Meeting Summary
FLOW WORKGROUP
TRRP Office, Weaverville, CA
November 7, 2012

Wednesday November 7, 2012, 9:30 PM

Participants

Core members: Eric Peterson (TRRP, Coordinator); Andreas Krause (TRRP); Eric Wiseman (USFS); George Kautsky (Hoopa Valley Tribe); Joe Polos (FWS); Tim Hayden (Yurok Tribe). Via Webex: Wade Sinnen (DFG)

Other members: Ernie Clarke and Rod Wittler (TRRP); Robert Franklin (Hoopa Valley Tribal Fisheries). Via Webex: Seth Naman (NOAA Fisheries); Teresa Conner (DWR); John Bair (McBain and Trush/HVT consultants).

Members of the public: Russ Bennett, Bill Brock (USFS). Via Webex: Kelly Gant

Note taker: Gus Kormeier (Ecosystems Northwest).

List of Action Items Developed at the Meeting

Eric Peterson will make minor edits to the Binder Document and it will be completed.

Eric Wiseman will take the lead on a Variable Flows sub work-group with specific tasks of developing hypotheses and proposals.

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

Workgroup members will prepare for the Phase One review on December 7.

Ernie Clarke will follow-up with Don Reck about fall flows.

Eric Peterson is going to get Andreas' comments on the safety of dam releases.

Eric Peterson will send out the calendar of upcoming meetings (2/25, 3/28, and 4/10)

Summary Meeting Notes by Agenda Items

1. Introductions/ Documentation of WY2012

Eric Peterson welcomed the group for his first meeting as Flow Workgroup coordinator and started with introductions.

2. Documenting the schedule recommendation: Binder Doc

Eric Peterson introduced the topic of last year's binder document. The binder document was a 60-page report that documented how the flow schedule for 2012 was developed. It was judged to be about 90 % "there," but it remained a challenge to understand the process. Never-the-less, they decided to keep the document as is and to develop a primer or guide. Peterson passed out a handout comprising the draft guide which included acronyms, table of contents, and references. The intent was to prepare a separate document to cover the entire water year's decisions and actions. Peterson asked for the group's feedback.

Robert Franklin asked about the primer document and specifically the statement that the top objective for the year was temperature compliance. Rod Wittler replied that the decision was later modified to be based on a riparian experiment. Peterson stated that the intent was that the document would match what was actually given to the TMC, in a historical context. The group discussed the intent of having a historic record of the decision making. Ernie Clarke and Peterson stated their intent was to setup a template and to have this information put together earlier in the year in the future.

George Kautsky raised an issue with the statement on page 2 about the fall flows. It was decided that Kautsky would send language changes to Peterson.

A discussion followed concerning other non-ROD flow management actions such as the 2012 fall flow effort, with Robin Schrock suggesting an "Other Flow Recommendations" section to be included every year to consistently document recommendations and flow adjustments made during the year. There was also a discussion about the document being long and the tension between being comprehensive versus readable. Clarke stated that they were working on having a technical editor take a look and make suggestions for future year templates. Peterson clarified that the binder document is "for the record", and while much formatting could be improved, but has not been for the sake of record. Peterson then asked for consensus of keeping the document as is, with edits suggested by Kautsky.

Action item: Eric Peterson will make minor edits to the Binder Document and it will be completed.

3. Water Year 2012 Annual Report

Rod Wittler went over using the layout of the *Flow Releases and Diversions on the Trinity River*, a document that Andreas Krause developed last year for WY2011. Wittler asked that Flow Workgroup members review the document. Ernie Clarke stated that most comments on last year's document were related to text, not layout. Seth Naman suggested combining this document with the planning document. Clarke stated that the binder document was the plan or "As Built," whereas the Water Year Annual Report records what did get released and what analysis was done. Robin Schrock suggested changing the names to make it clearer that there is a "planning" document and a document that recorded "what happened." There was a discussion that the intent is for the "Binder Document" or Flow Recommendation document to be done after the April briefing to the TMC.

