Glen Canyon Dam Adaptive Management Work Group
Agenda Item Form
February 15-16, 2017

Agenda Item

Lees Ferry Trout Fishery Status

Purpose of Agenda Item

To inform the AMWG Stakeholders of the current and immediate past condition of the Lees Ferry Rainbow Trout fishery, and to propose a workshop on brown trout management.

Action Requested

Action requested. Proposed motion:

> The AMWG believes that before moving forward with any new actions to manage brown trout (BT) in the Lees Ferry reach of the Colorado River, it would be beneficial to work to develop a plan based on the most up to date information and that has involvement from interested members of the AMWG. Accordingly, the AMWG requests that the Secretary of the Interior direct the National Park Service, and request the Arizona Game and Fish Department, to organize and facilitate a workshop among scientists, managers, tribes, and interested stakeholders to address: (1) the root causes of the increases in BT, (2) the risks associated with an expanding BT population to a quality rainbow trout fishery in Lees Ferry and the recovery/conservation of humpback chub and other native fish down river, (3) the pros and cons of different management options to address those risks, and (4) the research needs to support more informed decisions moving forward. The workshop should also review the efficacy of the current High Flow Experiment protocol in light of new scientific information and how it could be modified to allow for more frequent Spring HFEs to conserve sediment and enhance biological resources in the Colorado River below Glen Canyon dam. Results from the workshop, and any recommended actions based on them, should be reported to the TWG for consideration in development of the Triennial Work Plan and presented to the AMWG at the August 2017 meeting.

Presenters

John Hamill, Stakeholder, International Federation of Fly Fishers and Trout Unlimited
John Jordan, Stakeholder, International Federation of Fly Fishers and Trout Unlimited
Dave Rogowski, Colorado River Fisheries Biologist, Arizona Game and Fish Department

Previous Action Taken

N/A

Relevant Science

N/A

Summary of Presentation and Background Information

The Lees Ferry Rainbow Trout Fishery is one of eleven resource goals addressed in the Long-Term Experimental and Management Plan EIS and Record of Decision. In recent years, the fishery has been in a state of decline and is presently in a depressed condition impacting the local economy and providing a greatly diminished recreational opportunity.

The presentation will include the perceived condition of the fishery versus the reality, possible causative factors, possible remedies and the lack of necessary compliance, prospects for recovery, and the economic impact on the dependent Marble Canyon community.

