



July 29, 2011

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
Mail Code: DHAC, PJ-12.3
888 First Street, NE
Washington, DC 20426

RE: Tuolumne River Instream Flow Study Progress Report in accordance with Ordering Paragraph (D) of the May 12, 2010 FERC Order Modifying and Approving Instream Flow and Water Temperature Model Study Plans for the Don Pedro Project (Project No. 2299-072), as modified by Ordering Paragraph (A) of the July 21, 2010 FERC Order.

By order issued July 21, 2010 (132 FERC ¶ 62,054), the Commission approved a revised implementation schedule for the Districts' Lower Tuolumne River Instream Flow Study Plan¹ and extended the deadline to file the Instream Flow Study Progress Report with the Commission pursuant to ordering paragraph (D) of the May 12, 2010 order. The Districts submitted their initial Progress Report on December 10, 2010, detailing initial Instream Flow Study Plan implementation, including study planning, habitat suitability criteria (HSC) consultation, site selection, and cross-section placement.

This second Progress Report summarizes work performed by the Modesto Irrigation District and Turlock Irrigation District (Districts) to implement the Lower Tuolumne River Instream Flow Studies Final Study Plan filed October 14, 2009, pursuant to the Commission's July 16, 2009 order (128 FERC ¶ 61,035). It also requests a flow variance or study extension to address constraints created by high runoff conditions this year.

The progress in study plan implementation since the last Progress Report is as follows.

- For the IFIM portion of the study, the HSC workgroup met on February 3, 2011 at Stillwater Sciences' office in Davis, CA to review HSC metadata and continue discussion of which published HSC data to use on the Tuolumne River. A summary of the material reviewed and decisions made by participants during the meeting is provided in Attachment 1.

¹ Stillwater Sciences. 2009. Lower Tuolumne River instream flow studies: Final study plan. Prepared for Turlock Irrigation District and Modesto Irrigation District. Prepared by Stillwater Sciences, Berkeley, California. October

- Fieldwork for validation of selected HSC for fry and juvenile salmonids could not be conducted in winter and spring of 2011 due to very high flow conditions resulting from above-normal rainfall and snowpack that precluded safe or effective field data collection.
- PHABSIM cross sections were set up in July 2011, with supplemental flow and water-surface elevation survey data concurrently collected at 1,200 cfs to improve the PHABSIM model calibration. Three of the initial 40 transects planned were relocated to other similar habitat units after unanticipated, unmodelable hydraulic conditions were observed at those locations at 1,200 cfs (the highest simulated flow planned for the study).
- Field data surveys at 600 cfs are scheduled to be completed by July 30, pending flow conditions, and surveys at 250 cfs are scheduled to be completed in September 2011. Because of the higher minimum flows associated with this year's wet water year type, the planned low flow survey of 100 cfs will not be possible without a minimum flow variance, and is potentially delayed until 2012 (see discussion below).
- Data collection for the high-flow (a.k.a. "pulse flow") study was initiated in January 2011 and data analysis is underway. Given the wet water year in 2010–2011, there was sufficient flow to conduct the floodplain surveys at a range of flows. Some minor data collection remains, as well as data logger removal, once the high flows subside, which is anticipated in August 2011. Report preparation and agency review is expected to follow the schedule previously established in the July 21, 2010 FERC Order.

Minimum flow requirements under the current license for water year 2011 were established at 250 cfs by letter of April 12, 2011 (Attachment 2). Since these flows were above the 100 cfs study flow included in the final study plan, a FERC flow variance request was prepared, as discussed below.

The Districts circulated a letter to representatives of the California Dept. of Fish and Game (CDFG), the National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS) on June 17, 2011 (Attachment 3) requesting their support of a flow variance request to allow the 100 cfs surveys to be conducted below the 2011 FERC minimum flow requirement of 250 cfs. Although CDFG representatives did not object to the proposed request (Attachment 4), NMFS representatives indicated that they did not support the request and indicated that a variance from the current FERC Flow Schedule requires a Section 7 Consultation request by FERC (Attachment 4). No response was received from the USFWS.

The Districts are hereby requesting the following flow variance:

A minimum flow of 100 cfs, measured at La Grange Dam, for a six-day period between September 11 and September 30, 2011. The difference in water release volume between 100 cfs and the required 250 cfs (approximately 1,190 acre-ft over six days) would be released during the planned 5-day fall pulse flow period (October 6–10) as a uniform increase of 120 cfs, or other pulse flow configuration for this time period, or in

some other mutually agreeable time period prior to April 1, 2012 as requested by the agencies.

This variance is within the minimum flow range occurring during recent years, would occur during a cooler portion of the year prior to the onset of salmon spawning, and is not expected to have any discernable or significant adverse effect on aquatic resources of the Tuolumne River. The flow variance would allow completion of hydraulic data collection in 2011, and avoid risks of channel changing flow events in the winter of 2012 that could compromise the integrity of the instream flow study dataset collected to date. Additionally, in association with the flow variance request, the Districts are requesting a one-year extension of just the HSC data validation task for fry and juvenile salmonids, since high flows in the winter and spring of 2011 precluded safe or effective field data collection. In the interim period, PHABSIM data analyses would be conducted using existing published HSC already agreed to by most of the study participants (Attachment 1), and reports filed per the existing study schedule. Should the subsequent HSC validation task result in significantly revised results, a supplemental report would be filed with the Commission.

Should FERC not be able to grant the flow variance by August 31, 2011, the Districts request an extension of the above-referenced study and adoption of the revised implementation schedule shown in Table 1. This revised schedule would allow another year for the requisite hydrologic conditions and associated minimum flow requirements to be compatible with the data collection requirements of the study plan. Unlike a flow variance, however, the revised schedule would not avoid the risk of a channel changing flow event in the winter of 2012 that would compromise the utility of data collected to date.

In summary, this letter reports on progress since the last progress report in December 2010. Additionally, this letter requests that, should a flow variance and HSC data collection task schedule extension not be granted by August 31, 2011, the revised study schedule proposed in Table 1 be implemented.

Respectfully submitted,

MODESTO IRRIGATION DISTRICT



Greg Dias
Project Manager

TURLOCK IRRIGATION DISTRICT



Robert M. Nees
Assistant General Manager
Civil Engineering and Water Resources

Attachments

Table 1. Revised implementation schedule proposed for the Lower Tuolumne River Instream Flow Study Plan.

Task or Activity	Work Schedule (Revised)	Due Date (Revised)	Status
Study Planning and Site Selection	July – September 2010		Workshops completed August 26 and October 5, 2010
HSC Consultation	September 2010 – February 2011		Initial consultations completed February 3, 2011
Revised Mesohabitat Mapping	August – September 2010		Completed September 16, 2010
Cross Section Placement	September – November 2010		Completed November 18, 2010
Progress Report #1	November – December 2010	December 11, 2010	Completed December 10, 2010
Initial PHABSIM Field Data Collection (Hydraulic)	July 2011 – September 2011		Cross-section setup July 15, 2011; 600 cfs survey in progress July 25–30, 2011; 250 cfs survey planned September 20–29, 2011;
Pulse Flow Study High Flow Stage Discharge Data Collection	January–July 2011		Primary surveys complete; stage recorders scheduled to be removed August 2011.
Progress Report #2	July 2011	July 31, 2011	Completed with this submittal
Pulse Flow Study Data Analysis and Modeling	September 2011 – January 2012		In Progress
Pulse Flow Study Draft Report	October 2011 – January 2012		Pending
Resource Agency Review of Pulse Flow Study Report	February 2012		Pending
Pulse Flow Study Report to Commission	April 2012	April 30, 2012	Pending
HSC Field Data Collection	<i>January 2012 – June 2012</i>		Pending
PHABSIM low flow (100 cfs) Data Collection	<i>June 2012 – September 2012</i>		Pending
IFIM Study Data Analysis	<i>August–December 2012</i>		Pending
IFIM Study Draft Report	<i>October 2012 – January 2013</i>		Pending
Resource Agency Review of IFIM Study Report	<i>February 2013</i>		Pending
Final Study Report to Commission	April 2013	April 29, 2013	Pending

Attachment 1

**Lower Tuolumne River Instream Flow Study
Study Coordination Workshop #5 Summary
February 3, 2011**

Lower Tuolumne River Instream Flow Study
Study Coordination Workshop #5 – Summary
Thursday, February 3, 2011, 9:00
Stillwater Office, Davis, CA