The group discussed whether the decisions and actions met the objectives. Schrock and Clarke clarified that the intent was to document what was done and the thinking behind those decisions. The analysis or results of experiments and the outcomes would then be done in their respective

groups at later times. Much of the outcome information would not have results until years in the future. Wittler stated that he intends to have a draft done by the start of 2013.

4. Tracking Spreadsheet

Rod Wittler went over the Tracking Spreadsheet. It has been available for the last few months and has made it easier to coordinate with the BOR. The Tracking Spreadsheet was useful in illuminating that a gage in Lewiston had been moved and was not reporting accurate temperatures. Wittler asked the group for suggestions of data to keep in the spreadsheet. There was a review of the graphs in the Inflow Forecast Tracking spreadsheet. The charts were based on April through July run-off amounts. There was a discussion of using half the flow year, versus the entire year. Wittler stated that the primary value is in formulating what to expect from the snow runoff.

Wittler then went over the inflow tracking data that he collects daily from the CVO website. The data is limited to only Trinity Reservoir watershed, not the Lewiston lake watershed. The data can also include negative days where the reservoir's evaporation exceeds the inflow. The Cumulative Inflow Tracking sheet showed the actual versus predicted inflows, there was a discussion of expectations last year with the small snow pack.

Wittler showed the Actual versus Predicted Flow graphs of inflow for April and May. He then reviewed the 2012 B2 Operations Forecast with the End of Month Storage. The graph showed the storage exceeding forecast until September. Robert Franklin brought up the fact that the storage is also affected by exports through Whiskeytown. Wittler continued by showing the Hydrograph Performance graph, pointing out the balance of acre feet aspect of the graph. Wittler clarified that errors in the balance were made during the high flows for sediment transport when large amounts were flowing but that the errors were quickly fixed.

He continued with the Temperature Target Tracking graph which showed an example of changing temperature gauges leading to different results. Wittler stated there were no temperature exceedances in 2012. Kelly Gant brought up the difficulties the Forest Service has been having with getting snowpack data. Wittler responded that the models predictions were very close the actual and he does not see a problem with the models making informative predictions. There was a discussion of weekly reports versus monthly reports; some people did not need weekly while others appreciate it especially during the higher flows of the Recession Limb.

Tim Hayden asked about linking temperature effects on emergence timing and egg incubation. Wittler stated that he needs to get flow data from Weitchpec. Eric Peterson asked about incorporating catch and weir data into the graphs. Joe Polos suggested that those are kept separate. Closing out, Wittler stated that he hopes people are able to use it as a tool to extract data from or add upon.

Current Topics

5. Variable Flow Ideas: Summer

Rod Wittler explained how the Temperature Work Group had gone over a model for real-time temperature management. Andreas Krause had been asked to look into using the 10-day forecast

to bank water over a two-year period. They developed a model and found the amounts were too small. They then made a pretend water-year exercise with a 10,000-acre-foot bank excluded from the annual water flow amount for emergencies, then incorporated the 10-day forecasts. They are still working on this model to see whether it works or not. The objective was to reduce exceedances to zero by banking water to use during weeks with high air temperatures. There was a discussion of different flows versus effect on vegetation versus temperature. John Bair stated that they typically use the upper-stream measures because they provide the most variability in flow and temperature. Bair discussed how the summer flows favor plants that seed over extended periods versus those that seed early in the season; thereby favoring narrow-leaf willows. Changing the average flow favors the narrow-leaf willow, because the flows are steady.

6. **Variable Flow Ideas: Winter**

Eric Wiseman discussed his general hypothesis that the ROD flows do not match the tributary flow regime in the winter and that the annual hydrograph does not match with actual. There are some components that can be refined. There was some discussion about having a Variable Flow sub-workgroup.

Wiseman suggested a model looking at the first of each month and the 50% exceedance in flow. He suggested keying the hydrograph from the tributaries that would produce more variability in the winter in the river. Seth Naman brought up wanting the variability in the winter to match with the more natural flows, compared to the receding flows in the summer. Decreasing flows from 450 to 300 on October 15 was referred to as an example of going in the opposite direction, an outcome of having summer and winter flows at the expense of fall. Robert Franklin gave a history of decisions made 15 years ago. The decisions were made on set volumes of water and definitions of needs were made.

