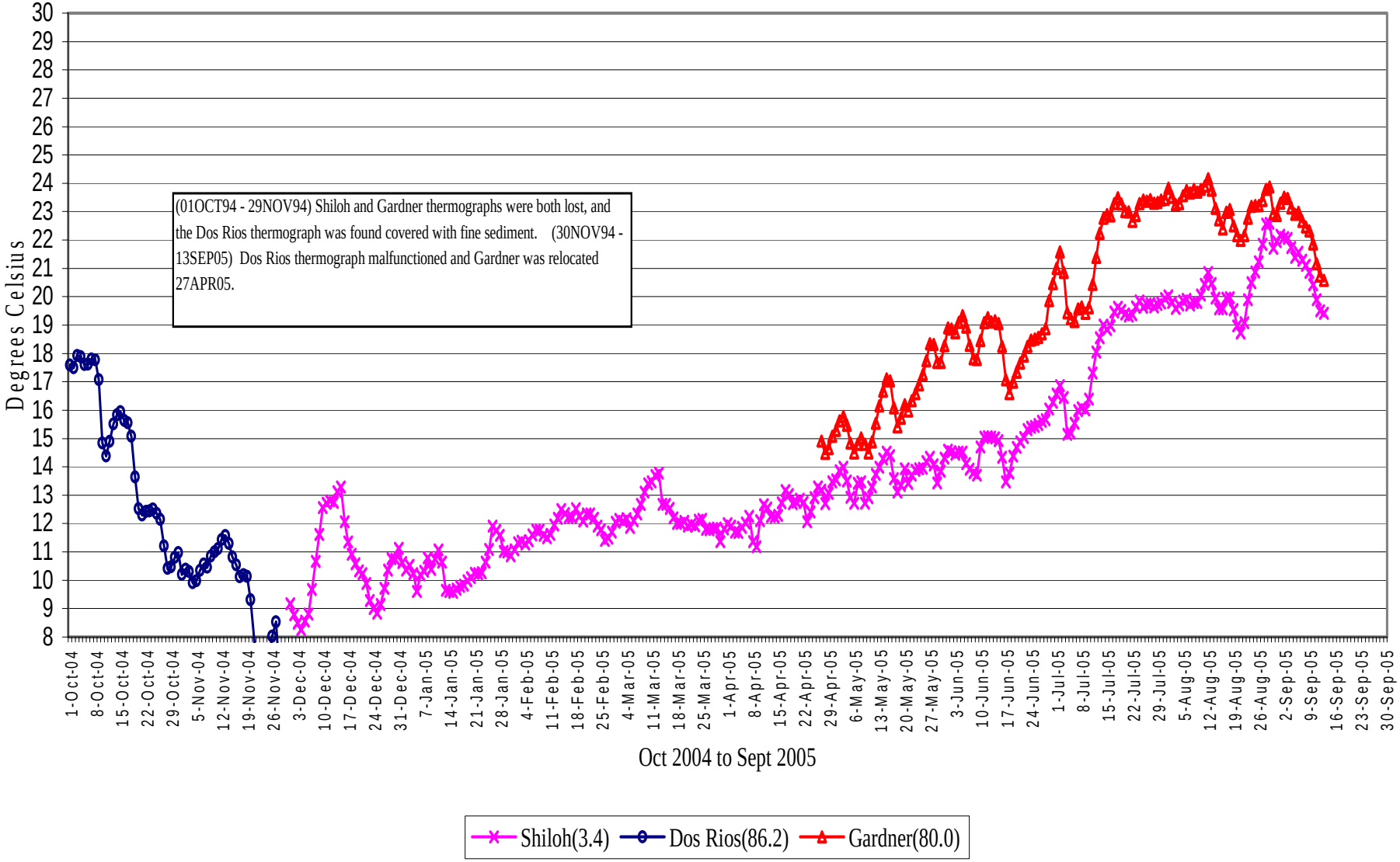

Watershed Precipitation and Snow Sensor
Precipitation Year 2006
Percent of Average
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Precipitation
Snow Sensor

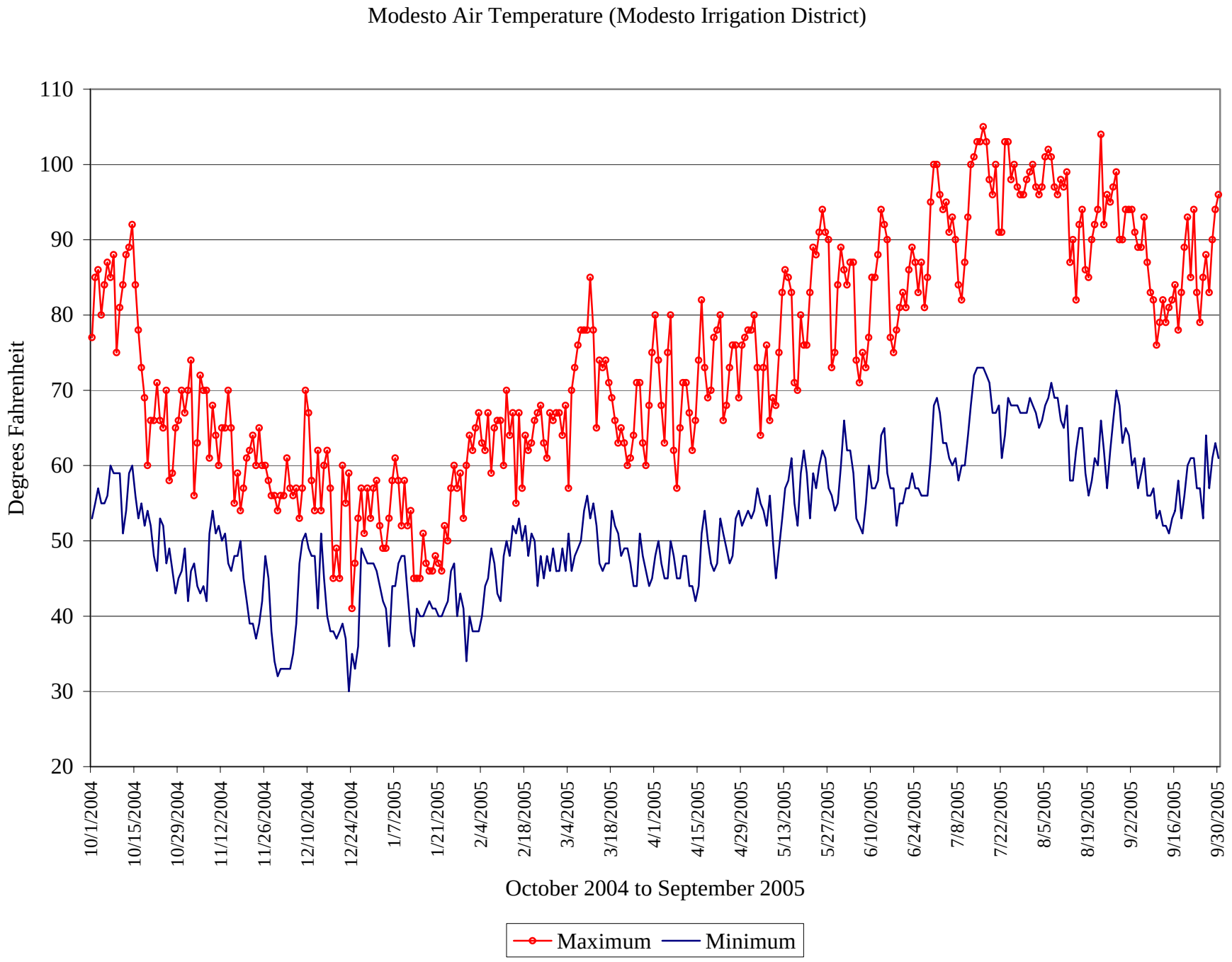

Daily average water temperature - Tuolumne River
Degrees Celsius
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
1-Oct-04
10-Oct-04
19-Oct-04
28-Oct-04
6-Nov-04
15-Nov-04
24-Nov-04
3-Dec-04
12-Dec-04
21-Dec-04
30-Dec-04
8-Jan-05
17-Jan-05
26-Jan-05
4-Feb-05
13-Feb-05
22-Feb-05
3-Mar-05
12-Mar-05
21-Mar-05
30-Mar-05
8-Apr-05
17-Apr-05
26-Apr-05
5-May-05
14-May-05
23-May-05
1-Jun-05
10-Jun-05
19-Jun-05
28-Jun-05
7-Jul-05
16-Jul-05
25-Jul-05
3-Aug-05
12-Aug-05
21-Aug-05
30-Aug-05
8-Sep-05
17-Sep-05
26-Sep-05
Oct 2004 to Sept 2005
LGgage(51.8)
RA7(50.8)
R3B(49.0)
R13B(45.5)
R19(43.4)
RFB(39.5)

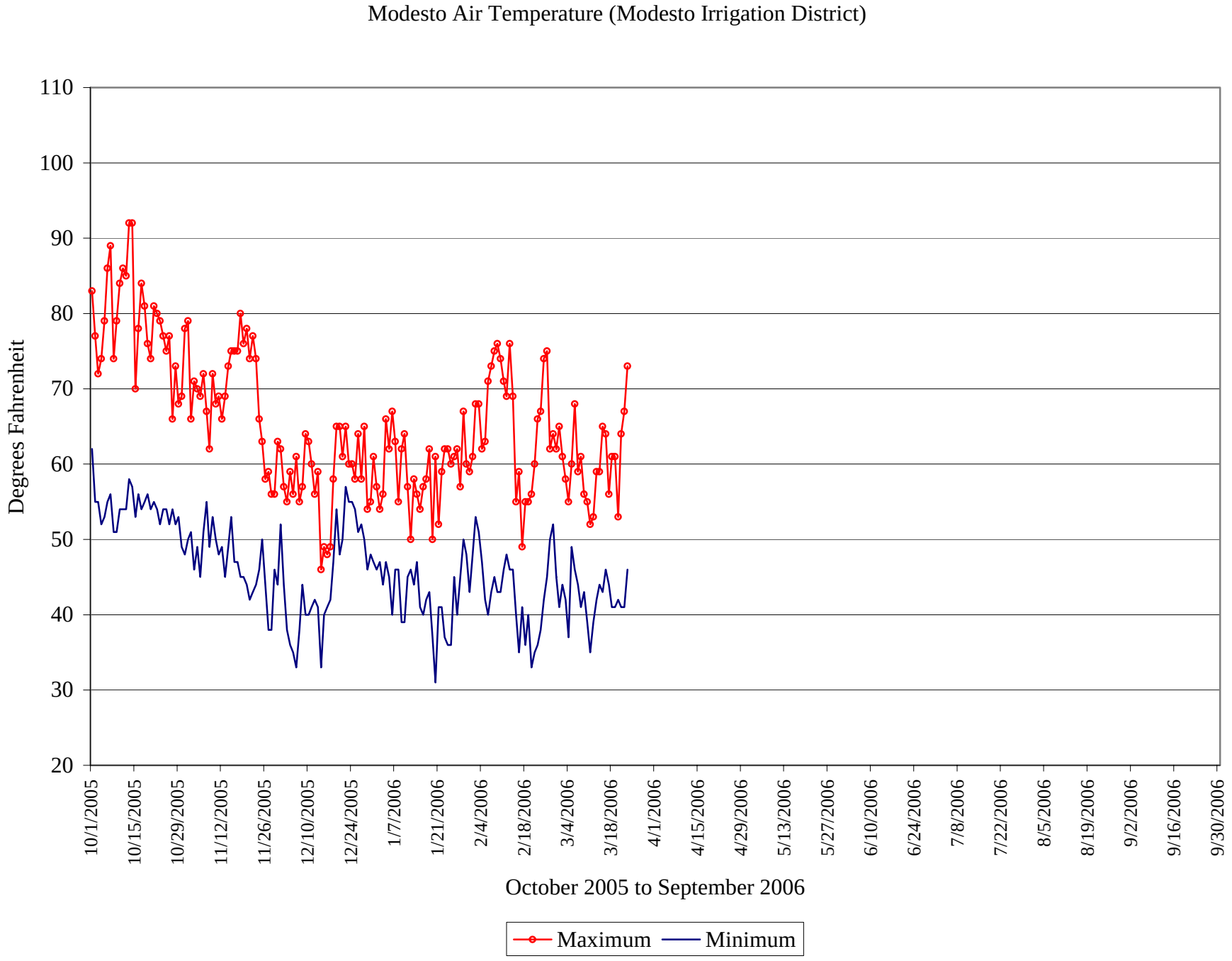
Daily average water temperature - Tuolumne River



Daily average water temperature - San Joaquin and Tuolumne Rivers




Modesto Air Temperature (Modesto Irrigation District)
Degrees Fahrenheit
110
100
90
80
70
60
50
40
30
20
10/1/2004
10/15/2004
10/29/2004
11/12/2004
11/26/2004
12/10/2004
12/24/2004
1/7/2005
1/21/2005
2/4/2005
2/18/2005
3/4/2005
3/18/2005
4/1/2005
4/15/2005
4/29/2005
5/13/2005
5/27/2005
6/10/2005
6/24/2005
7/8/2005
7/22/2005
8/5/2005
8/19/2005
9/2/2005
9/16/2005
9/30/2005
October 2004 to September 2005
Maximum
Minimum


Modesto Air Temperature (Modesto Irrigation District)
Degrees Fahrenheit
110
100
90
80
70
60
50
40
30
20
10/1/2005
10/15/2005
10/29/2005
11/12/2005
11/26/2005
12/10/2005
12/24/2005
1/7/2006
1/21/2006
2/4/2006
2/18/2006
3/4/2006
3/18/2006
4/1/2006
4/15/2006
4/29/2006
5/13/2006
5/27/2006
6/10/2006
6/24/2006
7/8/2006
7/22/2006
8/5/2006
8/19/2006
9/2/2006
9/16/2006
9/30/2006
October 2005 to September 2006
Maximum
Minimum

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

January 27, 2005

Mr. William Loudermilk
Regional Manager, SJVSS Region
California Dept. of Fish and Game
1234 E. Shaw Ave.
Fresno, CA 93710

Mr. Dale Pierce
Assistant Field Supervisor
United States Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

Subject: Project 2299 - Tuolumne River Fall 2004 Pulse Flow and Article 38 45-Day Period

Dear Sirs:

The Article 38 '45-Day Period' in fall 2004 began October 17 and ended November 30, as has been our standard practice in recent years. There was prior agreement by the required parties (in my flow schedule letter of October 22, 2004) to delay the fall pulse flow period in a second consecutive year, resulting in an overlap with the 45-Day Period. The pulse flow was from October 25-31 with a scheduled volume of 1,807 AF above the minimum flow requirement of 150 cfs. Provisional flow data from the USGS gage at La Grange shows that our fall pulse flow provided 2,387 AF above the minimum requirement during that timeframe.

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. Using provisional daily flow data from the USGS gage at La Grange, we have calculated the average flow was 206 cfs for the 45-day period, which corresponds to a river height of 169.71 feet at the Old La Grange Bridge based on the USGS 1996 rating table. The current minimum flow requirement of 150 cfs through March 31 exceeds the 105 cfs as shown on the table represented by a gage elevation of 169.38 feet.

A table of daily USGS recorded flows for the Article 38 45-Day Period is attached (ATTACHMENT 1).

Sincerely,

Robert M. Nees
Assistant General Manager
Water Resources and Regulatory Affairs

cc: Larry Weis -- TID
Wes Monier -- TID
TRTAC e-mail list
Allen Short, MID
Magalie Salas – FERC Secretary

TURLOCK IRRIGATION DISTRICT

October 17 - November 30, 2004 Average Flow

In Tuolumne River at La Grange

ACTUAL FLOWS (Preliminary USGS Numbers)

DATE	FLOW CFS		DATE	FLOW CFS
17-Oct	182		08-Nov	187
18-Oct	181		09-Nov	187
19-Oct	187		10-Nov	204
20-Oct	175		11-Nov	179
21-Oct	175		12-Nov	179
22-Oct	176		13-Nov	176
23-Oct	180		14-Nov	177
24-Oct	181		15-Nov	179
25-Oct	250	Pulse Flow Period	16-Nov	179
26-Oct	312		17-Nov	181
27-Oct	495		18-Nov	188
28-Oct	477		19-Nov	189
29-Oct	290		20-Nov	189
30-Oct	232		21-Nov	188
31-Oct	199		22-Nov	189
01-Nov	203		23-Nov	189
02-Nov	185		24-Nov	189
03-Nov	188		25-Nov	188
04-Nov	186		26-Nov	187
05-Nov	186		27-Nov	181
06-Nov	187		28-Nov	181
07-Nov	187		29-Nov	183
			30-Nov	181
		TOTAL RELEASE=		9,264

45 day average = 205.9 cfs = 169.71 ft elevation *

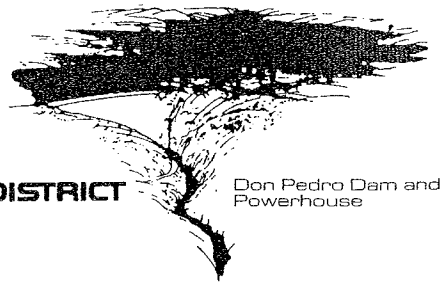
Less 4 inches -0.33

Minimum Flow = 105.0 CFS = 169.38 ft elevation *

*

From U.S.G.S. table 22

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



April 8, 2005

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

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

RE: Tuolumne River 2005-2006 FERC Article 37 Flow Schedule for P-2299

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 updated to incorporate water years 1996 through 2004 (TABLE 1). While the frequency distribution remains the same, some index numbers may change slightly with each annual update to maintain the frequency distribution. The DWR April 1, 2005 60-20-20 San Joaquin Basin Index 50% exceedence forecast of 4,329,987 corresponds to the maximum amount of 300,923 acre-feet (AF) of volume for the fish flow year (TABLE 1). The 90% exceedence forecast index was 3,957,987, also corresponding to 300,923 AF.

Attached is the initial Tuolumne River flow schedule for the 2004-2005 FERC fish flow year (TABLE 2). The current schedule reflects a delay in the spring pulse flow period as part of Vernalis Adaptive Management Plan (VAMP) coordination in the San Joaquin basin and fall pulse timing and pattern similar to 2001 that may be adjusted later..

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

Sincerely,

Robert Nees
Assistant General Manager
Water Resources and Regulatory Affairs Administration

C: Larry Weis - TID
Allen Short - MID
Magalie Salas – FERC Secretary

TABLE 1

MINIMUM TUOLUMNE RIVER FLOW REQUIREMENT BASED ON 1996 SETTLEMENT AGREEMENT

INDEX CUTOFFS BASED ON SAN JOAQUIN 602020 INDEX UPDATED THROUGH WATER YEAR 2004

BASE FLOW
C.F.S.

	INDEX CUTOFF	31 JAN	28 FEB	31 MAR	30 APR	31 MAY	30 JUN	31 JUL	31 AUG	30 SEP	31 OCT	30 NOV	31 DEC
1 CRITICAL WATER YEAR AND BELOW	0	150	150	150	150	150	50	50	50	50	126	150	150
2 MEDIAN CRITICAL WATER YEAR	1,476	150	150	150	150	150	50	50	50	50	126	150	150
3 INTERMEDIATE C-D WATER YEAR	2,002	150	150	150	150	150	50	50	50	50	150	150	150
4 MEDIAN DRY	2,187	150	150	150	150	150	75	75	75	75	150	150	150
5 INTERMEDIATE D-BN	2,403	180	180	180	180	180	75	75	75	75	180	180	180
6 MEDIAN BELOW NORMAL	2,698	175	175	175	175	175	75	75	75	75	187	175	175
7 INTERMEDIATE BN-AN	3,139	300	300	300	300	300	250	250	250	250	300	300	300
8 MEDIAN ABOVE NORMAL	3,669	300	300	300	300	300	250	250	250	250	300	300	300
9 INTERMEDIATE AN-W	3,898	300	300	300	300	300	250	250	250	250	300	300	300
10 MEDIAN WET/ MAXIMUM	4,593	300	300	300	300	300	250	250	250	250	300	300	300

PULSE FLOWS
A.F.

		31 JAN	28 FEB	31 MAR	30 APR	31 MAY	30 JUN	31 JUL	31 AUG	30 SEP	31 OCT	30 NOV	31 DEC
1 CRITICAL WATER YEAR AND BELOW	0				11,091								
2 MEDIAN CRITICAL WATER YEAR	1,476				20,091								
3 INTERMEDIATE C-D WATER YEAR	2,002				32,619								
4 MEDIAN DRY	2,187				37,060								
5 INTERMEDIATE D-BN	2,403				35,920								
6 MEDIAN BELOW NORMAL	2,698				60,027						1,676		
7 INTERMEDIATE BN-AN	3,139				89,882						1,736		
8 MEDIAN ABOVE NORMAL	3,669				89,882						5,950		
9 INTERMEDIATE AN-W	3,898				89,882						5,950		
10 MEDIAN WET/ MAXIMUM	4,593				89,882						5,950		
											5,950		

TOTAL MINIMUM FLOW REQUIREMENT
A.F.

