

MEETING SUMMARY, FEBRUARY 25, 2013

Meeting Summary FLOW WORKGROUP TRRP Office, Weaverville, CA February 25, 2013

Participants

Core members: Eric Peterson (TRRP, Coordinator); Rod Wittler (TRRP); Wade Sinnen (DFG); James Lee (TRRP); Seth Naman (NMFS); Eric Wiseman (USFS); Tim Hayden (Yurok Tribe), Teresa Connor (DWR)

Via Webex: Joe Polos (FWS); John Bair (McBain and Trush/HVT consultants).

Other members: Ernie Clarke; Robert Franklin (Hoopa Valley Tribal Fisheries); Mike Berry (DFW); Andrew Jensen (DFW); Shane Quinn (Yurok Tribe); Bill Brock (USFS)

Also: Leslie Mirise (NMFS Sacramento)

Note takers: Teresa Connor / Ernie Clarke.

List of Action Items Developed at the Meeting

- Peterson will share draft Water Year 2012 implementation report (already on action tracker). Group will have 3 weeks to review and comment.
- Wiseman will draft a question to the Fish Workgroup related to the effect of low flows (450 – 300 cfs) on spawning. The question will be circulated first to the Flow Workgroup for revision, then forwarded to the Fish Workgroup.

Additional tasks: Peterson to add a section for TAMWG recommendations to the binder document; Clarke will work with Franklin on potential inclusion of Iron Gate flows in the implementation report; Physical workgroup will be queried for more information on sediment transport relative to ROD 5-day flow peaks

Summary Meeting Notes by Agenda Items

Introductions/ Action Tracker

Peterson reviewed the proposed agenda (attached); no changes were made

Status of action items:

Wittler will ask the Trinity Public Utilities District to make a presentation to the Flow Workgroup on the Lewiston power plant.

STATUS: Done.

Wiseman said he could calculate a volume of water needed for the period October 1 to April 22 for all water years and provide the supporting template.

STATUS: Working with Lee and Wittler. On agenda today.

Lee will pick up on Bair's riparian concepts and develop these into a written proposal addressing summer baseflow to be submitting in February as part of the workgroup process.

STATUS: Same as the second item above. Ongoing.

Flow Workgroup will address the issue of managing base flow variability by considering the major issues of vegetation, fish and temperature.

STATUS: Same as the second item above. Ongoing.

Peterson will make minor edits to the flow planning document and it will be completed.

STATUS: Done.

Wittler will circulate the draft WY 2012 Flow Releases and Diversions Report at the start of 2013.

STATUS: Will circulate.

Water Year 2012 Annual Report

The draft report will be shared this week. It will follow the format of the water year 2011 report

Group will have 3 weeks to review.

Franklin expresses desire to include Iron Gate releases in the report.

Action item: Peterson will share draft Water Year 2012 implementation report (already on action tracker). Group will have 3 weeks to review and comment.

February 2013 Current Conditions Update

Wittler handed out and went over current conditions update. Intent is to update and circulate this weekly.

Clarification based on discussion: Lewiston inflow is calculated not provided on CDEC.

2013 Flow scheduling process / calendar / temperature modeling / priorities / 2013 WY specific funds

Process: Peterson reviewed the process as described in last year's binder document (page 3); group will plan based on the most likely water types (now look like dry and extremely dry).

Task – Peterson to add TAMWG role / recommendation to water year 2013 binder.

Schedule:

Feb 1 - Package

Feb 25 – Flow scheduling meeting

Mar 8 – Forecast update?

Mar 14 – Flow scheduling proposal deadline

Mar 28 – Flow scheduling meeting

Apr 1 – TAMWG

Apr 2-3 - TMC

Apr 8 – (approximate) Water year determination

Apr 10 – Flow scheduling meeting (back-up)

Apr 22 – (approximate) Begin release

Temperature modeling: will occur between March 14 and 27; Wittler, Paul Zedonis and Russ Yaworsky to perform modeling.

Priorities: Discussion deferred until the 11:30 brain storing item

2013 Water Year specific funds: Clarke reports that as it stands now there are none. That should not prevent the group from identifying needs.