Attendees:

Scott Wilcox (Stillwater)
Russ Liebig (Stillwater)
Bob Hughes (CDFG)
Jenny O'Brien (CDFG)
Steve Tsao (CDFG)
Bill Cowan (CDFG)

Ron Yoshiyama (CCSF-SF)
Allison Boucher (TRC)
Dave Boucher (TRC)
Mark Gard (USFWS)
Zac Jackson (USFWS)
Shaara Ainsley (FishBio)

The purpose of this workshop was to compile, review, and discuss available *O. mykiss* and Chinook salmon Habitat Suitability Criteria (HSC) for the lower Tuolumne River, select remaining HSC where possible, identify additional HSC literature data gathering needs, and discuss related topics. HSC for Chinook salmon and *O. mykiss* were previously selected at the September 20, 2010 and October 20, 2010 workshops where the group had come to consensus on suitability criteria for Chinook salmon spawning (depth, velocity, and substrate), and juvenile (depth and velocity) lifestages, and *O. mykiss* spawning (depth, velocity, and substrate), adult (depth and velocity), and juvenile (depth and velocity) life stages. The group had decided at the September 20, 2010 workshop to not apply substrate criteria to the juvenile and fry life stages.

Scott Wilcox provided a brief overview of remaining action items from the previous workshops and introduced the revised Chinook salmon and *O. mykiss* HSC data packet compiled from USFWS data provided since the October workshop. The technical group reviewed Chinook salmon fry HSC and *O. mykiss* fry and adult HSC from various sources. The technical group also reviewed available cover HSC for Chinook salmon fry and *O. mykiss* fry provided by USFWS. Decisions and/or actions on HSC for each species and lifestage are noted below.

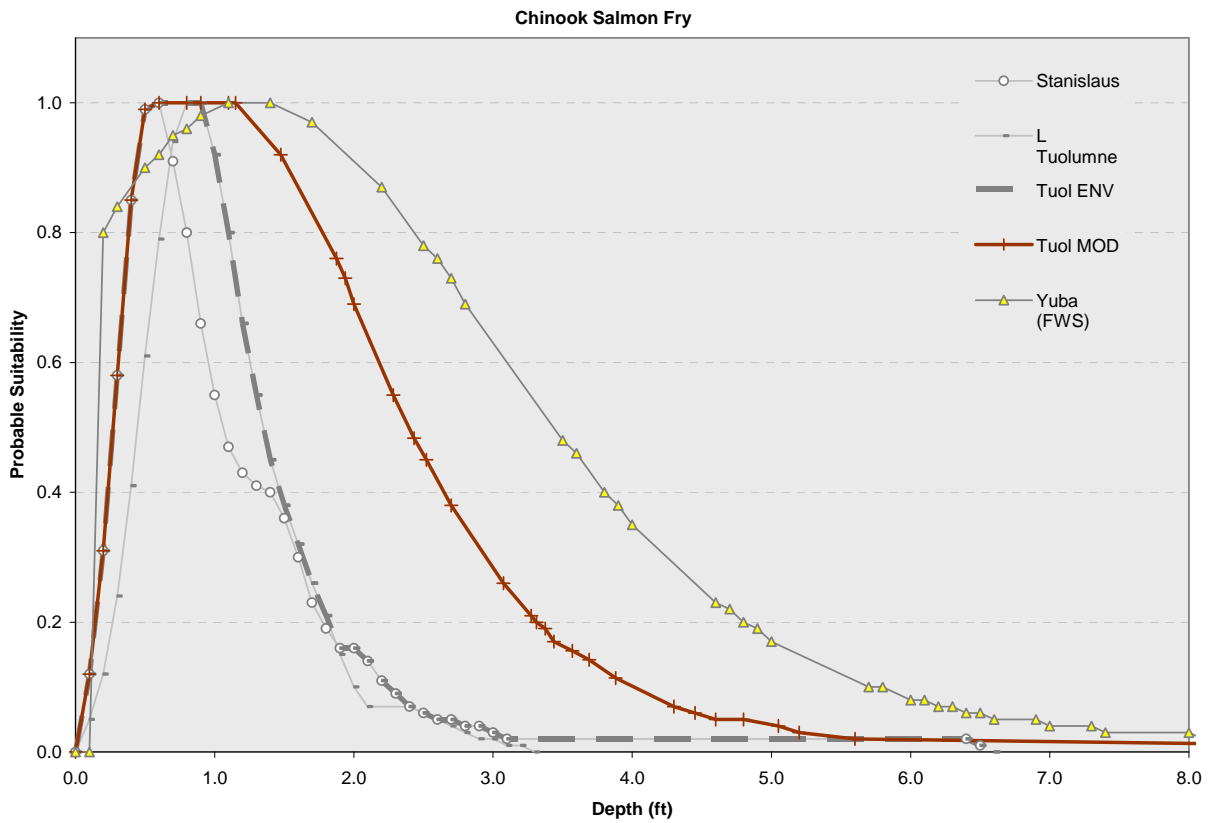
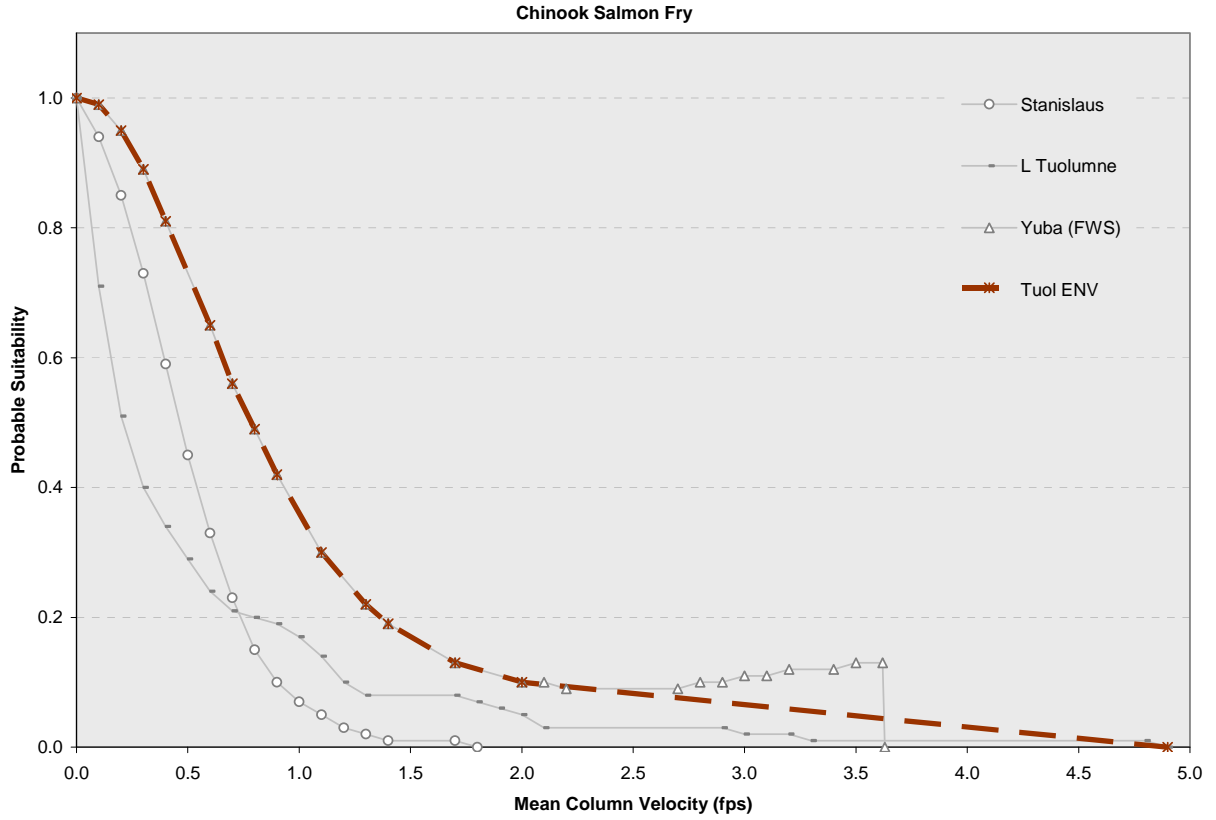
Chinook salmon fry

- The technical group had reviewed HSC during the September 20, 2010 workshop and initially narrowed the curve search to curves developed for the Tuolumne River and neighboring Stanislaus River. The similarity between the two data sets, and their similarity to the central tendency of other data sets, was not as great as the technical group had hoped, and some type of hybrid curve was considered. Decisions on depth and velocity HSC for this life stage had been deferred, pending review of the Tuolumne and Stanislaus reports that may provide some insight on reasons for the differences.