		31 JAN	28 FEB	31 MAR	30 APR	31 MAY	30 JUN	31 JUL	31 AUG	30 SEP	31 OCT	30 NOV	31 DEC	TOTAL
1 CRITICAL WATER YEAR AND BELOW	0	9,223	8,331	9,223	20,017	9,223	2,975	3,074	3,074	2,975	7,736	8,926	9,223	94,000
2 MEDIAN CRITICAL WATER YEAR	1,476	9,223	8,331	9,223	29,017	9,223	2,975	3,074	3,074	2,975	7,736	8,926	9,223	103,000
3 INTERMEDIATE C-D WATER YEAR	2,002	9,223	8,331	9,223	41,545	9,223	2,975	3,074	3,074	2,975	9,223	8,926	9,223	117,016
4 MEDIAN DRY	2,187	9,223	8,331	9,223	45,986	9,223	4,463	4,612	4,612	4,463	9,223	8,926	9,223	127,506
5 INTERMEDIATE D-BN	2,403	11,068	9,997	11,068	46,631	11,068	4,463	4,612	4,612	4,463	12,744	10,711	11,068	142,502
6 MEDIAN BELOW NORMAL	2,698	10,760	9,719	10,760	70,440	10,760	4,463	4,612	4,612	4,463	13,240	10,413	10,760	165,003
7 INTERMEDIATE BN-AN	3,139	18,446	16,661	18,446	107,733	18,446	14,876	15,372	15,372	14,876	24,396	17,851	18,446	300,923
8 MEDIAN ABOVE NORMAL	3,669	18,446	16,661	18,446	107,733	18,446	14,876	15,372	15,372	14,876	24,396	17,851	18,446	300,923
9 INTERMEDIATE AN-W	3,898	18,446	16,661	18,446	107,733	18,446	14,876	15,372	15,372	14,876	24,396	17,851	18,446	300,923
10 MEDIAN WET/ MAXIMUM	10,000	18,446	16,661	18,446	107,733	18,446	14,876	15,372	15,372	14,876	24,396	17,851	18,446	300,923

TABLE 2

Tuolumne River Flow Schedule

Default

SCHEDULE FOR 2005 - 2006 Fish Flow Year

DATE		Number of	BASE FLOW			PULSE FLOW			ADDITIONAL FLOW			TOTAL FERC FLOW	
From:	To:	DAYS	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2005	15-Apr-2005	1	300	595	595		0	0	0	0	0	300	595
16-Apr-2005	16-Apr-2005	1	300	595	1,190	0	0	0	0	0	0	300	1,190
17-Apr-2005	17-Apr-2005	1	300	595	1,785	0	0	0	0	0	0	300	1,785
18-Apr-2005	18-Apr-2005	1	300	595	2,380	0	0	0	0	0	0	300	2,380
19-Apr-2005	19-Apr-2005	1	300	595	2,975	0	0	0	0	0	0	300	2,975
20-Apr-2005	20-Apr-2005	1	300	595	3,570	0	0	0	0	0	0	300	3,570
21-Apr-2005	21-Apr-2005	1	300	595	4,165	0	0	0	0	0	0	300	4,165
22-Apr-2005	22-Apr-2005	1	300	595	4,760	0	0	0	0	0	0	300	4,760
23-Apr-2005	23-Apr-2005	1	300	595	5,355	0	0	0	0	0	0	300	5,355
24-Apr-2005	24-Apr-2005	1	300	595	5,950	0	0	0	0	0	0	300	5,950
25-Apr-2005	25-Apr-2005	1	300	595	6,545	0	0	0	0	0	0	300	6,545
26-Apr-2005	26-Apr-2005	1	300	595	7,140	0	0	0	0	0	0	300	7,140
27-Apr-2005	27-Apr-2005	1	300	595	7,736	0	0	0	0	0	0	300	7,736
28-Apr-2005	28-Apr-2005	1	300	595	8,331	0	0	0	0	0	0	300	8,331
29-Apr-2005	29-Apr-2005	1	300	595	8,926	0	0	0	0	0	0	300	8,926
30-Apr-2005	30-Apr-2005	1	300	595	9,521	550	1,091	1,091	0	0	0	850	10,612
01-May-2005	01-May-2005	1	300	595	10,116	1417	2,811	3,902	0	0	0	1,717	14,018
02-May-2005	02-May-2005	1	300	595	10,711	1417	2,811	6,713	0	0	0	1,717	17,424
03-May-2005	03-May-2005	1	300	595	11,306	1417	2,811	9,524	0	0	0	1,717	20,829
04-May-2005	04-May-2005	1	300	595	11,901	1417	2,811	12,335	0	0	0	1,717	24,235
05-May-2005	05-May-2005	1	300	595	12,496	1417	2,811	15,146	0	0	0	1,717	27,641
06-May-2005	06-May-2005	1	300	595	13,091	1417	2,811	17,957	0	0	0	1,717	31,047
07-May-2005	07-May-2005	1	300	595	13,686	1417	2,811	20,767	0	0	0	1,717	34,453
08-May-2005	08-May-2005	1	300	595	14,281	1417	2,811	23,578	0	0	0	1,717	37,859
09-May-2005	09-May-2005	1	300	595	14,876	1417	2,811	26,389	0	0	0	1,717	41,265
10-May-2005	10-May-2005	1	300	595	15,471	1417	2,811	29,200	0	0	0	1,717	44,671
11-May-2005	11-May-2005	1	300	595	16,066	1417	2,811	32,011	0	0	0	1,717	48,077
12-May-2005	12-May-2005	1	300	595	16,661	1417	2,811	34,822	0	0	0	1,717	51,483
13-May-2005	13-May-2005	1	300	595	17,256	1417	2,811	37,633	0	0	0	1,717	54,889
14-May-2005	14-May-2005	1	300	595	17,851	1417	2,811	40,444	0	0	0	1,717	58,295
15-May-2005	15-May-2005	1	300	595	18,446	1417	2,811	43,255	0	0	0	1,717	61,701
16-May-2005	16-May-2005	1	300	595	19,041	1417	2,811	46,066	0	0	0	1,717	65,107
17-May-2005	17-May-2005	1	300	595	19,636	1417	2,811	48,877	0	0	0	1,717	68,513
18-May-2005	18-May-2005	1	300	595	20,231	1417	2,811	51,688	0	0	0	1,717	71,919
19-May-2005	19-May-2005	1	300	595	20,826	1417	2,811	54,499	0	0	0	1,717	75,325
20-May-2005	20-May-2005	1	300	595	21,421	1417	2,811	57,310	0	0	0	1,717	78,731
21-May-2005	21-May-2005	1	300	595	22,017	1417	2,811	60,121	0	0	0	1,717	82,137
22-May-2005	22-May-2005	1	300	595	22,612	1417	2,811	62,931	0	0	0	1,717	85,543
23-May-2005	23-May-2005	1	300	595	23,207	1417	2,811	65,742	0	0	0	1,717	88,949
24-May-2005	24-May-2005	1	300	595	23,802	1417	2,811	68,553	0	0	0	1,717	92,355
25-May-2005	25-May-2005	1	300	595	24,397	1417	2,811	71,364	0	0	0	1,717	95,761
26-May-2005	26-May-2005	1	300	595	24,992	1417	2,811	74,175	0	0	0	1,717	99,167
27-May-2005	27-May-2005	1	300	595	25,587	1417	2,811	76,986	0	0	0	1,717	102,573
28-May-2005	28-May-2005	1	300	595	26,182	1417	2,811	79,797	0	0	0	1,717	105,979
29-May-2005	29-May-2005	1	300	595	26,777	1417	2,811	82,608	0	0	0	1,717	109,385
30-May-2005	30-May-2005	1	300	595	27,372	1417	2,811	85,419	0	0	0	1,717	112,791
31-May-2005	31-May-2005	1	300	595	27,967	750	1,488	86,907	0	0	0	1,050	114,873
01-Jun-2005	01-Jun-2005	1	250	496	28,463	600	1,190	88,097	0	0	0	850	116,559
02-Jun-2005	02-Jun-2005	1	250	496	28,959	450	893	88,989	0	0	0	700	117,948
03-Jun-2005	03-Jun-2005	1	250	496	29,455	300	595	89,584	0	0	0	550	119,039
04-Jun-2005	04-Jun-2005	1	250	496	29,950	150	298	89,882	0	0	0	400	119,832
05-Jun-2005	30-Jun-2005	26	250	12,893	42,843	0	0	89,882	0	0	0	250	132,725
01-Jul-2005	31-Jul-2005	31	250	15,372	58,215	0	0	89,882	0	0	0	250	148,097
01-Aug-2005	31-Aug-2005	31	250	15,372	73,587	0	0	89,882	0	0	0	250	163,468
01-Sep-2005	30-Sep-2005	30	250	14,876	88,463	0	0	89,882	0	0	0	250	178,345
01-Oct-2005	01-Oct-2005	1	300	595	89,058	0	0	89,882	0	0	0	300	178,940
02-Oct-2005	07-Oct-2005	6	300	3,570	92,628	200	2,380	92,262	0	0	0	500	184,890
08-Oct-2005	13-Oct-2005	6	300	3,570	96,198	150	1,785	94,047	0	0	0	450	190,245
14-Oct-2005	19-Oct-2005	6	300	3,570	99,769	100	1,190	95,237	0	0	0	400	195,006
20-Oct-2005	25-Oct-2005	6	300	3,570	103,339	50	595	95,832	0	0	0	350	199,171
26-Oct-2005	31-Oct-2005	6	300	3,570	106,909	0	0	95,832	0	0	0	300	202,741
01-Nov-2005	30-Nov-2005	30	300	17,851	124,760	0	0	95,832	0	0	0	300	220,592
01-Dec-2005	31-Dec-2005	31	300	18,446	143,207	0	0	95,832	0	0	0	300	239,039
01-Jan-2006	31-Jan-2006	31	300	18,446	161,653	0	0	95,832	0	0	0	300	257,485
01-Feb-2006	28-Feb-2006	28	300	16,661	178,314	0	0	95,832	0	0	0	300	274,146
01-Mar-2006	31-Mar-2006	31	300	18,446	196,760	0	0	95,832	0	0	0	300	292,592
01-Apr-2006	14-Apr-2006	14	300	8,331	205,091	0	0	95,832	0	0	0	300	300,923
No. of days		365	(April 15 through April 14)										

1 cfs day = 1.983471 acre-feet (af)

Notes: 1. Based on 60-20-20 Index is 4,329,987 July 31, 1996 FERC Order Flow Interpolated as 300,923 AF fish flow year requirement.

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

3. Base flow amounts shown prior to April 15 are not included in this year's total.

State of California - The Resources Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
1234 East Shaw Avenue
Fresno, CA 93710
(559) 243-4005

April 20, 2005

Mr. Robert Nees
Assistant General Manager
Water Resources and Regulatory Affairs
Post Office Box 949
Turlock, California 95381

Dear Mr. Nees:

Tuolumne River 2005-2006 FERC Article 37 Flow Schedule

Pursuant to FERC License No. 2299, Article 37, the Department of Fish and Game (Department) provides the attached flow schedule for the Tuolumne River based upon the Department of Water Resources' April 1, 2005, 60-20-20 San Joaquin Basin Index 50% exceedence forecast of 4,329,987 acre-feet which Mr. Wes Monier (Turlock Irrigation District biologist) provided to Mr. Dean Marston of my staff via e-mail on April 8, 2005 (attached).

If you have any questions, please contact Mr. Dean Marston, Staff Environmental Scientist, at (559) 243-4014, extension 241.

Sincerely,

W. E. Loudermilk

W. E. Loudermilk
Regional Manager

Attachment

cc: See page two.

cc: Mr. Dean Marston
Department of Fish and Game, SJVSSR

Mr. Dale Mitchell
Department of Fish and Game, SJVSSR

Ms. Pat Brantley
Department of Fish and Game, SJVSSR

Mr. Tim Heyne
DF Department of Fish and Game, SJVSSR

Mr. Doug Ridgway
Department of Fish and Game, SJVSSR

Mr. Dennis Blakeman
Department of Fish and Game, SJVSSR

Lt. Phil McKay
Department of Fish and Game, SJVSSR

Mr. Jim White
Department of Fish and Game

Mr. Tim Ford
Turlock Irrigation District

Mr. Jeff McLain
NOAA Fisheries

Mr. Roger Guinee
U. S. Fish and Wildlife Service

Mr. Russ Belmer
U.S. Fish and Wildlife Service

Mr. Carl Mesick
U. S. Fish and Wildlife Service

Ms. Deborah Giglio
U. S. Fish and Wildlife Service

TABLE 2

Revised Tuolumne River Flow Schedule (4/19/05)

Default

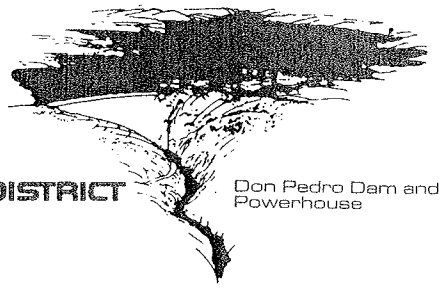
SCHEDULE FOR 2005 - 2006 Fish Flow Year

DATE		Flood Release	River Flow	BASE FLOW				PULSE FLOW			ADDITIONAL FLOW			TOTAL FERC FLOW	
				Number of			ACCUM.			ACCUM.			ACCUM.		ACCUM.
From:	To:	CFS	CFS	DAYS	CFS	AF	A.F.	CFS	AF	A.F.	CFS	AF	A.F.	CFS	A.F.
04/15/05	04/16/05	3,700	4,000	1	300	595	595		0	0	0	0	0	300	595
04/16/05	04/17/05	3,800	4,100	1	300	595	1,190		0	0	0	0	0	300	1,190
04/17/05	04/18/05	3,800	4,100	1	300	595	1,785		0	0	0	0	0	300	1,785
04/18/05	04/19/05	3,800	4,100	1	300	595	2,380		0	0	0	0	0	300	2,380
04/19/05	04/20/05	3,800	4,100	1	300	595	2,975		0	0	0	0	0	300	2,975
04/20/05	04/21/05	3,800	4,100	1	300	595	3,570		0	0	0	0	0	300	3,570
04/21/05	04/22/05	3,800	4,100	1	300	595	4,165		0	0	0	0	0	300	4,165
04/22/05	04/23/05	3,800	4,100	1	300	595	4,760		0	0	0	0	0	300	4,760
04/23/05	04/24/05	3,800	4,100	1	300	595	5,355		0	0	0	0	0	300	5,355
04/24/05	04/25/05	3,800	4,100	1	300	595	5,950		0	0	0	0	0	300	5,950
04/25/05	04/26/05	4,000	4,300	1	300	595	6,545		0	0	0	0	0	300	6,545
04/26/05	04/27/05	4,200	4,500	1	300	595	7,140		0	0	0	0	0	300	7,140
04/27/05	04/28/05	4,400	4,700	1	300	595	7,736		0	0	0	0	0	300	7,736
04/28/05	04/29/05	4,600	4,900	1	300	595	8,331		0	0	0	0	0	300	8,331
04/29/05	04/30/05	4,700	5,000	1	300	595	8,926		0	0	0	0	0	300	8,926
04/30/05	05/01/05	4,700	5,000	1	300	595	9,521		0	0	0	0	0	300	9,521
05/01/05	05/02/05	3,239	5,000	1	300	595	10,116	1,461	2,898	2,898	0	0	0	1,761	13,014
05/02/05	05/03/05	3,239	5,000	1	300	595	10,711	1,461	2,898	5,796	0	0	0	1,761	16,506
05/03/05	05/04/05	3,239	5,000	1	300	595	11,306	1,461	2,898	8,694	0	0	0	1,761	19,999
05/04/05	05/05/05	3,239	5,000	1	300	595	11,901	1,461	2,898	11,591	0	0	0	1,761	23,492
05/05/05	05/06/05	3,239	5,000	1	300	595	12,496	1,461	2,898	14,489	0	0	0	1,761	26,985
05/06/05	05/07/05	3,239	5,000	1	300	595	13,091	1,461	2,898	17,387	0	0	0	1,761	30,478
05/07/05	05/08/05	3,239	5,000	1	300	595	13,686	1,461	2,898	20,285	0	0	0	1,761	33,971
05/08/05	05/09/05	3,239	5,000	1	300	595	14,281	1,461	2,898	23,183	0	0	0	1,761	37,464
05/09/05	05/10/05	3,239	5,000	1	300	595	14,876	1,461	2,898	26,081	0	0	0	1,761	40,957
05/10/05	05/11/05	3,239	5,000	1	300	595	15,471	1,461	2,898	28,979	0	0	0	1,761	44,450
05/11/05	05/12/05	3,239	5,000	1	300	595	16,066	1,461	2,898	31,876	0	0	0	1,761	47,942
05/12/05	05/13/05	3,239	5,000	1	300	595	16,661	1,461	2,898	34,774	0	0	0	1,761	51,435
05/13/05	05/14/05	3,239	5,000	1	300	595	17,256	1,461	2,898	37,672	0	0	0	1,761	54,928
05/14/05	05/15/05	3,239	5,000	1	300	595	17,851	1,461	2,898	40,570	0	0	0	1,761	58,421
05/15/05	05/16/05	3,239	5,000	1	300	595	18,446	1,461	2,898	43,468	0	0	0	1,761	61,914
05/16/05	05/17/05	3,239	5,000	1	300	595	19,041	1,461	2,898	46,366	0	0	0	1,761	65,407
05/17/05	05/18/05	3,239	5,000	1	300	595	19,636	1,461	2,898	49,263	0	0	0	1,761	68,900
05/18/05	05/19/05	3,239	5,000	1	300	595	20,231	1,461	2,898	52,161	0	0	0	1,761	72,393
05/19/05	05/20/05	3,239	5,000	1	300	595	20,826	1,461	2,898	55,059	0	0	0	1,761	75,886
05/20/05	05/21/05	3,239	5,000	1	300	595	21,421	1,461	2,898	57,957	0	0	0	1,761	79,379
05/21/05	05/22/05	3,239	5,000	1	300	595	22,017	1,461	2,898	60,855	0	0	0	1,761	82,871
05/22/05	05/23/05	3,239	5,000	1	300	595	22,612	1,461	2,898	63,753	0	0	0	1,761	86,364
05/23/05	05/24/05	3,239	5,000	1	300	595	23,207	1,461	2,898	66,651	0	0	0	1,761	89,857
05/24/05	05/25/05	3,239	5,000	1	300	595	23,802	1,461	2,898	69,548	0	0	0	1,761	93,350
05/25/05	05/26/05	3,239	5,000	1	300	595	24,397	1,461	2,898	72,446	0	0	0	1,761	96,843
05/26/05	05/27/05	3,239	5,000	1	300	595	24,992	1,461	2,898	75,344	0	0	0	1,761	100,336
05/27/05	05/28/05	3,239	5,000	1	300	595	25,587	1,461	2,898	78,242	0	0	0	1,761	103,829
05/28/05	05/29/05	3,239	5,000	1	300	595	26,182	1,461	2,898	81,140	0	0	0	1,761	107,322
05/29/05	05/30/05	3,239	5,000	1	300	595	26,777	1,461	2,898	84,038	0	0	0	1,761	110,815
05/30/05	05/31/05	3,239	5,000	1	300	595	27,372	1,461	2,898	86,936	0	0	0	1,761	114,307
05/31/05	06/01/05	3,239	5,000	1	300	595	27,967	1,461	2,898	89,833	0	0	0	1,761	117,800
06/01/05	06/01/05	3,750	4,000	1	250	496	28,463		0	89,833	0	0	0	250	118,296
06/02/05	06/02/05	2,750	3,000	1	250	496	28,959		0	89,833	0	0	0	250	118,792
06/03/05	06/03/05	1,750	2,000	1	250	496	29,455		0	89,833	0	0	0	250	119,288
06/04/05	06/04/05	1,750	2,000	1	250	496	29,950		0	89,833	0	0	0	250	119,784
06/05/05	06/30/05	1,750	2,000	26	250	12,893	42,843		0	89,833	0	0	0	250	132,676
07/01/05	07/31/05		250	31	250	15,372	58,215		0	89,833	0	0	0	250	148,048
08/01/05	08/31/05		250	31	250	15,372	73,587		0	89,833	0	0	0	250	163,420
09/01/05	09/30/05		250	30	250	14,876	88,463		0	89,833	0	0	0	250	178,296
10/01/05	10/01/05		300	1	300	595	89,058		0	89,833	0	0	0	300	178,891
10/02/05	10/07/05		300	6	300	3,570	92,628		0	89,833	0	0	0	300	182,461
10/08/05	10/14/05		300	7	300	4,165	96,793		0	89,833	0	0	0	300	186,627
10/15/05	10/15/05		500	1	300	595	97,388	200	397	90,230	0	0	0	500	187,619
10/16/05	10/16/05		700	1	300	595	97,983	400	793	91,023	0	0	0	700	189,007
10/17/05	10/17/05		900	1	300	595	98,579	600	1,190	92,214	0	0	0	900	190,792
10/18/05	10/18/05		900	1	300	595	99,174	600	1,190	93,404	0	0	0	900	192,577
10/19/05	10/19/05		900	1	300	595	99,769	600	1,190	94,594	0	0	0	900	194,362
10/20/05	10/20/05		700	1	300	595	100,364	400	793	95,387	0	0	0	700	195,751
10/21/05	10/21/05		500	1	300	595	100,959	200	397	95,784	0	0	0	500	196,742
10/22/05	10/25/05		300	4	300	2,380	103,339		0	95,784	0	0	0	300	199,123
10/26/05	10/31/05		300	6	300	3,570	106,909		0	95,784	0	0	0	300	202,693
11/01/05	11/30/05		300	30	300	17,851	124,760		0	95,784	0	0	0	300	220,544
12/01/05	12/31/05		300	31	300	18,446	143,207		0	95,784	0	0	0	300	238,990
01/01/06	01/31/06		300	31	300	18,446	161,653		0	95,784	0	0	0	300	257,437
02/01/06	02/28/06		300	28	300	16,661	178,314		0	95,784	0	0	0	300	274,098
03/01/06	03/31/06		300	31	300	18,446	196,760		0	95,784	0	0	0	300	292,544
04/01/06	04/14/06		300	14	300	8,331	205,091		0	95,784	0	0	0	300	300,875
No. of days				365 (April 15 through April 14)											

1 cfs day = 1.983471 acre-feet (af)

Notes: 1. Based on 60-20-20 Index is 4,329,987

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



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

Don Pedro Dam and Powerhouse

May 20, 2005

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

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

RE: Tuolumne River 2005-2006 FERC Article 37 Flow Schedule for P-2299

Dear Fishery Agency representatives:

This letter is in reply to the April 20 letter of California Department of Fish and Game (CDFG).

