Long-term Experimental Plan Ad Hoc Meeting
Bureau of Reclamation Native American Affairs Office
400 N. 5th Street
Phoenix, AZ

May 26, 2004

Draft Agenda:

9:00 Welcome and Introductions
9:15 Meeting Objectives (what do we intend to accomplish at this meeting? what is the role of the ad hoc in completing the LTEP?)
9:45 Objectives of the LTEP (what is the plan intended to accomplish?)
10:45 Review of the GCMRC Proposal (how well does it meet our proposed objectives? does it facilitate our questions being addressed and hypotheses being tested? what information is missing?)
11:15 Informal Presentations: Tom Ryan: Hydrology Scenarios
Dave Topping: Fine Sediment and Hydrology (*see attachment to accompanying e-mail*)
Bill Persons: Trout

12:00 Lunch

1:00 Alternative Approaches to the LTEP (block vs titration approach; necessary core elements; risk assessment for test of extremes; anticipated analysis to determine effects)
3:00 Develop Recommended Process, Schedule, and Approach for Interaction with GCMRC and Finishing the LTEP
4:30 Schedule Next Meeting and Agenda of Ad Hoc

Suggested questions to be Addressed:

1) What are we trying to determine with this experimental effort?
2) How are we going to measure and analyze the effects of our experimental actions?
3) How are we going to incorporate uncertainty in reservoir elevations, dam release volumes, and release temperatures into our design?
4) Does our proposed design depend on providing specific flows and release temperatures, or is it flexible enough to be adapted to variation in these driving variables?

Meeting Minutes:

Action Items Indicated by >>>

Attendees
Norm Henderson, Dennis Kubly (chair), Kelly Burke, Mike Yeates, Clayton Palmer, Wayne Cook, Barb Ralston, Randy Peterson, Ken Rice, Bill Persons, Jeff English, Tom Ryan, Mary Barger, Bill Davis, Glen Knowles, Gary Burton, David Topping

Meeting Objectives:

What do we intend to accomplish at this meeting?

- *Assist TWG and GCMRC to produce a progress report on LTEP to AMWG in Aug and to develop a LTEP for recommendation to AMWG by Oct meeting*
- *Review GCMRC LTEP proposal and provide feedback*
- *Review input from WAPA and others*
- *Establish a set core questions for LTEP to address*
- *Define the necessary elements within the LTEP*
- *Discuss/decide approaches to experimentation (many elements vs few)*
- *Decide use of MATA process to develop LTEP*

What is the role of the ad hoc in completing the LTEP?

- *Assist (make recommendation to) TWG in working with Science Advisors and GCMRC to recommend an LTEP to AMWG*

Objectives of the LTEP? (No consensus was reached on objectives of the LTEP):

- *Determine how flow extremes (steady vs. high fluctuating flows) affect resources (hbc and sediment)*
- *Target/benefit above resources understand effects on other resources (minimize negative impacts to other resources?).*
- *LTEP may negatively affect targeted resources in order to gain valuable information for long term management*
- *Define experimental actions other than flows*
- *Conserve sediment and improve conditions for hbc (habitat, competition)*
- *Implement extremes (to show effect) vs. small changes (that may not show effect)*
- *Specify general experimental approach (take all actions at once vs. titration/block design)*

Chairperson Comment: There are at least two divergent schools of thought with regard to objectives of the LTEP. One group thinks that the LTEP is a set of experiments having a set of replicated (in time) treatments, including dam operations and other actions, that will be conducted over a period of 10 or more years to provide comparisons of resource responses to these treatments. Information gained from the experiments would be used to develop management actions that could become permanent. The second group holds that the LTEP is a collection of actions that are known to (or have a high probability of) producing positive effects on resources of concern, here primarily humpback chub and fine sediments. The application of these actions needs to be consistent and repeated for a period of 6-10 years to discern effect. If it is determined that these actions are not having desired effects, they would be re-evaluated and a new set of actions put in their place (*please see the attachment on core elements submitted by Clayton Palmer and others*). The two groups were unable to reach a compromise during the ad hoc meeting. Therefore, the objectives of the LTEP identified above do not represent a consensus of thought.

