

RECLAMATION

Managing Water in the West

Non-native Fish Control Implementation

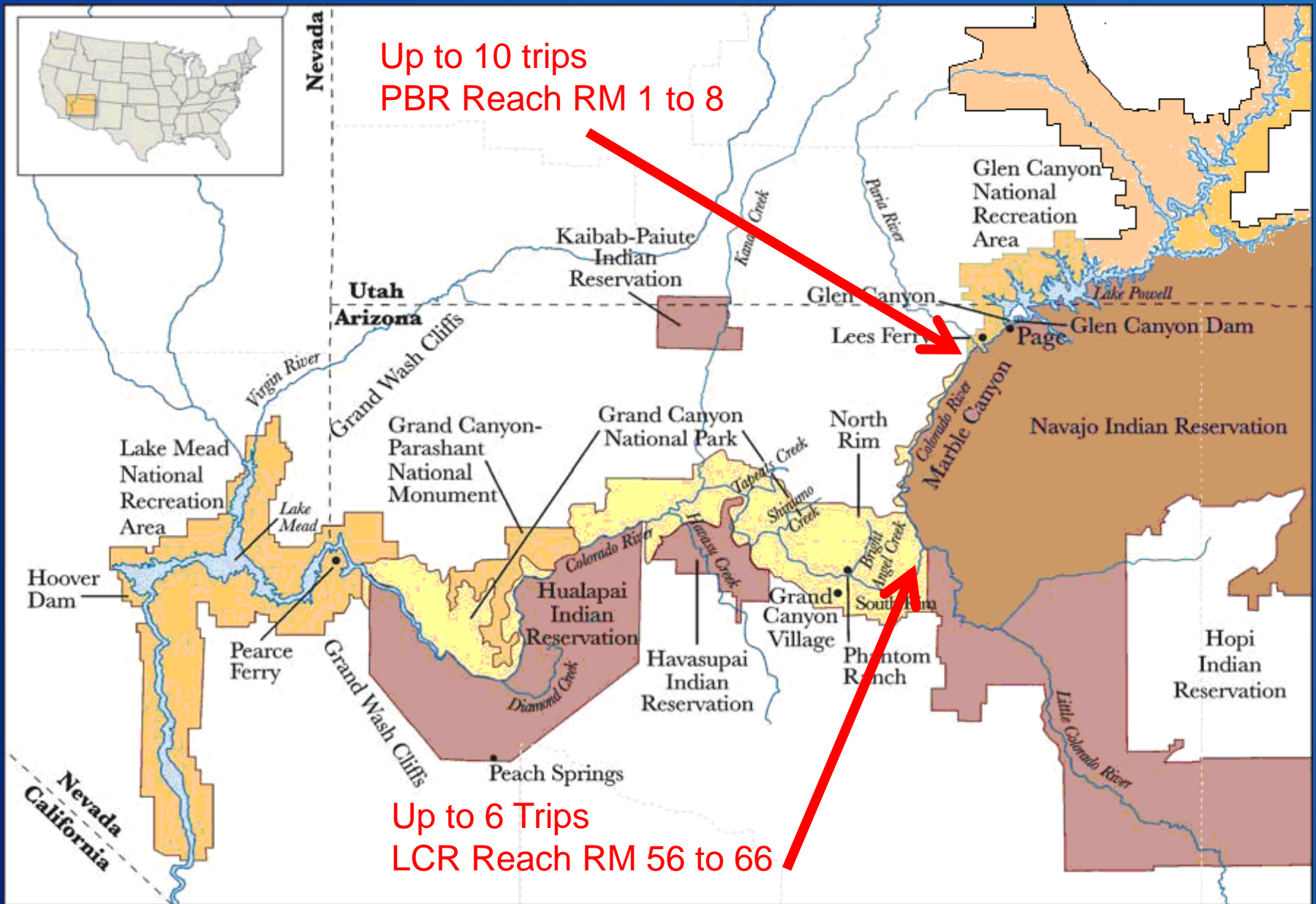
Bureau of Reclamation
Glen Canyon Dam
Adaptive Management Program
Adaptive Management Work Group
August 29, 2012



U.S. Department of the Interior
Bureau of Reclamation

Non-Native Fish Control

- Final biological opinion on December 23, 2011 on operation of Glen Canyon Dam (MLFF, HFEP, NNFC) for 10 years.
 - ❖ Non-native fish control is important conservation measure, predation by non-native rainbow and brown trout could reduce humpback chub (HBC) recruitment and the adult population, and threaten recovery.
- NHPA MOAs for HFEP and NNFC in May 2012.
- HFEP and NNFC FONSI May 2012.