The District has not heard from U.S. Fish and Wildlife Service (USFWS) regarding the FERC fish flow schedule this year, so at this point we assume there is no objection to the initial schedule in my letter of April 8. With regard to the schedule provided by CDFG, we have the following observations:

1. The CDFG "Revised Tuolumne River Flow Schedule" for the 2005-2006 Fish Flow Year includes "flood release" values that are not part of the FERC flow schedule process and do not represent our anticipated operations. As we have indicated to CDFG, USFWS, and other parties for Vernalis Adaptive Management Plan (VAMP) planning purposes, we have provisionally projected a total river flow during May on the order of 3,200 cfs, an amount that includes the FERC spring pulse flow (there are no additional VAMP flows this year).

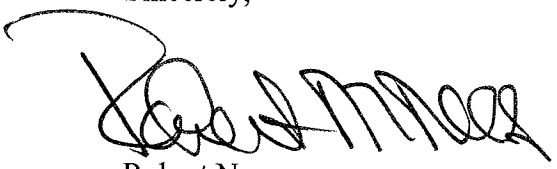
2. The CDFG spring pulse has no multi-day rampdown that the Districts feel should be included, as was done for our initial schedule of April 8. We also note that the CDFG schedule later contains a projected one-day drop in river flow from 2000 cfs to 250 cfs. We continue our longstanding efforts to avoid these types of rapid changes, and do not agree to them being contained within the schedules.

In view of the forgoing comments and considerations, the Districts think their April 8 FERC fish flow schedule through the spring pulse flow period of April 30 to June 4 is preferred for fishery purposes. We are amenable to appropriate adjustments to the FERC fall pulse schedule and suggest that subject be revisited closer to that time. I note that you did not include my April 8 letter and schedule as part of your correspondence that you sent to an expanded distribution list (but not to FERC). As a consequence, we are distributing this letter and the April 8 letter to that larger distribution list (by e-mail where possible).

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

TID

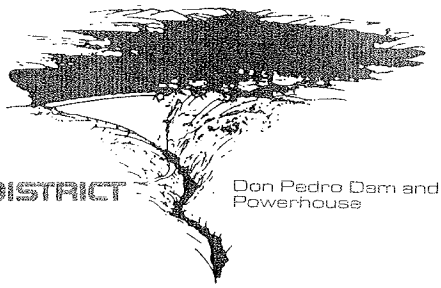
Sincerely,



Robert Nees
Assistant General Manager
Water Resources and Regulatory Affairs Administration

C: Larry Weis - TID
Allen Short - MID
Magalie Salas – FERC Secretary
CDFG April 20 letter distribution list

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



September 30, 2005

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

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

RE: Don Pedro Project No. 2299 -- Tuolumne River 2005-2006 FERC Article 37 Flow Schedule

Dear Fishery Agency representatives:

Attached is the revised Tuolumne River flow schedule for the 2005-2006 FERC fish flow year (Table 1) that has a fall pulse flow allocation per the latest e-mail of Mr. Marston of 26 Sep 2005. The only difference is this schedule has a 2-day transition at the end of the fall pulse. Please inform us if this schedule is not satisfactory – otherwise this will be the effective schedule that is followed by our operators.

If you have any questions please feel free to contact Wes Monier at 209-883-8321.

Sincerely,

Robert M. Nees
Assistant General Manager
Water Resources and Regulatory Affairs

C: Larry Weis – TID
Allen Short – MID
TRTAC (via e-mail)
Wes Monier- TID
Magalie Salas – FERC Secretary

TABLE 1

Tuolumne River Flow Schedule

Default

SCHEDULE FOR 2005 - 2006 Fish Flow Year

DATE		Number of	BASE FLOW			PULSE FLOW			ADDITIONAL FLOW			TOTAL FERC FLOW	
From:	To:	DAYS	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2005	15-Apr-2005	1	300	595	595		0	0	0	0	0	300	595
16-Apr-2005	16-Apr-2005	1	300	595	1,190	0	0	0	0	0	0	300	1,190
17-Apr-2005	17-Apr-2005	1	300	595	1,785	0	0	0	0	0	0	300	1,785
18-Apr-2005	18-Apr-2005	1	300	595	2,380	0	0	0	0	0	0	300	2,380
19-Apr-2005	19-Apr-2005	1	300	595	2,975	0	0	0	0	0	0	300	2,975
20-Apr-2005	20-Apr-2005	1	300	595	3,570	0	0	0	0	0	0	300	3,570
21-Apr-2005	21-Apr-2005	1	300	595	4,165	0	0	0	0	0	0	300	4,165
22-Apr-2005	22-Apr-2005	1	300	595	4,760	0	0	0	0	0	0	300	4,760
23-Apr-2005	23-Apr-2005	1	300	595	5,355	0	0	0	0	0	0	300	5,355
24-Apr-2005	24-Apr-2005	1	300	595	5,950	0	0	0	0	0	0	300	5,950
25-Apr-2005	25-Apr-2005	1	300	595	6,545	0	0	0	0	0	0	300	6,545
26-Apr-2005	26-Apr-2005	1	300	595	7,140	0	0	0	0	0	0	300	7,140
27-Apr-2005	27-Apr-2005	1	300	595	7,736	0	0	0	0	0	0	300	7,736
28-Apr-2005	28-Apr-2005	1	300	595	8,331	0	0	0	0	0	0	300	8,331
29-Apr-2005	29-Apr-2005	1	300	595	8,926	0	0	0	0	0	0	300	8,926
30-Apr-2005	30-Apr-2005	1	300	595	9,521	550	1,091	1,091	0	0	0	850	10,612
01-May-2005	01-May-2005	1	300	595	10,116	1,417	2,811	3,902	0	0	0	1,717	14,018
02-May-2005	02-May-2005	1	300	595	10,711	1,417	2,811	6,713	0	0	0	1,717	17,424
03-May-2005	03-May-2005	1	300	595	11,306	1,417	2,811	9,524	0	0	0	1,717	20,829
04-May-2005	04-May-2005	1	300	595	11,901	1,417	2,811	12,335	0	0	0	1,717	24,235
05-May-2005	05-May-2005	1	300	595	12,496	1,417	2,811	15,146	0	0	0	1,717	27,641
06-May-2005	06-May-2005	1	300	595	13,091	1,417	2,811	17,957	0	0	0	1,717	31,047
07-May-2005	07-May-2005	1	300	595	13,686	1,417	2,811	20,767	0	0	0	1,717	34,453
08-May-2005	08-May-2005	1	300	595	14,281	1,417	2,811	23,578	0	0	0	1,717	37,859
09-May-2005	09-May-2005	1	300	595	14,876	1,417	2,811	26,389	0	0	0	1,717	41,265
10-May-2005	10-May-2005	1	300	595	15,471	1,417	2,811	29,200	0	0	0	1,717	44,671
11-May-2005	11-May-2005	1	300	595	16,066	1,417	2,811	32,011	0	0	0	1,717	48,077
12-May-2005	12-May-2005	1	300	595	16,661	1,417	2,811	34,822	0	0	0	1,717	51,483
13-May-2005	13-May-2005	1	300	595	17,256	1,417	2,811	37,633	0	0	0	1,717	54,889
14-May-2005	14-May-2005	1	300	595	17,851	1,417	2,811	40,444	0	0	0	1,717	58,295
15-May-2005	15-May-2005	1	300	595	18,446	1,417	2,811	43,255	0	0	0	1,717	61,701
16-May-2005	16-May-2005	1	300	595	19,041	1,417	2,811	46,066	0	0	0	1,717	65,107
17-May-2005	17-May-2005	1	300	595	19,636	1,417	2,811	48,877	0	0	0	1,717	68,513
18-May-2005	18-May-2005	1	300	595	20,231	1,417	2,811	51,688	0	0	0	1,717	71,919
19-May-2005	19-May-2005	1	300	595	20,826	1,417	2,811	54,499	0	0	0	1,717	75,325
20-May-2005	20-May-2005	1	300	595	21,421	1,417	2,811	57,310	0	0	0	1,717	78,731
21-May-2005	21-May-2005	1	300	595	22,017	1,417	2,811	60,121	0	0	0	1,717	82,137
22-May-2005	22-May-2005	1	300	595	22,612	1,417	2,811	62,931	0	0	0	1,717	85,543
23-May-2005	23-May-2005	1	300	595	23,207	1,417	2,811	65,742	0	0	0	1,717	88,949
24-May-2005	24-May-2005	1	300	595	23,802	1,417	2,811	68,553	0	0	0	1,717	92,355
25-May-2005	25-May-2005	1	300	595	24,397	1,417	2,811	71,364	0	0	0	1,717	95,761
26-May-2005	26-May-2005	1	300	595	24,992	1,417	2,811	74,175	0	0	0	1,717	99,167
27-May-2005	27-May-2005	1	300	595	25,587	1,417	2,811	76,986	0	0	0	1,717	102,573
28-May-2005	28-May-2005	1	300	595	26,182	1,417	2,811	79,797	0	0	0	1,717	105,979
29-May-2005	29-May-2005	1	300	595	26,777	1,417	2,811	82,608	0	0	0	1,717	109,385
30-May-2005	30-May-2005	1	300	595	27,372	1,417	2,811	85,419	0	0	0	1,717	112,791
31-May-2005	31-May-2005	1	300	595	27,967	750	1,488	86,907	0	0	0	1,050	114,873
01-Jun-2005	01-Jun-2005	1	250	496	28,463	600	1,190	88,097	0	0	0	850	116,559
02-Jun-2005	02-Jun-2005	1	250	496	28,959	450	893	88,989	0	0	0	700	117,948
03-Jun-2005	03-Jun-2005	1	250	496	29,455	300	595	89,584	0	0	0	550	119,039
04-Jun-2005	04-Jun-2005	1	250	496	29,950	150	298	89,882	0	0	0	400	119,832
05-Jun-2005	30-Jun-2005	26	250	12,893	42,843	0	0	89,882	0	0	0	250	132,725
01-Jul-2005	31-Jul-2005	31	250	15,372	58,215	0	0	89,882	0	0	0	250	148,097
01-Aug-2005	31-Aug-2005	31	250	15,372	73,587	0	0	89,882	0	0	0	250	163,468
01-Sep-2005	30-Sep-2005	30	250	14,876	88,463	0	0	89,882	0	0	0	250	178,345
01-Oct-2005	01-Oct-2005	1	300	595	89,058	0	0	89,882	0	0	0	300	178,940
02-Oct-2005	11-Oct-2005	10	300	5,950	95,008	0	0	89,882	0	0	0	300	184,890
12-Oct-2005	25-Oct-2005	14	300	8,331	103,339	200	5,554	95,435	0	0	0	500	198,774
26-Oct-2005	26-Oct-2005	1	300	595	103,934	100	198	95,634	0	0	0	400	199,568
27-Oct-2005	27-Oct-2005	1	300	595	104,529	100	198	95,832	0	0	0	400	200,361
28-Oct-2005	31-Oct-2005	4	300	2,380	106,909	0	0	95,832	0	0	0	300	202,741
01-Nov-2005	30-Nov-2005	30	300	17,851	124,760	0	0	95,832	0	0	0	300	220,592
01-Dec-2005	31-Dec-2005	31	300	18,446	143,207	0	0	95,832	0	0	0	300	239,039
01-Jan-2006	31-Jan-2006	31	300	18,446	161,653	0	0	95,832	0	0	0	300	257,485
01-Feb-2006	28-Feb-2006	28	300	16,661	178,314	0	0	95,832	0	0	0	300	274,146
01-Mar-2006	31-Mar-2006	31	300	18,446	196,760	0	0	95,832	0	0	0	300	292,592
01-Apr-2006	14-Apr-2006	14	300	8,331	205,091	0	0	95,832	0	0	0	300	300,923
No. of days		365	(April 15 through April 14)										

1 cfs day = 1.983471 acre-feet (af)

#REF! #REF!

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

Attachment -B-

2004 Tuolumne River
Technical Advisory Committee Materials:

- List of 2004 TRTAC Activities/Materials
- 11Mar Meeting
- 10Jun Meeting
- 16Sep Meeting
- 15Dec Meeting

2004 TRTAC Activities & Materials

(underlined items are designated for inclusion in the FERC Report)
[For filings with FERC, go to http://ferris.ferc.gov/idmws/search/fercgensearch.asp ;
indicate date range of interest, enter P-2299 as Docket Number, and submit]

Activities/Materials 17Dec2003-11Mar2004

* 18DEC: Source of trout WT info used in 01DEC filing and some limited DO data (Ford)
* 18DEC: Trout WT criteria information (Martinez)
* 19DEC: Comments on trout WT criteria (Bevelheimer)
* 19DEC: New DFG fishing stamp information (Ford)
* 19DEC: Ford provided habitat map files from M&T (Ford)
* 22DEC: Central Valley trout genetics report and north coast survey protocol (Heyne)
* 29-30JAN: Various comments on gravel addition project (Heyne, Fryer, Boucher, Koepele)
* 05FEB: American River redd survey material and DFG trout survey proposal (Martinez)
* 21FEB: Stanislaus River WT model info (Dotan)
* 26FEB: Bobcat Flat project information (Boucher)
* 03MAR: DFG winter float survey letter (Marston)
* 08MAR: Meeting notice and agenda (Ford)

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Subgroup items:

* 07JAN: Initial results of salmon spawning survey (Heyne)
* 23JAN: Subgroup meeting notice, list of actions since 17DEC, and draft FERC report contents (Ford)
* 28JAN: Subgroup meeting in Modesto
* 26FEB: Winter float survey status (Ford)
* 03MAR: Notice of flow increase to 500+ cfs (Ford)
* 05MAR: Notice of flow increase to 1000+ cfs (Ford)

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Select FERC filings available from FERC online e-library (listed by filed date):

* 22DEC: Order deferring action on petition pending completion of informal consultation regarding Turlock Irrigation District & Modesto Irrigation District under P-2299.
* 02FEB: The Turlock and Modesto Irrigation Districts submit the Temperature Tolerences of Tuolumne River Fishes: A Critique of Declaration of Carl Mesick in support of Conservations Groups' Brief Report under P-2299. Without Enclosure.
* 02FEB: Temperature Tolerances of Tuolumne River Fishes: A Critique of Declaration of Carl Mesick in support of Conservations Groups' Brief Report on behalf of The Turlock and Modesto Irrigation Districts under P-2299.
* 27FEB: The Fish & Wildlife Service informs FERC of several fish resource concerns associated with Don Pedro Project license under P-2299.

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Activities/Materials 11Mar-10Jun2004

* 12MAR: Revised material list (Ford)

* 12MAR: Resend of 29JAN comments on coarse sediment plan from Heyne
* 15MAR: Update on redd survey and angling (Blakeman)
* 02APR: Canal trout survey report (Ford)
* 02APR: Questions on canal trout report (Martinez)
* 06APR: Update on redd survey and angling (Blakeman)
* 08APR: Forecast update (Ford)
* 08APR: Conference call summary and draft FERC flow schedule (Ford)
* 19APR: VAMP flow schedule (Ford)
* 19APR: Forecast update (Ford)
* 26APR: Update on redd survey and angling (Blakeman)
* 26APR: Forecast update (Ford)
* 27APR: JAN2004 TID letter on gallery project (Ford)
* 02MAY: Screw trap update (Fuller)
* 10MAY: TID letter re: 2003 fall flows (Nees)
* 10MAY: TID letter re: initial 2004-2005 flow schedule (Nees)
* 10MAY: Additional canal trout survey PDF file and letter reply to 02APR questions (Ford)
* 11MAY: Distribution of NOAA Fisheries 23APR letter to FERC (Martinez)
* 11MAY: 01MAY Forecast and FERC annual flow volume update (Ford)
* 11MAY: NOAA Fisheries concern about anticipated low summer flows (Martinez)
* 13MAY: 11MAY Forecast and FERC annual flow volume update (Ford)
* 17MAY: Screw trap update (Fuller)
* 20MAY: 18MAY Forecast and FERC annual flow volume update (Ford)
* 21MAY: Subgroup JAN notes, materials since MAR meeting, and study plan (Ford)
* 25MAY: Update on redd survey and angling (Blakeman)
* 28MAY: 25MAY Forecast and FERC annual flow volume update (Ford)
* 02JUN: Conference call re: flows (McLain)
* 03JUN: Screw trap update (Fuller)
* 03JUN: 2002 Summer water temperature data (Walser)
* 04JUN: 01JUN Forecast, FERC annual flow volume update, and conf. call summary (Ford)
* 04JUN: 2002 Summer water temperature data (Ford)
* 08JUN: TRTAC meeting agenda and other files (Ford)

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Subgroup items:

* 12MAR: 2002-2003 screw trap data (Blakeman)
* 12MAR: Adult O. mykiss habitat mapping report (Mesick)
* 15MAR: La Grange flow to peak at 3000 cfs (Ford)
* 17MAR: Seining update (Kirihara)
* 24MAR: Seining update (Kirihara)
* 24MAR: Subgroup meeting inquiry (Heyne)
* 31MAR: Seining update (Kirihara)
* 08APR: Conference call on flow schedule
* 15APR: Seining update (Kirihara)
* 28APR: Seining update (Kirihara)
* 03MAY: Subgroup meeting inquiry (Ford)
* 12MAY: Seining update (Kirihara)
* 20MAY: Subgroup meeting agenda (Ford)
* 24MAY: Subgroup meeting
* 26MAY: Seining update (Kirihara)

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Select FERC filings available from FERC online e-library (listed by doc. date):
* 23MAR: Friends of the Tuolumne submits comments in response to Modesto Irrigation District and Turlock Irrigation District's letter dated 1/21/04 re fish kill under P-2299.
* 29MAR: Modesto Irrigation District & Turlock Irrigation District submits 2003 Lower Tuolumne River annual report pursuant to Article 58 of the license for the Don Pedro Proj-2299.
* 23APR: The National Oceanic Atmospheric Administration's response to the 8/28/03 letter to Walter P Ward et al from George H Taylor requesting info needed for FERC to determine potential project effects re Proj-2299.
* 20MAY: Turlock & Modesto Irrigation Districts submits its response to US Fish & Wildlife Service's letter dated 2/26/04 & National Marine Fisheries Service/NOAA Fisheries' letter dated 4/23/04 re the Don Pedro Proj-2299.

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Activities/Materials 10Jun-16Sep2004

* 10JUN: Screw trap update (Fuller)
* 14JUN: 08JUN DWR Forecast, FERC flow schedule letter, and USGS flow rating results (Ford)
* 14JUN: Comments on flow schedule and inquiry on flow rating (Walser)
* 18JUN: Reply to Walser inquiry (Ford)
* 21JUN: Water quality update and temperature data web link (Ford)
* 22JUN: DFG 26MAY Mossdale trawl data summary (Marston)
* 22JUN: Details of DFG contract study of Central Valley Rainbow Trout (Marston)
* 22JUN: AFRP web link to rainbow trout study information (McLain)
* 22JUN: CDEC web links to basin real-time flow and water temperature data (Marston)
* 28JUL: Distribution of cover letter and/or CD re: revised coarse sediment management plan (Fryer)
* 01JUL: Report on June water quality sampling (Hume)
* 13SEP: TRTAC meeting agenda and FERC flow schedule letter (Ford)

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Subgroup items:
* 21JUN: JUN Snorkel summary (Kirihara)
* 19JUL: Inquiry about potential meeting dates and update on DWR basin index forecast (Ford)
* 21JUL: Reply on potential meeting dates (Walser)
* 02-03AUG: Exchange about flow schedule (Marston and Fryer)
* 16AUG: AUG Snorkel summary (Kirihara)

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Select FERC filings available from FERC online e-library (listed by doc. date):
* 23JUN: Letter order finding that Turlock Irrigation & Modesto Irrigation District's receipt of the 2003 Lower Tuolumne River Annual Report fulfills the reporting requirements of Article 58 etc re New Don Pedro Project under P-2299.

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Activities/Materials 16Sep-15Dec2004

* 16SEP: Temperature and smolting reference web links (Heyne)
* 25OCT: FERC flow schedule letter and basin schedule from DFG (Ford)
* 26OCT: Screw trap and redd count reports (Marston)

* 29OCT: Coarse Sediment MP letters filed with FERC (Ford)
* 01NOV: Information on salmon near LG powerhouse (Heyne, Ford)
* 15NOV: Spawning survey summary (Blakeman)
* 22NOV: TRTAC monitoring proposal to CALFED and notice of Science PSP (Ford)
* 23NOV: FOT monitoring proposal to CALFED (Boucher)
* 30NOV: Spawning survey summary (Blakeman)
* 06DEC: Spawning survey summary (Blakeman)
* 06DEC: Contact information for Carl Mesick, AFRP (Ford)
* 09DEC: 15DEC Meeting notice (Ford)
* 13DEC: Spawning survey summary (Blakeman)
* 13DEC: Request re: 2005 report to FERC (Koepele)
* 13DEC: DEC meeting material list and CALFED Science proposal from Vick (Ford)
* 14DEC: Meeting agenda, SEP meeting notes, and revised SEP material list (Ford)

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Subgroup items:

* 21SEP: SEP snorkel survey summary (Kirihara)
* 29SEP: Notice of 30SEP meeting (Ford)
* 29SEP: 2002 CWT evaluation material (Hume)
* 30SEP: Meeting at MID
* 06OCT: Initial summary of meeting (Ford)
* 02NOV: Agenda/materials for 04NOV meeting and 30SEP meeting summary (Ford)
* 02NOV: Trout monitoring proposal (Walser)
* 04NOV: Meeting at MID

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

* 30SEP: US Fish & Wildlife Service clarifies fish resource concerns associated with the Don Pedro Project in response to Turlock Irrigation District & Modesto Irrigation District's 5/20/04 letter under P-2299.
* 15OCT: Friends of the Tuolumne, Inc's comments regarding the Coarse Sediment Management Plan for the Lower Tuolumne River under P-2299.
* 22OCT: Turlock Irrigation District submits the revised flow schedule for 2003-2004 FERC Fish Flow Year (Table 1) with an effective date of 10/1/04 for the Don Pedro Project under P-2299.
* 29OCT: Turlock Irrigation District responds to Friends of the Tuolumne's letter dated 10/15/04 re the Course Sediment Management Plan prepared for the Tuolumne River Technical Advisory Committee etc under P-2299.