Ad Hoc Feedback to GCMRC on their Draft Plan:

- CP – LTEP plan needs to be targeted at mostly improving resource conditions (sediment conservation and hbc) rather than understanding effects of the treatments
- CP – Block treatments need to be longer time (span variety of hydrological and climatic conditions). Why two years when hbc recruitment takes 4 years?
- MY – Shouldn't be just sediment conservation, but also placing sediment into targeted areas (and other targeted resources)
- BD - The design does not address other hypotheses for the decline in hbc (loss of primary productivity, disease/parasites, handling)
- GK – TCD should not be a random variable rather incorporate into block design (turn on and off like other treatments)
- DK – Do not see the logic of implementing MLFF in May, June and July in both stable and high fluctuating treatment blocks. If GCMRC is using extreme dam releases as treatments in an attempt to ensure a significant effect, why interrupt the steady and high fluctuating flows with MLFF flows?
- BD – Boundaries specified by WAPA (see attachment) not considered in GCMRC LTEP. Should be developed within these boundaries.
- MB – Plan should incorporate new science and not just an extension of previous 16 year plan assumptions
- JE – Reduce 5-31 range to 5-20 cfs because shoreline fishing is largely lost at higher flows. Replace steady flows with 5-6K cfs fluctuations to ensure some drift
- KB – Experiment in off channel ponds with native- nonnative interactions.
- KB – Where ever possible use GCEM model to answer questions.
- BD/CP – Question assumption that high discharge event can only occur Jan – July. Can experiment with high flows in any month <u>if bypass tubes are eventually retrofitted with generators for future management implementation</u>
- MB – Use HMF (powerplant capacity) to better store sediment after tributary input
- KB – Incorporate extended drought scenario into experimental design.
- RP – LTEP should incorporate low flows and warm water for next several years to make use of existing conditions
- DK – Consider tradeoffs (risk) between titration and block designs
- BD – Incorporate HBC comprehensive plan elements/actions (those that are experimental in nature) into LTEP, e.g., translocation of hbc into new habitat
- NH – GCMRC to review plan for best design to determine effects of individual treatments

Alternative approaches to the LTEP:

WAPA proposal (*see accompanying attachment*)– kitchen sink approach (all actions necessary to achieve positive responses from target resources, i.e. fine sediment and

hbc).. Emphasizes committing to actions in LTEP that will have positive effects on sediment and hbc, the key resources. Include all actions identified by WAPA and affiliates (Clayton Palmer on behalf of myself, Gary Burton, Mary Barger, Lloyd Greiner, Randy Seaholm, John Shields, Bill Davis, Ted Rampton and Leslie James) group as core elements (*see attachment*)

Extend GCMRC treatment times to 10-15 years
Focused on specific highlighted resources (sediment and hbc)
WAPA proposal and design a draft plan.

What Next??

1) >>>WAPA group to flesh out core elements into plan that can be better compared with GCMRC plan..

2) >>>GCMRC will consider ad hoc comments on their plan and provide responses.

3) >>>GCMRC to develop presentation on what is known, what is suspected, and what is not known for biological and cultural resources, similar to the Dave Topping presentation.

3) How does the interaction with GCMRC work in the development of the plan?

a) Many questions from GCMRC proposal that need to be answered.
b) Ad Hoc believes that it would be more productive to work with GCMRC and cooperating scientists, like Dave Topping, rather than back and forth with proposals. Need additional expertise from GCMRC and cooperating scientists to develop plan together. Need single liaison with GCMRC to work with the ad hoc; could use Steve Gloss
c) Ad hoc acknowledges that GCMRC stretched with CMP, and SP, but LTEP assignment and schedule have been given to GCMRC, TWG and SAs by AMWG

4) MATA may be part of LTEP path to completion; >>>TWG needs to decide and, if so, how.

