TURLOCK IRRIGATION DISTRICT
MODESTO IRRIGATION DISTRICT

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May 3, 2004

Madelyn Martinez
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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 20MAY/2004 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

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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

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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>
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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)

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