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Tim Ford - TRTAC subgroup meeting of 28JAN2004

From: Tim Ford
To: Mark Bevelhimer; TRTAC SUB 12-2003
Date: 1/23/2004 5:54 PM
Subject: TRTAC subgroup meeting of 28JAN2004

To TRTAC subgroup list et. al.:

We have a subgroup meeting scheduled for 28JAN2004, 9 AM, Room 3A at MID. Main topic will be rainbow trout (O. mykiss) issues as agreed at the DEC2003 TRTAC meeting. Since that DEC meeting we have had:

- FERC decision deferring action on NOAA Fisheries petition
- Ford provided source of trout WT info used on 01DEC filing and some limited DO data
- Martinez provided some trout WT criteria information
- Bevelheimer provided comments on trout WT criteria
- Ford provided some new DFG fishing stamp information
- Ford provided habitat map files from M&T
- Heyne provided trout genetics report and north coast survey protocol
- Initial results of salmon spawning survey from Heyne
- Steelhead mapping effort by CRRF to be initiated on 21JAN
- Download of thermographs by Kirihara
- Results of first seining survey (no trout encountered)
- Heyne provided comments on the gravel addition project

For the meeting, all parties should provide any additional trout data to supplement the compilation contained in the 01DEC filing with FERC. I suggest bringing the "Potential project concerns for steelhead trout" document, the 01DEC filing, and other related items if you attend. Please provide any other suggestions in advance if possible.

- Attached are draft notes for the 17DEC TRTAC meeting
- Pasted below is a draft list of items for the FERC report this year

Summary; TRTAC materials	Districts
2003 Spawning Survey Report	CDFG
Spawning Survey Summary Update	SWS/Districts
1999 Redd Count Study Report	CDFG
2003 Seine/Snorkel Report and Summary Update	SWS/Districts
1998, 2002, 2003 Grayson Screw Trap Reports	CDFG
Coded-wire Tag Summary Update	SWS/Districts
Review of 2003 summer flow operation	SWS/Districts
Adaptive Management Forum Final Report	CBDA/AFRP
2003 Restoration Project Monitoring Report	McBain&Trush

From: <Jeff_McLain@r1.fws.gov>
To: <tjford@tid.org>
Date: 1/27/2004 3:53:53 PM
Subject: Re: TRTAC subgroup meeting of 28JAN2004

Tim,

I just talked with Carl Mesick who has some substantial comments on the agenda. We revised it and I am submitting a new draft below.

1. FERC deferral - next steps.

2. CRRF Habitat Mapping - Preliminary results.

3. Study recommendations. How do we build/revise what has been done.

4. Other

Jeff

Jeff McLain
Anadromous Fish Restoration Program
Habitat Restoration Coordinator
Merced and Tuolumne Rivers
(209) 946-6400 extension 304
cell (209) 403-1347

----- Forwarded by Jeff McLain/SJFRO/R1/FWS/DOI on 01/27/2004 03:48 PM -----

Jeff McLain
01/27/2004 01:46 PM

To: "Tim Ford" <tjf@tid.org>
cc: TRTAC SUB 12-2003: "Allison Boucher" <aboucher@netfeed.com>, "B. Johnston" <agengr6@aol.com>, "Mark Bevelhimer" <bevelhimerms@ornl.gov>, "Bill Johnston" <billj@mid.org>, "Carl Mesick" <cmcfish@innercite.com>, "Darren Mierau" <darren@mcbaintrush.com>, "Dennis Blakeman" <dblakeman@dfg.ca.gov>, "Dave Boucher" <dboucher@netfeed.com>, "Deborah Giglio" <deborah_giglio@fws.gov>, "Dean Marston" <dmarston@dfg.ca.gov>, "Donn Furman" <donn.w.furman@sfgov.org>, "Erich Gaedeke" <Erich.Gaedeke@ferc.gov>, "Erin Strange" <Erin.Strange@noaa.gov>, "Frank Ligon" <frank@stillwatersci.com>, "Andrea Fuller" <fuller@inreach.com>, "Jeff McLain" <Jeff_McLain@fws.gov>, "Jenna Olsen" <jenna@tuolumne.org>, "Jim Koontz" <jkoontz@calwaterlaw.com>, "Madelyn Martinez" <madelyn.martinez@noaa.gov>, "Noah Hume" <noah@stillwatersci.com>, "Nicole Sandkulla" <nsandkulla@bawsca.org>, "Patrick Koepele" <patrick@tuolumne.org>, "Pat Brantley" <pbrantley@dfg.ca.gov>, "Roger Masuda"

<rmasuda@calwaterlaw.com>, "Ron |
| Yoshiyama" <rmyoshiyama@ucdavis.edu>, "Scott McBain" <scott@mcbaintrush.com>, "Steve Walser" <steve@mlode.com>, "Tim |
| Heyne" <THEYNE@dfg.ca.gov>, "Tim Ramirez" <timr@calwater.ca.gov>, "Tim Ford" <tjf@tid.org>, "Walter Ward" |
| <walterw@mid.org>, "Wil Fryer" <WBF@tid.org> |
| Subject: Re: TRTAC subgroup meeting of 28JAN2004(Document link: Jeff McLain)
|
>----------|

Tim, I noticed there was no agenda for Wednesdays meeting. I suggest the following.

1. Summary of Jan 22 meeting at NOAA Fisheries Office

2. FERC deferral - informal consultation process. Next steps.

3. District and NHI study recommendations. How do we build/revise these study recommendations?

4. NHI flow recommendations - discuss

5. Other

Did I miss anything?

Jeff

Jeff McLain
Anadromous Fish Restoration Program
Habitat Restoration Coordinator
Merced and Tuolumne Rivers
(209) 946-6400 extension 304
cell (209) 403-1347

|---------+---------->
	"Tim Ford"
	<tjf@tid.org>
	01/23/2004 05:54
	PM
---------+---------->
>----------|
To: "Mark Bevelhimer" <bevelhimerms@ornl.gov>, TRTAC SUB 12-2003: "Allison Boucher" <aboucher@netfeed.com>,
"Andrea Fuller" <fuller@inreach.com>, "B. Johnston" <agengr6@aol.com>, "Bill Johnston" <billj@mid.org>, "Carl
Mesick" <cmcfish@innercite.com>, "Darren Mierau" <darren@mcbaintrush.com>, "Dave Boucher"

TRTAC Subgroup Meeting Notes
January 28, 2004 9:00 AM @ MID

Attending
Tim Ford, Allison Boucher, Dave Boucher, Tim Heyne, Dean Marston, Patrick Koepele, Ron Yoshiyama, Madelyn Martinez, Steve Walser, Carl Mesick, Jeff McLain, Noah Hume.

Notes
A. Boucher requested that notes be kept on the Subgroup meetings and they be included in the annual FERC report. Ford, Yoshiyama, and A. Boucher will jointly contribute to preparing the notes.

Water Temperature
Ford distributed temperature data graphs for the latter half of 2003. There was discussion on the temperature trends through the months and whether the real-time management of summer flows was effective. The flow management was to increase the flow to 235 cfs if the next day's maximum air temperature forecast was 96˚F or greater. Flows were dropped to 195 cfs after the maximum air temperature was 95˚F or lower on two consecutive days. This operational strategy was based on a water budget of 205 cfs daily average flow during the remaining summer period.

It appeared from the temperature data that the flow management contributed to keeping downstream river temperatures cooler than with a steady flow rate. Dean Marston stated that CALFED peer reviewers would soon issue guidelines on temperature criteria for salmonid life-history stages that are expected within 45 days.

Smolting, temperature, and salt water residence
How does temperature, among other factors, affects the smoltification timing of steelhead and Chinook salmon? There is published literature that may help us understand that process in the Tuolumne River. Hume considers the temperature modeling being scoped could assist in that effort.

What evidence demonstrates saltwater residency by trout (i.e., steelhead)? There was general agreement that various types of information would indicate saltwater residence, e.g., otolith or scale growth patterns, chemical composition, blood chemistry. Yoshiyama noted that finding steelhead in the Tuolumne River does not by itself necessarily prove that the fish were produced in the Tuolumne; i.e., they could have strayed in from other streams that have steelhead populations. [A. Boucher later recommended blood samples be added to the list of studies]

Trout carcass salvage
Can TID or other parties can legally salvage any dead trout found in the river for collecting otolith and scale samples for CDFG's ongoing studies? CDFG already has the legal ability to retain carcasses for study. The allowance of collecting dead specimens, even for forwarding to CDFG, is not provided in the current TID permit application but it can be added via an amendment. One issue that needs to be clarified is the chain of custody of specimens-- i.e., who can collect the specimens and where they will be stored. A. Boucher requested that TID submit an amendment to the permit application to NOAA Fisheries so that any dead fish could be

salvaged for study. Walser suggested that DFG warden confiscations also be used for otolith studies. DFG will talk with their wardens so the otoliths can be used when possible.

Revised Coarse Sediment Acquisition Plan. (Zanker-Domecq)
The Subgroup briefly discussed the possibility of pursuing alternative options for proceeding with the long-term sediment acquisition plan. This project had been funded by CalFed, but the TID Board recently reversed its support to buy gravel mining rights due to local objections. Heyne thought that a feasible alternative may be to have the Department of Water Resources (Kevin Faulkenberry) handle the mining aspects of the original plan. After some discussion, it became evident that such a line of action probably would not be successful because it would require considerable effort to guide it along. Fryer reportedly has submitted an amendment to CalFed that eliminates the mining aspect and proposes instead to directly purchase gravel from commercial sellers.

Results on Trout Habitat Mapping.
Mesick and Walser reported on their ongoing survey of observed trout locations. They provided information on habitat features and locations for trout observations were depicted on maps (PowerPoint). The survey had been completed for about 50% of the length of river initially planned but included most of the trout habitat areas-- i.e., locations where they have caught trout.

Mesick and Walser identified a number of areas that appear highly favorable for trout but which would be degraded or eliminated as trout habitat if gravel additions are conducted without duly considering trout requirements. Mesick noted that trout tended to use the downstream half of the riffles while Chinook salmon seem to favor the upstream half of riffles. He also reported that salmon tended not to use the recently introduced gravels, evidently because of the lack of smaller gravel sizes in the mixture. Walser stated that the DFG gravel addition project near La Grange eliminated microtopographic features formerly used by trout. The Subgroup discussed the need to conduct gravel additions in a more effective manner and particularly to avoid negative impacts on existing trout habitats.

Coarse Sediment Management Plan Final Report
A. Boucher requested that TID instruct its consultants, McBain & Trush, to address additional concerns raised by FOT regarding potential negative impacts of the gravel addition projects. She expressed concern that the final report would be viewed as a blueprint for gravel addition projects and believes that specific aspects of the proposed gravel addition projects need to be refined to ensure that trout (and salmon) are not detrimentally affected. While there was no disagreement expressed about the potential for detrimental effects, other individuals considered that the details of implementing the gravel additions could be changed and thought addenda could be attached to the report. McLain would work on getting the plan revised.

STUDY RECOMMENDATIONS
Spawning survey. The CDFG and SP Cramer survey team is ready to conduct an initial survey for steelhead-rainbow trout carcasses and potential trout redds. Heyne recommended that specific instructions be given to the team regarding the type of data desired from the survey. There was extended discussion on the proposition by FOT that the Districts hire Walser to assist in mapping potential trout redds. After several options were aired, it was agreed by those present (minus McLain, Martinez, Marston, Koepele) that the survey team would proceed with a two-day

survey to look for trout carcasses redds. Walser will accompany them to provide advice on trout and redd locations. The survey reach would be from La Grange to Turlock State Campground with a decision on repeated float surveys to follow. Regarding other methods, Walser thought winter snorkeling would be difficult and suggested a hook and line survey instead.

Other items

Walser and Mesick have applied to NOAA Fisheries for a take permit to enable them to collect otolith and scale samples from steelhead or rainbow trout captured by angling activities. The samples would be surrendered to CDFG. Mesick recommended lipid content studies of O. mykiss to study the fish health using fish caught.

The FERC decision pending the conclusion of informal consultation was briefly discussed.

Heyne and Martinez would see if steelhead angler card data has any Tuolumne information.

Microhabitat suitability data for trout was discussed. Mesick suggested site specific suitability curves, including turbulence, flow differential, cover, and refugia, be developed for large trout. Pebble count of redds could be useful.

Mesick inquired what factors may affect mortality of outmigrating fish. He suggested a review of this be considered.

Final note of thanks to Yoshiyama and Martinez for the goodies, and to Walser for the viewing of trout photos.

Friends of the Tuolumne, Inc.

7523 Meadow Avenue
Stockton, CA 95207
(209) 477-9033

September 15, 2004

Tim Ford
Tuolumne River Technical
Advisory Committee
333 East Canal Avenue
Turlock, CA 95380

Dear Tim:

Please attach this letter as an addendum to the minutes you prepared for the January 28 minutes. The draft minutes I prepared for you included the following important items that should be attached to your minutes in order to fairly represent the meeting.

> To come: a graph showing the daily high water temperature (perhaps comparing to the daily high air temperature?) as part of the "recap."
>
> A discussion followed regarding the question "What causes smolting? Is it temperature? Is it flow? This question will be added to the list of concerns to be discussed when studies are determined.
>
> Walser stated that smolting proved steelhead status as opposed to trout. NOAA and USFWS agreed.
>
> Jeff McLain, USFWS, stated that rainbow trout must be protected.
>
> The Friends requested that the Coarse Sediment Management Plan be withdrawn due to its potential damage to trout/steelhead.
>
> Mesick and Walser presented the idea that existing plans are detrimental to **both** salmon and trout/steelhead. Carl and Walser state that the gravel can be added to benefit both species without harming the trout/steelhead.
>
> It was pointed out that McBain and Trush are focused on providing material that the river will sort and move. However, the Friends, Mesick, and Walser believe that gravel additions should also consider the short

term impacts and can be used to immediately enhance habitat for both species without harming either species.

Study recommendations:

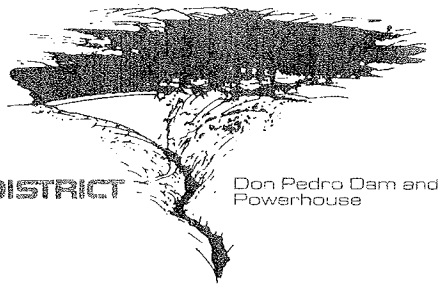
The Friends, however, say that if the float survey found few or no fish or redds it does lead to the presumption that the fish or redds are not there. Such a conclusion would be damaging to both science and efforts to demonstrate trout/steelhead habitat. In order to provide the necessary expertise (in the minds of the Friends) Walser will be fully involved in the float surveys at the expense of the Friends.

Sincerely,

Allison Boucher

Allison Boucher

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



January 5, 2004

Bill Loudermilk
Regional Manager
California Department of Fish and Game
1234 E. Shaw Avenue
Fresno, California 93710

Michael Hoover
Chief, Division of Habitat Conservation
US Fish and Wildlife Service
2800 Cottage Way
Sacramento, California 95825

Dear Messrs. Loudermilk and Hoover:

Under the 1995 Don Pedro Settlement Agreement, the Turlock Irrigation District agreed to develop a cost analysis of withdrawing water from the lower Tuolumne River for irrigation purposes. The specific provision of the agreement reads as follows:

> *TID will conduct a feasibility and cost analysis of withdrawing water for irrigation at the proposed Turlock Area Drinking Water project diversion point. This analysis will be included in the EIR for that project. Based on the results of these analyses, CDFG and FWS will determine if it would be appropriate for them to fund or cost share in the design and construction of alternative irrigation diversion facilities. The parties to the settlement are under no obligation to fund the design, construction, operation, or maintenance of these facilities.* (Sixth bullet on Page 5 under Article 11. Fishery Flows, New Don Pedro Proceeding, P-2299-024, Settlement Agreement 1995)

While TID is pursuing its Drinking Water Program, the project has not yet reached the point of issuing an EIR. Any subsequent EIR for the Program will contain an analysis of an agricultural diversion as was envisioned in the Settlement Agreement.

In the meantime, TID retained the engineering firm of Brown and Caldwell to develop the construction and operation cost estimates for an agricultural diversion from the Tuolumne River near the Geer Road Bridge. Brown and Caldwell have estimated the cost of a system capable of diverting up to 100 cubic feet per second and transporting it to the Ceres Main Canal at $11,200,000. The facilities would include an infiltration gallery, pump station, pipeline, and outlet structure.

Brown and Caldwell further estimated that if the diversion was in place today and operated at full capacity for the period between March 15 and October 15, the cost of operating the system in 2004 would be approximately $800,000.

These costs are estimates only and the actual expense for construction and operation may vary. However, these numbers do provide the magnitude of the dollars that would be required for such a venture.

Enclosed is a copy of the Brown and Caldwell's transmittal letter, cost estimates, and site diagram. We provide you with this information in compliance with our obligation under the afore cited provision of the 1995 Settlement Agreement. If you should have any questions about the calculations, please do not hesitate to contact me at (209) 883-8214.

Sincerely,

Robert M. Nees
Assistant General Manager
Water Resources & Regulatory Affairs

Enclosures

2701 Prospect Park Drive
Rancho Cordova, California 95670

Tel: (916) 444-0123
Fax: (916) 635-8805

www.brownandcaldwell.com

BROWN AND CALDWELL

November 7, 2003

Robert Nees
Turlock Irrigation District
333 E. Canal Drive
Turlock, California 95381

017-23491-01/1

Subject: Cost Estimate for Irrigation Diversion System

Dear Mr. Nees:

This report presents the construction and operation cost estimate for the proposed irrigation diversion project. The project would utilize a diversion on the Tuolumne River near the Geer Road bridge to divert a maximum flow of 100 cubic feet per second (cfs) for discharge to the Ceres Main Canal.

The facilities would consist of an infiltration gallery type of diversion, diversion pump station, pipeline, and canal outlet structure. Figure 1 presents the proposed facilities. Table 1 presents the cost estimate for constructing the facilities. A diversion flow rate of 100 cfs is the same as 45,000 gallons per minute, 65 million gallons per day, and 72,400 acre-feet per year. For developing the annual operation and maintenance (O&M) cost estimate, it is assumed that the facility would divert 100 cfs continuously for the March 15 to October 15 irrigation season, or 42,200 ac-ft/yr. Table 2 presents the O&M cost estimate.

If you have any questions, please do not hesitate to contact me at (916) 853-5306.

Very truly yours,

BROWN AND CALDWELL

Paul Selsky, P.E.
Project Manager

PS:ap

Enclosure

p:\23000\23491-tid\agdiversion.doc/

Table 1. Construction Cost Estimate for Irrigation Diversion System

Item	Cost, $ million
Infiltration gallery	1.0
Pump station	5.0
Pipeline, 84-inch, 3,000 feet	1.8
Outlet structure	0.5
Subtotal	8.3
Contingency (20%)	1.7
Engineering design and construction management (15%)	1.2
TOTAL	**11.2**

Notes:
Engineering News Record Cost Index = 6,700 (2003)
Cost of land not included.

Table 2. Operation and Maintenance Cost Estimate for Irrigation Diversion System

Item	Cost, $ million/year
Labor	0.1
Power[a]	0.6
Equipment and materials	0.1
TOTAL	**0.8**

[a] Based on 42,200 ac-ft/yr, 90-foot head, and 10 cents per kw hr.