5) Next ad hoc meeting proposed for June 8; is this time enough for GCMRC to provide responses, WAPA and others to flesh out their plan, and invitations be made to more cooperating scientists? >>>Chair to inquire. LTEP and CM ad hocs should meet concurrent with AMWG retreat. Need to have draft LTEP by mid Oct; final LTEP to AMWG in Jan/05

AMP experimental program ad hoc group
May 26, 2004 meeting in Phoenix
Additional follow-up comments

After yesterday's meeting concluded, a number of us were extending the David Topping discussion on what we knew (and might thus implement as a management action) and what we didn't know (and thus needed to address through experimentation). We crafted a chart of the seasons of the year displaying in simple terms,

	KNOWN	NOT KNOWN
WINTER	- continue trout suppression flows - mechanical removal of trout and warm water non-native fish	- test effects of alternative ramping rates
SPRING	- mechanical removal of trout and warm water non-native fish	
SUMMER		
FALL	- high flow test after Paria River inputs	- HBC habitat tests (TCD/warm releases, flows)

This approach might be viewed as a combination of

(1) implementing as management actions those things that we believe are moving the resources closer to the desired states expressed in the management objectives of the strategic plan (KNOWN), and
(2) conducting as experiments those things that we think might work, but which we need scientific evidence to justify due to expenditure of funds or negative impacts to other resources (NOT KNOWN).

We view yesterday's discussion positive from the perspective of recognizing the strengths and weaknesses of both the "kitchen sink" and "science for science sake" approaches (both Clayton Palmer quotes).

KNOWN

Bill Person's population model indicated that the winter trout suppression releases seem to be causing a decline in the Lees Ferry trout population numbers, one of the goals of this past experiment. While it may be unknown what the result has been downstream, the small group's sense was that this is an effort that should continue at least for the next block of the proposed experiment.

The mechanical removal effort near the confluence of the Little Colorado River has been effective in reducing the population of non-native fish in this location, but it will likely be

another 2 years before impacts to HBC recruitment and population estimates can be identified. The group's sense was that removal needs to include potential warm water predators that may expand due to warmer releases (lower reservoir conditions or use of the TCD).

Reports from the sediment scientists have consistently indicated that high releases following Paria River sediment inputs would be the most effective means of building downstream sandbars and conserving sediment. The fall high flow testing was a component of the Clayton Palmer proposal, but as discussed in the meeting, might be delayed until November 1 following a Paria River input to allow for accumulation of sediment from potential additional Paria River floods (recommendation from David Topping). The linkage with low fall flows described below would enable this to occur.

UNKNOWN

The impact of flow conditions and temperatures on HBC recruitment is largely unknown, although it is widely recognized that cold water is limiting reproduction and recruitment. The experimentation on HBC habitat would start during the months of September and October, and could consist of stable low flows combined with warm dam releases. Warm releases are expected for the next few years due to Lake Powell reservoir levels and low annual releases, but also could be implemented through the TCD starting in 2008. These low releases would also correspond with Paria River sediment input accumulation as described above.

The block design nature of the GCMRC proposal is retained in this fall effort, but with a block of 4 years to determine if HBC actually recruited to the adult population. After this initial effort, the experimental design could titrate, with an additional 4-year block designed to build on learning accomplished during the initial block. This second block could revert to cold releases, shift to alternative flow regimes to identify causal differences in habitat conditions, increase the degree of warming through use of the TCD, or expand to include other months earlier in the summer, all in an effort to identify differences in HBC population response. To assist in this titration, monitoring of backwaters and near shore habitat should be expanded to include spring and summer months to identify if mainstem spawning is occurring or when young of year HBC emerge from the LCR. Consistency of monitoring will ensure comparability among treatments.

Conclusion

This table and explanation is neither complete nor a final product, but indicates an approach that capitalizes on current knowledge and identifies specific experimentation with timeframes and target resources. It could be seen as a merging of the block and titration experimental design constructs. This also addresses the difference in public perception between "experimentation" and "making a change because we have learned something". We suggest (1) GCMRC compile a list of "known" and "unknown" statements for the biological discipline as David Topping presented for the sediment

discipline, and (2) the ad hoc group expand on the table with suggestions or comments on either the implantation of management actions or proposed experiments.