

## MEETING SUMMARY (DRAFT VERSION DATE 8-1-11)

### TRINITY RIVER RESTORATION PROGRAM - FLOW WORKGROUP

**JULY 13, 2011**

### WEAVERVILLE, CA

(Consolidated list of Action Items / Recommendations and meeting agenda are attached at end.)

#### Participants

##### Core Workgroup Members:

Andreas Krause (USBR), Teresa Conner (DWR), George Kautsky (Hoopa), Tim Hayden (Yurok)

##### Other Participants:

Ernie Clarke (FWS), Robin Schrock (TRRP)

Coordinator: Andreas Krause

Note Taker: Robin Schrock

#### Discussion Summary

**Agenda Item:** Identify note taker. Action item update, including winter base flow ramp down recommendation

Wade Sinnen is the replacement for Larry Hansen who retired.

**Agenda Item:** Review flow scheduling process and recommend improvements for next year.

Information considered during flow scheduling needs to be more rigorously reviewed and formalized. Example was smolt outmigration data used this year. Need a process to provide necessary QA/QC data in a timely manner for annual flow scheduling. Also need to also be able to consider preliminary information. A straw flow chart for the flow scheduling process (developed by Joe for the last Interdisciplinary Team meeting) was circulated. All flow workgroup meetings are public. The way that public involvement has handled during the March flow scheduling meeting was distracting.

**Agenda Item:** Building stronger links between flow releases and adaptive management.

An overview of the two USGS - Grand Canyon reports (see "please read" on agenda) was provided. These reports formed the basis of a brainstorming session to improve adaptive management of the flow releases. Results include:

1. Annual Flow Planning Report
  - a. Lays out purpose, experiments, hypotheses/questions/uncertainties being addressed, predictions, potential risks, confounding variables, and supporting information for proposed annual flow release alternatives. Circulated to TAMWG and TMC before they deliberate the flow releases.
  - b. Process: awaiting tech editor feed back on 2011 flow planning document (i.e. briefing memo). Sub-group to revise outline for next year.
2. Annual Flow Evaluation Report
  - a. Summarizes findings from the annual release.
    - i. What happened this year.

- ii. How does what happened this year change long-term analyses e.g. smolt outmigration trend.
  - b. Process: subgroup to develop annotated outline and work with technical editor to revise.
- 3. Current Knowledge Assessment Report
  - a. A summary of everything we currently know about the effects of the flow releases.
    - i. Explains why things work the way they do
    - ii. Tie to program goals
    - iii.
  - b. Base on a series of separate reports that evaluate current knowledge and/or long-term trends. Example synthesis reports include:
    - i. Smolt outmigration
    - ii. Channel bed mobilization / scour
    - iii. Sediment transport
    - iv. Water temperature
    - v. Channel Rehab Phase 1 assessment
  - c. Include a Future Strategies section to ID and fill science gaps
    - i. New analyses using existing data
    - ii. New analyses using new data
    - iii. New experiments
    - iv. Models: what we use, status, and what we need.
  - d. Process: overview to be provided to other workgroups to solicit feedback on what analyses / synthesis reports are needed.
- 4. Proposed Adaptive Management Flow Experiments Report
  - a. A compilation of short briefing memos on the various adaptive management flow experiments under consideration. Examples of flow experiments might include:
    - i. "Build and Carve" release to create complex bars
    - ii. Slow ramp up to promote sand flushing
    - iii. Down ramping for reseeding and riparian regeneration
    - iv. Variable summer base flows to create patchy riparian margin
    - v. Diurnal peaking
    - vi. Smolt outmigration ramp down and/or pulse
    - vii. Down ramping / timing yellow legged frog ovo-positioning
    - viii. Modified releases during channel rehabilitation implementation phase to more quickly evolve sites and build habitat.
  - b. The Grand Canyon report provides a starting point for a standard outline for flow experiment briefing memos. For each proposed flow experiment: Tie experiments to program goals, ID which hypotheses/questions/uncertainties are being tested/answered, include predicted and possible alternative outcomes (including confidence levels for each outcome) and possible risks.
  - c. This document provides a suite of different flow experiments that can then be prioritized and melded together into one or more flow release alternatives for the current water year.
  - d. Process: Flow WG to develop standard outline. Other workgroups to help identify and develop proposed AM flow experiment briefs.
- 5. Flow Chart of Flow Scheduling Process
  - a. ID tasks, timelines, information needs, and deliverables
  - b. Look at straw proposal developed by Joe Polos
  - c. Workshop planned to help develop AM decision trees for all workgroups