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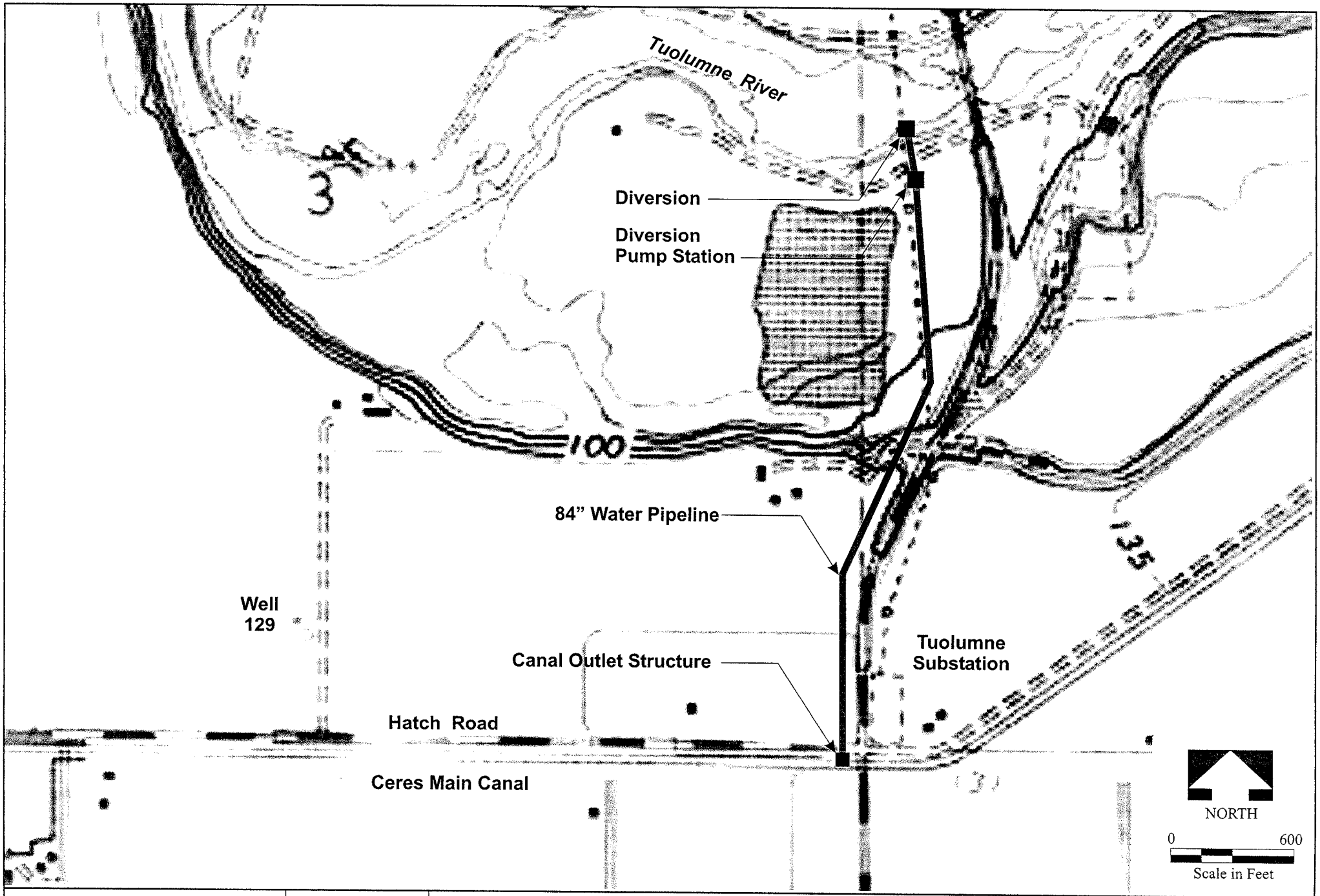


BROWN AND CALDWELL	DATE 11-6-03	SITE Turlock Irrigation District	Figure 1
	PROJECT 23491-001	TITLE Irrigation Diversion System	

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

11MAR, 2004, 9:30 a.m.

Turlock Irrigation District, Lunch Room (2nd floor)

DRAFT AGENDA

1. Introduction
   A. Comments on draft agenda
   B. Correspondence since last meeting
2. **ACTION ITEMS**:
   A. Coarse Sediment Mngmt. Plan adjustments
   B. CBDA - Gravel Addition amendment
   C. Tasks associated with trout issues
   D. 2004 monitoring
3. General FSA Update:
   A. FSA/Order activity, expense tracking, and report status
   B. Review of activities from last meeting
   C. VAMP, Agency, and NGO updates
   D. Monitoring
      1. Water temperature model presentation (Dotan) – will be at 10 AM
      2. Other monitoring
   E. River operations and forecasts
   F. Restoration
      1. Funding, planning and implementation
      2. Project monitoring
      3. Other restoration information
4. Additional items
5. Next meeting and topics

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
DRAFT MEETING MINUTES of
11 March 2004

1. AGENDA & PRIOR MINUTES

A. The correspondence list will be expanded to include related FERC filings – several comments were made. Ford indicated there is a FERC web site with an electronic library.

B. Item 3C was discussed prior to Item 2 because of speaker time constraints.

2. ACTION ITEMS:

A. Review comments on the draft final of the Course Sediment Management Plan (CSMP) by TRTAC members and from project managers on the Merced and Stanislaus Rivers received indicated there was a need to look more closely at impacts on trout habitat during implementation of gravel infusion projects for expanding the aerial extent of existing riffles in the upper 10-12 miles. The comments focused on the process used to identify and select sites for gravel infusions and indicated there might also be additional ways to add more trout and salmon habitat in the long pools within the upper reaches of the river that would not involve existing riffles. However, the use of "dunes" to create the added habitat consumes a significantly larger quantity of aggregate than originally projected in the CSMP and subtle changes in the river hydraulics and stage. The CSMP will be finalized incorporating the comments discussed above.

B. The inchannel improvements used in the La Grange Gravel Infusion Project rely upon the CSMP as the basis of design. Fryer will be taking an amendment to the California Bay Delta Authority (CBDA) later this week requesting to expand the aerial extent of the riffles to be reconstructed under the Infusion Project. The presentation to the CBDA was to include the addition of the "dunes" to long pools as part of the design change for the project. The TRTAC concurred with the proposed presentation to the CBDA. Given that the quantity of aggregate would be less with use of "dunes", the TRTAC asked that the areas to be treated focus on the upper reaches of the river starting with SRP 1 at River Mile 51 above Old La Grange Bridge.

C. Trout related issues were discussed: DFG float surveys from La Grange to Turlock Lake have been done twice and angling has obtained 40 samples with 8 of 24 > 18".

3. **GENERAL INFORMATION:**

A. Ford presented FSA/Order activities and expense status; monitoring funds are nearly expended and the DFG invoice for the July 02 to June 03 period is needed; annual report items were reviewed

B. Ford presented information of the runoff forecasts and the associated VAMP releases. Heyne presented a summary of the proposed 2004 Spring Steelhead survey will be conducting by DFG; Blakeman provided handout of graphs with 2002-03 RST data

C. Dotan and Smith made a presentation on the water temperature modeling being done on the Stanislaus River. The work started in 1998 as a cooperative program with DFG, USFWS, NMFS, OID, SSJID, SEWD, & USBR. A HEC-5Q model (developed by Smith for COE) was used to look at 11 scenarios. Uses 6-hr and ½-mile x-section intervals on Stanislaus. The model includes temperature profiles through reservoirs and the graphics demonstrate the effects lowered reservoir storage from multi year droughts. The reservoirs are not modeled using either a 2D or 3D method, but these model types are used for the river reaches. The model can be used to evaluate different spring and fall pulse flows. Phase 2 with 3-yr CALFED contract – peer review panel on temperature criteria to be applied by species, time, and location.

D. Fryer provided a handout and update on the status of the TAC restoration projects; TRT working on CEQA document for Big Bend project; NMFS listing and critical habitat rules in progress; FOT reported Bobcat Flat is in CEQA process and about planting at Waterford

E. Ford presented the current DWR Basin Index information, with associated river operations forecast and flow schedules discussed.

4. **ADDITIONAL ITEMS:** CRRF provided report on trout habitat mapping, including many color photos

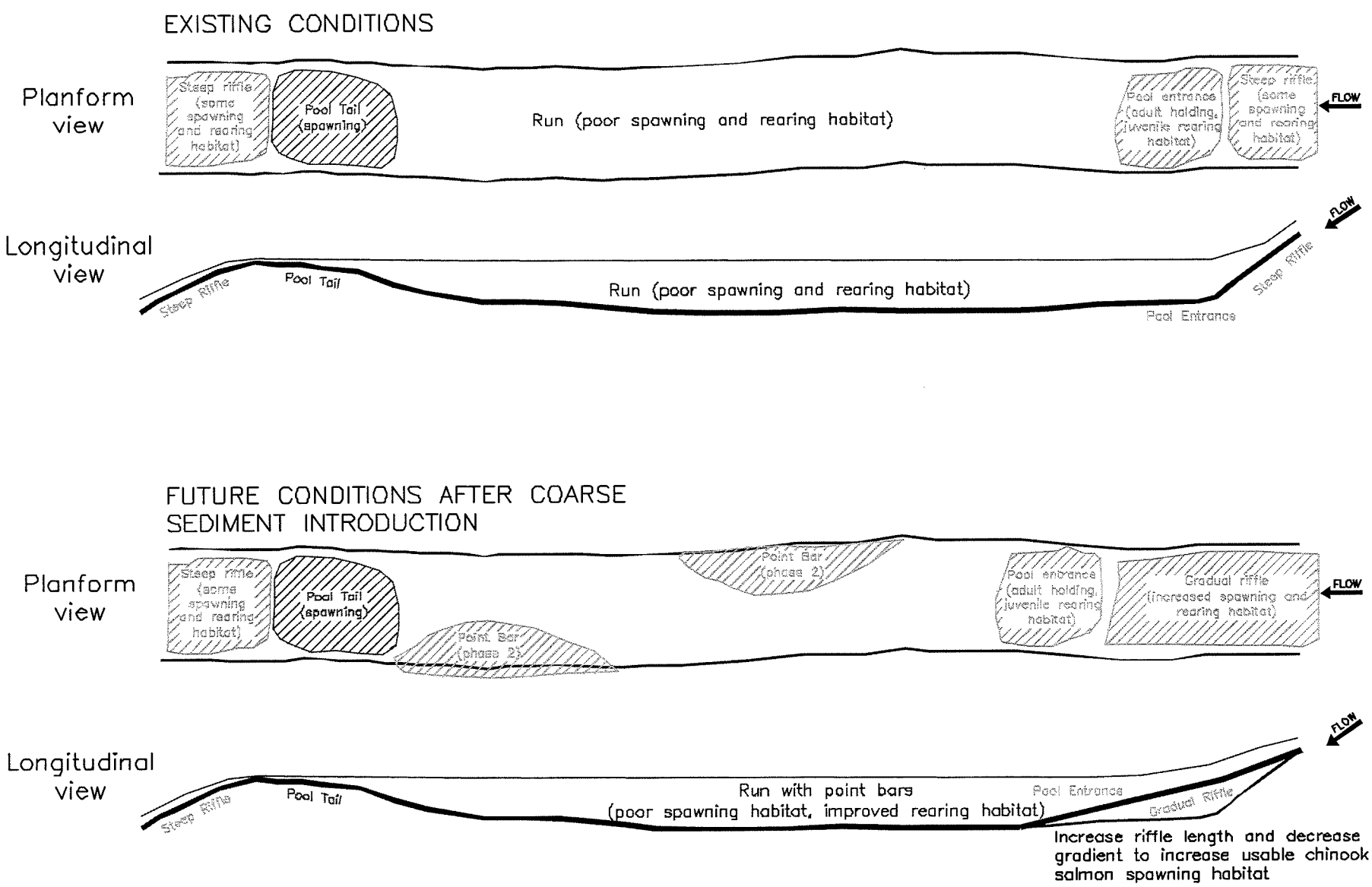
5. **NEXT MEETING & TOPICS:**

A. The TRTAC subgroup will meet on Monday 24 May 2004.

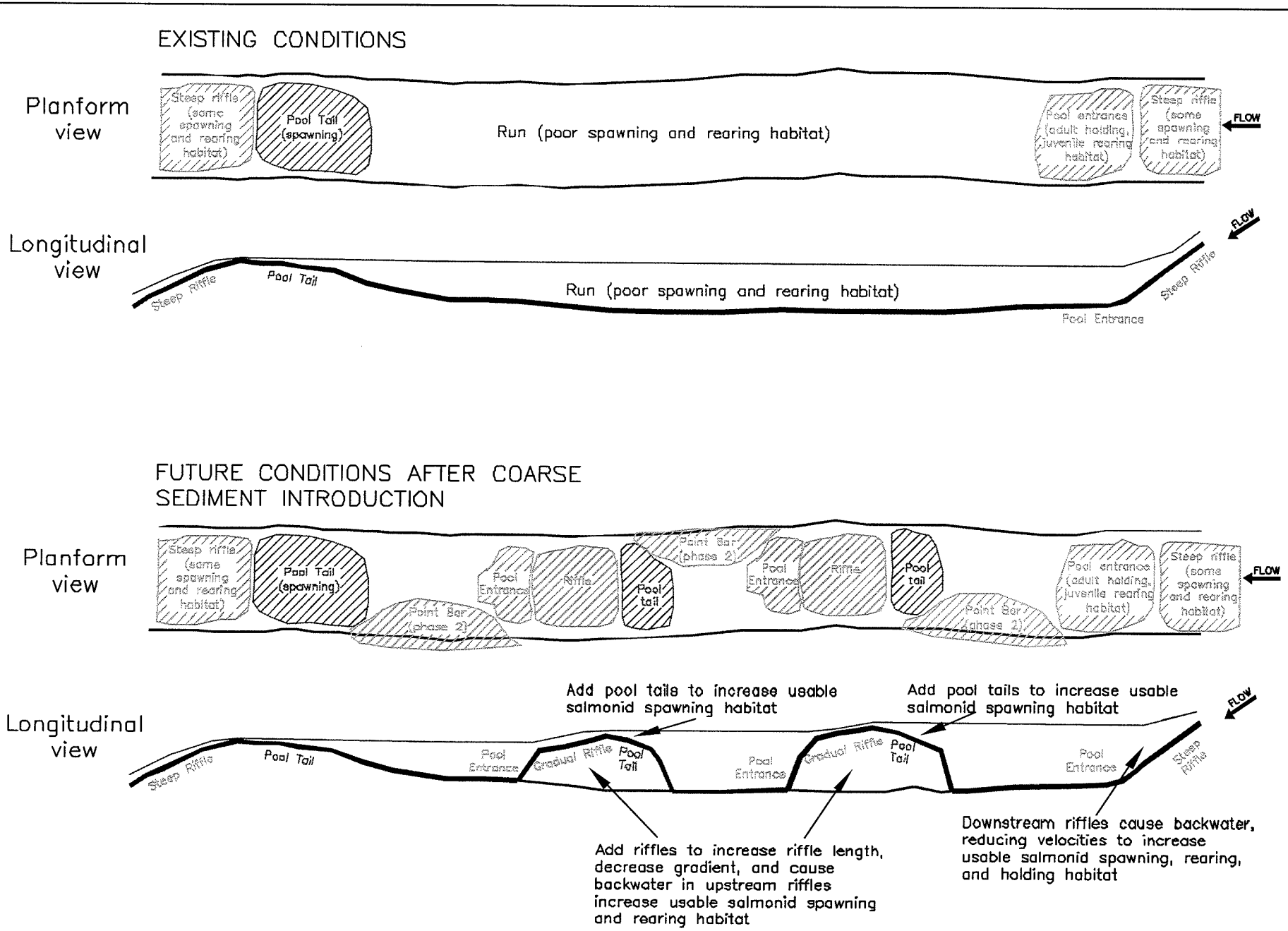
B. The next regular TRTAC meeting will be Thursday 10 June 2004 starting at 0930.

FERC 2299 TRTAC Meeting
11 March 2004

Name	Organization
Tim Ford	TID/MID
Wilton Fryer	TID
Patrick Koepele	TRPT
Jeff McLain	USFWS
Dave Boucher	FOTT
Allison Boucher	FOTT
Ron Yoshiyama	CCSF
John Chester	CCSF
Noah Hume	Stillwater Sciences
Tim Heyne	DFG
Dennis Blakeman	DFG
Madelyn Martinez	NMFS
Carl Mesick	CRRF
Avry Dotan	AD Consultants
Donald Smith	RMA, Inc



Conceptual drawing of original coarse sediment augmentation plan to extend steep riffles to increase Chinook salmon spawning and rearing habitat.



Conceptual drawing of <u>modifed</u> coarse sediment augmentation to avoid potential harm to existing salmonid habitat in steep riffles.

TURLOCK IRRIGATION DISTRICT

WATER PLANNING DEPARTMENT
MEMORANDUM

TO: TRTAC
FROM: Wilton Fryer
DATE: 10 March 2004 2003
RE: Project Status Update

Project	Funding	Status
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. Limited irrigation & maintenance in 2004.
MJ Ruddy	Full	ROW appraisal continues under review by Interior Dept. with acquisition now scheduled for April 2004. Revised date for 2004 construction is pending completion of land acquisition.
Warner-Deardorff	Partial	Design at 90% stage, permitting well under way, and ROW appraisal on hold pending CBDA resolution of Directed Action review. Awaiting response from CALFED on Directed Action package submitted 21 November 2003.
Design Manual	Full	Final Report submitted 26 February 2004.
Course Sediment	Full	Final Report submitted to TRTAC 17 December 2003. Report to be modified to expand on methods and techniques to protect existing salmonid habitats during implementation.
La Grange Gravel	Full	An Amendment request has been submitted to CBDA in January 2004 to delete the aggregate mining and expand inchannel gravel infusion work. The amendment is to be heard 25 March 2004 and approval is expected to be linked to completing adjustments being made in the Course Sediment Management Plan.

Fine Sediment	Full	A revised Gasburg Creek watershed analysis is being reviewed. Upon completion of that analysis, DFG will be contacted regarding moving forward on the settling basin & site layout.
RM 43	Full	DWR contract in place, site reviews done, starting design and permitting process.
SRP 10	Partial	Draft design concepts being finalized along with earthmoving estimates in preparation for developing a project budget for the next CBDA funding cycle. Continue to look for alternative land acquisition funding.

State of California – The Resources Agency ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
San Joaquin Valley and Southern Sierra Region
1234 East Shaw Avenue
Fresno, California 93710

March 3, 2004

Tuolumne River Technical Advisory Committee (TRTAC)

Clarification of Tuolumne River Spring 2004 Steelhead Surveys

Dear TRTAC Members:

The purpose of this letter is to clarify specifically what steelhead surveys the Department of Fish and Game (Department) will be conducting in the Tuolumne River this winter and spring, and to advise you that Department staff (e.g., Mr. Dennis Blakeman) will be redirected to performing field work, rather than conducting report writing, during this time period per the TRTAC's request.

On January 28, 2004, the TRTAC subcommittee met to discuss various TRTAC related topics, one of which was the need for additional information to document the presence, and abundance, of steelhead in the Tuolumne River. The TRTAC, at this meeting decided:

1. Conducting steelhead surveys was a high priority;
2. Steelhead surveys (e.g., redd surveys) should be conducted this spring; and
3. It was advantageous to all parties to have Mr. Dennis Blakeman lead the redd survey, with Turlock Irrigation District (TID) providing temporary staff to assist Dennis as needed.

In response to the TRTAC's decision at this meeting to conduct steelhead surveys, I directed Dennis to do two things: a) contact Department staff who are currently conducting steelhead redd surveys in other Central Valley rivers (e.g., American River) and ascertain what methodologies are being employed; and b) develop a steelhead redd evaluation survey protocol for the Tuolumne River. Dennis completed this assignment in early to mid February 2004 (Tuolumne River redd survey protocol attached). Once this protocol was completed, I directed Dennis to initiate the Tuolumne River redd surveys. Dennis initiated the steelhead redd survey in mid February 2004.

Dennis will be conducting steelhead redd surveys on the Tuolumne River this winter and spring on a weekly basis as long as favorable conditions occur (e.g., good water clarity). During this time Dennis will survey the Tuolumne River by use of drift boat and/or use of snorkel, at his discretion, to detect, and verify, presence of steelhead redds in the Tuolumne River. Any live fish (e.g., steelhead) observed during the course of conducting redd surveys will be noted, and any dead fish (e.g., steelhead) observed during the course of conducting redd surveys will be collected for further analysis. No angling will occur while redd surveys are being conducted so as to avoid distractions, and prevent missing opportunities to document steelhead and/or their redds.

In addition to completing the steelhead redd survey, I have also, based upon TRTAC interest, directed Dennis to assist our Department statewide steelhead coordinator (Ms. Katie Perry) in collecting otoliths from adult steelhead taken from the Tuolumne River to ascertain, and document, the presence of steelhead (e.g., *Onchorhyncus mykiss* anadromous form) in the Tuolumne River. To this end, Dennis, assisted by Mr. Steve Walser and Mr. Tim Smith, will be conducting hook-and-line (e.g., angling) surveys on a weekly basis in the Tuolumne River. The Department has take authorization from NOAA Fisheries to enable harvest (e.g., kill) of both adult and juvenile steelhead in the Tuolumne River. To ensure that otoliths, and other documentary evidence verifying the presence of steelhead in the Tuolumne River is not compromised, my staff and I have developed a steelhead "chain-of-custody" tracking log (e.g., see attached) and electronic data filing system. This will enable the Department to ensure the integrity of its steelhead data and/or biological samples. As samples are sent to labs for further analysis, this information, and results, will also be catalogued with chain-of-custody linkage remaining intact.

To avoid confusion, and scheduling conflicts, I have instructed Dennis, when he sets up his Tuolumne River steelhead sampling schedule on a weekly basis to adhere to the following field survey priorities: 1) guided drift boat angling survey (one day per week); 2) redd survey (two days per week); and 3) shore angling survey (up to two days per week). This means that the first day scheduled is the guided drift boat angling survey, then the two days of redd surveys then, as time allows, shore angling. To help ensure that adult steelhead do not become more difficult to catch and collect (e.g., hook), no redd or shore angling surveys will be conducted the day before the guided drift boat survey is scheduled to occur. Additionally, to help keep the TRTAC and interested parties informed of the progress/status of the various steelhead surveys on-going in the Tuolumne River this spring, I have instructed Dennis (via the Department's official TAC representative Mr. Tim Heyne) to prepare bi-weekly e-mail updates so that summarized steelhead survey information can be dispersed in a timely fashion.