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Non-native Fish Control Trigger

PBR Removal is considered experimental and only two trips were identified for implementation in the Non-Native Fish Control EA, and at the Little Colorado River, defined by the 2011 FWS Biological Opinion:

- **Rainbow trout abundance from RM 63.0-64.5 exceeds 760 fish and brown trout abundance exceeds 50 fish**

AND

- **ASMR estimate of humpback chub falls below 7,000**

OR

- **3 of 5 years subadult humpback chub drop below 910**
- **In two consecutive years water temp at LCR does not exceed 12 deg. C**
- **Annual survival of juvenile HBC drops 25% in any one year.**

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NHPA S106 Compliance

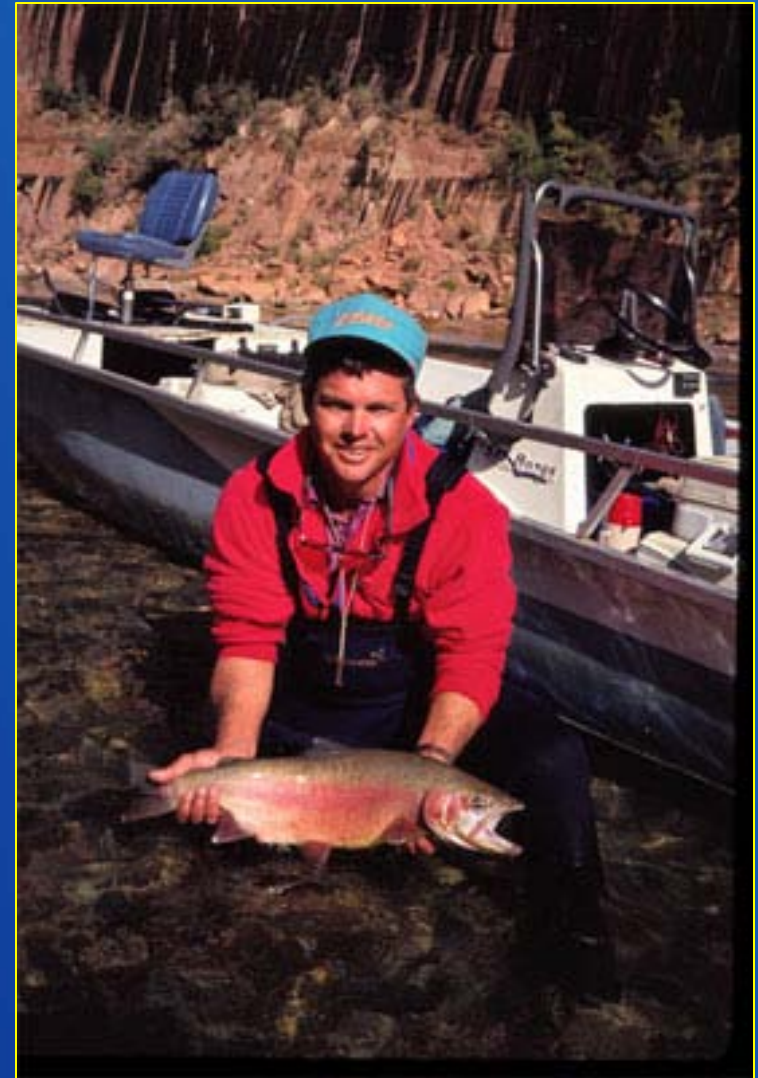
➤ NNFC MOA

Live Removal - Reclamation, to the maximum extent practicable, will remove non-native fish alive, thereby avoiding adverse effects. Should live removal prove infeasible, Reclamation will reconsult with the Tribes and other consulting parties to determine acceptable mitigation for adverse effects of the action.

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Lees Ferry Rainbow Trout

- 2008 Spring HFE led to increases in rainbow trout in Lees Ferry, 2011 high steady releases led to very large recruitment event in Lees Ferry.
- Rainbow trout moving into Marble Canyon, no increase yet at Little Colorado River.
- Trout trigger at the Little Colorado River has not been met; trout seem to be staying in Marble Canyon, probably also due to 2011 equalization flow effects.

