

Motion Passed by AMWG, January 18,
2002

- **Motion:** *In concert with RPA flows for native fish during 2002-2003 request that the GCMRC, in consultation with the TWG, design an experimental flow sequence that tests hypotheses for conservation of sediment. Report to AMWG in April 2002 on the proposed flow sequence.*



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FEB 15 2001

MEMORANDUM

To: Technical Work Group

From: Steve Gloss and Ted Melis, GCMRC *SGloss*

Subject: Experimental Flows

Attached please find material pertaining to our development of experimental flow recommendations pursuant to the AMWG motion passed in January. These materials are intended to provide a basis for discussion of this topic at the upcoming TWG meeting on February 26-27, 2002.

There are two Attachments. Attachment 1 is an updated draft of recommended flow scenarios which has been revised following our conference call of February 8. Attachment 2 is a document which captures questions asked in the conference call and provides answers to these questions. Since many of these questions may be asked by others, we are characterizing these as a set of frequently asked questions which will be provided with future drafts. The list of Q & A's will likely grow over time.

A word about the hydrograph figures associated with the flow recommendation scenarios. These are meant to be conceptual and illustrative only, particularly as regards the magnitude of flows or flow fluctuations during any particular period. They were developed mostly by piecing together elements of actual hydrographs from the past 10-15 years, because these were data we could easily access and combine. While the concepts and purposes we present for different periods of the annual hydrograph are important, there may be flexibility attainable in the actual flows used to accomplish objectives.

We urge you to read this material before the TWG meeting so that GCMRC and the TWG can work together to meet our responsibility under the AMWG motion.

Response Process

- GCMRC Draft Flow Scenario 1.1 on 2/7/02
- Conference Call Hosted on 2/8/02 For Discussion
- Began Development of Frequently Asked Questions
- Respond to GCRG Memo of Inquiry 2/11/02
- AGFD & GCMRC Staff Met w/Lees Ferry Guides 2/12/02
- GCMRC Mailing to TWG members 2/15/02
 - Draft Flow Scenarios 1.2, FAQ's, Corrected Fig. 1 (2/22/02)
- GCMRC met with GCROA 2/21/02
- TWG Meeting 2/26-27/02

The WY 2002 – 2003 experimental flow recommendation is intended to have two primary purposes

- improve retention of sediment in the CRE
- benefit native fish populations (primarily HBC)

Ecosystem Science and Adaptive Management Approach

- Experiments intended to be as comprehensive as possible
- Based on best available science knowledge
- Low risk with respect to resource integrity
- Recommendations are consistent with goals of the AMP, especially goals 2 & 8.

Specific Objectives WY 2002 – 2003 Experimental flows

- ◆ decrease downstream export of tributary input sediment from Marble Canyon
- ◆ increase short term retention of sediment stored in channel through low flows and long term retention of sediment in shorelines through BHBFs
- ◆ Reduce non-native fish abundance and thereby improve survival and recruitment of HBC by reducing competition and predation
- ◆ improve and maintain habitat for young native fish

WY 2002 – 2003 Hydrology
Assumption

Recommendations are based on an
8.23 maf water year

Working Hypotheses

- Sediment
 - Sediment not retained under normal ROD operations
 - Tributary input retained best at flows <10,000cfs
 - Fine sediment retained best at lower flows and may contribute to increased turbidity
 - Fine sediment may reduce erosion of bars
 - Experimental flows need to be responsive to opportunities presented by tributary inputs
 - Experimental fluctuating flows combined with BHBF may increase stability of stored sediment

Working Hypotheses(cont.)

- Native Fish (HBC)
 - Humpback Chub are not responding favorably to normal ROD operations
 - LCR Humpback Chub population is dependent to some extent on the mainstem
 - Non-native fish populations may be influencing HBC recruitment through predation and/or competition
 - Disadvantaging non-natives (trout) in the mainstem through fluctuating flows may indirectly benefit HBC
 - Sediment experiments may improve habitat and increase turbidity

Adaptive Management

- Sediment elements of experiments are reasonably well understood and likely to produce predicted response
- Fish aspects of experiments are more speculative but considered low risk and represent needed management action to begin addressing decline in HBC
- Experiments are complimentary