Group members discussed the constraints of the flow controls. Joe Polos and Tim Hayden discussed the high burden of proof for changing the base flow and the need for having an understanding of how managed flows affect rearing habitat. Peterson summarized, there is interest in variable flows in summer and winter, the temperature and hydrology studies are available, but there is a need for habitat information. Wiseman talked about linking the flows above the reservoir and the activity in the tributaries to the flow in the main-stem. Wittler brought up that reducing the length of the high-flow periods would not be hard to support, but there would need to be support for transferring that water to another period like in the fall or winter.

Bill Brock asked where the focus is on the river. Wiseman stated that the upper-reach below the dam would be the most. There was a point made that this where the highest spawning occurs.

The group discussed gaming or creating models for setting the flows and meeting objectives. Bill Brock stated that the intra-annual models would have the requirement of never having the flows dip below the annual requirement. Planning decreased flows would have competing objectives to deal with, like the water quality board.

Peterson made the suggestion that there be a sub-group to write up specific hypotheses and proposals for variable flows, most likely focusing on winter flows first. Those proposals would then be discussed by the full workgroup. Meanwhile, a couple of people appointed by the group would go through a gaming exercise to see how the summer variable flow regime would flow to

improve the heterogeneity of plants. Kautsky asked that the wording include testing of the hypotheses, objectives, and current observations of the tributaries flowing high while the main river is placid. There was a discussion of hypotheses and outcomes.

Eric will lead the sub-group, Rod Wittler will be in it, Eric Peterson agreed to advise on parts, James Lee was suggested, and John Bair wished to be included. Rod Wittler suggested having Joe Polos or Robert Franklin. The first charge to the subgroup was to layout objectives and hypotheses.

Action item: Eric Wiseman will take the lead on a Variable Flows sub work-group with specific tasks of developing hypotheses and proposals.

Lunch

7. **Ongoing Riparian monitoring of WY12 Riparian-focused hydrograph**

John Bair gave a presentation on WY2012. He began by reviewing the objectives for the year. Some objectives were to increase large woody debris and create a wet ground period for germination of plants. He showed graphs to display seed dispersal and discussed variations in the seed dispersal timing. There was a discussion of why the Narrow-leaf Willow is undesirable, which was refuted as more that the conditions have favored a mono-culture. So the intent was to provide conditions that promote a diversity of species. He displayed the 2012 TMC Adopted Hydrograph compared to historical records, showing how the adopted hydrograph mimics normal water years between 1911 and 1961. There was a point made that "normal" years are not that common. Bair reviewed the Recession Limb Performance, calling out how the actual performance was very close or met the target. Bair displayed some images of locations like Reading Creek during the flows. He showed more pictures of growth of cottonwoods from 2011 and 2012. He stated that the seed dispersal data was based on 2004 observations and that the 2012 flows were unfortunately timed before Cottonwood seed dispersal had begun. "We are documenting up to the 4500 cfs a diversity of species. The 4500 cfs bench and below is effective, but the data is not showing much plant development above the 4500 cfs level." Kautsky raised some concern about the interpretation of the greater than 4500cfs plant establishment being possibly the result of the steep decline in the hydrograph from 6,000 to 4,500 cfs. Rod Wittler asked how much the recession limb needs to be done in real-time relative to timing with seed dispersal. Bair responded that the releases could be managed relative to seed dispersal, but that his intent is not to have this kind of event every year. Bair proposed that the receding limb works as a tool to use when wanting to facilitate regeneration of trees.