Having clarified Department efforts regarding steelhead studies being conducted this winter and spring, I now address the issue of outstanding reports. When the TRTAC made the decision that gathering steelhead information in the Tuolumne River this year was a high priority by default, redirection of the Department's only Tuolumne River dedicated staff person occurred. The TRTAC's decision to take advantage of the opportunity to collect additional steelhead information in the Tuolumne River this year, prior to the April 2005 FERC review of the performance of the FSA flow and non-flow measures is understandable. However, this change in priorities will delay somewhat the completion of outstanding reports. Namely, the 2003 Adult Salmon Escapement Survey Report, the Salmon Redd Use Report, and the 1998, 2002 and 2003 Rotary Screw Trap reports. The Department intends to complete these reports prior to the April 2005 FERC reporting deadline date as TRTAC priorities and Department staffing capabilities dictate. I remind the TRTAC that on an annual basis the Department completes two full, large scale, field efforts on the Tuolumne River (e.g., adult fall-run Chinook salmon and juvenile salmon out-migration surveys), along with conducting juvenile salmon survival tests, coded-wire-tag recovery and decoding, water temperature monitoring, as well as conducting reviews of various TRTAC reports, and responding to TRTAC's numerous data requests. For the most part, the Department has completed this Herculean effort (e.g., conducting various field studies and completing reports thereof) with just one full-time staff person dedicated to the Tuolumne River. That said, the Department recognizes the need, and importance of completing these outstanding reports and is committed to completing them.

If you need addition clarification, please call me at (559) 243-4014, extension 241.

Yours sincerely,

Dean Marston

Dean Marston
Senior Biologist Supervisor
(Marine/Fisheries)

Attachments

2003
Tuolumne River Rainbow/Steelhead Trout Redd Survey
Proposal

Objectives

The primary objectives are to locate Rainbow/Steelhead Trout redds, measure physical parameters of identified redds and determine presence of Rainbow/Steelhead Trout on redds. Other information to be obtained will be presence of Rainbow/Steelhead Trout in the Tuolumne River.

Sample Area

Area of Tuolumne River to be sampled is from river mile 52, below La Grange Dam powerhouse downstream to river mile 42, Turlock Lake State Park.

Methods

Use a drift boat to float down the river inspecting all potential steelhead spawning habitat. The drift boat will be maneuvered diagonally across river from bank to bank. When areas or channels of the river are to shallow, it will be walked or snorkeled. When a possible steelhead redd is observed it will be marked with GPS coordinates using a Garmin GPSmap 76S unit. Redd data will be entered onto a datasheet.

Data to be collected at each redd.

Species	Steelhead, chinook, lamprey, pikeminnow, sucker, unknown.
Depth	Water depth in centimeters measured near pot in a location to approximate depth prior to redd construction.
Redd Age	0=test redd, 1=fish on, 2=new still clear, 3=older some algae, 4=old obscure, 5=marker only.
Fish size	Estimated length of a fish on a redd, cm.
Fish size 2	Estimated length of a second fish on a redd, cm.
Velocity	Water velocity measured near the front of the redd in a location near the bottom where a fish would be when beginning to construct a redd (about 10-20 cm off the bottom).
Pot length (PL)	Length of pot parallel to flow.
Pot width (PW)	Maximum width of pot perpendicular to flow.
Pot depth (PD)	Maximum depth of excavation relative to the undisturbed stream bed = water depth in pot minus water depth to undisturbed stream bed.
Pot substrate (PS)	Size of dominant substrate in pot, visually estimated after calibrating with measuring device.
Tail spill length (TSL)	Length of tail spill parallel to flow.
Tail spill width 1 (TSW1)	Width of tail spill perpendicular to flow at 1/3 of the distance down from the upstream end of the tail spill.
Tail spill width 2 (TSW2)	Width of tail spill perpendicular to flow at 2/3 of the distance down from the upstream end of the tail spill.
Tail spill substrate	Size of dominant substrate in tail spill, visually estimated after calibrating with measuring device.
Marker	Denotes that a colored marker was placed on the redd.
Flow	River flow in cfs released to the river from La Grange Dam.
Method	Motor boat, drift boat, canoe, snorkeling, wading, aerial.

Redd measurements are from those used in the American River Steelhead Redd survey which are based on measurements used in California coastal spawning surveys (Gallagher 2002).

Gallagher, S.P. 2002. Salmonid spawning survey protocols for 2002 – 2003. California State Department of Fish and Game. 1031 South Main Street, Suite A. Fort Bragg, CA 95437. Draft 8 October 2002. 14p.

Tuolumne River
Rainbow/Steelhead Redd Survey

Date:____/____/____ **Location:**__________________ **Secchi:**________**ft.** **River Flow:**__________**cfs**

Start Time:______________ **End Time:**_______________ **River Temp:**__________**°C**

Redd_ID		Species		Depth	Redd Age		H$_2$0 Velocity	
Fish Size 1				Fish Size 2			Marker Y / N	
Pot					**Tail Spill**			
Length	Width	PDepth	Substrate		Length	Width 1	Width 2	Substrate

Redd_ID		Species		Depth	Redd Age		H$_2$0 Velocity	
Fish Size 1				Fish Size 2			Marker Y / N	
Pot					**Tail Spill**			
Length	Width	PDepth	Substrate		Length	Width 1	Width 2	Substrate

Redd_ID		Species		Depth	Redd Age		H$_2$0 Velocity	
Fish Size 1				Fish Size 2			Marker Y / N	
Pot					**Tail Spill**			
Length	Width	PDepth	Substrate		Length	Width 1	Width 2	Substrate

Redd_ID		Species		Depth	Redd Age		H$_2$0 Velocity	
Fish Size 1				Fish Size 2			Marker Y / N	
Pot					**Tail Spill**			
Length	Width	PDepth	Substrate		Length	Width 1	Width 2	Substrate

Redd_ID		Species		Depth	Redd Age		H$_2$0 Velocity	
Fish Size 1				Fish Size 2			Marker Y / N	
Pot					**Tail Spill**			
Length	Width	PDepth	Substrate		Length	Width 1	Width 2	Substrate

Specimen Collection Information			Case Number: **DFG**
Collection			
Date:	Location:	GPS Coordinates:	
Time:	Method:	Collector/Agency:	
Species:	Fork Length:		Sex: M / F / Unk
☐ Whole Fish ☐ Head ☐ Otolith ☐ Scale ☐ Other:_____	Comments:		

Chain of Custody

Sample Type:

- ☐ Whole Fish
- ☐ Head
- ☐ Otolith
- ☐ Scale
- ☐ Other (describe)_____

From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	

Chain of Custody (continued)			Case Number:
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	
From: (Print Name, Agency)	Signature:	Date:	Delivered via: ☐ US Mail ☐ In Person ☐ Other:
To: (Print Name, Agency)	Signature:	Date:	

Case number will be "DFG04Txxxx".

DFG - for La Grange fish and Game,
04 - year,
T - Tuolumne(M- Merced Ri., S - Stanislaus Ri., J - San Joaquin Ri.),
xxxx - will be disc tag number which will be attached to fish (or other sample e.g. scales, otolith, - DNA, etc.)

In order to keep fish from different rivers separated when kept in freezer, the Stanislaus will use tag #'s 001-100, Tuolumne Ri. Will use 101-200, Mer. Ri. 201-300, San Joaquin Ri. 301-400

For example, the Case Number for the first fish on the Tuolumne Ri. Will be DFG04T101

TURLOCK IRRIGATION DISTRICT
MODESTO IRRIGATION DISTRICT

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Turlock, California 95381
Phone: 209-883-8275; FAX: 209-656-2180
E-mail: tjford@tid.org

May 3, 2004

Madelyn Martinez
NOAA Fisheries
650 Capitol Mall, Suite 8-300
Sacramento, CA 95814

Madelyn:

The following comments are in response to your April 2, 2004 e-mail inquiry regarding the Stillwater Sciences report on its recent trout survey of Modesto Irrigation District's and Turlock Irrigation District's canal and diversion facilities in the La Grange area of Stanislaus County, California. Thank you for your questions. I hope that this response answers your questions.

1) Are these canals connected to the Lower Tuolumne River? Any outfalls or spillage to the Lower Tuolumne River?

There are no direct connections for fish to get from the rivers up into the districts lower canal systems. Keep in mind the canal systems have far less capacity as they split into many laterals and get much smaller, so they terminate with little flow (often intermittent and warm) at the downstream ends which lead to "drains" most of the time and one-way flap gates. The spills are steep, high, drops from elevated canal settings that are complete barriers to upstream passage.

2) What kind of flows are needed for any connections to the Lower Tuolumne River? Did the 97 flood topple your weirs, which connected the Lower Tuolumne River w/ your canals?

The JAN1997 flood did not affect the canal systems and there was no connection of the canal system to the lower river.

3) What is the flow (in cfs) coming out of the canal? Is it good enough to provide an attraction flow?

As in #1, there may be very minor flows from the end of the system laterals intermittently during irrigation season, but these would not be considered attraction flows.

4) What is the operation schedule of the canal to let water out? At what time of the year?

The lower canal systems (below Modesto Reservoir and below Turlock Lake) are usually dry during the non-irrigation season from NOV into MAR, although stormwater is sometimes routed through parts of the lower system, e.g., downstream of the City of Turlock. The upper canal system is often drained during portions of the same period in order to perform maintenance work.

5) Any future studies such as otolith sampling to these O. mykiss? In one of the pictures, it appears that the O. mykiss has some silvery tint to it, which may indicate some anadromy?

Otolith samples could have been taken, but this sampling effort released all fish alive. There is no reason to suspect these fish have had other than a freshwater existence, due to the constraints identified here and in the report. Trout from reservoirs are often silvery in appearance.

6) What is the water quality of the outflow from the canal? D.O.? temperature? etc.?

I don't have information on water quality parameters for water from the laterals or drains. The water quality at spills near the dam would be identical to flow into the river at La Grange.

7) Is the report trying to say that O. mykiss in the Lower Tuolumne River are coming from the reservoir through these canals?

No, it does not. The report clearly documents there are many, and large, rainbows in the upper canal areas near La Grange Reservoir. The trout present in the upper canal system are from La Grange Reservoir, and potentially some are from hatchery plants, mostly those into Modesto Reservoir. Trout in La Grange Reservoir may also have come from Don Pedro Reservoir immediately upstream and where many hatchery trout are also planted. The report identifies that rainbows may get into the river below La Grange Dam by being swept over La Grange Dam at higher flows or through spills/outlets to the river near there. The report only considers the possibility that (1) hatchery trout planted in Modesto Reservoir may ascend part of the upper MID canal to the LG Dam area (and thus to the river) and (2) hatchery trout planted in Turlock Reservoir may occasionally get to the river via the Hickman (or Faith Home) spill downstream.

8) If so, is it possible during high flows, anadromous form of O. mykiss can also find its way to the reservoir if O. mykiss from the reservoir is finding its way to the Lower Tuolumne River?

As stated previously, there is no upstream access from the river to the canals. La Grange Dam itself is 132 feet high.

9) If so, is it possible that some of the O. mykiss from the reservoir may interbreed w/ the anadromous form?

Any rainbow trout that are in the lower river have the opportunity to breed together, provided they are in proximity and appropriate reproductive condition.

10) If there is some fish passage to the reservoir through the canals, could it be possible that the anadromous forms are not found finding its way near La Grange dam but finding their way through the canals, to the reservoir and better habitat conditions than the Lower Tuolumne indicating that the operations of the NDPP and the presence of the dam is not providing suitable habitat for federally listed Central Valley steelhead?

Again, it is not possible for trout from the river to access the canals. As was summarized in our filings with FERC in late 2003, summer conditions for trout in the lower river have been improved as was expected under the 1995 Settlement Agreement and the resulting 1996 FERC Order and suitable habitat of varying amount has been provided in all years after that Order. As to the presence of steelhead in the Tuolumne River below La Grange Dam, it is my understanding we still have no confirming information from either the genetic study or the otolith study.

We could arrange a tour to show you the canal system if you prefer. Please let me know if you have any further questions.

Sincerely,

Tim Ford
Aquatic Biologist

Cc: TRTAC e-mail list

E-mail notice of 20MAY2004 re: TRTAC subgroup meeting from Ford

To TRTAC subgroup list et. al.:

A draft agenda for the subgroup meeting of 24MAY2004, 9 AM, Room 3A at MID, is below. Since the MAR TRTAC meeting, there have been: 1) Float survey, angling, seining, and screw trap updates, 2) Canal trout survey report, 3) Pulse flow operations and flow updates, 4) several filings with FERC, and 5) ruling on listing lawsuit. Notes from the JAN subgroup meeting to follow.

DRAFT AGENDA

- Review items since MAR meeting
- Flow operations
- Specific O. mykiss activities
- Other monitoring
- Data and reports
- Items for June 10 TRTAC meeting

++

24MAY2004 Attending:

Name	**Organization**
Tim Ford	TID/MID
Allison Boucher	FOT
Ron Yoshiyama	CCSF
Noah Hume	Stillwater Sciences
Jen Vick	McBain&Trush
Tim Heyne	DFG
Jeff McLain	FWS/AFRP
David Hu	FWS/AFRP
Madelyn Martinez	NMFS
Janiel Killeen	NMFS

DRAFT – 21MAY2004

TID/MID Lower Tuolumne River Rainbow Trout/Steelhead (O. mykiss) Augmented Monitoring Program

TID/MID MONITORING ACTIVITY

This program description identifies those monitoring activities that augment the FSA monitoring elements to better assess the status of rainbow trout/steelhead (*Oncorhynchus mykiss*) and their habitat in the lower Tuolumne River. The Turlock and Modesto Irrigation Districts (TID/MID) efforts are in some cases done in cooperation with CDFG or other parties. Some associated studies conducted by other parties are identified below. Electrofishing is not included in this program, but could be considered by the parties upon further review. Flow levels may affect the opportunity, effectiveness, and safety of conducting some of the monitoring, so some general threshold criteria are suggested. Some elements of this augmented program began as early as 2000.

A. Expanded Underwater Observations

Monitoring objective - to record in greater detail the distribution, abundance, and size of RT/SH in the river in early and late summer.

Approach

1) Snorkel twice in the reach from La Grange to Waterford (RM 51-31) with flows < 600 cfs during JUN-SEP period. The FSA JUN snorkeling was expanded from 9 sites to 12 sites in 2001, following a pilot effort at 19 sites in JUN2000. The 12-site snorkel survey in SEP was added in 2001.

2) Number and size of fish observed at each site are counted or estimated for each species. Fish/unit of effort is recorded for time and area covered.

B. Additional spawning surveys

Monitoring objective - Evaluate JAN-APR salmonid spawning activity with DFG. This covers the rest of the peak period for RT/SH spawning

Approach

1) Float every two weeks (or other interval TBD) in the reach from La Grange to near Turlock Reservoir (or other site as field conditions warrant) at flows <2,000 cfs, allowing 1-2 days to complete the reach. Season may extend into May as needed. Surveys began in FEB2004.

2) Record number, location, and site conditions of any live spawners, redds, or carcasses observed. Attempt to distinguish live RT/SH from Chinook salmon.

3) Measure all carcasses and take otoliths, scales, and fin tissue samples from all RT/SH. Tissue analysis will be conducted and reported by the agencies.

C. Additional thermographs

Monitoring objective – Better define water temperature dynamics in the upper river reach and provide more data sites in case of thermograph failure or vandalism. Frequency of downloads may increase.

Approach

1) Three thermographs were added to the upper 7 river miles in 2001.
2) Evaluate and integrate other data records as pertinent, e.g. DFG thermograph data.

D. Dissolved oxygen and water quality sampling

Monitoring objective – Determine daily range in DO conditions in upper river during low flow period. Collect water samples for water chemistry tests. Begin in 2004.

Approach

1) Recording DO probe is deployed for 24 hours at River Mile 50.7 and 43.0 near existing thermograph locations in late May and again in early June. Parameters recorded will include temperature, pH, EC, and TDS. Portable DO probe readings are taken in at least four other sites in upper 12 miles. Process may be repeated later in June under hotter conditions. Any additional sampling to be determined.
2) Collect water samples at the recording probe sites in early June. Test for nutrients (ammonia, organic nitrogen, nitrite, nitrate) and contaminants.

MONITORING BY OTHERS

Angling

Monitoring objective – Obtain information on the size, abundance, distribution, age, genetics(?), and life-history of age 1+ RT/SH during JAN-JUN. DFG began conducting the study in FEB2004.

Approach

1) Float the reach from La Grange to near Turlock Reservoir every two weeks (or other interval TBD) from FEB-MAY and sample using legal angling methods.
2) Record number and location of all salmonids observed or caught.
3) Measure all salmonids caught and take scales and fin tissue samples from RT/SH. Some fish are kept for otolith study.

RT/SH Locations

Monitoring objective – Identify general locations where RT/SH are likely to be at, based on angling guide experience. California Rivers Restoration Fund identified 47 sites in the upper 12 miles early in 2004.

Approach

1) Float or foot surveys used to identify and mark locations on existing habitat maps.

REPORTING

All field data is incorporated into the existing FSA program that includes e-mail updates, data sheet copies to specific entities, and a report submitted to FERC by the Districts. The reports are provided to FSA participants and other relevant parties. Results of sampling by other parties is usually compiled and reported separately by them, although we often include this information in our FERC reports.

OTHER SUGGESTED MONITORING

Several other monitoring elements have come up in discussions or correspondence over the last year. A compilation is in preparation.

DRAFT
Lower Tuolumne River
Rainbow Trout/Steelhead (O. mykiss)

List of Studies and Suggested Monitoring Elements

This list identifies: (1) monitoring activities that have been suggested since August 2003 with respect to the status of rainbow trout/steelhead (*Oncorhynchus mykiss*) and their habitat in the lower Tuolumne River and (2) studies of RT/SH that have been concluded since then, or are ongoing.

Additional underwater observations

- Mid-summer snorkeling
- Winter snorkeling

Spawning surveys from JAN-APR (began in 2004)

Dissolved oxygen and water quality sampling (begin in 2004)

Angling survey and sample collection (began in 2004)

RT/SH Locations (mapping done in winter 2004)

Habitat suitability data for adult RT/SH

Temperature model update (undecided)

Temperature criteria (ongoing)

Genetic study (completed in 2003)

Otolith study (ongoing)

Scale analysis (?)

Trout blood chemistry and lipid content analysis

Outmigration mortality

Pebble counts of spawning sites

Revision of gravel addition design (in process?)

From: "Dennis Blakeman" <dblakeman@dfg.ca.gov>
To: <agengr6@aol.com>, <deltakeep@aol.com>, <ajensen@bawsca.org>, <nsandkulla@bawsca.org>, <michael.mcelhiney@ca.usda.gov>, <timr@calwater.ca.gov>, <jkoontz@calwaterlaw.com>, <rmasuda@calwaterlaw.com>, "Dean Marston" <DMarston.PO_ITB.DOM_ITB@dfg.ca.gov>, "Patricia Brantley" <PBRANTLEY.PO_ITB.DOM_ITB@dfg.ca.gov>, "Tim Heyne" <THEYNE.PO_REM.DOM_ITB@dfg.ca.gov>, "William Loudermilk" <WLouderm.PO_ITB.DOM_ITB@dfg.ca.gov>, <Erich.Gaedeke@ferc.gov>, <deborah_giglio@fws.gov>, <Jeff_McLain@fws.gov>, <cmcfish@innercite.com>, <fuller@inreach.com>, <darren@mcbaintrush.com>, <scott@mcbaintrush.com>, <billj@mid.org>, <walterw@mid.org>, <steve@mlode.com>, <aboucher@netfeed.com>, <dboucher@netfeed.com>, <eric.theiss@noaa.gov>, <Erin.Strange@noaa.gov>, <madelyn.martinez@noaa.gov>, <jchester@puc.sf.ca.us>, <donn.w.furman@sfgov.org>, <frank@stillwatersci.com>, <noah@stillwatersci.com>, <rmnees@tid.org>, <tjford@tid.org>, <wbfryer@tid.org>, <jenna@tuolumne.org>, <patrick@tuolumne.org>, <rmyoshiyama@ucdavis.edu>
Date: 5/25/2004 4:00:06 PM
Subject: Tuol. Ri. SH/RBT survey Bi-weekly Update

TRTAC:

Approximately 20 samples analyzed thus far (pre-2004) have been determined to be resident fish.
No new information on otolith, scale, or DNA samples thus far.

Steelhead/Rainbow Trout Surveys Bi-Weekly Update

SH/RBT Redd Survey

Date	Section	Observations (redd)
02/13/04	1	0
03/02/04	2	0
03/09/04	1	0
03/10/04	2	0
03/13/04	1	0
03/15/04	1	0
03/16/04	2	0
03/24/04	1	0
03/25/04	2	0
04/01/04	1	0
04/01/04	2	0
04/06/04	1	0
04/06/04	2	1
04/15/04	1	1 (RM 50.4 no fish observed)
04/15/04	2	0
04/23/04	1 & 2	0
04/29/04	1 & 2	0
05/06/04	1 & 2	0
05/12/04	1 & 2	0
05/18/04	1 & 2	0
05/25/04	1 & 2	0

SH/RBT Hook & Line Survey

Date	Section	Observations (fish)
02/19/04	1	0
02/24/04	1&2	9
03/03/04	1	0

03/12/04	1	2
03/23/04	1	1
04/07/04	1	9 (32.5cm - 52cm)
04/08/04	2	6 (33.5cm - 48cm)
04/27/04	1	6 (26.5cm - 58cm)
04/28/04	2	2 (33.5cm - 44.5cm)
05/04/04	1	0
05/13/04	3	2 (40.5cm - 40.5)

Dennis E. Blakeman
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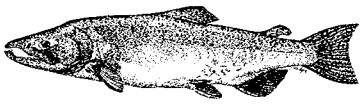
TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE
DON PEDRO PROJECT - FERC LICENSE 2299

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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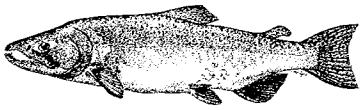
TECHNICAL ADVISORY COMMITTEE MEETING

10JUN, 2004, 9:30 a.m.
Turlock Irrigation District, Lunch Room (2nd floor)
DRAFT AGENDA

1. Introduction
   A. Comments on draft agenda
   B. Correspondence since last meeting
2. **ACTION ITEMS**:
   A. Flow schedule
   B. Review tasks associated with trout issues
3. General FSA Update:
   A. FSA/Order activity, expense tracking, and report status
   B. Review of activities from last meeting
   C. VAMP, Agency, and NGO updates
   D. Monitoring
   E. River operations and forecasts
   F. Restoration
      1. Funding, planning and implementation
      2. Project monitoring
      3. Other restoration information
4. Additional items
5. Next meeting and topics

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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TECHNICAL ADVISORY COMMITTEE
MEETING MINUTES of
10 June 2004
DRAFT

1. AGENDA & PRIOR MINUTES

A. The minutes for the March 2004 meeting are incomplete and not available yet. There was discussion of the placement of data files in a PDF format on a website. Ford handed out a list of correspondence since the last TRTAC meeting that was reviewed.