Lees Ferry Trout Fishery

Current Status, Issues and Plans Moving Forward

Chris Cantrell– Arizona Game and Fish Department

Wendy and Terry Gunn– Lees Ferry Anglers

John Jordan—International Federation of Fly Fishers and Trout Unlimited

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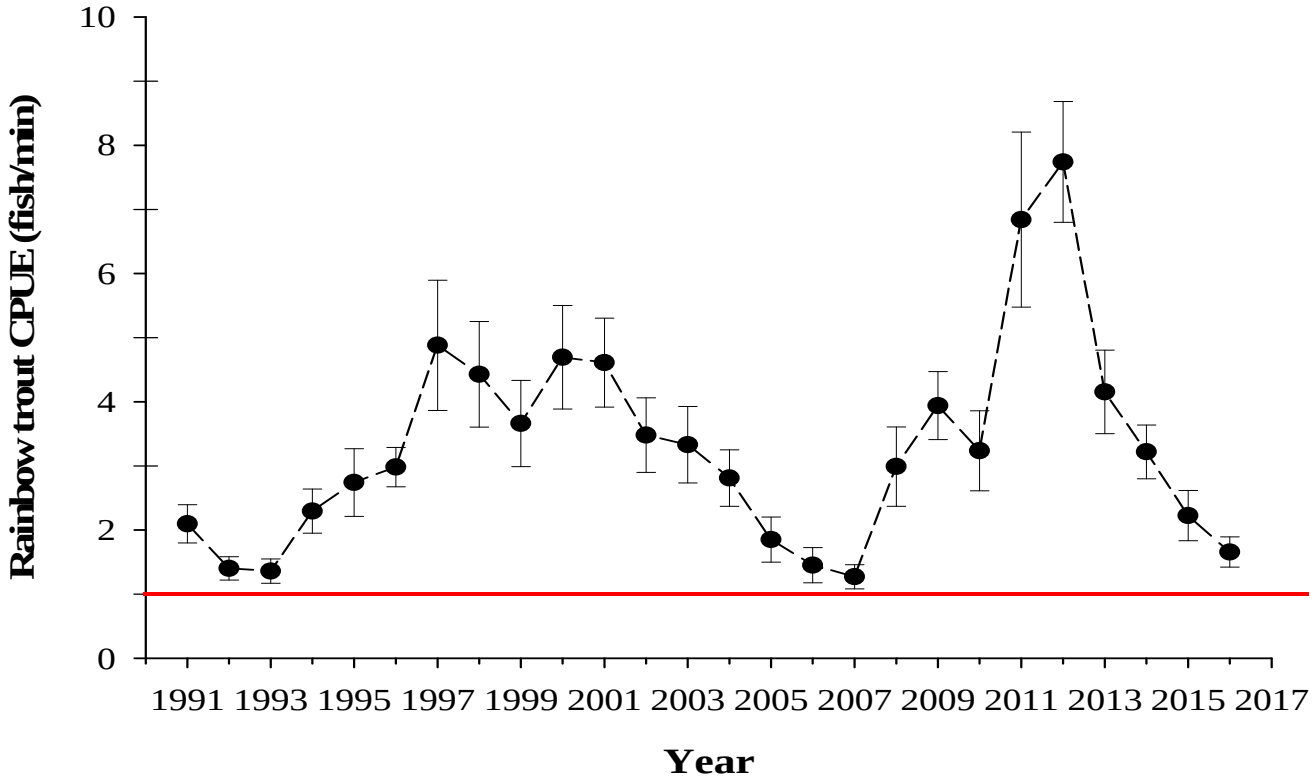
February 16, 2017

Tempe AZ

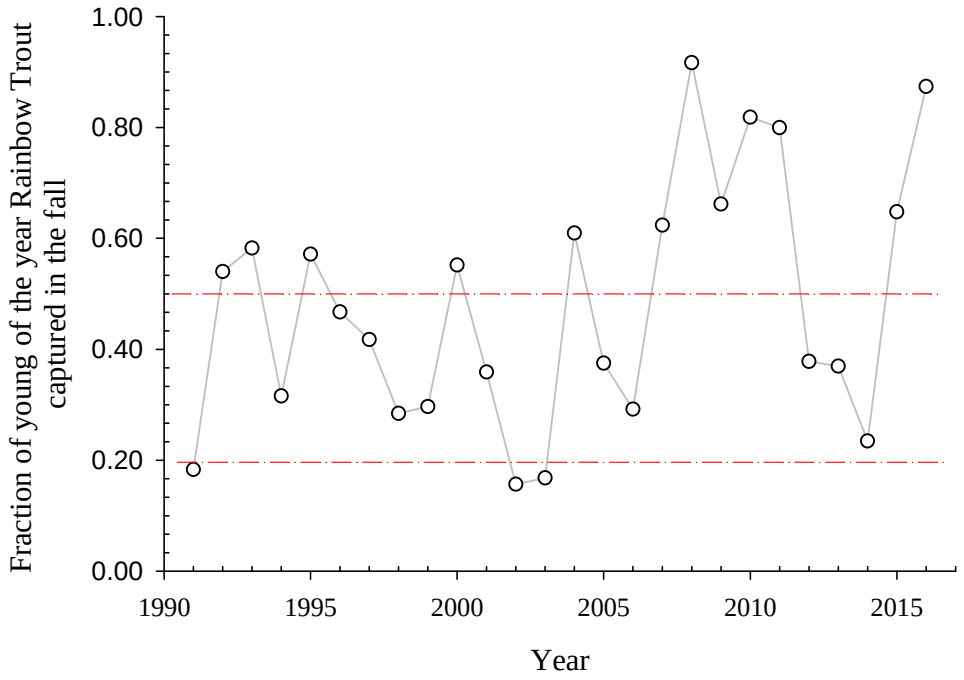
The Arizona Game and Fish Department will maintain and enhance a Blue Ribbon Rainbow Trout fishery at Lees Ferry that does not adversely affect the native aquatic community in Grand Canyon National Park with four main objectives.