- Prior to the February 3, 2011 meeting, USFWS supplied additional background information for HSC they developed on the Yuba River, as well as additional unpublished HSC data they collected from Clear Creek.
- The group originally considered an "envelope" curve over the Stanislaus and Tuolumne curves, since the Stanislaus curve may have better correction for availability (being Category III curves), but the Tuolumne curve shows some greater utilization of higher velocities. When consensus was not reached, the group re-considered the Yuba River curves.
- **Velocity Decision:** The group concurred on the use of a modified Yuba River HSC curve for velocity (Tuol ENV). The modified curve was equal to the Yuba curve up to (2.0, 0.1), at which point the curve follows a straight line to (4.9, 0.0), the end point of the Tuolumne curve (see attached graphic and coordinate Table).
- **Depth:** The group did not come to consensus on the depth HSC curve. The most thoroughly discussed options included:
 1. An "envelope" over the Stanislaus and Tuolumne curves (Tuol ENV)
 2. Use an average between the envelope curve (Tuol ENV) and Yuba curves using the ascending limb of the Stanislaus curve, over to the Yuba curve at (1.1, 1.0) and down between the average of Tuol ENV and Yuba curves (Tuol MOD)
 3. Use the ascending limb of the Stanislaus curve, then the descending limb of the Yuba curve.

Lacking consensus on this parameter, the Districts plan to apply option #2, since this option seemed to have the broadest support among the stakeholders present at the workshop.

- **Cover:** The group discussed the idea of using existing cover codes. Because of limited availability of published cover HSC and wide variation in codes, this item had been previously discussed as data to collect during field surveys in 2011, rather than trying to adapt other coding systems. Existing curves from the Yuba River and Clear Creek were presented by USFWS. The applicability, complexity, and sample size of the various cover code data were discussed. Possible use of Sacramento River cover codes was discussed, although the data were not presented or reviewed. Stillwater will consider combining cover data from various sources (including the USFWS Sacramento River Data) into a simplified cover code that could be circulated for comment.

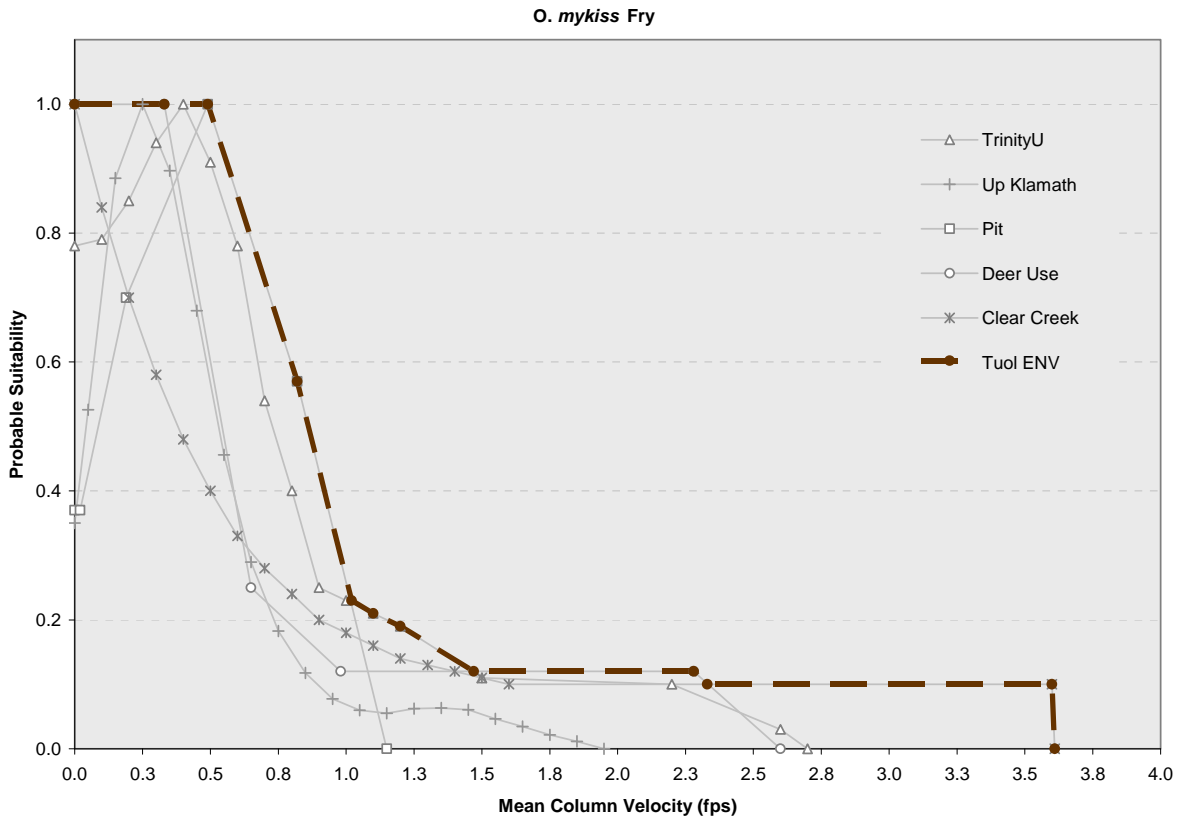


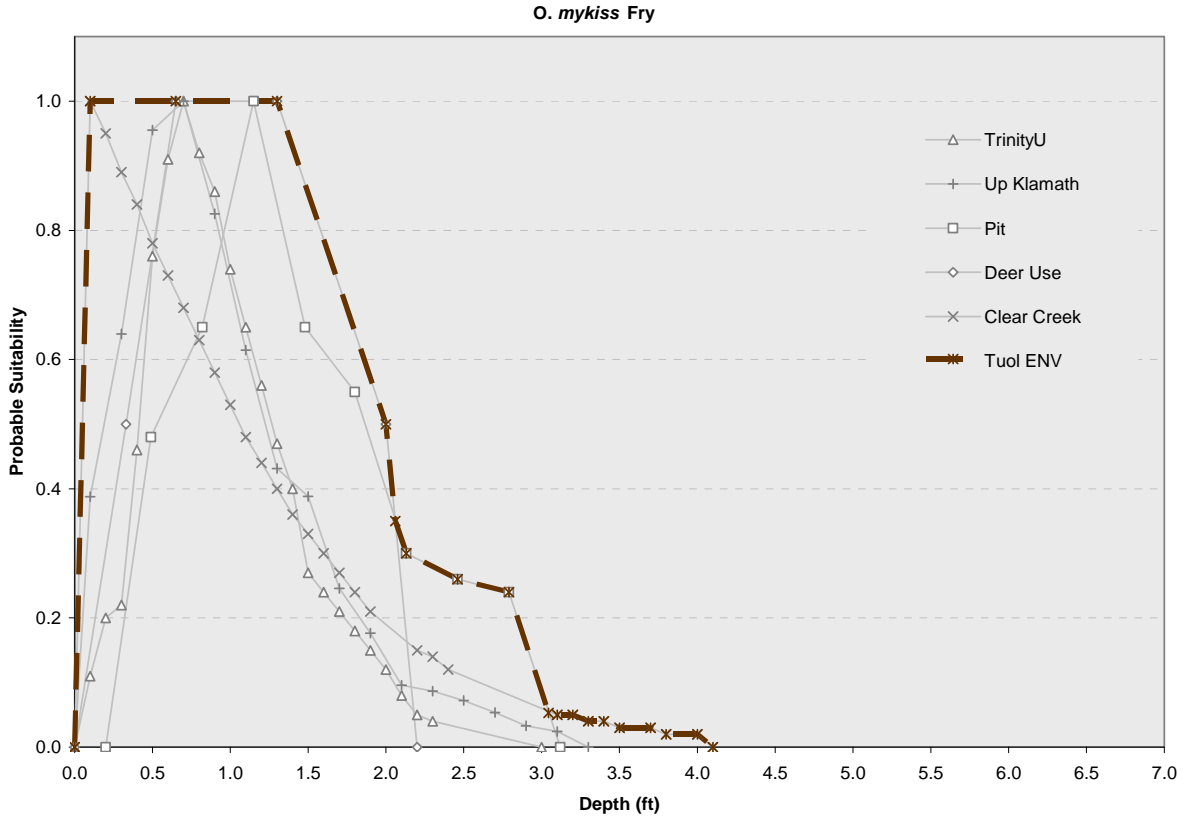
Chinook Salmon Fry: Velocity suitability criteria and three most discussed depth suitability criteria remaining following discussion on February 3, 2011