At 10:40 am the group took a 10 minute break

When folks returned, Peterson asked guest Leslie Mirise (NMFS) to share a San Joaquin Restoration Program perspective; Leslie reported:

- flow recommendations come from Restoration Administrator (RA; Rod Meade)
- RA is advised by Technical Advisory Committee which gets input from various technical work groups.
- Have Feather River spring Chinook hatchery fish to release.
- Trucked fish to suitable spawning habitat and have had spawning.
- Screening for restoration project. Multi-species fish way. Rebuild dam for salmon passage.
- Discussion - how to maintain segregation between spring and fall Chinook?

Proposal template in detail

Peterson walked through template – mostly same as last year. Couple of tweaks for organization:

(table from flow study – contrast, trade-offs)

IAP objectives

Goal is to develop a uniform set of information for all proposals.

Peterson walked through MS Excel flow scheduler.

Done at 11:10 moved on to the round table.

Round Table discussion of learning from past years and possible proposals for this year

Peterson posed the following question for discussion: What have we learned since the flow evaluation study to inform adaptive management?

- Wiseman - Duration of peak event – get clarification from Andreas Krause / Physical Workgroup; FES assumed transport rate would be constant – not so.
- Sinnen – how far is gravel moving?
- Wittler – have confirmed assumptions from FES related to baseflows and temp targets; meeting targets; not a lot of excess water
- Sinnen – have not seen pre-spawn mortality with spring Chinook; temp flows are working
- Bair – can physical scientists provide recommendations on peak flow duration, sediment transport and hysteresis?
- Bair – descending limb and riparian; 2010-2012 developed and refined; still need more GW information; picking up a broader, more rich band of riparian vegetation – not causative; peak flow timing (set on historical averages)– every year is a little different; haven't got timing perfect relative to seed dispersal; need to develop a better timing mechanism;

- Brock – water year 2012, it might be good to plan for 3 water year types
- Variable flows (handouts from Wiseman, Wittler, and Lee, attached) – Wittler summarizes text document (Late summer / fall flows; spring flows; temperature considerations)
- Wiseman provides broader discussion; baseflow hydrograph deviates from natural hydrograph; potential negative considerations (spring Chinook spawning / dewatering (Franklin - body of evidence?1 memo of Loren Everest; Polos - limited surveys – haven't noted substantial dewatering; Wiseman – what about other negative impacts – possible request for the Fish WG; fall Chinook spawning increase; chance of hybridization)
 - Wiseman to provide specific questions
- On the table – drop in September (Seth - will be tough on the temperature front)
- Accumulated degree day to schedule peak
- Split water year (pre-April 8 and post April 8)
- Franklin - Need strong evidence to consider changing flow releases.

Likely proposals for Water Year 2013:

- End of WY 13 baseflow deviation (Wiseman)
- Riparian for normal year (not for dry or critically dry) (Bair)
- Flow benches for habitat monitoring (Aaron Martin, not present)
- Foothill Yellow-legged Frog timing (Lee)
- Degree day tracking (Lee)

Group considering dry as most likely plus Critically Dry and Normal

Next Steps/Review of Action Items/Action Tracker

Notes:

Ceremonial releases from Lewiston this year. Do not include this release in your flow schedule proposal.

Auxiliary outlet works available.

Don Reck (USBR) is the POC for fall flows.

Adjourn 12:15 PM; Majority of Group takes dam tour.

DRAFT VERSION DATE 2013-FEB-25

Feb 25, 2013

9:30AM

TRRP Office, Weaverville

WebEx: [web-link](#)

Call in: 1-408-792-6300

code=573 142 979

FLOW WORKGROUP MEETING AGENDA

Coordinators: Eric Peterson
Rod Wittler

Desired Outcomes: Broad understanding of the flow schedule proposal and recommendation processes.
Head's up on forecast water year types.
Head's up on (some) possible flow schedule proposals
Work planning for FY13 flow activities

Please read/review: Current Conditions Update – Email week of Feb 11
[Proposed Flow Schedule Alternatives Template](#)
[Flow Scheduling Worksheet](#)

Please bring: Thoughts on what we have learned about restoration flows in past years.
Thoughts on objectives for this year's hydrograph.