1. *Maintain a healthy population of Rainbow Trout at Lees Ferry to support recreational fishing*
   - *Rainbow Trout ≤ 6 inches compose 20-50% of the Lees Ferry population as determined by fall electrofishing*
   - *Rainbow Trout electrofishing CPUE exceeds 1 fish per minute*

Meets Expectations but on a severe decline

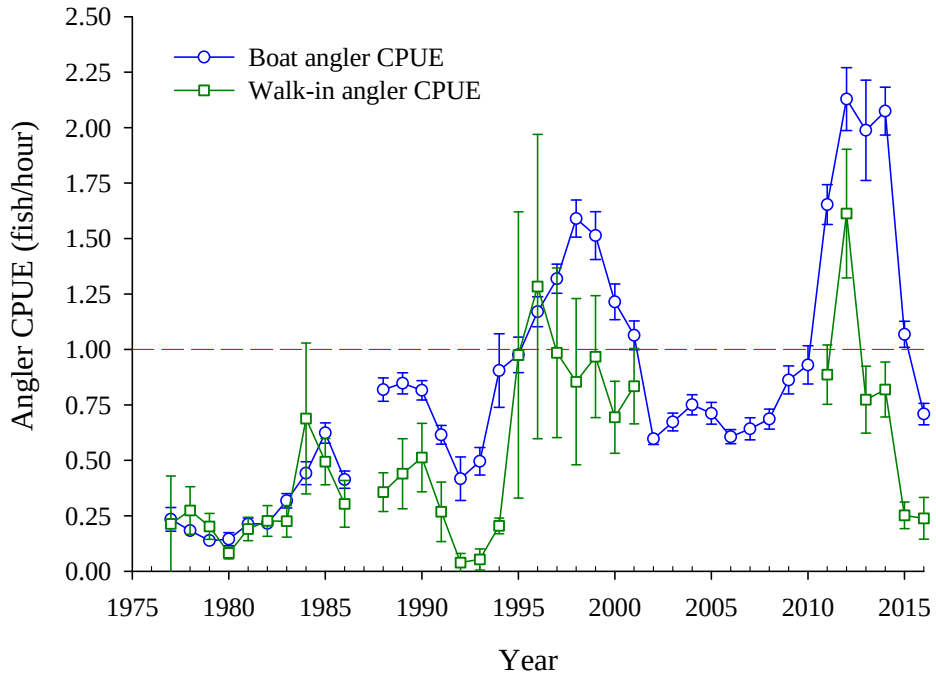


Failed to meet expectations



2. *Provide a quality trout fishing experience with catch frequency commensurate with the Blue Ribbon status of the fishery*
   - *Angler catch rate ≥ 1 Rainbow Trout per hour*

Failed to meet expectations – 2 years consecutively



3. *Grow quality sized trout that are available to the angler, consistent with the Blue Ribbon status of the fishery*
   - *10 Rainbow Trout ≥ 14 inches caught by the angler in a 10-hour day, at least one ≥ 20 inches*
   - *Maintain trout condition factor ≥ 1 during the summer months*

Failed to meet expectations

For boat anglers (n=1058, with 5377 fish caught):

CPUE >= 14 inches: 0.247 [0.218, 0.276] (1886 fish caught)