Tuol ENV		Tuol ENV		Tuol MOD		Yuba (FWS)	
Velocity	Index	Depth	Index	Depth	Index	Depth	Index
0	1	0.0	0.00	0.0	0.00	0.0	0.00
0.1	0.99	0.1	0.12	0.1	0.12	0.1	0.00
0.2	0.95	0.2	0.31	0.2	0.31	0.2	0.80
0.3	0.89	0.3	0.58	0.3	0.58	0.3	0.84
0.4	0.81	0.4	0.85	0.4	0.85	0.5	0.90
0.6	0.65	0.5	0.99	0.5	0.99	0.6	0.92
0.7	0.56	0.6	1.00	0.6	1.00	0.7	0.95
0.8	0.49	0.8	1.00	0.8	1.00	0.8	0.96
0.9	0.42	0.9	1.00	0.9	1.00	0.9	0.98
1.1	0.3	1.0	0.92	1.1	1.00	1.1	1.00
1.3	0.22	1.1	0.80	1.2	1.00	1.4	1.00
1.4	0.19	1.2	0.66	1.5	0.92	1.7	0.97
1.7	0.13	1.3	0.55	1.9	0.76	2.2	0.87
2	0.1	1.4	0.45	1.9	0.73	2.5	0.78
4.90	0.00	1.5	0.38	2.0	0.69	2.6	0.76
		1.6	0.32	2.3	0.55	2.7	0.73
		1.7	0.26	2.4	0.48	2.8	0.69
		1.8	0.21	2.5	0.45	3.5	0.48
		1.9	0.16	2.7	0.38	3.6	0.46
		2.0	0.16	3.1	0.26	3.8	0.40
		2.1	0.14	3.3	0.21	3.9	0.38
		2.2	0.11	3.3	0.2	4.0	0.35
		2.3	0.09	3.4	0.19	4.6	0.23
		2.4	0.07	3.4	0.17	4.7	0.22
		2.5	0.06	3.6	0.16	4.8	0.20
		2.6	0.05	3.7	0.14	4.9	0.19
		2.7	0.05	3.9	0.11	5.0	0.17
		2.8	0.04	4.3	0.07	5.7	0.10
		2.9	0.04	4.5	0.06	5.8	0.10
		3.0	0.03	4.6	0.05	6.0	0.08
		3.1	0.02	4.8	0.05	6.1	0.08
		6.4	0.02	5.1	0.04	6.2	0.07
		6.5	0.01	5.2	0.03	6.3	0.07
		6.6	0.00	5.6	0.02	6.4	0.06
				12.6	0.00	6.5	0.06
						6.6	0.05
						6.9	0.05
						7.0	0.04
						7.3	0.04
						7.4	0.03
						8.0	0.03
						8.1	0.02
						18.4	0.02
						18.5	0.00

***O. mykiss* Fry**

- A wide range of HSC from various sources were reviewed during the October 20, 2010 HSC workshop that displayed similar results for fry. USFWS Yuba River curves were presented in the "filtered" data sets, but they varied from the central tendency of the other curves due to the statistical approach used to generate them. USFWS subsequently provided the report and curves with underlying fish utilization histograms for discussion.
- The USFWS suggested the workshop group drop the Yuba *O. mykiss* fry curves from consideration due to the limited number of observations, but to add USFWS unpublished Clear Creek fry curves instead.
- **Decision:** The workshop group concurred on the use of an envelope curve for both depth and velocity around the Trinity U., Up Klamath, Pit, Deer Use, and Clear Creek curves, generally following the most inclusive ("outside") parts of the curve.





Tuolumne River suitability criteria for *O. mykiss* fry

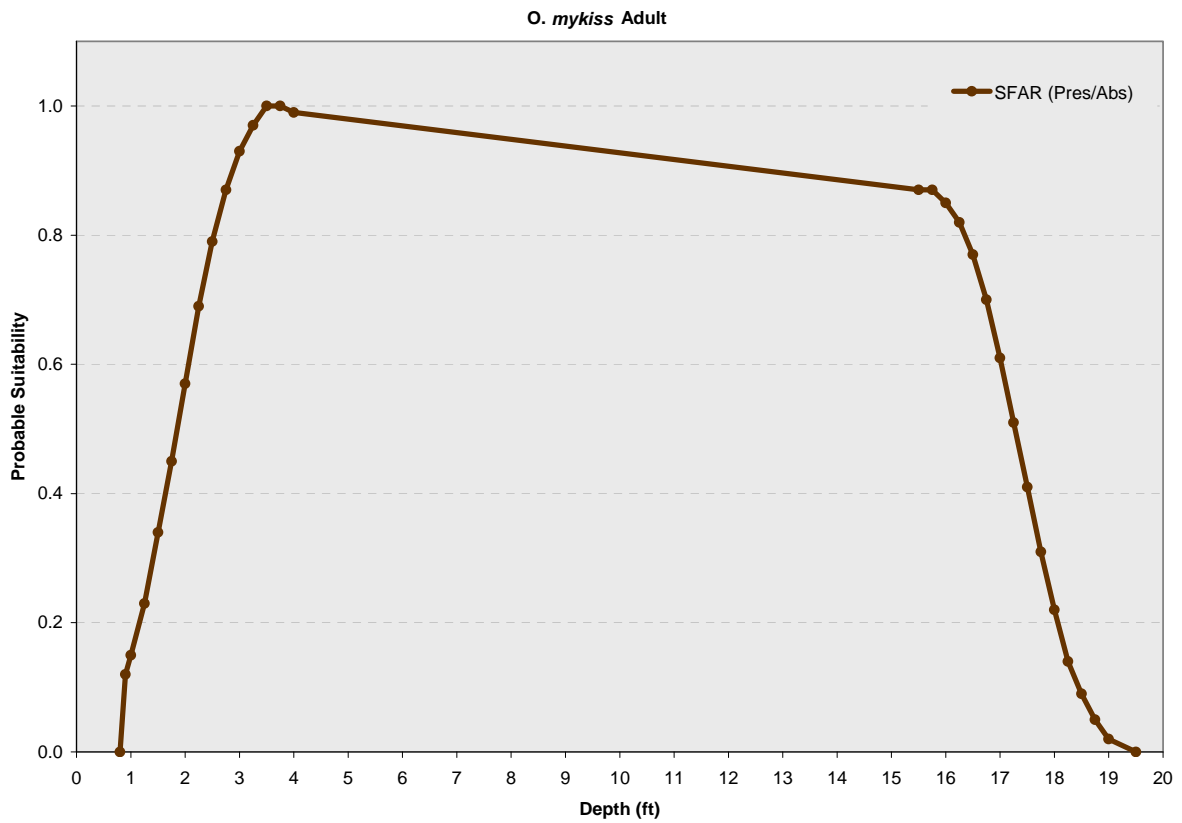
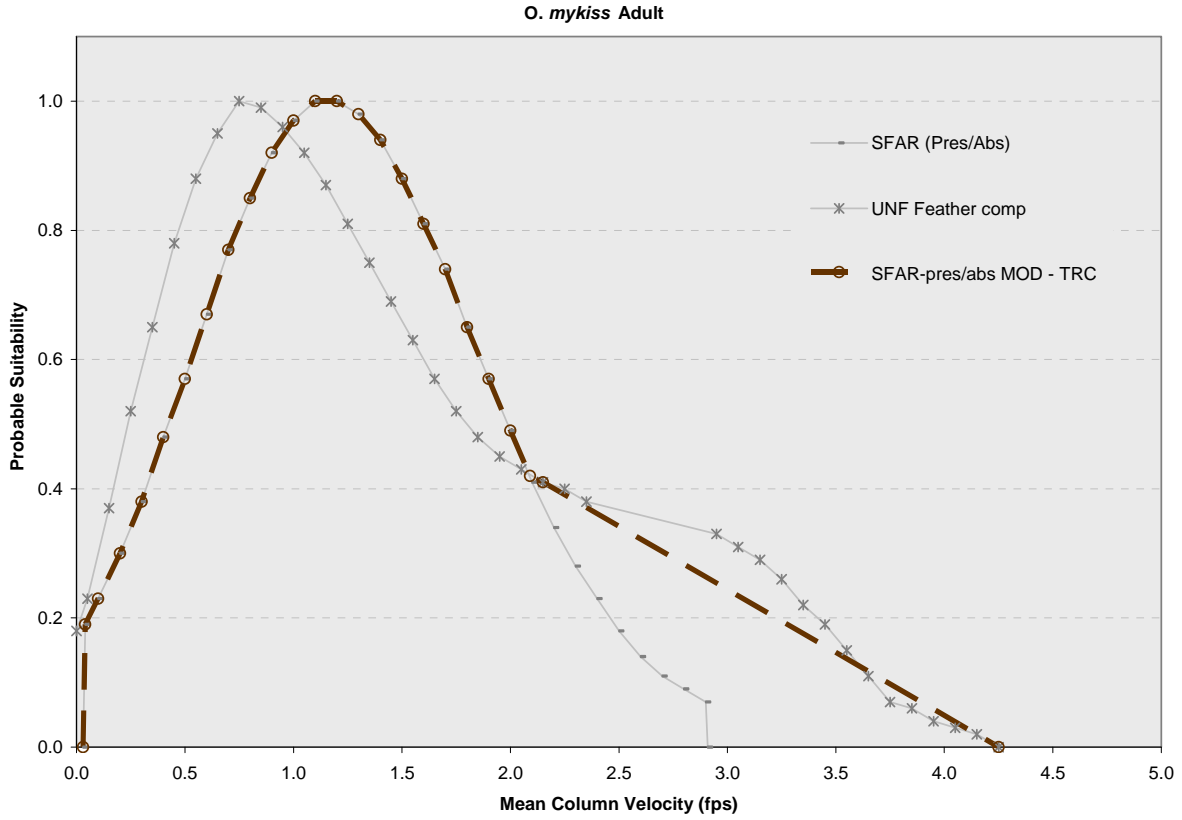
Velocity	Tuol ENV Index	Depth	Tuol ENV Index
0.00	1.00	0.00	0.00
0.33	1.00	0.10	1.00
0.49	1.00	0.65	1.00
0.82	0.57	1.30	1.00
1.02	0.23	2.00	0.50
1.10	0.21	2.06	0.35
1.20	0.19	2.13	0.30
1.47	0.12	2.46	0.26
2.28	0.12	2.79	0.24
2.33	0.10	3.05	0.05
3.60	0.10	3.10	0.05
3.61	0.00	3.20	0.05
		3.30	0.04
		3.40	0.04
		3.50	0.03
		3.70	0.03
		3.80	0.02
		4.00	0.02
		4.10	0.00