2. ACTION ITEMS:

A. The flow schedule discussion centered on the way the basin index was continuing to decline. The Basin Index indicted there could be 3,500 AF of interpolation water available this year that amounts to 5 cfs that would be added to releases under the default schedule. DFG indicated they did not want any of the added water in the river flows in the summer. The DFG position was that the FSA water was exclusively for salmon and they want any interpolation water saved for the fall pulse flow. The USFWS did not want to make a decision on the flows because of their linkage with NMFS, but suggested not all the water in a pulse flow, asking for more of a balance. Another option would be to save the water to increase the winter flow. DFG asked that biological comparison be made of the options.

Option	Biological benefit (conceptual)
1. Constant Summer flow increase	Increases miles of river with desired temperatures for trout.
3. Varied summer flows	Used in 2003 to moderate river temperature during hot weather conditions.
2. Fall pulse flow	Improved early season DO in delta.
3. Winter flow increase	More spawning area & wetted perimeter.

No agreement was reached on the use of the interpolation water. As a result, 5 cfs will continue to be added to the default FERC flow schedule for now. NMFS staff indicated they requested the flows be not less than 150 cfs, yet the current FSA schedule calls for 80 cfs (75 cfs base flow plus 5 cfs from the interpolation water).

B. Tasks associated with trout issues and what has been done regarding trout since 2000. There has been an augmented monitoring program developed, but it has not been entirely endorsed or approved by NMFS. Hook & line monitoring started in February 2004 with funds from FOTT, DFG, & CRRF. Preliminary data from otolith analysis were all negative for steelhead, but there is another batch that will go out Wednesday. This was funded by AFRP. Walser indicated there would be a detailed angling & habitat survey that will extend below Roberts Ferry Bridge. NMFS would like to extend monitoring both temporally and spatially for trout. American River protocols may not apply well the Tuolumne River conditions. DFG asked that there be agreement on protocols and details prior to the monitoring to avoid arguments at the end of the study. Ford indicated the need to understand where trout are in relationship to proposed aggregate infusion projects to avoid incidental take. Baker added that aggregate quality is key part of making the available water provide maximum benefit from the infusion project.

3. GENERAL INFORMATION:

A. Ford went over the 2004 expenditures, noting that monitoring for the period was $48,700 and construction had used up $24,600. Under the fall spawning survey there will be 1 DFG staff and 2 temporaries, if funding comes through. For 2004 DFG will be providing mainly CWT and recovery data.

B. Stillwater revisions to analysis of relationships between flow and smolt survival is complete, but the subgroup has not met to review the report. Marston asked if minority reports were to be included and it these would cover items such as confidence limits for and CWT recovery at locations outside of Mossdale under the FERC report limits. Ford suggested that technical reports for the normal FERC reporting period be submitted in November to provide more time to work on the 10 year summary report due 1 Apr 05. There could include tissues studies for rainbow trout, angling surveys, habitat mapping, redd usage, catch locations (trout), etc.

C. VAMP, Agency, & NGO update.
The VAMP study is done for the year.

Martinez inquired about a tour of the canals after the irrigation water comes out to see why the Districts do not feel trout migrate up the San Joaquin River to get to La Grange. The Federal Register on hatchery fish listing came out the prior week. Martinez presented a brief overview of the key positions, impacts from the Alsea Case, and recommendations. They are also considering changes in the Federal listing for summer and winter run salmon. McLain will be moving from USFWS to NMFS in late June and Martinez will be on detail to DC for 6 months.

Marston indicated there would be a proposal to CBDA to expand the Stanislaus River temperature model to the San Joaquin River. This would include the Tuolumne and he was looking for support from the Districts. There was no specific update on the Tuolumne activities. They will be monitoring the recent gravel infusion when river flows get to 3,000 cfs.

Koepele reported that they would be breaking ground on the Big Bend project this summer with planting in the fall.

D. Monitoring: Ford went over the sampling schedule for the water quality study. There would be 2 sites with 24-hour continuous recordings and 5 sites with grab samples. These are located near the long-term temperature monitoring points.

There are snorkel studies scheduled for June and September to evaluate trout habitat and numbers. Walser felt there should be snorkel studied conducted in July or August depending on the thermograph data. It was agreed to have 12 sites with snorkeling in June, July/August, and September.

Gaedeke joined the meeting by phone to discuss the final report due 1 April 05 and the associated FERC review procedures. FERC staff has not set down their plan for the internal or external review. FERC is expecting recommendations for the next 10 years in the report from the Districts. Marston asked if minority positions would be in the Report or submitted later under the review process. Gantenbein felt the Districts have the option to have input in preparation of the 2005 report. The Article 58 language has the Districts filing the report. The Districts have not made a decision on how collaboration in the report writing would take place. Gaedeke indicated that normally agencies and groups comment on the reports after FERC sends them out for review. Gaedeke inquired as to the status of the Infiltration Gallery. McLain indicated they were looking at $8M to $10M from ERP funds to be used for construction. The USFWS is in discussion with the Districts regarding payment for O&M costs.

There was discussion on the possibility of having the report on spring monitoring in 2005 submitted in May or June rather than with the full report due to FERC Report on 1 April 2005. Ford explained the Districts may submit annual technical reports in November to allow more time for preparing the final report. The 2002 and 2004 macroinvertebrate reports will be updated in the final FERC report.

E. Fryer presented a status summary for the restoration projects managed by the District. The Course Sediment Plan (CSMP) underwent several changes in the final review with input from CRRF. A new CD version of the plan will be sent to the TRTAC members and others in CBDA and DWR. The changes in the CSMP will also be incorporated into the designs

and implementation of the La Grange Gravel Infusion Project.

4. ADDITIONAL ITEMS:

None.

5. NEXT MEETING & TOPICS:

The Monitoring Subgroup will have a conference call on 24 June 04 to review water quality sampling and monitoring protocols. A Subgroup meeting was scheduled for 16 August 04 at 9 AM at MID. The next TRTAC meeting will be 16 September 04 starting at 0930 at TID.

FERC 2299 TAC Meeting
10 June 2004

Name	Organization
Tim Ford	TID/MID
Wilton Fryer	TID
Bill Johnston	MID
Patrick Koepele	TRPT
Jeff McLain	USFWS
Ron Yoshiyama	CCSF
John Chester	CCSF
Peter Baker	Stillwater Sciences
Dean Marston	DFG
Tim Heyne	DFG
Dennis Blakeman	DFG
Madelyn Martinez	NMFS
Steve Walser	CRRF
Julie Gantenbein	NHI

REVISED DRAFT – 09JUN2004

Lower Tuolumne River
Rainbow Trout/Steelhead (*O. mykiss*)
Augmented Monitoring Program

TID/MID MONITORING ACTIVITY

Monitoring activities listed here are those that the Districts are using to augment the existing FERC Settlement Agreement monitoring elements to better assess the status of rainbow trout/steelhead (*Oncorhynchus mykiss*) and their habitat in the lower Tuolumne River. The Turlock and Modesto Irrigation Districts (TID/MID) efforts are in some cases done in cooperation with CDFG or other parties as noted below. Flow levels may affect the opportunity, effectiveness, and safety of conducting some of the monitoring, so some general threshold criteria are suggested. Some elements of this augmented program began as early as 2000.

A. Expanded Underwater Observations

Monitoring objective - to record in greater detail the distribution, abundance, and size of RT/SH in the river in early and late summer. Results through 2003 are summarized in the DEC2003 filing with FERC.

Approach

1) Snorkel twice in the reach from La Grange to Waterford (RM 51-31) with flows < 600 cfs during JUN-SEP period. The FSA JUN snorkeling was expanded from 9 sites to 12 sites in 2001, following a pilot effort at 19 sites in JUN2000. The 12-site snorkel survey in SEP was added in 2001.

2) Number and size of fish observed at each site are counted or estimated for each species. Fish/unit of effort is recorded for time and area covered.

B. Additional spawning surveys

Monitoring objective - Evaluate JAN-APR salmonid spawning activity with DFG. This covers the rest of the peak period for RT/SH spawning.

Approach

1) Float every two weeks (or other interval TBD) in the reach from La Grange to near Turlock Reservoir (or other site as field conditions warrant) at flows <1,200 cfs, allowing 1-2 days to complete the reach. Season may extend into May as needed. Surveys began in FEB2004. Preliminary summary updates are provided by DFG to be followed by a report for filing with FERC.

2) Record number, location, and site conditions of any live spawners, redds, or carcasses

observed. Attempt to distinguish live RT/SH from Chinook salmon.

3) Measure all carcasses and take otoliths, scales, and fin tissue samples from all RT/SH. Tissue analysis will be conducted and reported by the agencies.

C. Additional thermographs

Monitoring objective – Better define water temperature dynamics in the upper river reach and provide more data sites in case of thermograph failure or vandalism. Frequency of downloads may increase.

Approach

1) Three thermographs were added to the upper 7 river miles in 2001.
2) Evaluate and integrate other data records as needed, e.g. DFG thermograph data.

D. Dissolved oxygen and water quality sampling

Monitoring objective – Determine daily range in DO conditions in upper river during low flow period. Collect water samples for water chemistry tests. Began in 2004.

Approach

1) Recording DO probe deployed from 1 to several days at River Mile 50.7 and 43.0 near existing thermograph locations in late May and again in early June. Parameters recorded include temperature, pH, EC, and TDS. Portable DO probe readings are taken in at least four other sites in upper 12 miles. Process may be repeated later in summer under hotter conditions and/or in SEP with additional sampling to be determined.
2) Collect water samples at the recording probe sites in early June. Test for nutrients (ammonia, organic nitrogen, nitrite, nitrate) and contaminants.

E. Macroinvertebrate sampling

Monitoring objective – Characterize riffle macroinvertebrate populations in midsummer, determine longitudinal and interannual variation, and document status of aquatic invertebrate populations available as stream health indicators and salmonid food source. This is an expansion of the annual single-site Hess sampling done prior to 2001. Began in 2001.

Approach

1) Obtain composite kicknet (CBSP methods) samples and/or Hess samples at 5 or more sites in the upper 20 river miles.
2) Process and analyze samples, identify taxonomic groups, determine community indices, and compare methods.

OTHER MONITORING

Angling

Monitoring objective – Obtain information on the size, abundance, distribution, age, genetics(?), and life-history of age 1+ RT/SH during JAN-MAY. DFG began conducting the study in FEB2004.

Approach

1) Float the reach from La Grange to near Turlock Reservoir every two weeks (or other interval TBD) and sample using legal angling methods.
2) Record number and location of all salmonids observed or caught.
3) Measure all salmonids caught and take scales and fin tissue samples from RT/SH. Some fish are kept for otolith study.

RT/SH Locations

Monitoring objective – Identify general locations where RT/SH are likely to be at, based on angling guide experience. California Rivers Restoration Fund identified 47 sites in the upper 12 miles early in 2004.

Approach

1) Float and foot surveys used to identify and mark locations on existing habitat maps.

REPORTING

All field data is incorporated into the existing FSA program that includes e-mail updates, data sheet copies to specific entities, and a report submitted to FERC by the Districts. The reports are provided to FSA participants and other relevant parties. Results of sampling by other parties is usually compiled and reported separately by them, although this information in included when available in reports to FERC.

==========

OTHER COMPLETED EFFORTS AND ONGOING EVALUATIONS

This list identifies other items regarding rainbow trout/steelhead (*Oncorhynchus mykiss*) and their habitat that have been recently concluded or are ongoing.

Central Valley Rainbow Trout Genetic study by DFG (completed in 2003)

Revision of Tuolumne gravel addition project design (in progress by AFRP)

Survey of trout in canal near La Grange Dam (completed in 2004)

Otolith study by DFG (ongoing – completion by end of 2005)

Scale analysis by DFG (ongoing, but with uncertain timing)

Review habitat suitability data for adult RT/SH on other CV streams (ongoing by subgroup)

Additional review of temperature criteria (ongoing by subgroup)

SNTEMP Temperature model update and data review ($16,000 proposal by SWS – pending)

OTHER SUGGESTED MONITORING

Several other monitoring elements have come up in discussions/correspondence over the last year regarding the status of RT/SH and their habitat in the lower Tuolumne River and are listed here. No specific actions have been decided on these items.

Additional underwater observations

- Mid-summer snorkeling
- Winter snorkeling

Trout blood chemistry and lipid content analysis

Outmigration mortality

Radiotag study

Population estimates of adults and juveniles via angling and photos

Pebble counts of spawning sites

Friends of the Tuolumne, Inc.

November 3, 2004

Comments of the Revised Draft June 8, 2004 RT/SH Augmented Monitoring Program for the meeting minutes:

Please clarify who is funding each study that the Districts are using. For instance, the Friends of the Tuolumne, CRRF, and DFG funded the Angling monitoring and/or the mapping. In all cases, the funding source should be identified.

E. Macroinvertebrate sampling: Is this a current program? When was it last performed and reports written?

B. Additional spawning surveys: This section should be removed. Only two days were authorized by the TRTAC as a test to see if the float surveys would effective. In fact, the float surveys were not effective and should not have been continued without further TRTAC authorization. No viable data was collected. The Districts should not list these unauthorized and ineffective floats as part of a monitoring program.

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Lower Tuolumne River
Snorkel Methodology Overview

Tuolumne River snorkel surveys began in 1982 with the number, location, and area sampled by site having varied over the years. Summer surveys occurring within the June to September period have been conducted in most years since 1988, although some years with high summer flows, such as 1995 and 1998, were not sampled. Locations were selected to include a range of major habitat types (i.e., riffles, runs, pools) in general areas where salmonids may occur. The overall river section examined is limited to the reach with suitable underwater visibility, this generally being the 20-mile section below La Grange Dam downstream to near Waterford. The snorkeling method employed provides an index of species abundance or "catch per unit of effort" where the species, number, and size of all fish observed are recorded based on area and time sampled. This method does not result in an overall population estimate, as it is not conducted as a census within blocked sections and then further extrapolated.

Each habitat type sampled mostly involves one observer snorkeling a specified habitat area for a certain time period. Whenever feasible, the surveys are conducted moving upstream against the current – an upstream zigzag pattern is used if a greater width of a survey section dictates. Occasionally, two snorkelers move upstream in tandem, with each person counting fish on their side of the center of the survey section. Whenever possible, the entire width of the river section selected is surveyed - the exceptions are some riffle habitats that are too wide to cover with two observers. If high water velocity precludes upstream movement, snorkelers may float downstream with the current, remaining as motionless as possible through the study area, although stream margins at those sites may still be viewed in an upstream direction.

When a snorkeler observes a fish, the total length of the fish is estimated using a ruler outlined on the diving slate to the nearest 10 mm. For some larger fish, the length may be estimated by viewing the fish in reference to an adjacent object and then measuring that estimated length. In cases where larger numbers of fish are observed, the observer estimates of the length range and number of fish in the group. Care is taken to observe and count fish just once as fish pass by.

Data that is recorded for each location include time, water temperature, electrical conductivity, turbidity, and horizontal visibility. Site-specific data that is recorded includes area sampled, average depth, sample time, and general habitat and substrate types.

The following table lists the general habitat types for the snorkel sites of September 2003, the mesohabitat mapping designations of those sites, and 2004 CRRF *O. mykiss* survey site number.

Tuolumne River snorkel locations (Sept. 2003)

LOCATION	RIVER MILE	SITE	AREA (Sq. Ft.)	AVG. DEPTH (FEET)	General Habitat type	McBain & Trush Mesohabitat types	CRRF habitat locations
Riffle A7	50.7	1	4,500	1.5	Riffle	Spawning area / riffle	upper section of Box 2
(1)		2	5,000	3.0	Riffle-Run	Formerly Pool (Gravel added by DFG)	Box 2
Riffle 2	49.9	1	3,700	1.3	Riffle	Spawning area / riffle	
		2	3,000	8.0	Pool	Pool / run	Box 8
		3	4,000	5.0	Run	Pool	Box 9
Riffle 3B	49.1	1	4,000	2.0	Riffle	Spawning area / riffle	Box 11
		2	5,000	2.5	Run-Riffle	Pool / spawning area	upper section of Box 12
Riffle 5B	47.9	1	1,500	1.8	Riffle	Riffle	Box 16
		2	6,000	4.5	Run	Pool	lower section of Box 16
		3	5,000	5.0	Run-Pool	Pool	Box 17
			41,700				
Riffle 7	46.9	1	1,800	1.3	Riffle	Spawning area / riffle	lower section of Box 18
		2	6,000	3.5	Run	Run	Box 19
Riffle 13B	45.5	1	4,500	2.5	Riffle-Run	Spawning area / run	Box 23
		2	3,600	2.0	Riffle	Spawning area / run	Box 23
Riffle 21	42.9	1	1,800	2.2	Riffle	Riffle	Box 34
		2	4,000	4.5	Run	Pool	
Riffle 23C	42.3	1	2,250	2.0	Riffle-Run	Run / Pool	Box 39
		2	3,000	1.5	Riffle	Riffle	Box 40
			26,950				
Riffle 31	38.0	1	4,000	1.5	Riffle	Riffle	
(2)		2	3,750	3.0	Run-Pool	Riffle / Pool	
Riffle 35A	37.1	1	2,100	1.2	Riffle	Riffle	
		2	5,250	3.0	Run	Riffle / Pool	
Riffle 41A	35.3	1	2,400	2.0	Run-Riffle		
		2	2,400	5.0	Pool		
		3	3,000	2.5	Run-Riffle		
Riffle 57	31.5	1	5,000	1.5	Riffle		
		2	7,000	2.0	Run		
			34,900				

(1) Location 2 was modified by CDFG in 2003
(2) New snorkel site (replacing Riffle 30B).

Friends of the Tuolumne, Inc.

November 3, 2004

Comments on Snorkel Methodology Overview to be included in meeting minutes:

What is the goal?

What was the reason new sites were added? Need to document reasons for any changes in the protocol, including change of sites, techniques, months, etc.

We need GPS locations so that we can visit the specific sites.

Why were the summer months the only snorkel months? The reasons need to be spelled out in the protocols. As you know, the steelhead are in the river during winter months.

Can one observer do adequate coverage for the extra-sensitive adult trout?

What is the maximum cfs conditions that allow snorkeling? Are there conditions that would disallow snorkeling?

What times of day is snorkeling?

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TURLOCK IRRIGATION DISTRICT

WATER PLANNING DEPARTMENT
MEMORANDUM

TO: TRTAC
FROM: Wilton Fryer
DATE: 9 June 2004
RE: Project Status Update

Project	Funding	Status
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.
MJ Ruddy	Full	ROW appraisal rejected by Interior Dept., but working with staff to revise in new Federal format. Acquisition now scheduled for August 2004. Construction could be delayed for 2nd year. An amendment will be prepared reinstating the revegetation work deleted in the last amendment.
Warner-Deardorff	Partial	Design at 90% stage, remaining permitting and ROW appraisal on hold. Based on instructions from CBDA, work on contract with GCAP Service for remaining committed funds is proceeding w/o resolution of review by CBDA-ERP on Directed Action package submitted 21 November 2003.
Design Manual	Full	Final Report submitted 26 February 2004.
Course Sediment	Full	Report being modified to expand on methods and techniques to protect existing salmonid habitats during implementation.
La Grange Gravel	Full	Amendment request was presented 25 Mar 04. CBDA requested completion of the CSMP revisions before finalizing approval of amendment request. Proposed SOW revisions to

		delete the aggregate mining and expand inchannel gravel infusion work are due to contract manager in 2 weeks.
Fine Sediment	Full	A revised Gasburg Creek watershed analysis and site plan has been reviewed by DFG management in Fresno. Meeting slated for 11 June with DFG to determine next steps.
RM 43	Full	Design work is in final stage. Agency site visit comments have been incorporated. Permits and CEQA process under way.
SRP 10	Partial	Design concepts being finalized with input from the SRP 9 post project monitoring results and the use of a 2D model for SRP 9 and SRP 10. No date set for the next funding cycle for PSP on Phase II – Acquisition & Construction. AFRP is looking to place $4.5M in their 2006 budget to be used on this project.

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

Don Pedro Dam and Powerhouse

28 July 2004

RE: Course Sediment Management Plan – Final Revision

Dear TRTAC members and project reviewers:

McBain and Trush and the District have been working closely with the California Rivers Restoration Fund (CRRF) to address concerns regarding potential impacts & benefits to *O. mykiss* with implementation of the initial version of the Tuolumne River Coarse Sediment Management Plan (CSMP) as presented to the TRTAC in November 2003. The enclosed CD represents the completion of those efforts and revision of the CSMP into its final form. I would like to thank those TRTAC members and others who helped with these revisions and the AFRP for funding the additional work to make these changes. Revisions to the plan include:

1. Adding information on *O. mykiss* life history and habitat requirements;
2. Incorporating the general *O. mykiss* habitat maps completed by the CRRF;
3. Incorporating measures (such as avoiding certain pools and protecting cover) to reduce impacts to *O. mykiss* at course sediment augmentation sites;
4. Adding projects that create pool tail-riffle units in long pool (bedload impedance) reaches; and
5. Incorporating a review process through the TRTAC and other involved parties for moving from conceptual plans to design-level plans to implementation to ensure that impacts to *O. mykiss* are avoided and intended project benefits are realized.