Figure 1. Fall Sediment Input- Sediment Retention Only

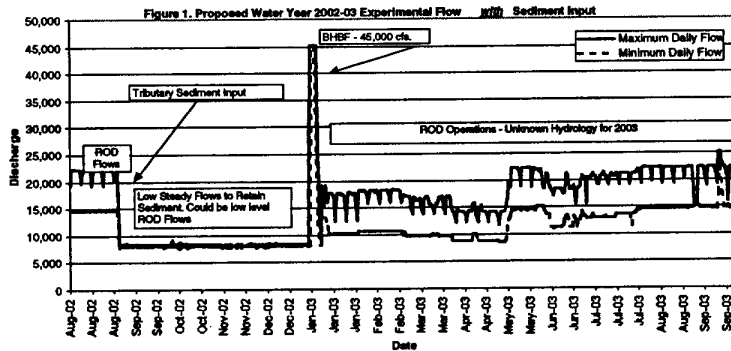


Fig 2. Combined Sediment & Native Fish Experiment

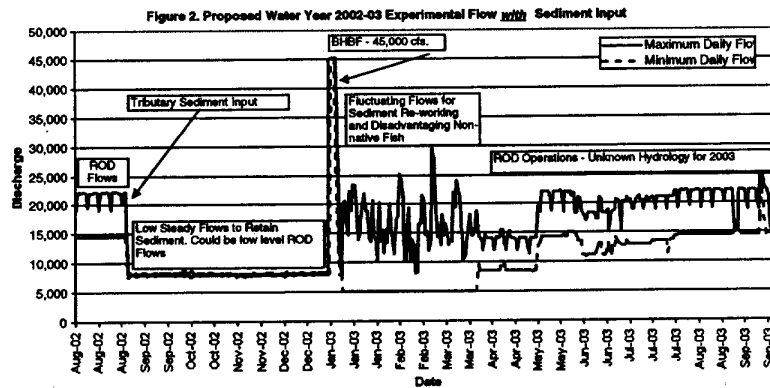
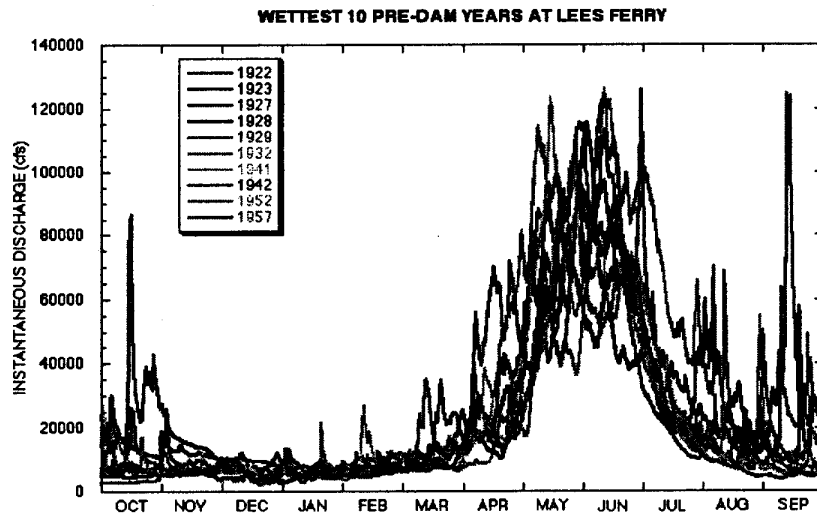
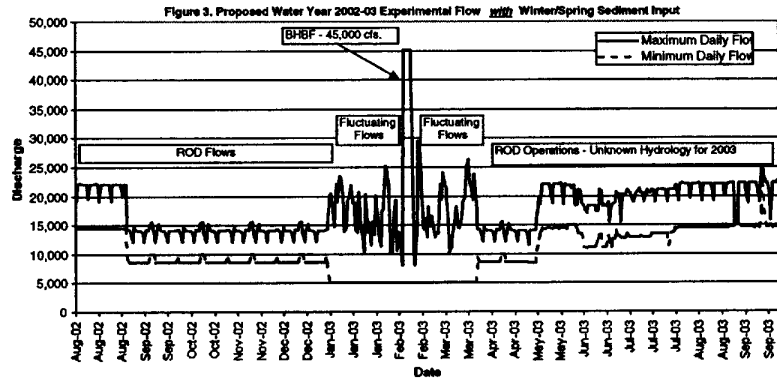