***O. mykiss* Adult**

- The workshop group had previously discussed use of the South Fork American River Logistic Regression (Pres/Abs) curves (SFAR Pres/Abs) proposed by the USFWS for both velocity and depth, and concurrence of the group was reported in the October 20, 2010 meeting summary. TRC suggested that the reported concurrence was in error in regard to their opinion, so the group re-opened the discussion.
- **Decision:** In response to TRC requests, the workgroup agreed to keep the South Fork American River Logistic Regression (Pres/Abs) curve (SFAR Pres/Abs) for depth, and use a modified curve for velocity. The modified velocity curve (SFAR Pres/Abs MOD-TRC) was equal to the SFAR Pres/Abs curve up to its intersection with the Upper North Fork Feather River composite curve (2.09, 0.42), at which point the modified curve follows a straight line to (4.25, 0.0), the end point of the UNF Feather comp curve.

Post-Workshop Correspondence

Subsequent to this February 3, 2011 workshop, TRC transmitted the attached email (Attachment #1) dated March 20, 2011, withdrawing their support for *O. mykiss* decisions regarding habitat suitability criteria.



Tuolumne River suitability criteria for *O. mykiss* adults

Velocity	SFAR pres/abs MOD-TRC Index	Depth	SFAR (Pres/Abs) Index
0.03	0.00	0.80	0.00
0.04	0.19	0.90	0.12
0.10	0.23	1.00	0.15
0.20	0.30	1.25	0.23
0.30	0.38	1.50	0.34
0.40	0.48	1.75	0.45
0.50	0.57	2.00	0.57
0.60	0.67	2.25	0.69
0.70	0.77	2.50	0.79
0.80	0.85	2.75	0.87
0.90	0.92	3.00	0.93
1.00	0.97	3.25	0.97
1.10	1.00	3.50	1.00
1.20	1.00	3.75	1.00
1.30	0.98	4.00	0.99
1.40	0.94	15.50	0.87
1.50	0.88	15.75	0.87
1.60	0.81	16.00	0.85
1.70	0.74	16.25	0.82
1.80	0.65	16.50	0.77
1.90	0.57	16.75	0.70
2.00	0.49	17.00	0.61
2.09	0.42	17.25	0.51
2.15	0.41	17.50	0.41
4.25	0.00	17.75	0.31
		18.00	0.22
		18.25	0.14
		18.50	0.09
		18.75	0.05
		19.00	0.02
		19.50	0.00

HSC development status

The following table summarizes sources of HSC curves to be used in the Tuolumne River Instream Flow Study.

Species	Life Stage	Depth	Velocity	Substrate ¹	Cover
Fall Chinook salmon	Spawning	L Tuolumne Sept 20, 2010	L Tuolumne Sept 20, 2010	Tuol/Wentworth Sept 20, 2010 ²	--
	Juvenile	Stanislaus (modified) Sept 20, 2010	Stanislaus Sept 20, 2010	--	TBD
	Fry	Tuol ENV ³ Feb 03, 2011	Tuol ENV Feb 03, 2011	--	TBD
<i>O. mykiss</i>	Adult	SFAR Pres/Abs Oct 20, 2010	SFAR Pres/Abs Oct 20, 2010 or SFAR Pres/Abs MOD-TRC Feb 2, 2011 ⁴	--	TBD
	Spawning	Tuolumne ENV Oct 20, 2010	Tuolumne ENV Oct 20, 2010	Tuolumne ENV Oct 20, 2010	--
	Juvenile	Tuolumne ENV Oct 20, 2010	Tuolumne ENV Oct 20, 2010	--	TBD
	Fry	Tuol ENV Feb 03, 2011	Tuol ENV Feb 03, 2011	--	TBD

¹ The workgroup decided not to apply substrate criteria to fry and juvenile life stages since they do not typically select habitat based on substrate and may occur over a full range of possibilities.

² Adapted from CDFG 1982 with minor expansion to indicate suitability of 1-2 inch gravel.

³ Lacking consensus on this parameter, the Districts plan to apply the Tuolumne Envelope curve (Tuol ENV) since this option seemed to have the broadest support among the stakeholders present at the workshop.

⁴ Although TRC subsequently withdrew their support for *O. mykiss* HSC curves, the Districts tentatively plan to use, or at least include, the *O. mykiss* adult curve (SFAR Pres/Abs MOD-TRC) modified at TRC's request.

Upcoming meeting dates:

There are no additional HSC meetings scheduled at this time. Additional meetings may be required following the collection of field data in 2011.