Completion of the CSMP revisions is linked to the CBDA review of the TRTAC amendment to the La Grange Gravel Development and Infusion Project. The CBDA requested that the CSMP revisions be completed first because the CBDA will be treating the CSMP as a design document to be used as the basis for amending the gravel infusion scope of work in the Project.

Carl Mesick and Steve Walser of CRRF have reported that they are pleased with the revisions and appreciate having the opportunity to collaborate on the CSMP. Through this collaboration, we feel that we have improved the CSMP and resolved controversies that had potential to delay project implementation.

If you have any questions regarding the revision, please feel free to contact Jennifer Vick or me. Jennifer can be reached at 415-821-2059 or e-mail fishvick1@yahoo.com. I have the CSMP master, if additional CD's are needed, and can be reached at 209-883-8316 or e-mail wbfryer@tid.org.

Sincerely,

Wilton B. Fryer, P.E.
Water Planning Department Manager

Enc.

wbf: SedMgt\CSMP Rpt\Ltr to TRTAC 28Jul04.doc

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

September 16, 2004, 9:30 a.m.
Turlock Irrigation District, Lunch Room (2nd floor)
DRAFT AGENDA

1. Introduction
   A. Comments on draft agenda
   B. Correspondence since last meeting
2. General FSA Update:
   A. FSA/Order activity, expense tracking, and data and report status
   B. Review of activities from last meeting
   C. VAMP, Agency, and NGO updates
   D. Monitoring
   E. River operations and forecasts
   F. Restoration
      1. Funding, planning and implementation
      2. Project monitoring
      3. Other restoration information
3. Additional items
4. Next meeting and topics

TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE
DON PEDRO PROJECT - FERC LICENSE 2299

MODESTO IRRIGATION DISTRICT
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TECHNICAL ADVISORY COMMITTEE
MEETING MINUTES of
16 September 2004 – Revised

1. Introduction

A. No changes were made to the agenda

B. Correspondence list was handed out at the meeting. SP Cramer has set up a web site for the San Joaquin River that will be used to post some of the Tuolumne monitoring data. Ford will send out web site address to TRTAC distribution. Marston indicated there is also a web site for the San Joaquin River Pilot Recirculation Study that can be linked to the SP Cramer site.

2. General FSA Update:

A. Funds for monitoring have been mostly used up and there are some funds remaining available for restoration work.

B. Rest of activity review is contained below

C. Agency & NGO updates:

Dean Marston, DFG, has issued the 2002 RST report and Redd Count report. He will provide electronic files of these. They are still working on the 1998 and 2003 RST reports, both targeted for completion by October. The DFG is taking enforcement action against the nursery owner with the tailwater pond adjacent to the FOTT Waterford planting site that failed this summer with a resulting discharge of sediment into the river. Installation of the pond was earlier considered not subject to DFG permitting because the location was "outside the floodway". Marston reported MID provided a letter of support for the basin WT modeling proposal to CALFED.

Dave Boucher, FOTT, reported on 3 projects. Grayson River Ranch is in the final year and there have been survival concerns with some hardwoods after irrigation is withdrawn at end of the summer. The Bobcat Flat & RM 43 Project permits are underway. Sampling for mercury may still be required by the RWQCB. Waterford "perc. ponds" planting survival is 55% with the long/deep softwood cuttings doing much better than the hardwood rootstocks when there is no irrigation. Another immediate Waterford area issue is conversion of the upstream Big Bear Park to a housing development because of the minimal riparian buffer adjacent to the river and erosion concerns.

Work is continuing on the Hickman Bridge repair at Waterford, resulting in a temporary flow limitation.

C. VAMP:

Tim Ford reported the results from the VAMP study indicate very poor survival for this year, similar to last year.

D. Monitoring:

The 3rd snorkel survey of the season was underway at the time of the meeting, so results will be sent when they are available as with prior surveys.

FOT provided a handout requesting protocol information for snorkeling, including summer and winter sampling, daily high WT graphs, review literature on smolting causes, protocols for winter spawning float surveys, and CALFED WT criteria guidelines for salmonid life stages. There was discussion on the various protocols. Blakeman would provide those of the float survey for review. Concern was expressed regarding how to differentiate locations and extent of *O mykiss* redds vs. salmon redds. Mesick indicated interest in *O mykiss* abundance for prioritizing restoration gravel infusions. Ford had sent the summer snorkel protocol prior to the JUN meeting, snorkel protocols used on the Stanislaus would be checked, Heyne will send some information on smolting, and Marston will provide some Stanislaus WT criteria information.

Due to funding shortfalls, DFG is asking for support of the fall carcass survey starting in October. SP Cramer will be funded to provide support in a manner and amount similar to last year.

E. River Operations & Forecasts:

There is only a small amount of water available for a fall pulse flow due to the dry year conditions. Ford presented an example of what a 2004 variable summer flow operation would have looked like given the temperatures to date, using the same criteria as in the 2003 operation.

F. Restoration & Project Updates:

Fryer presented a summary of the current TRTAC sponsored projects. The ROW (right of way) for the MJ Ruddy Project is moving slowly due to the need for a mining report and new format requirements for the appraisal. There is potential to lose $1.5M in AFRP funding if the ROW cannot be completed by the end of the year. Time extension contract amendments are being requested for MJ Ruddy, Warner-Deardorff, and Fine Sediment projects. Amendments to the Gravel Infusion project are still being processed by CALFED.

Hume, SWS, indicated the CWT analysis report update is in the QA/QC phase. He is preparing materials for the subgroup to review prior to making final decisions on the data from the 2002 smolt survival study.

3. **Additional Items:**
Marston expressed interest in collaboration on developing recommendations for the April 2005 FERC Report.

4. **Next meeting and topics:**
A subgroup meeting was scheduled for 7 or 8 October. The CALFED PSP deadline for monitoring proposals will be 19NOV. The next TRTAC meeting will be 15 December.

FERC 2299 TRTAC Meeting
16 September 2004

Name	Organization
Tim Ford	TID/MID
Wilton Fryer	TID
Roger Masuda	TID
Dave Boucher	FOTT
Ron Yoshiyama	CCSF
Noah Hume	Stillwater Sciences
Dean Marston	DFG
Tim Heyne	DFG
Carl Mesick	CRRF

TURLOCK IRRIGATION DISTRICT

WATER PLANNING DEPARTMENT
MEMORANDUM

TO: TRTAC
FROM: Wilton Fryer
DATE: 14 September 2004
RE: Project Status Update

Project	Funding	Status
SRP 9	Full	Construction completed, revegetation planted and maintained for two years, and final replacement planting completed in December 2003. NOC filed March 2003.
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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.
MJ Ruddy	Partial	ROW appraisal rejected by Interior Dept., but working with staff to revise in new Federal format. Acquisition now scheduled for November 2004. Construction will be delayed for 2nd year. September 04 the USBR-CN Ops pulled $1.53M from the funding to keep from loosing the funds completely to the US Treasury. The amendment before CBDA will be modified to add back the lost funding rather than reinstating the revegetation work deleted in the last amendment.
Warner-Deardorff	Partial	Design at 90% stage, remaining permitting and ROW appraisal on hold. Based on instructions from CBDA, work on contract with GCAP Service for remaining committed funds is proceeding w/o resolution of review by CBDA-ERP on Directed Action package submitted 21 November 2003.
Design Manual	Full	Final Report submitted 26 February 2004.
Course Sediment	Full	Report was completed with modifications on methods and techniques to protect existing salmonid habitats during implementation.

La Grange Gravel	Full	Amendment request was presented 25 Mar 04. CBDA requested completion of the CSMP revisions before finalizing approval of amendment request. CBDA also requested that the entire proposal be resubmitted as if it were a new PSP. The peer review will be abbreviated and then the district will be allowed to make SOW revisions with McBain & Trush to delete the aggregate mining and expand inchannel gravel infusion work.
Fine Sediment	Full	No action from DFG on the basin design. Revisiting remaining tasks in the FSMP to see what can be set up for next year and what fits with special studies under the FSA.
RM 43	Full	Design work is in final stage. Agency site visit comments have been incorporated. Permits and CEQA process under way. The overall project is going for CBDA a time extension amendment.
SRP 10	Partial	Design concepts being finalized with input from the SRP 9 post project monitoring results and the use of a 2D model for SRP 9 and SRP 10. No date set for the next funding cycle for PSP on Phase II – Acquisition & Construction. AFRP is looking to place $4.5M in their 2006 budget to be used on this project.

Tuolumne River Chinook Salmon Redd Enumeration
1998 and 1999

Background

Carcass surveys performed by California Department of Fish and Game (CDFG) since 1953 have documented the spawning escapements in the tributaries of the San Joaquin River. These numbers have allowed the CDFG to separate successful fish production years from unsuccessful years but do not allow a complete assessment of biotic and abiotic factors that contribute to that success or failure. Counts of redds and live fish during the carcass surveys allow further assessment of where and when spawning is occurring.

Recently, efforts have been made to estimate the number of juveniles outmigrating from the river. This additional data should allow the separation of the impact to recruitment of factors in the natal stream versus factors beyond the natal stream (Delta pumping, ocean mortality). There is interest in further parsing the natal stream factors to evaluate spawn success and survival to emergence, such that affects of spawning habitat quantity and quality can be separated from those of rearing habitat. This will require large amounts of information.

A beginning for this information collection can be to evaluate spawning success. This can be defined simply as the number of redds produced in the river divided by the number of females in the adult escapement. Currently, some data is collected on the number of redds in the river. This data consists of number of redds counted by the carcass survey crew in each spawning area (riffle).

The CDFG in 1998 and 1999 performed an evaluation of the number of redds (determined by intensive foot survey) in a stratified random sample of the spawning areas compared to the carcass survey crew counts of redds in those same riffles. (CDFG 1999).

Procedures

Carcass surveys were performed as described in numerous CDFG reports (2002). These crews tagged and recovered carcasses and counted the number of live fish and redds that they see as they float through each riffle. The riffle referred to is a shallow area in the river where the salmon tend to congregate for spawning. These surveys are performed each week throughout the entire area of the river where spawning is occurring. Since the crews float in a boat through the riffles, the counts are of live and redds are approximate as the crews are moving rather quickly.

During three weeks of the spawning season, a second crew surveyed specific riffles chosen in a stratified random pattern that accommodated the size and intensity of use at each riffle. The survey was conducted on foot at each of the chosen riffles. The intensive survey involved passing through the riffle in a boat and then recovering it on foot. Redds were mapped onto riffle maps which were then used to count the number of redds in each riffle. The counts from this second crew were used to determine how the number of redds counted intensively on a riffle compares to the counts of redds obtained by the carcass survey.

The counts at each riffle were tallied in the following two tables. The intensive counts are referred to as calibration counts and the carcass survey counts are called crew counts. Crew counts were taken from the database based on the carcass survey date on a riffle that most closely matched the date of the intensive surveys. These were always within a week of each other. This will allow calibration of the carcass survey crew counts to obtain a more accurate estimate of redds in the river in a season. This should give a much better estimate of spawning success.

1998 Calibration Data

	Calibration Count			Crew Count		
Survey#	1	2	3	1	2	3
Start Date	11/3/1998	11/17/1998	12/1/1998	11/2/1998	11/16/1998	11/30/1998
End Date	11/4/1998	11/24/1998	12/3/1998	11/6/1998	11/25/1998	12/3/1998
Riffle						
1A		91	110	34	25	8
3B	54	82	96	32	21	16
4A	42	78	89	32	25	13
4B	31	44	64	37	33	20
5A	16	16		12	5	2
8		3	8	1	3	7
13		14	16	2	1	8
16	6	18	13	2	2	6
19	9	18	9	2	3	7
23A	6	8	6	1	4	4
23C	5	8	7	1	0	3
23D	7	12	12	1	4	5
33	0		4	2		3
35B	0		0	1		0
41	3		2	3		2
60			0	0		1
64			4	0		1

1999 Calibration Data

	Calibration Count			Crew Count		
Survey#	1	2	3	1	2	3
Start Date	11/21998	11/16/1998	12/2/1998	11/2/1998	11/16/1998	11/30/1998
End Date	11/8/1998	11/19/1998	12/9/1998	11/8/1998	11/19/1998	12/9/1998
Riffle						
1A	33	120	129	23	41	27
3B		117		20	48	17
4A		114		0	45	9
4B		77	128	43	20	15
5A		41	50	4	11	3
8	7		12	8	3	9
13	16		11	11	15	5
16	7		0	3	12	0
19	3		3	1	0	3
23A	3		8	3	2	6
23C			6	2	2	4
23D			0	2	2	6
33	1	1		1	2	0
35B	0	0		0	0	0
41	1	2	1	0	0	2
60		2	1	0	0	1
64		0	0	0	0	0

Friends of the Tuolumne, Inc.

7523 Meadow Avenue
Stockton, CA 95207
(209) 477-9033

September 15, 2004

INFORMATION NEEDS

1. Written snorkeling protocols from Tim Ford per the April 24, 2004 meeting. The protocols should include winter snorkeling. We also need sample protocols from other rivers.

2. Graph or other data showing the daily high temperatures from Tim Ford per the January 28, 2004 meeting.

3. Studies of the causes of smolting. We need at least a literature review. We feel it is important that this be included in the studies for FERC. This was requested at the January 28, 2004 meeting.

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TRTAC Subgroup Meeting
September 30, 2004 MID, 9:00-1:30
Draft Summary
(Ford and Yoshiyama)

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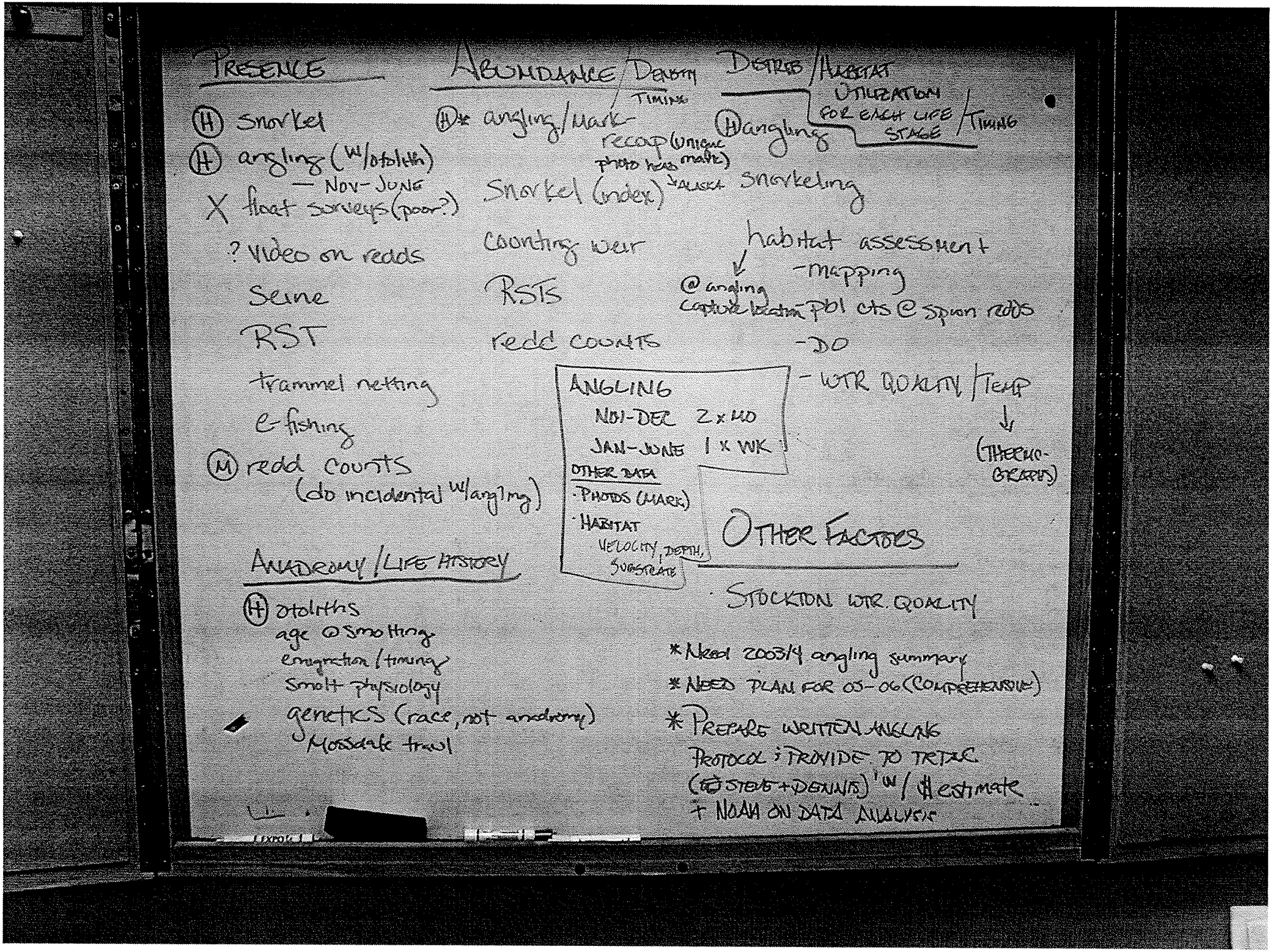
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Friends of the Tuolumne, Inc.

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Date: November 3, 2004

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Subject: Summary of Subgroup meeting, ~~October~~ Sep 30, 2004

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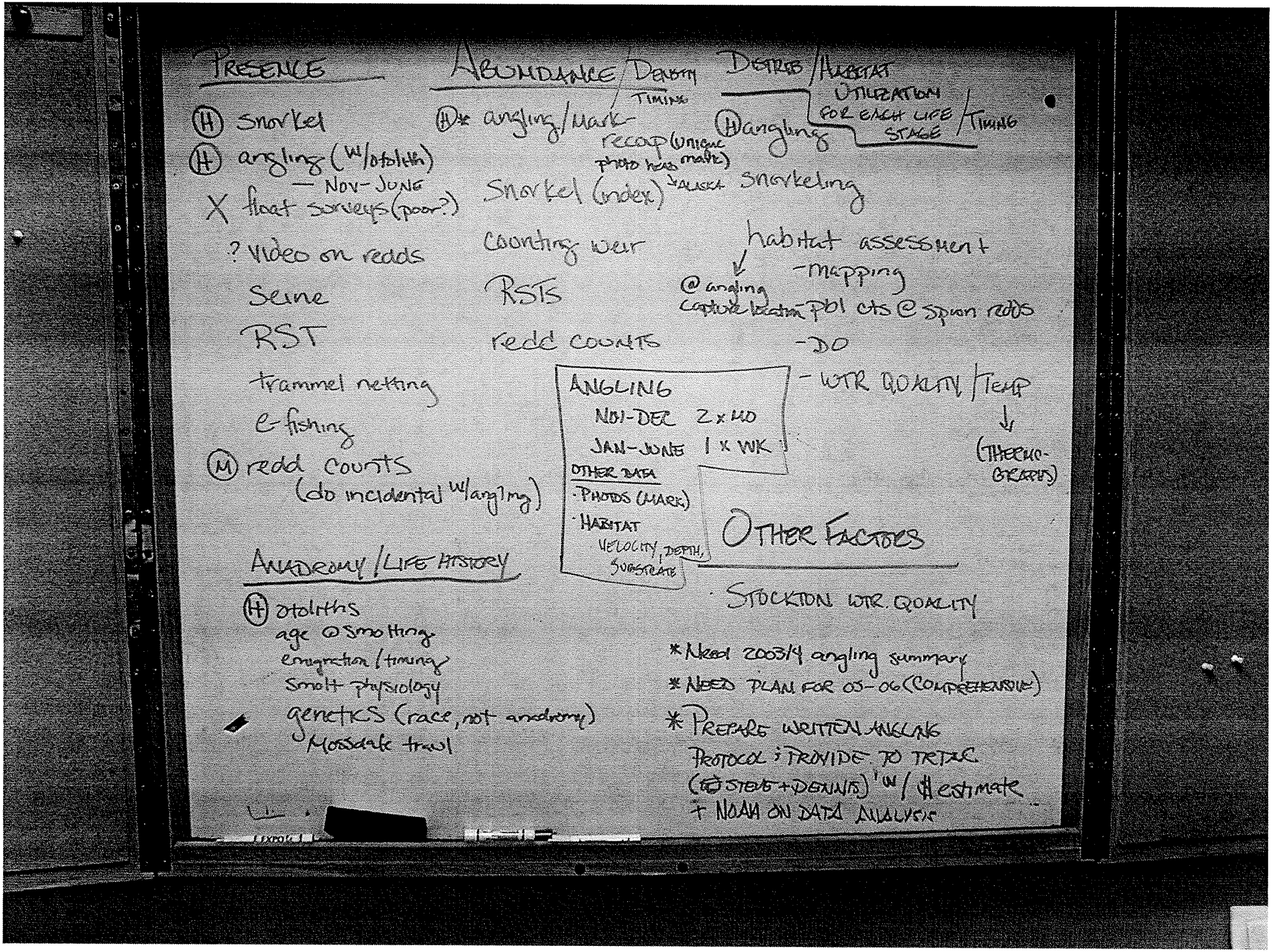
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