- d. Flow scheduling process should be included in annual program calendar Science Coordinator (Ernie Clarke) is developing.
6. Center 2012 Science Symposium around adaptive management of annual flow releases.
7. Investigate use of flow evaluation software like the Regime Prescription Tool (HEC-RPT) or the Ecosystems Functions Model (HEC-EFM) available from the Hydrologic Engineering Center – Army Corps of Engineers (<http://www.hec.usace.army.mil/software/>). The Nature Conservancy has a similar tool and may be able to host a workshop.

Much discussion about the workload issues associated with this plan. The annual flow scheduling process is a big workload. Consider detailing in someone in from outside to lead the effort. We would benefit from cross pollination if the person detailed had experience in developing flow schedules on another river like the Colorado – Grand Canyon. Also consider the Army Corps / Nature Conservancy partnership out of Davis. Such cross pollination could improve our overall flow scheduling process. Consider expanding the technical editor services provided by the Reclamation Denver Technical Center to also include a project manager to keep us on track in developing the 4 reports above (annual flow planning, annual flow evaluation, current knowledge assessment, and proposed AM flow experiments). Lastly, outside resources (funding and/or labor) will likely be required to conduct the synthesis reports needed for the Current Knowledge Assessment. Robin Schrock understands the workload issues and is interested in finding out resources to help accomplish the plan outlined above. The other workgroups will need to be involved in helping identify needed synthesis reports, AM flow experiment proposals, and where outside help could be beneficial.

The flow workgroup did not actively participate in FY2012 budget workplanning effort (e.g. developing or reviewing proposals). The workgroup felt it best leave this up to the other workgroups and not get involved in the future. There is sufficient overlap in membership. The Flow workgroup would rather focus on the strategic elements of adaptive management and not the annual budget process.

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**Agenda Item:** Update on high flow release operations / gaging issues

Normal dam operations may initially over or under shoot target flow and take a few hours to hone in on target flow due to mechanical issues with gates. Lewiston releases to the Trinity River initially over shot and released about 12,000 cfs for about an hour. Hit 11,000 cfs within 3 hours of initial release change. The 1,000 cfs difference is within the +/- 8% confidence of the measured flow. Lewiston gage has now been moved upstream near the hatchery to get a better gage record and avoid interference from high flow gravel augmentation. The switch did not occur until Day 2 of 11,000 cfs release because new gage needed to be calibrated at 11,000 cfs. The apparent loss of flow moving downstream is due to dispersion on floodplains and recharge of groundwater storage. Monthly water volumes at different stream gages balance indicating groundwater reservoirs are filling and draining leading to an apparent loss of water when looking at daily flow records.

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**Agenda Item:** 2011 reporting

The 2011 flow briefing memo has gone out to a technical editor for review. The intent is to revise the briefing memo to serve as a template for flow scheduling in 2012. The name will likely be changed to 2011 annual flow planning report.

A sub-group was formed to develop an annotated outline for the 2011 annual flow evaluation report. Other workgroups will be able to provide input. The sub-group will work with the technical editor to refine.

The proposed flow performance measure was reviewed. It is essentially a simple water accounting metric. Andreas still needs to address comments from FWS. The workgroup approved the performance measure for this year's performance measure report. The workgroup would like to see additional flow performance measures developed next year that are more science based and directly evaluate the effectiveness of the flow releases themselves.

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**Agenda Item:** Develop proposal process for water year specific funds

Water year specific funds could be used for: water year specific monitoring needs (i.e. sediment monitoring in wet years, disease monitoring in dry years); monitoring / evaluation of new adaptive management flow experimental releases not already covered by existing monitoring; flow related synthesis report to support "current knowledge" assessment (see above); or developing predictive models to better assist with flow scheduling. The proposal development process discussion was deferred until the next meeting due to time constraints.

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**Agenda Item:** 2011 potential fall flows – make a recommendation.