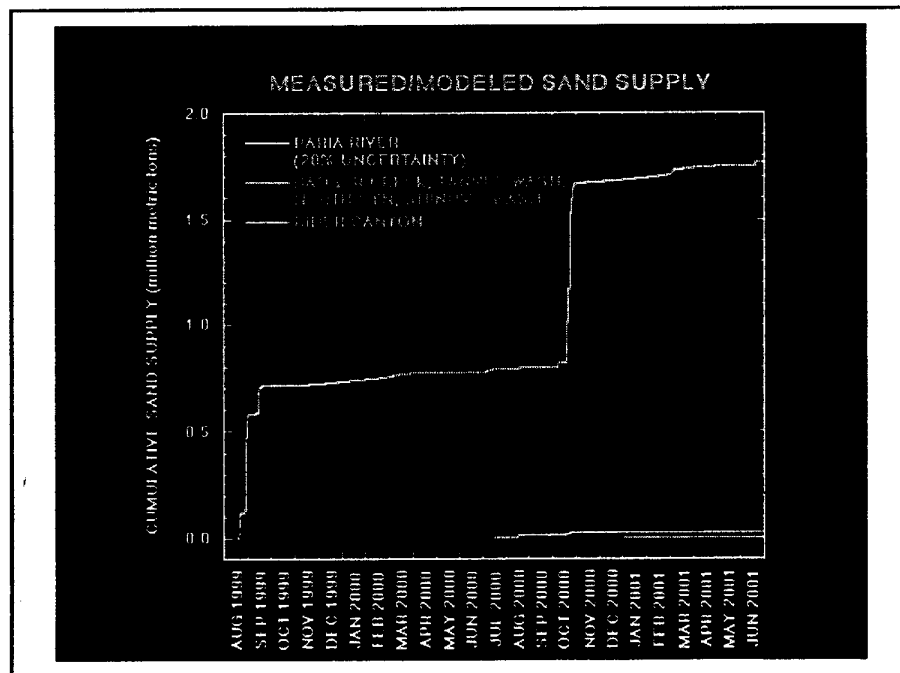
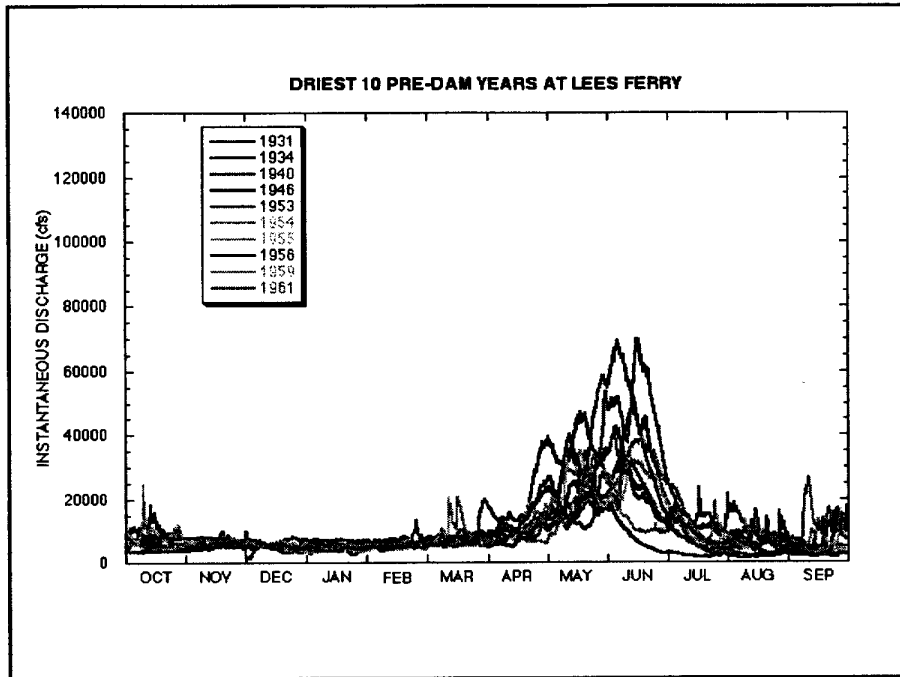
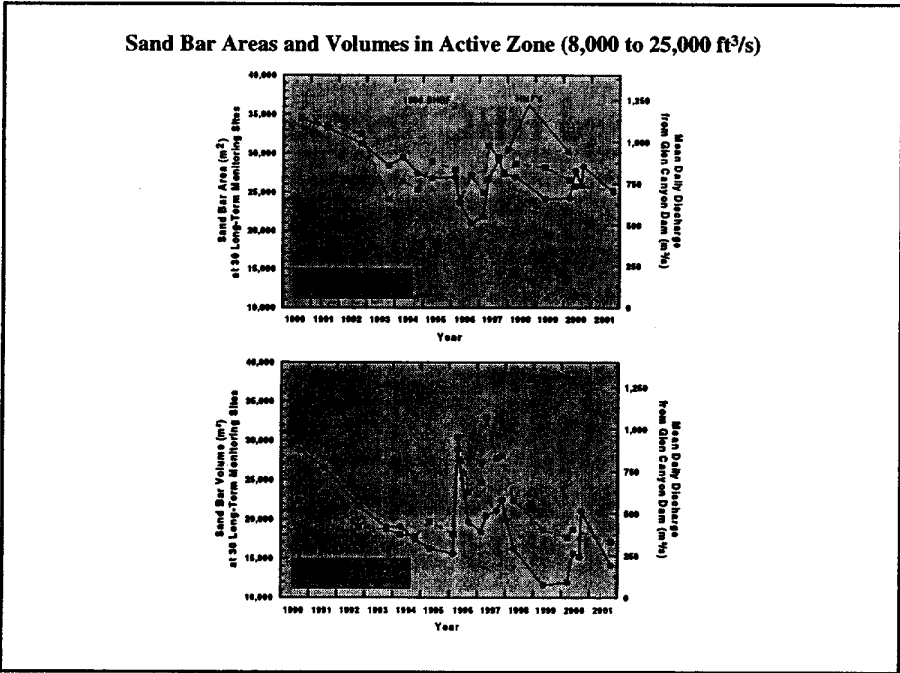