Attachment #1

From: Allison Boucher [mailto:aboucher@bendbroadband.com]

Sent: Sunday, March 20, 2011 4:39 PM

To: Zachary_Jackson@fws.gov; wsears@sfgwater.org; Whittaker, John; Wayne Swaney; walterw@mid.org; tramirez@sfgwater.org; Tim O'Laughlin; theyne@dfg.ca.gov; stsao@dfg.ca.gov; steve@mlode.com; Shaara Ainsley; Scott@mcbaintrush.com; Scott Wilcox; Russell Liebig; Russ Kanz; Robert W. Hughes; rmyoshiyama@ucdavis.edu; rmnees@tid.org; rmasuda@calwaterlaw.com; Ramon_Martin@fws.gov; pbrantley@dfg.ca.gov; Patrick@tuolumne.org; Nsandkulla@bawsca.org; Noah Hume; Monica.Gutierrez@noaa.gov; Michelle_Workman@fws.gov; Mark_Gard@fws.gov; Maria Rea; kim_webb@fws.gov; Kelleigh Crowe; Karlha@tuolumne.org; jvick@sfgwater.org; joyw@mid.org; john.devine@hdrinc.com; JMEANS@dfg.ca.gov; jkobrien@dfg.ca.gov; Jessie Raeder; Jesse.roseman@tuolumne.org; jen@riversandwater.com; Jarvis Caldwell; Greg Dias; Gantenbein@n-h-i.org; Erich Gaedeke; Eric@tuolumne.org; Donn Furman; dmarston@dfg.ca.gov; deltakeep@aol.com; deborah_giglio@fws.gov; Darren@mcbaintrush.com; Cindy@ccharles.net; chrissysonke@fishbio.com; Chris Shutes; andreafuller@fishbio.com; anadromous@bendbroadband.com; Alison_Willy@fws.gov; AJensen@bawsca.org; agengr6@aol.com

Cc: dave Boucher

Subject: IFIM O. mykiss

To all interested parties,

After much consideration, we are withdrawing our support for the IFIM O. mykiss decisions. We are not comfortable with the available studies and the resulting decisions.

We look forward to future meetings to discuss Tuolumne River O. mykiss, particularly steelhead.

Allison and Dave Boucher
Tuolumne River Conservancy, Inc.

Attachment 2

**2011 FERC Flow Coordination Letter from
TID to CDFG, NMFS, and USFWS**

April 12, 2011

April 12, 2011

VIA E-MAIL

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

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

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

RE: Project 2299 – Minimum Flow Coordination Process for 2010-2011 Fish Flow Year

Dear Fishery Agency Representatives:

The 1996 FERC Order, Amended Article 37, contained a Water Year Classification Index for determining the volume of scheduled stream flows for each fish flow year. The classifications are based on the San Joaquin Basin 60-20-20 Indices for water years. The index has been updated in a continuous fashion based on the Department of Water Resources (DWR) monthly forecasts. Updates of those forecasts are provided in Table 1. We are in a wet year with respect to the 50% and 90% exceedence levels.

Based upon applying the current DWR April-July runoff forecast to the DWR 60-20-20 basin index, the annual minimum flow requirements are 300,923 AF under both the 90% Exceedence case and the 50% Exceedence case. These values are also shown on Table 1 with the respective 60-20-20 index.

Based upon the above, a daily schedule is provided and will be followed. The thought process that went into the schedule is as follows:

- 1) The base flow and pulse flow amounts are based upon those specified in the 1996 FERC Order.
- 2) The timing of the spring pulse flow amounts are consistent with the VAMP period starting May 1, 2011.
- 3) The spring pulse flows are shown as steady with a ramp down.
- 4) A ramp down to the June flow is shown.
- 5) There is no “interpolation water” volume for this year.
- 6) The initial timing of the fall pulse flow shown is based on a default schedule of October 6 through 10 that was established in 1996, that may be adjusted later.

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

Sincerely,



Robert M. Nees
Assistant General Manager
Civil Engineering and Water Resources

C: Casey Hashimoto - TID
Allen Short - MID
FERC Secretary



Table 1

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION

602020 INDEX

YEAR	APRIL-JULY RUNOFF (AF)			OCTOBER-MARCH RUNOFF (AF)			TOTAL	602020 INDEX	TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT	San Joaquin Index (not the FERC Index)	RANKING
	TUOLUMNE	MERCED	FRIANT	TUOLUMNE	MERCED	FRIANT					
Feb 1 Forecast											
Dry	590,000	560,000	1,330,000	1,020,000	535,000	740,000	2,905,000	3,438,540	300,923	Above Normal	
Average	820,000	760,000	1,690,000	1,130,000	605,000	840,000	3,260,000	4,205,540	300,923	Wet	
Wet	1,280,000	1,270,000	2,510,000	1,390,000	795,000	1,070,000	4,105,000	5,922,540	300,923	Wet	
Feb 08 Update											
Dry	580,000	560,000	1,290,000	1,020,000	535,000	740,000	2,905,000	3,384,540	300,923	Above Normal	
Average	790,000	730,000	1,630,000	1,130,000	605,000	840,000	3,260,000	4,103,540	300,923	Wet	
Wet	1,230,000	1,200,000	2,390,000	1,390,000	795,000	1,070,000	4,105,000	5,724,540	300,923	Wet	
Feb 15 Update											
Dry	560,000	530,000	1,230,000	1,020,000	535,000	740,000	2,905,000	3,294,540	300,923	Above Normal	
Average	760,000	690,000	1,550,000	1,130,000	605,000	840,000	3,260,000	3,965,540	300,923	Wet	
Wet	1,190,000	1,120,000	2,260,000	1,390,000	795,000	1,070,000	4,105,000	5,502,540	300,923	Wet	
Feb 22 Update											
Dry	640,000	610,000	1,360,000	1,020,000	535,000	740,000	2,905,000	3,570,540	300,923	Above Normal	
Average	820,000	760,000	1,690,000	1,130,000	605,000	840,000	3,260,000	4,193,540	300,923	Wet	
Wet	1,230,000	1,150,000	2,310,000	1,390,000	795,000	1,070,000	4,105,000	5,628,540	300,923	Wet	
Mar 1 Forecast											
Dry	660,000	630,000	1,350,000	1,015,000	560,000	740,000	2,945,000	3,620,540	300,923	Above Normal	
Average	850,000	770,000	1,630,000	1,065,000	595,000	795,000	3,125,000	4,166,540	300,923	Wet	
Wet	1,240,000	1,120,000	2,220,000	1,185,000	670,000	900,000	3,515,000	5,414,540	300,923	Wet	
Mar 08 Update											
Dry	740,000	670,000	1,420,000	1,015,000	560,000	740,000	2,945,000	3,782,540	300,923	Above Normal	
Average	900,000	800,000	1,680,000	1,065,000	595,000	795,000	3,125,000	4,292,540	300,923	Wet	
Wet	1,260,000	1,130,000	2,210,000	1,185,000	670,000	900,000	3,515,000	5,444,540	300,923	Wet	
Mar 15 Update											
Dry	750,000	660,000	1,400,000	1,015,000	560,000	740,000	2,945,000	3,776,540	300,923	Above Normal	
Average	900,000	780,000	1,640,000	1,065,000	595,000	795,000	3,125,000	4,250,540	300,923	Wet	
Wet	1,230,000	1,060,000	2,120,000	1,185,000	670,000	900,000	3,515,000	5,306,540	300,923	Wet	
Mar 22 Update											
Dry	860,000	820,000	1,630,000	1,015,000	560,000	740,000	2,945,000	4,250,540	300,923	Wet	
Average	1,020,000	930,000	1,850,000	1,065,000	595,000	795,000	3,125,000	4,688,540	300,923	Wet	
Wet	1,320,000	1,210,000	2,270,000	1,185,000	670,000	900,000	3,515,000	5,642,540	300,923	Wet	
Apr 1 Forecast											
Dry	1,060,000	940,000	1,910,000	1,250,000	725,000	880,000	3,675,000	4,918,540	300,923	Wet	
Average	1,180,000	1,040,000	2,100,000	1,250,000	725,000	880,000	3,675,000	5,266,540	300,923	Wet	
Wet	1,430,000	1,280,000	2,440,000	1,250,000	725,000	880,000	3,675,000	5,998,540	300,923	Wet	

TABLE 2
 Tuolumne River Flow Schedule
 Default
 SCHEDULE FOR 2011 - 2012 Fish Flow Year