The flow based and average run size proactive fall flow criteria were reviewed. Use newly developed NOAA on-line flow forecast tool for flow projections. Neither flow nor run-size criteria for a proactive release are projected to be met this year. An emergency release may still be needed based on disease monitoring. Information and recommendations to be summarized in memo to TMC (due 7/20/11).

Much work is left to finalize the action plan requested by the TMC that formalizes the general triggered releases criteria and recommended response for 2012 and beyond. Additionally, an implementation plan is needed that describes the decision making tree, amount of water required, source of water, release schedules from Iron Gate Dam and/or Trinity Dam, the timing of the releases considering travel time from the dams to the Lower Klamath River, and addresses any environmental permitting issues.

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**Agenda Item:** ID statistical support needs for Flow Workgroup

Deferred due to time constraints.

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**Agenda Item:** Wrap up / review action items and agenda items for next meeting

Workgroup membership and coordinator will be reconsidered at the November meeting. Andreas is not planning on being the coordinator again next year. Workgroup members were asked to consider who would be a replacement.

**Next Meeting:**

**August 3:** meeting CANCELLED. Replaced with subgroup meetings. 9:30 AM – annual flow report; 1:00 PM fall flow action plan.

**November 9, 2011:** Agenda items for Nov. meeting:

- Update membership / coordinator
- Set meeting dates for 2012
- Reporting: briefing memo, annual flow report outline, current knowledge assessment, AM flow experiments
- Draft agenda for science symposium (theme = flow AM).
- Upcoming workshops: decision making tree; statistical support

## Consolidated Action Items and Recommendations

Flow WG Mtg Date	Action Type	Action	Status	Due By:	Completion Date	Originator	Response Due To:	Assigned To:	Comments
13-Jul-11	ACTION	Develop annotated outline for WY2011 annual flow report	OUTSTANDING	11/9/2011		Flow WG	Flow WG	sub-group	sub-group = Andreas Krause (lead), Teresa Connor, Tim Hayden, RIG rep?
13-Jul-11	ACTION	add the following as standard agenda items: outstanding action items, review of meeting ground rules and definition of consensus, public comment period, finalizing last agenda	OUTSTANDING	11/9/2011		Flow WG	Flow WG	Andreas Krause	
13-Jul-11	ACTION	Circulate decision tree proposal	OUTSTANDING	11/9/2011		Ernie Clarke	Flow WG	Ernie Clarke	
13-Jul-11	ACTION	Outline / plan to develop "current knowledge" and "AM experiements" reports.	OUTSTANDING	11/9/2011		Flow WG	All workgroups	sub-group	Subgroup = Andreas Krause (lead), Ernie Clarke. Circulate to other workgroups to have them ID assessments, who will do them, or request help in getting them done.
13-Jul-11	ACTION	develop agenda for next sci. symposium with a flow AM theme	OUTSTANDING	11/9/2011		Ernie Clarke	Flow WG	sub-group	subgroup = Ernie Clarke (lead), George Kautsky.
13-Jul-11	ACTION	investigate potential for a 90-day detail to lead flow scheduling in 2012.	OUTSTANDING	11/9/2011		Flow WG	Flow WG	Robin Schrock	
13-Jul-11	ACTION	investigate use of outside project manager to faciliate report development (e.g. annual flow report, current knowledge, proposed AM flow experiments).	OUTSTANDING	11/19/2011		Flow WG	Flow WG	Robin Schrock	
13-Jul-11	RECOMMEND	approved water accounting flow performance measure for use in the performance measure report this year.	OUTSTANDING	8/1/2011		Flow WG	Nina Hemphill	Andreas Krause	address FWS comments before finalizing
13-Jul-11	ACTION	develop flow based performance measure(s) that directly evaluate effectiveness of releases (instead of the indirectly as the current water accounting performance measure does)	OUTSTANDING	6/1/2012		Flow WG	Flow WG	not identified	
13-Jul-11	RECOMMEND	Flow WG to focus on improving AM on flow releases and stay out of annual budget/workplanning development and adminstration.	COMPLETED	7/13/2011	7/13/2011	Flow WG	Flow WG	Flow WG	
13-Jul-11	ACTION	peer review of Josh Strange paper on fall flows	OUTSTANDING			Flow WG	Flow WG	Tim Hayden	
13-Jul-11	RECOMMEND	development of a fall flow implemenation plan	COMPLETED	7/21/2011	7/21/2011	Flow WG	TMC	Tim Hayden	implementation plan to ID the decision making tree, amount of water required, source of water, release schedules from Iron Gate Dam and/or Trinity Dam, the timing of the releases considering travel time from the dams to the Lower Klamath River, and address any environmental permitting issues. Recommendation included in
13-Jul-11	ACTION	Provide comments on draft fall flow memo	COMPLETED	7/19/2011	7/19/2011	Flow WG	Tim Hayden	Flow WG	
13-Jul-11	RECOMMEND	Recommend no proactive fall flow in 2011	COMPLETED	7/20/2011	7/20/2011	Flow WG	TMC	Tim Hayden	Written Memo sent to TMC
13-Jul-11	ACTION	develop action tracker for flow workgroup	COMPLETED	11/9/2011	7/21/2011	Flow WG	Flow WG	Andreas Krause	
13-Jul-11	ACTION	develop annual flow schedule process. Include information in annual program calendar.	OUTSTANDING	not identified		Flow WG	Flow WG	not identified	
08-Jun-11	ACTION	Develop fall flow action plan that formalizes trigger criteria and recommended response for 2012 and beyond.	OUTSTANDING			TMC	TMC	sub-group	sub-group = Tim Hayden (lead), Wade Sinnen, George Kautsky, Ernie Clarke, Joe Polos?. Working Draft developed for 7/20/11 for TMC conference call. Much work still needed finalize general trigger criteria and recommended response.
05-Apr-11	RECOMMEND	Recommend "Wet 11-B" flow alternative	COMPLETED	4/13/2011	4/13/2011	Flow WG	TMC	Andreas Krause	
05-Apr-11	ACTION	send 2011 flow briefing document to technical editor for review	COMPLETED		6/1/2011	Flow WG	Flow WG	Andreas Krause	
17-Mar-11	RECOMMEND	Recommend repeating 3 day ramp down for summer/winter base flow transition	OUTSTANDING	9/21/2011		Flow WG	TMC	Andreas Krause	
17-Mar-11	ACTION	report on effects of 2010 3-day ramp down from summer to winter base flow	OUTSTANDING	9/21/2011		TMC	TMC	John Bair	