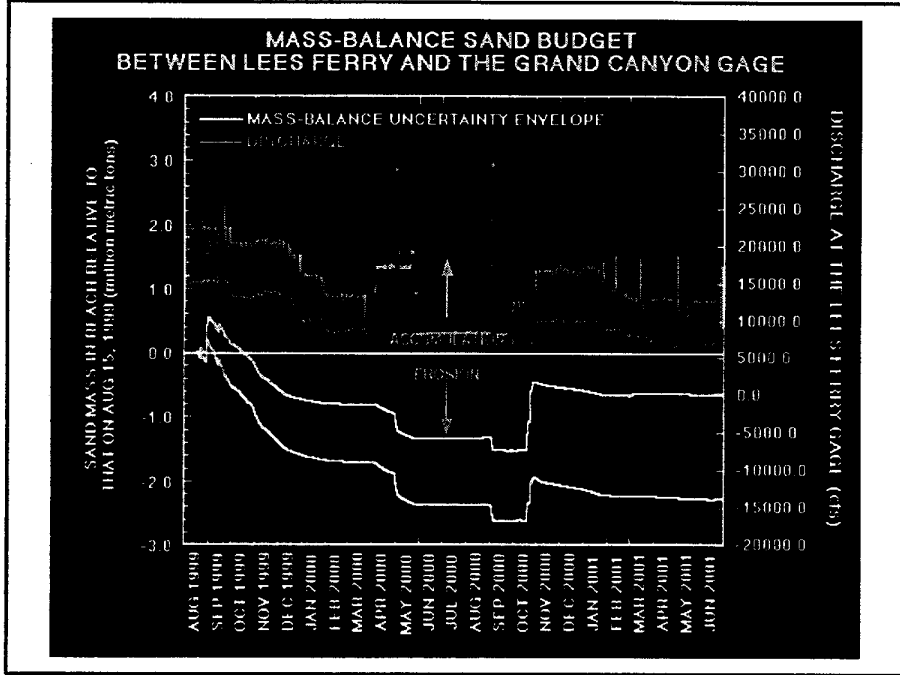
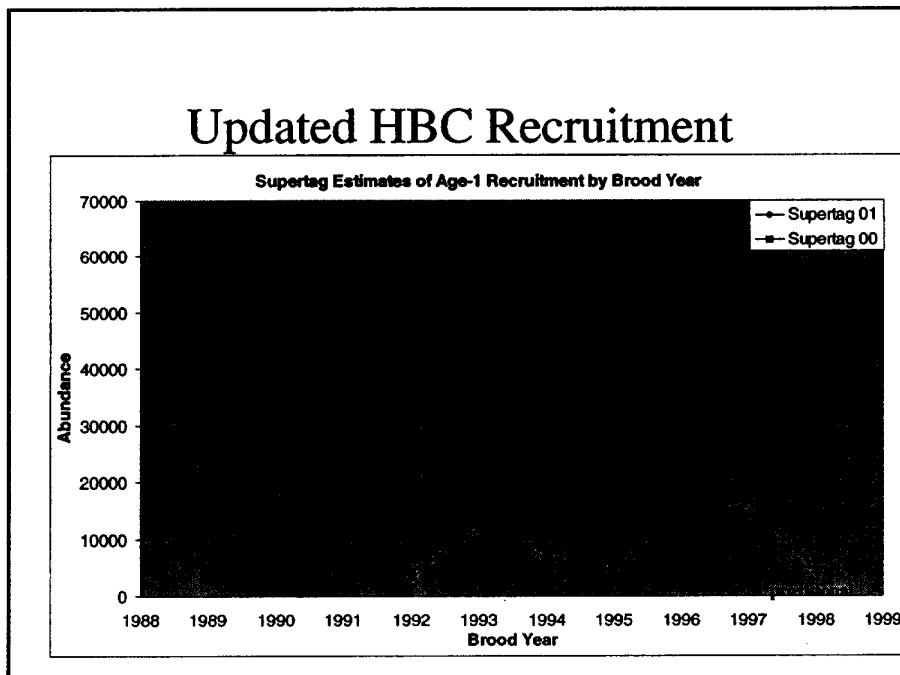
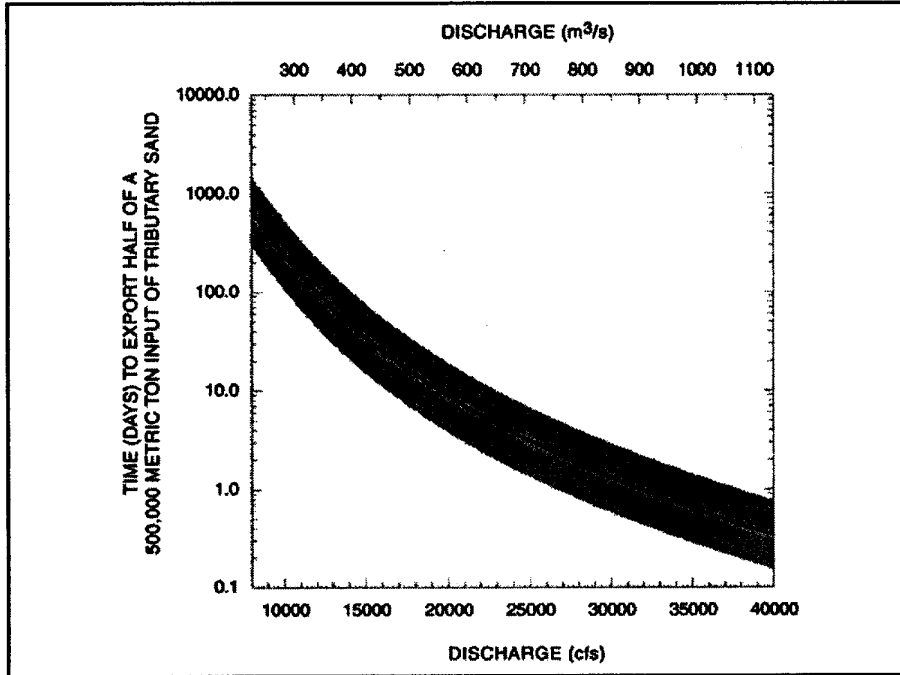