DATE		Number of DAYS	BASE FLOW			PULSE FLOW			ADDITIONAL FLOW			TOTAL FERC FLOW	
From:	To:		CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2011	15-Apr-2011	1	300	595	595	0	0	0	0	0	0	300	595
16-Apr-2011	16-Apr-2011	1	300	595	1,190	0	0	0	0	0	0	300	1,190
17-Apr-2011	17-Apr-2011	1	300	595	1,785	0	0	0	0	0	0	300	1,785
18-Apr-2011	18-Apr-2011	1	300	595	2,380	0	0	0	0	0	0	300	2,380
19-Apr-2011	19-Apr-2011	1	300	595	2,975	0	0	0	0	0	0	300	2,975
20-Apr-2011	20-Apr-2011	1	300	595	3,570	0	0	0	0	0	0	300	3,570
21-Apr-2011	21-Apr-2011	1	300	595	4,165	0	0	0	0	0	0	300	4,165
22-Apr-2011	22-Apr-2011	1	300	595	4,760	0	0	0	0	0	0	300	4,760
23-Apr-2011	23-Apr-2011	1	300	595	5,355	0	0	0	0	0	0	300	5,355
24-Apr-2011	24-Apr-2011	1	300	595	5,950	0	0	0	0	0	0	300	5,950
25-Apr-2011	25-Apr-2011	1	300	595	6,545	0	0	0	0	0	0	300	6,545
26-Apr-2011	26-Apr-2011	1	300	595	7,140	0	0	0	0	0	0	300	7,140
27-Apr-2011	27-Apr-2011	1	300	595	7,736	0	0	0	0	0	0	300	7,736
28-Apr-2011	28-Apr-2011	1	300	595	8,331	550	1,091	1,091	0	0	0	850	9,421
29-Apr-2011	29-Apr-2011	1	300	595	8,926	1,417	2,811	3,902	0	0	0	1,717	12,827
30-Apr-2011	30-Apr-2011	1	300	595	9,521	1,417	2,811	6,713	0	0	0	1,717	16,233
01-May-2011	01-May-2011	1	300	595	10,116	1,417	2,811	9,524	0	0	0	1,717	19,639
02-May-2011	02-May-2011	1	300	595	10,711	1,417	2,811	12,335	0	0	0	1,717	23,045
03-May-2011	03-May-2011	1	300	595	11,306	1,417	2,811	15,146	0	0	0	1,717	26,451
04-May-2011	04-May-2011	1	300	595	11,901	1,417	2,811	17,957	0	0	0	1,717	29,857
05-May-2011	05-May-2011	1	300	595	12,496	1,417	2,811	20,767	0	0	0	1,717	33,263
06-May-2011	06-May-2011	1	300	595	13,091	1,417	2,811	23,578	0	0	0	1,717	36,669
07-May-2011	07-May-2011	1	300	595	13,686	1,417	2,811	26,389	0	0	0	1,717	40,075
08-May-2011	08-May-2011	1	300	595	14,281	1,417	2,811	29,200	0	0	0	1,717	43,481
09-May-2011	09-May-2011	1	300	595	14,876	1,417	2,811	32,011	0	0	0	1,717	46,887
10-May-2011	10-May-2011	1	300	595	15,471	1,417	2,811	34,822	0	0	0	1,717	50,293
11-May-2011	11-May-2011	1	300	595	16,066	1,417	2,811	37,633	0	0	0	1,717	53,699
12-May-2011	12-May-2011	1	300	595	16,661	1,417	2,811	40,444	0	0	0	1,717	57,105
13-May-2011	13-May-2011	1	300	595	17,256	1,417	2,811	43,255	0	0	0	1,717	60,511
14-May-2011	14-May-2011	1	300	595	17,851	1,417	2,811	46,066	0	0	0	1,717	63,917
15-May-2011	15-May-2011	1	300	595	18,446	1,417	2,811	48,877	0	0	0	1,717	67,323
16-May-2011	16-May-2011	1	300	595	19,041	1,417	2,811	51,688	0	0	0	1,717	70,729
17-May-2011	17-May-2011	1	300	595	19,636	1,417	2,811	54,499	0	0	0	1,717	74,135
18-May-2011	18-May-2011	1	300	595	20,231	1,417	2,811	57,310	0	0	0	1,717	77,541
19-May-2011	19-May-2011	1	300	595	20,826	1,417	2,811	60,121	0	0	0	1,717	80,947
20-May-2011	20-May-2011	1	300	595	21,421	1,417	2,811	62,931	0	0	0	1,717	84,353
21-May-2011	21-May-2011	1	300	595	22,017	1,417	2,811	65,742	0	0	0	1,717	87,759
22-May-2011	22-May-2011	1	300	595	22,612	1,417	2,811	68,553	0	0	0	1,717	91,165
23-May-2011	23-May-2011	1	300	595	23,207	1,417	2,811	71,364	0	0	0	1,717	94,571
24-May-2011	24-May-2011	1	300	595	23,802	1,417	2,811	74,175	0	0	0	1,717	97,977
25-May-2011	25-May-2011	1	300	595	24,397	1,417	2,811	76,986	0	0	0	1,717	101,383
26-May-2011	26-May-2011	1	300	595	24,992	1,417	2,811	79,797	0	0	0	1,717	104,789
27-May-2011	27-May-2011	1	300	595	25,587	1,417	2,811	82,608	0	0	0	1,717	108,195
28-May-2011	28-May-2011	1	300	595	26,182	1,417	2,811	85,419	0	0	0	1,717	111,601
29-May-2011	29-May-2011	1	300	595	26,777	750	1,488	86,907	0	0	0	1,050	113,683
30-May-2011	30-May-2011	1	300	595	27,372	600	1,190	88,097	0	0	0	900	115,468
31-May-2011	31-May-2011	1	300	595	27,967	450	893	88,989	0	0	0	750	116,956
01-Jun-2011	01-Jun-2011	1	250	496	28,463	300	595	89,584	0	0	0	550	118,047
02-Jun-2011	02-Jun-2011	1	250	496	28,959	150	298	89,882	0	0	0	400	118,840
03-Jun-2011	03-Jun-2011	1	250	496	29,455	0	0	89,882	0	0	0	250	119,336
04-Jun-2011	04-Jun-2011	1	250	496	29,950	0	0	89,882	0	0	0	250	119,832
05-Jun-2011	30-Jun-2011	26	250	12,893	42,843	0	0	89,882	0	0	0	250	132,725
01-Jul-2011	31-Jul-2011	31	250	15,372	58,215	0	0	89,882	0	0	0	250	148,097
01-Aug-2011	31-Aug-2011	31	250	15,372	73,587	0	0	89,882	0	0	0	250	163,468
01-Sep-2011	30-Sep-2011	30	250	14,876	88,463	0	0	89,882	0	0	0	250	178,345
01-Oct-2011	01-Oct-2011	1	300	595	89,058	0	0	89,882	0	0	0	300	178,940
02-Oct-2011	05-Oct-2011	4	300	2,380	91,438	0	0	89,882	0	0	0	300	181,320
06-Oct-2011	08-Oct-2011	3	300	1,785	93,223	800	4,760	94,642	0	0	0	1,100	187,865
09-Oct-2011	09-Oct-2011	1	300	595	93,818	500	992	95,634	0	0	0	800	189,452
10-Oct-2011	10-Oct-2011	1	300	595	94,413	100	198	95,832	0	0	0	400	190,245
11-Oct-2011	31-Oct-2011	21	300	12,496	106,909	0	0	95,832	0	0	0	300	202,741
01-Nov-2011	30-Nov-2011	30	300	17,851	124,760	0	0	95,832	0	0	0	300	220,592
01-Dec-2011	31-Dec-2011	31	300	18,446	143,207	0	0	95,832	0	0	0	300	239,039
01-Jan-2012	31-Jan-2012	31	300	18,446	161,653	0	0	95,832	0	0	0	300	257,485
01-Feb-2012	29-Feb-2012	29	300	17,256	178,909	0	0	95,832	0	0	0	300	274,741
01-Mar-2012	31-Mar-2012	31	300	18,446	197,355	0	0	95,832	0	0	0	300	293,187
01-Apr-2012	14-Apr-2012	14	300	8,331	205,686	0	0	95,832	0	0	0	300	301,518

No. of days 366 (April 15 through April 14)

1 cfs day = 1.983471 acre-feet (af)

Attachment 3

Tuolumne River Instream Flow Study — Flow Variance Request Letter from Stillwater Sciences to CDFG, NMFS, and USFWS

June 17, 2011



June 17, 2011

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

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

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

Re: Tuolumne River Instream Flow Study — Flow Variance Request

Dear Fishery Agency Representative:

As you are aware, Stillwater Sciences is currently conducting separate instream flow (IFIM) and overbank (High Flow) studies on the lower Tuolumne River on behalf of the Turlock Irrigation District and Modesto Irrigation District (Districts) in accordance with the Federal Energy Regulatory Commission's (FERC) July 16, 2009 order (128 FERC ¶61,035), as modified by the Commission's May 12, 2010 order Modifying and Approving Instream Flow and Water Temperature Model Study Plans (131 FERC ¶ 62,110).

