Targets for Desired Future Conditions

Humpback chub

Sediment

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Serving the West with Federal hydropower
Western Area Power Administration
An agency of the U.S. Department of Energy

Humpback chub

M.O. 2.1

Maintain or attain humpback chub abundance and year-class strength in the LCR and other aggregations at appropriate target levels for **viable** populations and to remove **jeopardy**

Humpback chub

Definitions

Viability: Meffe and Carroll (1994) define an MVP as "the smallest isolated population size that has a specified percent chance of remaining extant for a specified period of time in the face of foreseeable demographic, genetic, and environmental stochasticities, plus natural catastrophes."

Humpback chub

Definitions

"Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.

Goal: remove the conditions that could result in jeopardy in a section 7 consultation; combine what we know from the 1994 BO and 2002 Goals

Humpback chub

Strategy: focus on describing targets that would remove jeopardy and result in a viable population

*This is basically what recovery criteria are supposed to address. Criteria describe a path to a viable species – and thus actions that promote recovery are unlikely to jeopardize.

*The 2002 Recovery Goals provide the logical place to start as it updates information contained within the 1994 Biological Opinion. Provide MVP.

Humpback chub

M.O. 2.2

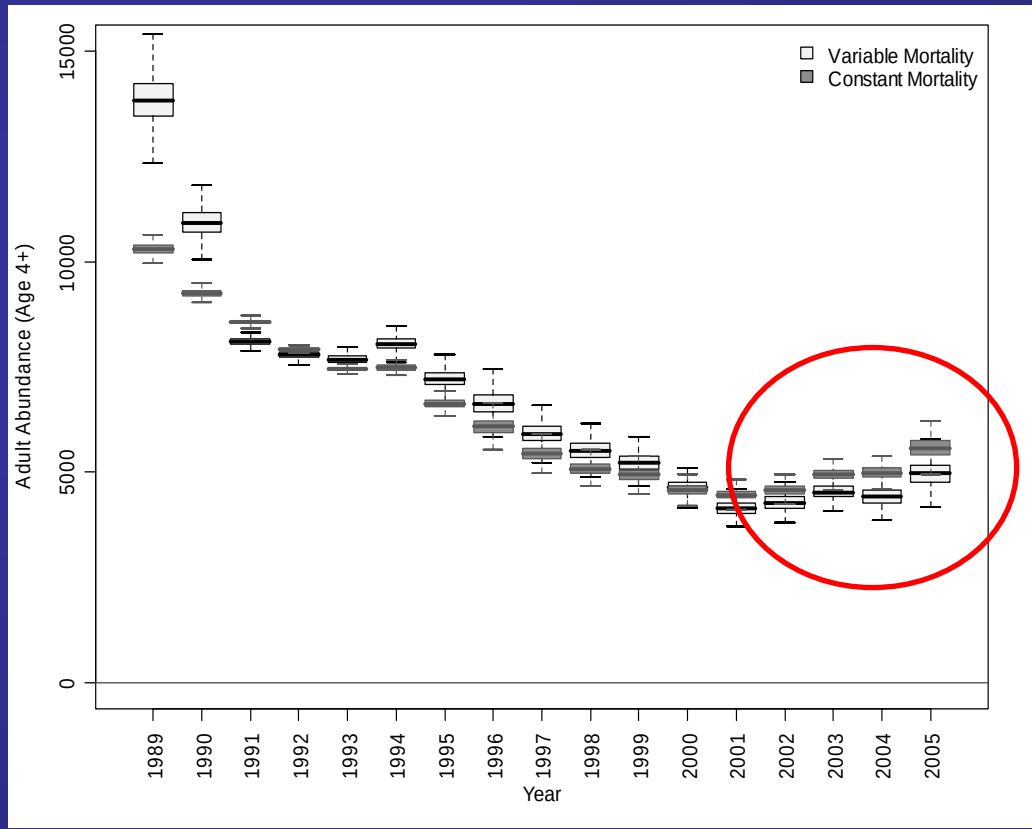
Sustain or establish viable HBC spawning aggregations outside of the LCR in the Colorado River ecosystem below Glen Canyon Dam to remove jeopardy

2002 Recovery Goals do not require a second spawning aggregation in the Grand Canyon recovery unit.

Humpback chub

KEY ASSUMPTIONS

- "first point estimate acceptable to the Service" from the recovery goals language could be made in the 2002-06 range due to robust stock assessments. The average from this time period is about 5,600.