8. **TPUD briefing on Lewiston Power Plant – Ongoing/Planned Analyses**

Paul Hauser began by introducing himself. He has been in the job of TPUD director for about 13 months. Right now, the project is officially on hold. He plans to take a proposal to reinstate the project to his board in January. There is an existing 350 KW plant that powers the fish hatchery. The 2000 Record of Decision created the opportunity for more generation. The engineering plan that has been approved by the BOR is for a 2200 KW generator. The TPUD does not need renewable energy, but the TPUD has a contract to sell the energy to Redding. The first bid on equipment began a year ago, the lowest bidder defaulted and there was a re-bid. The original project estimate was $10.7 M. The equipment was estimated around $3.5 M, the lowest bid came in around $2 M. The installation bid was finalized and was dramatically over budget. The

overall price tag is now estimated from the bids is over $17 M. The TPUD attempted unsuccessfully to re-negotiate with Redding. The project was coming up with a 36 year pay-back, while the TPUD has only a 40 year lease of power privilege. To sum up, the project was cancelled pending additional negotiations with the BOR. The BOR has recently agreed to allow TPUD to own the equipment which will reduce the payback to just less than 30 years.

There is an $800,000 cost for environmental benefits that will improve the output for juvenile salmon and more importantly lowering the intake to draw water from below the thermal curtain. The plan calls for an intake 35 feet below the surface. During a discussion of using the new intake to lower water temperatures coming out of the dam, the point was raised that the water could get too cold for salmon. The group discussed the option of extending the intake pipe lower. Robert Franklin asked about the possibility of the Lewiston dam being removed and the effect on the TPUD. Seth Naman raised concern that the temperature decrease might possibly not be that great an impact on the fish.

Hauser stated that the TPUD is willing to have a lower intake or other design improvements, but is not able to pay for them, and time is short. There is a real possibility that the TPUD may decide not to proceed at their next meeting is in December. Rod Wittler asked what the benefits are for the TRRP and this was discussed as mainly lower water temperature.

9. **Fish and Fall Flows: preliminary notes**

Wade Sinnen began a Powerpoint presentation on preliminary data of Fall Flows, the Klamath-Trinity Flows, and Fish Update. The plan was to supplement flows to avoid an event similar to a 2002 fish die-off. Projections called for 380,000 fall Chinook, the biggest run since 1978. The flow was designed to prevent a fish kill and provide a bank of water for emergency use to mitigate the extent of a fish kill. The recommendation was based on interrupting disease instead of trying to reduce water temperature or provide migration cues. There was monitoring going on to identify any occurrence of Ich and to implement emergency flows if necessary.

The flows began on August 13; augmented flows came from the Trinity side. Flows returned to summer baseflow at 450 cfs on September 20. Approximately, 39,000 acre-feet were released for this purpose. The Preventative Fall Flow Releases met the goal of 3200 cfs at Klamath. The Trinity flow release mimicked the flows seen at Klamath except for one point where an additional release was done on the Klamath River for a tribal ceremony.

Observations showed that the flows decreased the temperatures on the Trinity River and Klamath. Regarding the objective of preventing a fish kill, it is highly unlikely that one will occur during this year. Sinnen reviewed the catch data available which suggested that the harvest peaks were a little earlier this year. Review of the Willow Creek weir data shows that the peak of Chinook caught happened later this year than the average. Looking at the Shasta River Chinook timing, he showed that the run typically peaks around October 1st. He suggested comparing the run timing between the Trinity (with increased flows) versus the Klamath side of the river at the monitoring stations above the confluence.

There was a discussion about the fish counts and how the fall estimates were based on Klamath numbers, which likely differ from the Trinity River Hatchery return numbers.

Sinnen reviewed the fish health monitoring; there were no incidences of Ich found this year and no substantial reports of mortalities. He then reviewed the potential negative ecological

consequences. Premature emigration of juvenile lamprey—not able to answer. The dewatering of spring Chinook salmon redds was not observed. The coded wire tag data has not been evaluated yet to determine whether or not increased hybridization of spring and fall Chinook runs has occurred. With regards to any delay in gonadal development, they still need post season spawn-time information. The negative effects on amphibians and reptiles are also unknown. Overall, there was no fish-kill, but there was discussion of whether no augmentation would have had the same outcome.

10. **Parametric analysis of Lewiston & Trinity Reservoir temperatures**

Rod Wittler looked into how the group has been doing relative to performance measures at Douglas City and Weitchpec. He hopes to put together temperature profile history in Trinity Reservoir for analysis. The original data or assumptions by Merlin were possibly based on limited information, the hope is to firm up the understanding of temperature profiles in the lake. He is going to update his analysis for 2012 and 2011 and calculate the exceedances before reporting back.