Fig 3. Winter Sediment Input









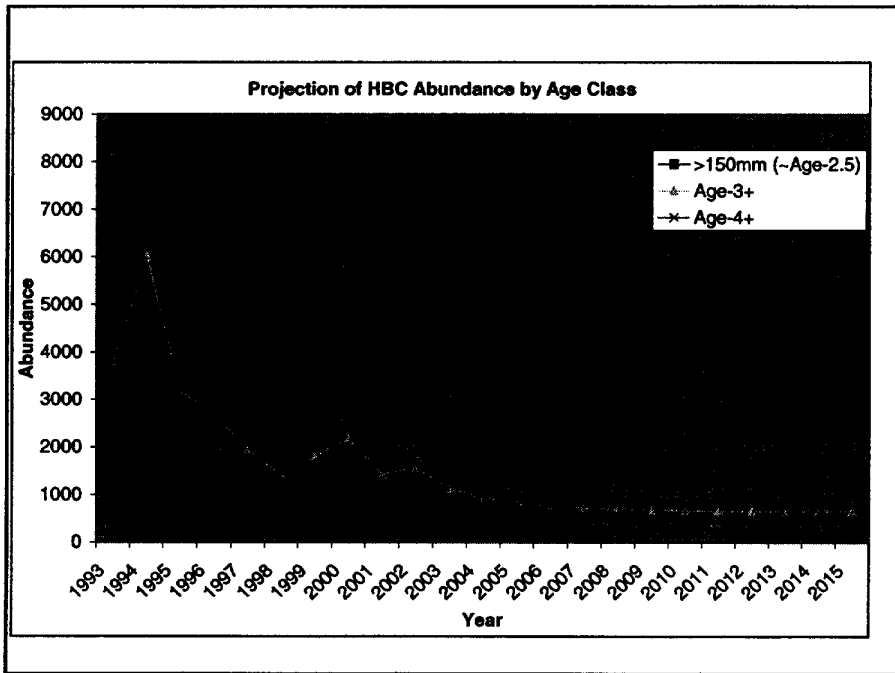
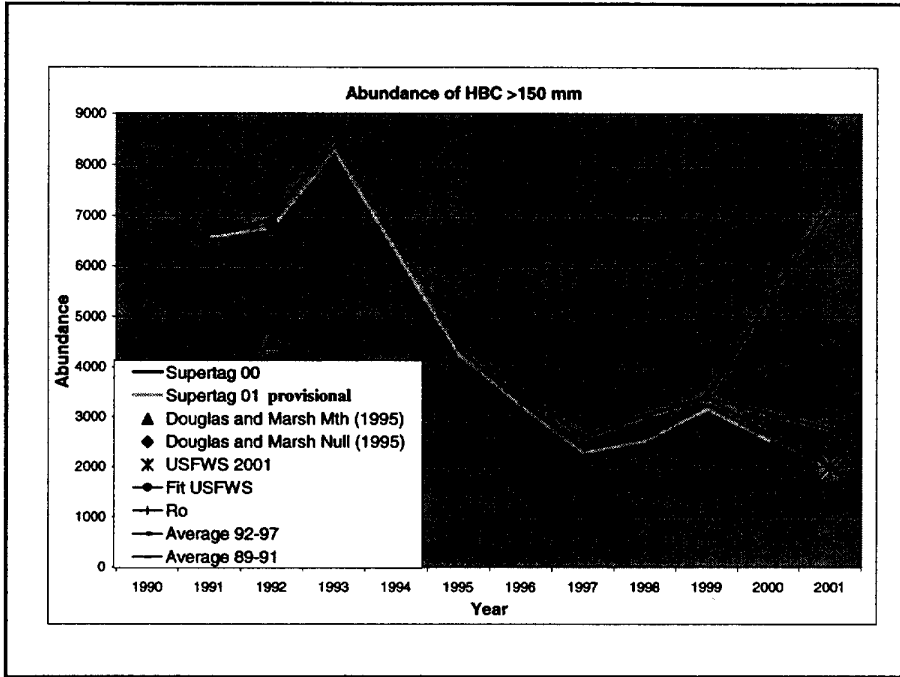


Fig 2. Combined Sediment & Native Fish Experiment