# FLOW WORKGROUP MEETING AGENDA

(AGENDA VERSION 1)

Meeting date: July 13, 2011

9:00 AM

TRRP office, Weaverville

**Coordinator:** Andreas Krause

**Desired Outcome:**

- Id subgroup to develop general scope and process 2011 annual flow report
- Recommend improvements for the flow scheduling process
- Proposal process for water year specific funds
- ID statistical support needs for Flow Workgroup – ESSA workshop.
- ID focal areas for workgroup address during remainder of this year.
- Make a fall flow recommendation

**Please read:**

- Brainstorm list of items to include in the annual flow report
- Grand Canyon Flow report
- Grand Canyon briefing memo

**Please bring:**

## Agenda Items

Time	Topic	Discussion lead
9:00	Identify note taker. Action item update, including winter baseflow ramp down recommendation.	Andreas Krause
9:15	Review flow scheduling process and recommend improvements for next year	Andreas Krause
9:45	Update on high flow release operations / gaging issues	Andreas Krause
10:00	2011 reporting: finalizing briefing memo. Id subgroup participants to develop general scope and process for 2011 annual flow report. Performance measures.	Andreas Krause
11:00	Develop proposal process for water year specific funds	Ernie Clarke
11:45	Lunch	
12:45	Building stronger links between flow releases and adaptive management. <ul style="list-style-type: none"><li>- ID focal areas for workgroup address during remainder of this year (technical and administrative).</li><li>- decision tree for flow releases.</li><li>- 2012 science symposium</li><li>- WG participation in 2013 proposal process</li></ul>	Andreas Krause
1:45	2011 potential fall flows – make a recommendation.	Tim Hayden
2:45	ID statistical support needs for Flow Workgroup – ESSA workshop.	Andreas Krause
3:00	Wrap up / review action items and agenda items for next meeting	Andreas Krause
3:15	Adjourn	

## Outstanding Action Items:

Andreas Krause: finalize flow release briefing memo.

Tim Hayden: fall flow recommendation