Future Topics

11. **Prepare for Science Symposium and Phase One Review**

Ernie Clarke told everyone to be ready to look at the Phase I review. The report will be given from the SAB to the Workgroup on December 7, and the hope is to have it reviewed by the group in two weeks (December 21st). Tim Hayden asked that the level of review be articulated.

The Science Symposium has been planned for the week of January 7. There will be a day of presentations from the review and related topics about the science that informed the evaluations. Clarke reviewed the outline of the schedule for sessions.

There was a discussion amongst the group about the immediacy of the comments before the January 7 Symposium and whether they could be incorporated into the presentations. The SAB members had made these days available for discussions with the working groups.

12. **Work Planning for FY2014**

Ernie Clarke remarked that the SAB has suggested that the Flow Workgroup wait until the Phase I review is done to begin planning for 2014. There was a work plan review initiated, but nothing has been delivered yet. Clarke stated that prior reviews have shown that there needs to be more linkage between projects.

13. **Next Steps/Review of Action Items/Action Tracker**

The group then considered flow schedule meetings for next year and set the following dates: February 25th for the first flow schedule meeting for 2014; March 28 to establish flow recommendation to the TMC; present to the TAMWAG on April 1. A backup meeting is scheduled for April 10.

Joe Polos asked if the program was considering seeking input if safety-of-dams releases were needed since Trinity Reservoir is fairly full so early in the water year. Rod had previously distributed the SOD criteria to the workgroup. This was done previously when SOD levels were

approached. Eric Peterson will consult with Andreas Krause who coordinated the previous effort and send out information.

Eric Peterson led the group on a review of the Action Tracker. There were some clerical cleanups, six that could be marked as done. The three remaining ones were all deemed in the realm of the Variable Flow sub-group. The last remaining action item is to develop a manual on how the annual process is done. This is related to the Scheduling Document. This item was changed to "in progress" as it was deemed related to other documentation efforts underway.

Adjourn 3:00 PM

DRAFT Version Date
2012-Oct-19

Nov 7, 2012
9:30AM

Flow Workgroup
Meeting Agenda

TRRP Office, Weaverville WebEx Available: links TBA

Coordinators:	**Eric Peterson** **Rod Wittler**
Desired Outcomes:	Closeout of 2012 release recommendation Initiation of WY2012 flow report Continue discussions of summer/winter adaptive management flow experiments/adaptations Work planning for FY13 flow activities
Please read/review:	Current Conditions Spreadsheet WY2012 release recommendation binder and TOC for WY2013 (PDF) ???
Please bring:	Questions for presenters

Agenda Items

Time	Topic	Presenter
2012 Flow Scheduling		
9:30	Introductions / Action Tracker	Eric Peterson
	Documentation of WY2012	
9:40	Documenting the schedule recommendation: Binder Doc	Eric Peterson
10:00	Water Year 2012 Annual Report	Rod Wittler / Andreas Krause
10:20	Tracking Spreadsheet	Rod Wittler
	Current Topics	
10:40	Variable Flow Ideas: Summer	Rod Wittler
11:10	Variable Flow Ideas: Winter	Eric Wiseman
11:40	[lunch]	
12:30	TPUD briefing on Lewiston Power Plant	
	Ongoing / Planned Analyses	
13:00	Ongoing Riparian monitoring of WY12 Riparian-focused hydrograph	John Bair
13:15	Parametric analysis of Lewiston & Trinity Reservoir temperatures	Rod Wittler / Paul Zedonis
13:30	Fish and Fall Flows: preliminary notes	Wade Sinnen /

		Seth Naman
13:45	other?	
	Future	
14:00	Prepare for Science Symposium and Phase One Review	Ernie Clarke
14:20	Work Planning for FY2014	Ernie Clarke and Eric Peterson
14:50	Next steps/Review of Action Items	Eric Peterson
15:00	Adjourn	