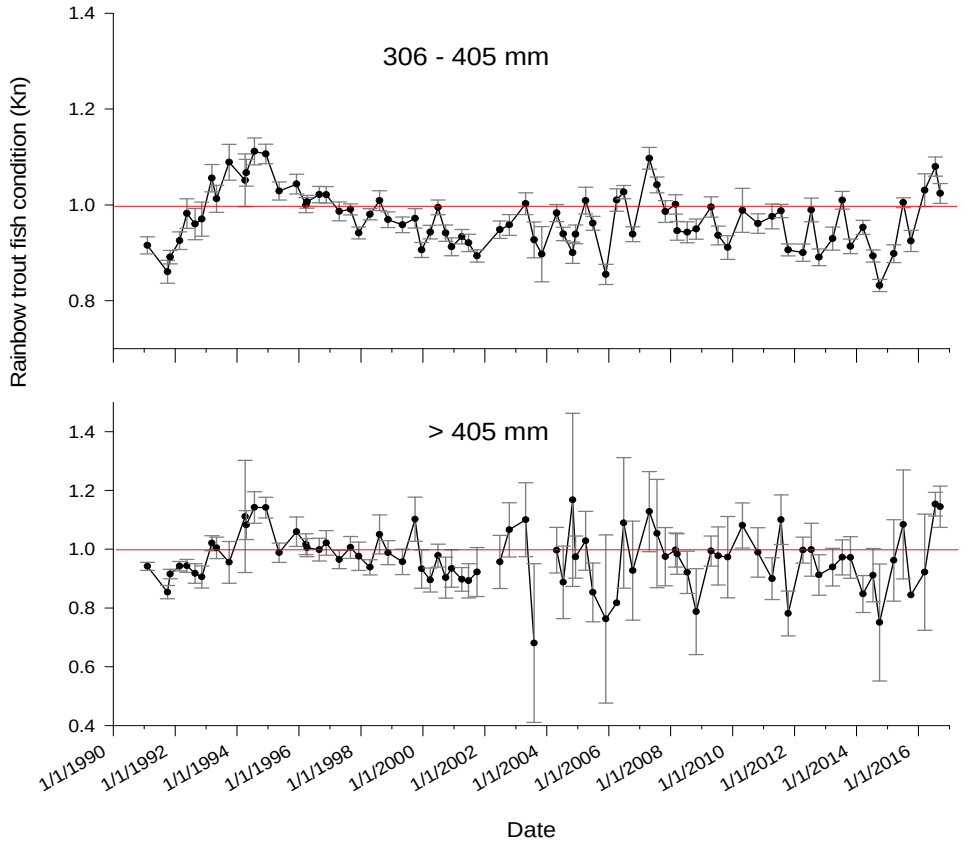
CPUE>= 20 inches: 0.000669 [0, 0.00134] (4 fish caught)

For walk-in anglers (n=77, with 70 fish caught):

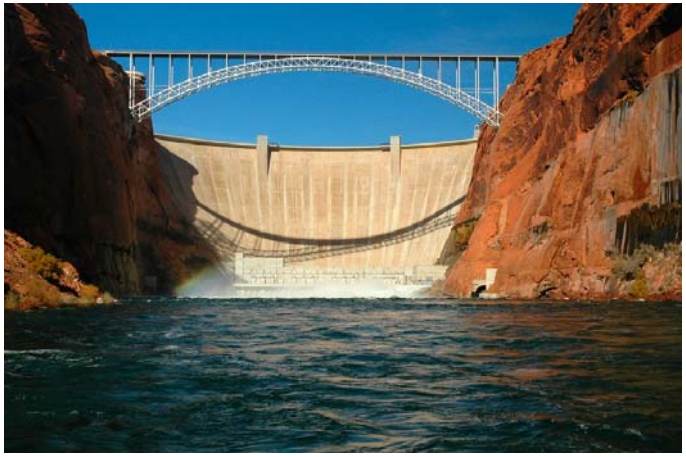
CPUE >= 14 inches: 0.377 [0.0.119, 0.634] (29 fish caught)

CPUE>= 20 inches: 0.0130 [0, 0.0388] (only one fish caught!)