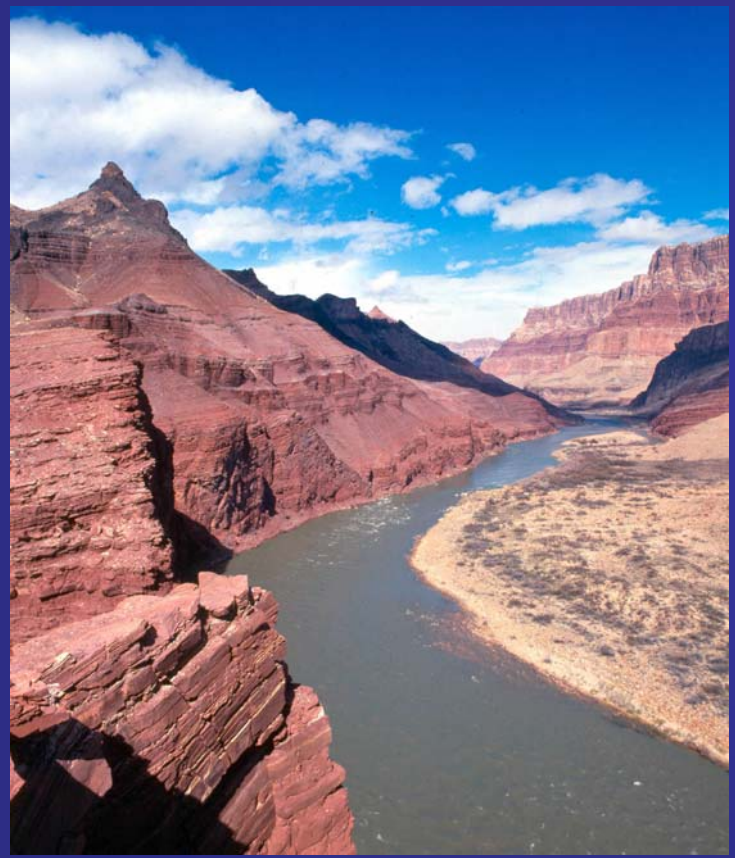


Humpback chub

KEY ASSUMPTIONS continued

- Stable, healthy populations above 2,100 would represent minimum viable populations (2002 Goals).
- The revised goals will be similar to 2002.
- All HBC downstream of GCD will be counted
- A stable population in the range of 5,800 – 7,300 adults should have a 99% persistence probability over 40 generations (Reed et al. 2003), thus a population of 5,600 HBC would be more risk-averse than the minimum of 2,100
- Further declines in the size of the LCR population would increase likelihood of extinction

Humpback chub Targets



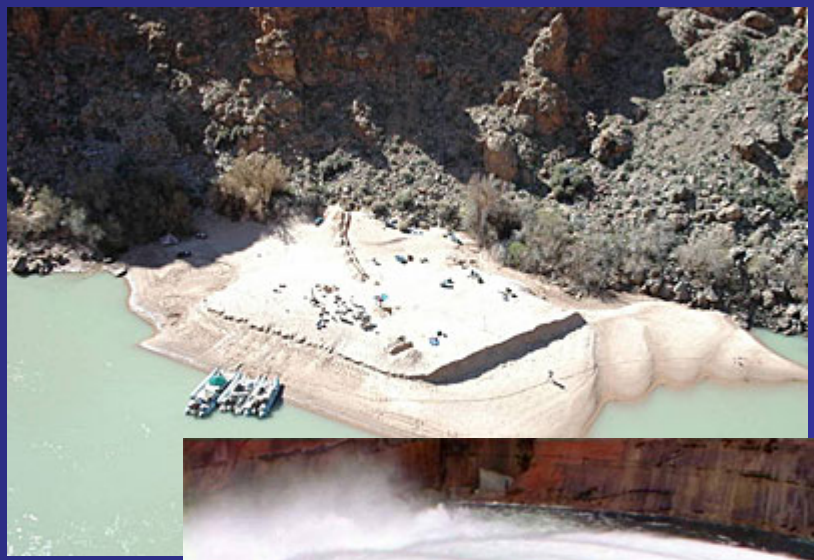
1. Trend in adult HBC is stable or increasing for 5 years
2. Population estimates exceed 2002-2006 average adults (5,600)
3. Recruitment of age-3 meets/exceeds adult mortality (MO 2.4)
4. Fish condition is monitored to support above evidence (MO 2.3)
5. Response plan Cameron bridges over LCR
6. Develop plans for other threats

Sediment

Short- and Long-Term Target

To slow or reverse the rate of decline of fine sediment deposits at all stages described in Management Objectives 8.1-8.5 over the ten-year period of the LTEP and beyond, throughout the CRE.

Sediment



Strategy and assumptions

- Recognize that sediment may have multiple uses, beaches, backwaters for HBC
- Sediment decline rate has been about 2-3% per year
- Assume that the rate of decline can be slowed or reversed in RM 1-87 using BHBFs and HMFs

Sediment

Strategy and assumptions

Step 1: model long-term average sediment level that would be sustainable given natural inputs. Through a trade-off analysis apply various tools at different levels to determine the level of sediment mass that could be sustained with insignificant harm to other key resources.

Sediment

Strategy and assumptions

Step 2: Translate the optimum sediment mass produced in Step 1 into an estimate of:

- The numbers and size of camping beaches in critical reaches.
- The area and number of backwater habitat.