Agenda Items

Time	Topic	Presenter
2012 Flow Scheduling		
9:30	Introductions / Action Tracker	Eric Peterson
9:35	9	Rod Wittler
9:45	February 2013 Current Conditions Update	Rod Wittler
10:00	2013 Flow scheduling process / calendar / temperature modeling / documentation / priorities / 2013 WY specific funds	Peterson/Wittler
10:50	SJRRP perspective	Leslie Mirise
11:00	Proposal template in detail	Peterson
11:30	Round Table discussion of learning from past years and possible proposals for this year	Peterson/Wittler
12:30	Dam Tour – RSVP <u>REQUIRED</u> to Andreas Krause (akrause@usbr.gov)	

Upcoming schedule:

- Early March: Temperature modeling of ~ water year types, ROD hydrographs
- March 8th: Updates (if any) to forecasts to be distributed.
- March 14th: DEADLINE - Flow Schedule Proposals due and disseminated
- Mar 14-27: Temperature modeling of priority proposed flow schedules
- Mar 28th: MEETING – Flow WG discussion and consensus recommendation to TMC
- Apr. 1: TAMWG meeting
- Apr. 2-3: TMC meeting
- Apr. 10: Backup meeting in case required (e.g. forecast WY type changes)

Variable Flow Concepts for WY2014

Presented by the Variable Flow Sub-Group (R. Wittler, J. Lee, E. Wiseman)

- 1) **Late Summer/ Fall Flows** –The annual reduction in Lewiston Dam flows from 450 CFS to 300 CFS on October 15th may have unintended consequences to spawning Spring- and Fall-run Chinook salmon. Specifically, Spring-run Chinook redds may become dewatered and Fall-run Chinook redds may be subject to redd superimposition as available spawning habitat is truncated.

We propose to develop concepts for a a flow experiment that would reduce summer base flows from 450 CFS to 300 CFS on 9/9/2014 and then increase fall base flows from 300 CFS to 450 CFS on 10/15/2014 and maintain these flows until 1/1/2015. The hypothesis is that this would; (1) Eliminate the dewatering of Spring-run Chinook redds by reducing flows before they begin to spawn, (2) Increase the available spawning habitat for Fall-run Chinook salmon to reduce redd superimposition, and (3) Reduce the chance of hybridization between Spring- and Fall-run Chinook salmon by allowing them to be more spatially isolated during spawning. The 2014 main stem spawning survey data would be utilized to test these hypotheses. The “cost” of this experiment would be approximately 11,880 AF of water. The cost of extending the 450 CFS base flow from 1/1/2015 until 4/22/2015 would be an additional 32,967 AF of water.

- 2) **Spring Flows** – Riparian hardwood initiation and foothill yellow-legged frog breeding are two processes that are associated with the snowmelt hydrograph. Presently, the timing of the recession limb is largely based on historic average snowmelt peaks for each water year. However, inter-annual variability in the timing of the recession limb may not be adequately captured in this average. Snowmelt-adapted organisms likely respond to environmental cues, such as the accumulation of degree-days, in timing important processes such as seed dispersal and egg mass deposition, so that critical processes occur during favorable hydrological conditions. Synchronizing spring flows with the timing of the upper watershed snowpack runoff could result in better conditions for these species. New tools exist to predict the timing of snowmelt in the upper Trinity River watershed, and these tools should be explored and if found valuable, implemented in flow scheduling.