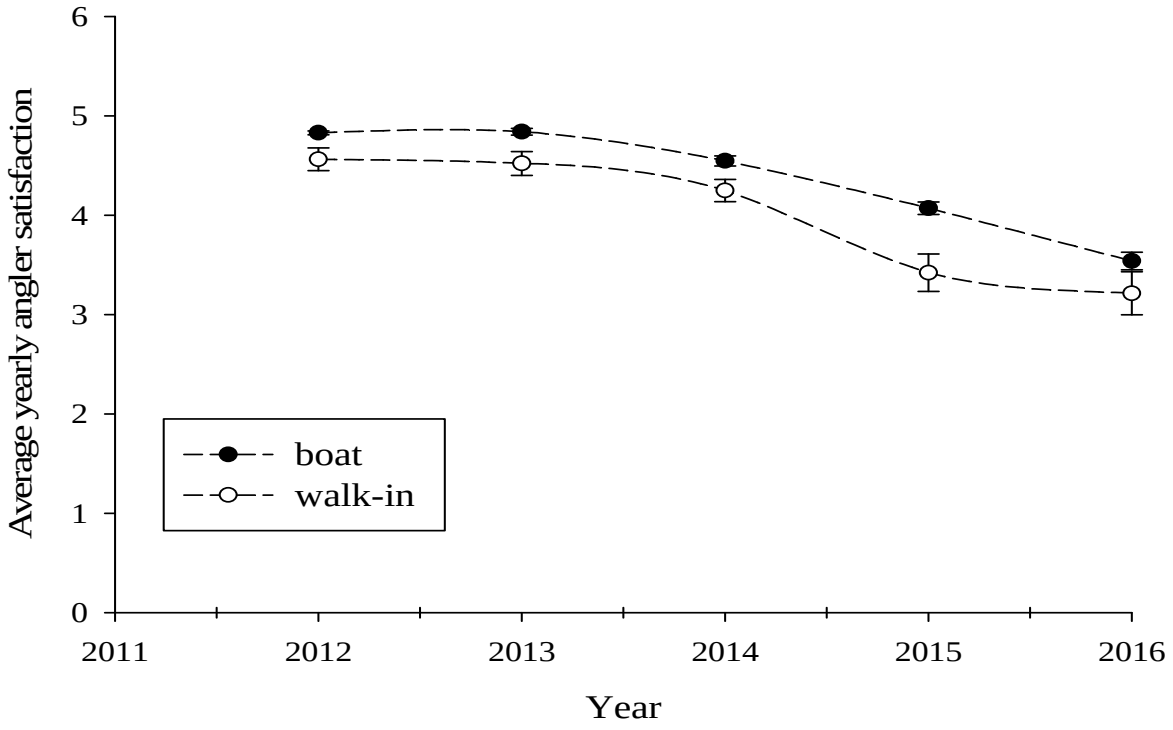
Meets Expectations



4. *Avoid catastrophic failure of the trout population, and establish protocols for emergency recovery from population loss*
   - *Dissolved oxygen ≥ 5 mg/l as measured at outflow from GCD*
   - *If failure of multiple age classes is documented by electrofishing and < 0.25 trout per hour is documented in creel surveys, mitigation will be necessary.*



Angler Satisfaction



Modeling potential predation impact of RBT from Lees Ferry on HBC at LCR

We used a model created in Yard et. al. 2011 to drive the ratio calculation of potentially ingested Humpback Chub from Lees Ferry Rainbow Trout.
Assumptions Used in the model are as follows:

•3.3% incidence of piscivory from Rainbow Trout in the system (Yard et al 2011)

•.001 rate of movement more than 20km (Korman et al 2016)

•Number of fish ingested per day is 4. (Yard et. al. documented between 4-10 per day, with higher rates during higher temperatures. Winter and tailwater stockings have similar temperatures to the lower rates in his study).

•Formula used to determine analysis is:

$NT = IP \cdot (Np \cdot y) \cdot f,$

- *total number of ingested fish prey (NT)*
- *Np is predator abundance from Lees Ferry*
- *y is Days per year*
- *f is the average number of observed fish prey per predator*
- *IP is incidence of piscivory*