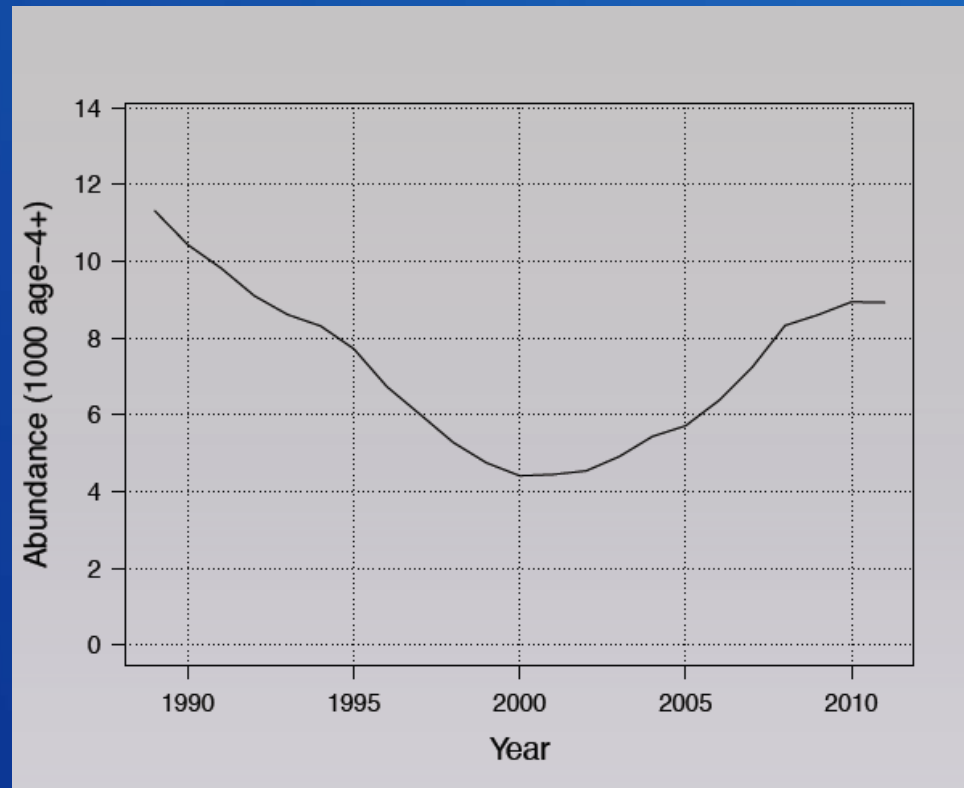


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Humpback Chub and other native fish

Humpback chub adult population size in the Little Colorado River
Using Age-Structured Mark Recapture Estimate (ASMR) 2012

- Median age-4+ in 2012: 9,000-12,000 fish
- Other native fish populations have responded similarly



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Young Humpback Chub

Humpback chub sub-adult and juveniles, recruitment

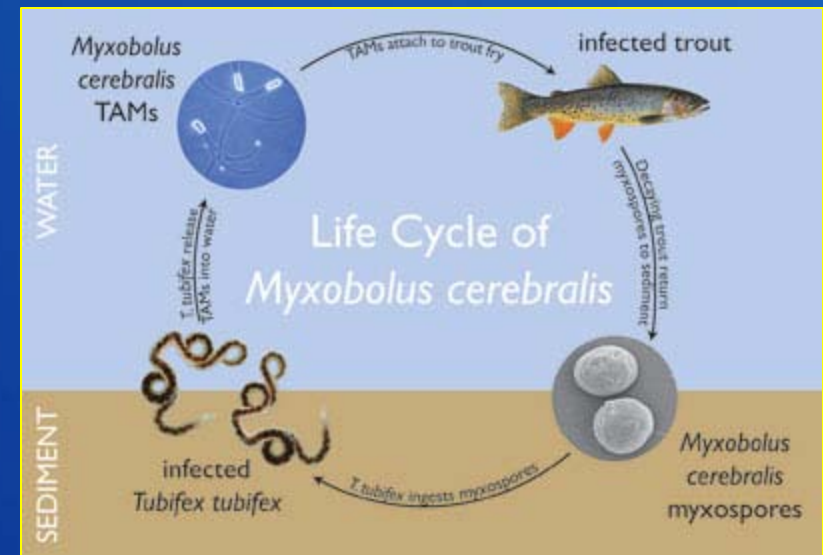
- Median age-2 in 2011: 3,998 (3,814 - 4,195)–95%CI
- HBC Early life history project now provides annual estimates of survivorship.



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Live Removal and Whirling Disease

- The MOA for non-native fish control relies on live removal of non-native fish and stocking into other waters as sport fish.
- Whirling disease was detected in Glen Canyon in 2012 at rates and stages not previously seen, perhaps due to large trout numbers from 2011 high flows.
- Whirling disease effects our ability to do live removal due to the risk of spreading the disease.
- Tribal consultation is needed and will be scheduled soon. Met with Zuni on August 17.



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Current Status and Next Steps

The trigger for LCR removal has not been met.

Whirling disease may preclude our ability to conduct live removal because fish cannot be moved out of state and we have not identified any isolated waters where they could be stocked with low risk of spreading whirling disease.

Meeting with tribes to date (Zuni Pueblo on August 17) has not identified any potential alternatives for disposition of fish that are removed. Additional consultation meetings are needed.

The U.S. Fish and Wildlife Service is considering our request to cancel the two test trips in the Paria River to Badger Creek (PBR) reach because this trip now provides little research benefit because we cannot test live removal and we now have sufficient monitoring with AGFD and Natal Origins monitoring (5 downstream trips per year) that obviate the need for PBR removal information (numbers and movement patterns of rainbow trout in Marble Canyon).

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