As outlined in the Study Plan filed with FERC on October 14, 2009 and detailed in planning meetings conducted since August 26, 2010, Stillwater Sciences will be surveying Tuolumne River conditions at 40 transect locations between La Grange Dam, at river mile (RM 52), and downstream of the Hickman Bridge (RM 29). Each survey location is planned to be evaluated under flow conditions of approximately 600 cfs, 250 cfs, and 100 cfs over the next four to five months.

Pursuant to the operating license for the Don Pedro Project (FERC No. 2299), the Districts are required to maintain minimum flow releases from Don Pedro reservoir to the lower Tuolumne River, with minimum summer flows of 250 cfs for summer 2011 based on this year's runoff conditions, as described in an April 14, 2011 flow coordination letter addressed to your attention. In order to achieve the 100 cfs study parameter (which is normally available in drier years), the Districts intend to request a variance from FERC for the required 250 cfs flow during a six-day period between September 11 and September 30. The difference in water release volume between 100 cfs and the required 250 cfs (approximately 1,190 acre-ft over six days) would be released during the planned 5-day fall pulse flow period (October 6–10) as a uniform increase of 120 cfs, or other pulse flow configuration for this time period, or in some other mutually agreeable time period.

850 G Street
Suite K
Arcata, CA 95521
707.822.9607
fax 707.822.9608

279 Cousteau Place
Suite 400
Davis, CA 95616
530.756.7550
fax 530.756.7586

721 NW Ninth Avenue
Suite 280
Portland, OR 97209
503.267.9006

1314 NE 43rd Street
Suite 210
Seattle, WA 98105
206.632.0107
fax 206.632.0108

Stillwater Sciences plans to conduct the higher instream flow survey (600 cfs) in mid-summer 2011, on the descending limb of the snowmelt hydrograph. The 250 cfs and 100 cfs surveys are planned during the coolest month (September) of the summer-flow period (June 1 through October 1), but would precede the previously established fall spawning attraction flows planned for early October.

We request any comments you may have along with your concurrence on the Districts' request for a flow variance to conduct the necessary study by June 30, 2011.

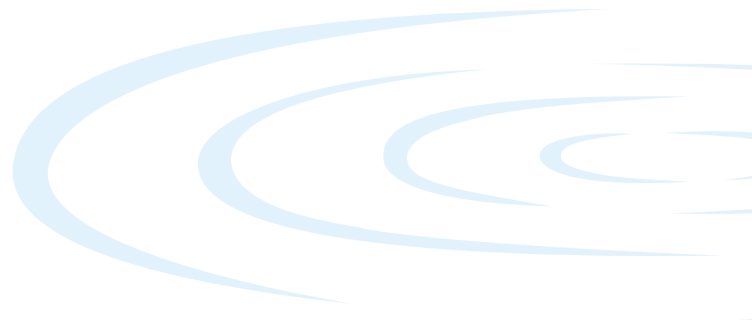
Should you have any questions please contact Russ Liebig at Stillwater Sciences (russ@stillwatersci.com or 530-756-7550 ext. 223).

Sincerely,



Noah Hume
Senior Aquatic Ecologist

Cc:
Casey Hashimoto – TID
Robert Nees - TID
Allen Short - MID
Greg Dias - MID
FERC Secretary



Attachment 4

**Agency e-mail responses to June 17, 2011
Flow Variance Request Letter – Responses
from:**

NMFS: June 30, 2011

CDFG: July 21, 2011

From: Tim Heyne [theyne@dfg.ca.gov]
Sent: Thursday, July 21, 2011 12:29 PM
To: Wes Monier
Cc: Bill Johnston; rmasuda@calwaterlaw.com; Dean Marston; Jennifer O'Brien; deborah_giglio@fws.gov; Nick Hindman; roger_guinee@fws.gov; Zachary_Jackson@fws.gov; Greg Dias; joyw@mid.org; Walter Ward; bruce.oppenheim@noaa.gov; erin.strange@noaa.gov; garwin.yip@noaa.gov; maria.rea@noaa.gov; Monica.Gutierrez@noaa.gov; rhonda.reed@noaa.gov; towater@olaughlinparis.com; donn.w.furman@sfgov.org; WSears@sewater.org; Noah Hume; Russell Liebig; Scott Wilcox; Casey Hashimoto; Jason Carkeet; Robert M. Nees
Subject: Re: Tuolumne River FERC Flow Variance Request for September

Wes

I have not heard anything recent on flow scheduling and the request to drop below minimum flow this Sept. Do you have a general flow plan that estimates in-river flow in each of the next three or four months? We have several crews that will want to try to get out on the river under lower flows so it would be useful to us to know the planned low flow periods for Noah's study. I have not sent a letter about moving the fall pulse flow as it looks like the flows may exceed the pulse level. Is that a reasonable assessment of the situation?

I am not a big fan of the 100 cfs flow plan but understand that there is a need for the data. If it is possible it would probably be better to do the 100 cfs earlier in Sept. as salmon are likely to arrive earlier with this year's hydrology.

Tim Heyne <'>>>>>>>>><
Senior Environmental Scientist
Tuolumne River Restoration Center
California Dept. of Fish and Game
P.O. Box 10, La Grange, CA 95329
(209) 853-2533 Fax:(209) 853-9017

theyne@dfg.ca.gov

>>> Noah Hume <noah@stillwatersci.com> 6/17/2011 3:06 PM >>>
Dear All

Please read the attached letter regarding an upcoming request to FERC for a variance from the schedule minimum flows during late September for the purposes of collecting low flow data for the ongoing FERC IFIM study on the lower Tuolumne River.

Please reply by e-mail to Russ Liebig (530.756.7550 x223) in the Cc: line or you can contact me if you have any questions.

Regards,
Noah

Noah Hume
Stillwater Sciences
2855 Telegraph Avenue, Suite 400
Berkeley, CA 94705

510.848.8098 ext. 129
510.848.8398 fax

From: Monica Gutierrez [Monica.Gutierrez@noaa.gov]
Sent: Thursday, June 30, 2011 2:37 PM
To: Noah Hume
Cc: Russell Liebig; Larry.Thompson@noaa.gov; 'Reed, Rhonda'
Subject: RE: Tuolumne River FERC Flow Variance Request for September

Noah,

Given the short amount of time NMFS has to respond to your letter, we are responding to your letter through this email and will be followed by a formal letter. The change in flows stated in your letter triggers a section 7 consultation of the Endangered Species Act. NMFS will need to evaluate the effects of this action and how they may affect listed species. FERC will need to consult with us, as they are the Federal entity in this project. Please let me know if you have any questions.

Monica

From: Noah Hume [mailto:noah@stillwatersci.com]
Sent: Friday, June 17, 2011 3:06 PM
To: Dean Marston; Tim Heyne; deborah_giglio@fws.gov; Nick_Hindman@fws.gov; roger_guinee@fws.gov; Bruce.Oppenheim@NOAA.GOV; Erin.Strange@noaa.gov; Garwin.Yip@noaa.gov; Maria.Rea@noaa.gov; Monica.Gutierrez@noaa.gov; Rhonda.Reed@noaa.gov; J.Stuart@NOAA.GOV
Cc: Bill Johnston; rmasuda@calwaterlaw.com; Greg Dias; joyw@mid.org; Walter Ward; towater@olaughlinparis.com; donn.w.furman@sfgov.org; WSears@sflower.org; Casey Hashimoto; Jason Carkeet; Robert M. Nees; Wes Monier; Scott Wilcox; Russell Liebig
Subject: Tuolumne River FERC Flow Variance Request for September

Dear All

Please read the attached letter regarding an upcoming request to FERC for a variance from the schedule minimum flows during late September for the purposes of collecting low flow data for the ongoing FERC IFIM study on the lower Tuolumne River.

Please reply by e-mail to Russ Liebig (530.756.7550 x223) in the Cc: line or you can contact me if you have any questions.

Regards,
Noah

Noah Hume
Stillwater Sciences
2855 Telegraph Avenue, Suite 400
Berkeley, CA 94705

510.848.8098 ext. 129
510.848.8398 fax