We propose to develop concepts for a flow experiment that would synchronize the spring ROD release with the snowmelt inflow into Trinity Reservoir, based on WY 2014 meteorological conditions. This would be preceded by an exercise in WY 2013 that tracks Trinity Reservoir inflow and snowpack condition timing in the upper watershed and relates this to the reproductive cycles of two snowmelt-adapted organisms in the restoration reach: black cottonwood and foothill yellow-legged frog. The hypotheses are: 1) meteorological data and NOAA Advanced Hydrologic Prediction Services’ Ensemble Streamflow Prediction Program can forecast the snowmelt runoff peak early enough to be useful for scheduling spring flows; 2) Synchronizing spring flows with the upper watershed snowpack runoff will reduce foothill yellow-legged frog egg mass mortality; and 3) Synchronizing spring flows with the upper watershed snowpack runoff will cause black cottonwood seed dispersal to be synchronized with the period that floodplain surfaces targeted for riparian establishment are wet and otherwise suitable for seed germination.

- 3) **Temperature Considerations** – The summer-time temperature targets (July 1 ~ October 15) may constrain management adaptations associated with Late Summer/Fall Flows. In many years the ROD flows are only adequate to meet down-river targets, and those mostly a function of end of year storage in Trinity Reservoir and Clear Creek Tunnel operations. Any modification to the summer base flows (either 450 or 300 cfs) may be constrained by the ability of Trinity/Lewiston/ Clear Creek Tunnel operations to meet temperature targets.

4) **Necessary Management Actions/Adaptations**

- a) *Flow Benches* – Flow benches are used to maintain adequate soil moisture for riparian hardwood initiation, as well as to provide cues to outmigration anadromous fish. During WY 2012 two flow benches helped maintain soil moisture near the 4,500 cfs inundation zone. Preliminary monitoring results suggest that these benches did indeed help promote riparian hardwood initiation. The timing of the benches in WY 2014 could change depending on plant phenology, which is driven by similar meteorological conditions as those that drive the snowmelt hydrograph. Black cottonwood seed dispersal periods will be tracked in WY 2013 and compared to soil moisture conditions on 4,500 cfs floodplains, and WY 2014 benches may be adjusted if evidence suggests this is necessary.
- b) *Split WY Volumes* – In order to provide flexibility for late summer/Fall/Winter base flow manipulations there is a need to split the flow volume allocations. We propose to divide the flow allocations as follows; From 10/1/2013 until 4/21/2014 would be a set volume and from 4/22/2014 until 9/30/2014 would be a set volume. In addition, to successfully conduct the late summer/fall flow experiment in WY2014 requires modifications to the WY2013 flow schedule which would result in a surplus of approximately 6,534 AF of water for the time period of 9/9/2013 to 9/30/2013.
- c) *Real-Time Temperature Management* - Temperature model results suggest that the flow operations at Lewiston Dam may be managed to minimize the exceedances in Trinity River water temperature targets for the upper reach, Lewiston to Douglas City, in the period from July 1st through September 30th. Initial model results indicate the river's quick, notable response to flow change when the flow in the system is relatively low, i.e., 500 cfs and below. Weekly or 5-day weather forecasts and the knowledge of the system's water temperature response under the base flows with different rates under various meteorological conditions will be essential in real-time flow operations. However, current facilities constraints and forecasting knowledge may continue to provide challenges for realizing such management strategies.

The timing on the flow operations is essential. The descending limb of the flow in the system extends to the second half of July, when the observed daily mean air temperature increases above 25°C in response to seasonal conditions, reaching a base flow rate around 450 cfs. Considering the low base flow rate and the high air temperatures, any flow operation schedule to attempt to "bank" water starting after mid July by decreasing flows below 450 cfs will be challenging due to (a) forecasting conditions when the river could be dropped below 450 cfs, and (b) lack of sufficient volume to reliably meet future needs for temperature management at Douglas City. A more reliable approach is to store water in the first 10 days of July when there is sufficient flow in the system to store an appropriate volume that can be used in the future, while avoiding temperature increases.

- 1) **Summary/Proposal** – Under the working name of 'Variable Flows', we propose that the workgroups examine the concepts of permanent changes in the management of the timing of the spring high flows and late-summer/early fall base flows. The concepts collectively could result in the shifting of water volume from geomorphic, or other, objectives to new objectives. These new objectives include timing of the spring peak with certain riparian species seed dispersal, managing initiation of willows during summer base flows, and spawning success in the late summer and early fall. Consideration of continuing temperature targets will be paramount.