Humpback Chub Methods Review

An Independent Panel Assessment of Methods Being Used By GCDAMP and the Upper Basin Endangered Fishes Recovery Program

Conducted as Part of Project 17 of the FY04 HBC Comprehensive Action Plan- Approved by AMWG

- Implications for FY04 Work Plan
- Implications for FY05 Budget and Work Plan

Report to the Adaptive Management Work Group,
Glen Canyon Dam Adaptive Management Program

An Independent Review of Ongoing and Proposed Scientific Methods to Assess the Status & Trends of the Grand Canyon Population of the Humpback Chub (*Gila cypha*)

Report of a Workshop Conducted During 6-7 November 2003 at the National Center for Ecological Analysis and Synthesis, Santa Barbara, California

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Process

- Scope of Work Prepared By GCMRC and Provided to Kitchell
- Kitchell Invites and Organizes Panel
- Kitchell Invites Participants and Provides Written Materials to Panel
- Workshop Convened at NCEAS
- Report Submitted to AMWG (USBR)

Two Day Workshop

- First Day Devoted to Information Gathering and Clarification Opportunities for Panel Members
- Second Day Closed to Panel and Invited Observers
- Subsequent Report Developed by Panel Members

Panel Recommendations

The analytical methods currently employed in the Upper Basin are appropriate *pro tem*, but could be improved as more data become available. The Panel encourages development of open population methods as the database improves and recommends development of simulation studies as a way to evaluate alternatives. In combination, those could help develop the "robust" approach advocated by many experts in population biology (Pollock 1982).

The Panel finds little merit in changing current sampling practices. Sampling should occur when the greatest number of fish can be captured with the least harm to the fish – i.e. spring in the Grand Canyon and fall in the Upper Basin.

Panel Recommendations continued….

The ASMR model proposed and applied by Walters and Coggins (2003b) is an appropriate way to deal with the biases introduced by heterogeneity in catchability related to age. It is based on the existing and proven methodology of Pollock (1981) and offers “best available science” as the source of evidence regarding the status and trends of humpback chub in the Grand Canyon ecosystem. The ASMR method can be improved and the Panel offers recommendations specific to future work in the Grand Canyon.

The Panel encourages development of a workshop where Upper Basin and GCMRC program participants can bring their data sets, work with alternative modeling approaches and evaluate estimation methods. This would allow sharing of expertise, discussion of differences among sites, and help build consensus about criteria for de-listing or down-listing.

Implications for FY04 & FY05

- Concurrent Mainstem and LCR Population Sampling Not Recommended by Panel

- Resources could be used to refine modeling and sampling effort and to further integration via workshops with Upper Basin & Recovery Program