Modeled rate of potential piscivory

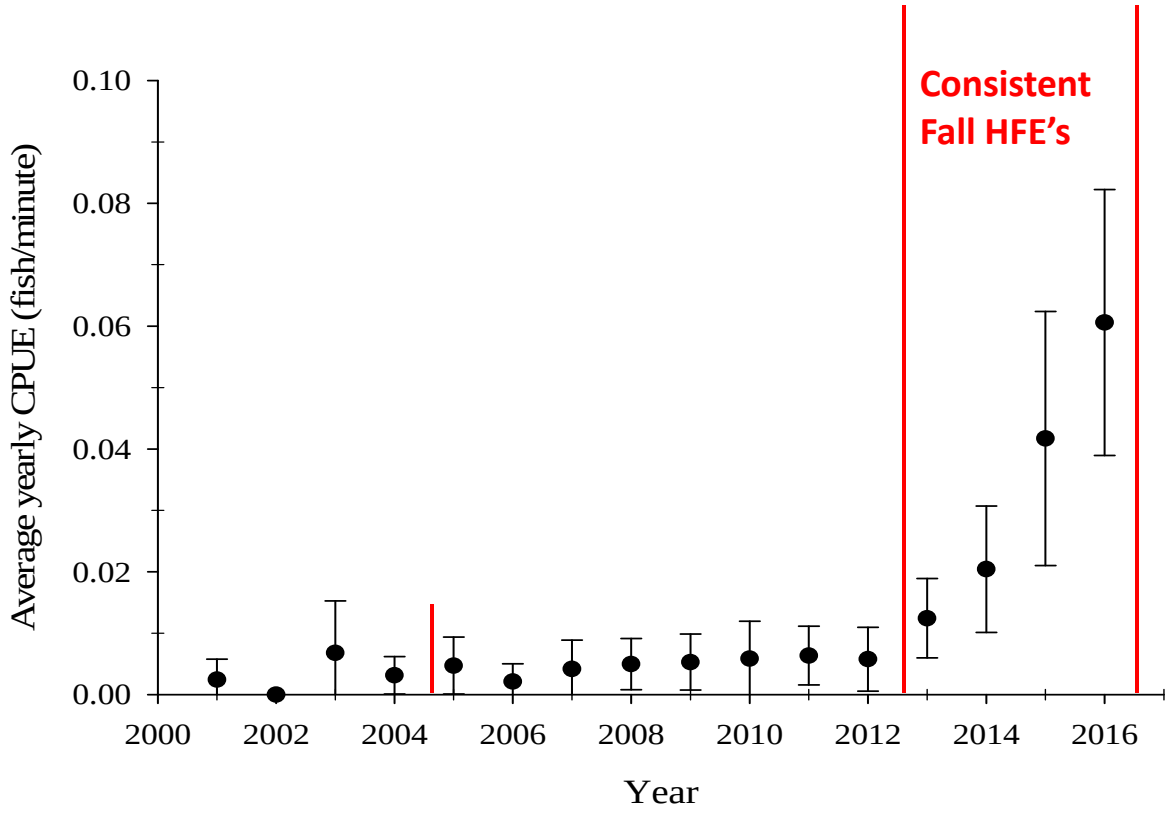
NT = .033*.001*4 = .000132

No certainties in science but this maybe as close as we get!!!

Brown Trout Biology

- Can live up to 20 years
- Mature in 2 to 3 years
- Fall spawner – October through February (depending on location) with peak between November and December
- Highly piscivous
- Can survive in 80^{o}F water temperatures
- Some water show lower catch rates than Rainbow Trout
- Literature suggest the potential to be seasonal migrators
- North American record over 41lbs

Brown Trout Trends



RBT = Lesser of 2 impacts (assuming similar out migration)

NT = .7*.001*112 = .0784

.0784= 784 fold increase in potential rate of total piscivory = Department is concerned with the potential of Jeopardy

Recommendations

- Immediately off ramp Fall HFE's – your playing with fire!!!
- Organize and facilitate a workshop among scientists, managers, tribes, and interested stakeholders to address: (1) the root causes of the increases in BT, (2) the risks associated with an expanding BT population to a quality RBT fishery in Lees Ferry and the recovery/conservation of humpback chub and other native fish down river, (3) the pros and cons of different management options to address those risks, and (4) the research needs to support more informed decisions moving forward.

Terry and Wendy Gunn

Owner of two Marble Canyon Businesses:

- Lee Ferry Anglers
- Cliff Dweller Lodge

www.leesferry.com

John Jordan

Brown Trout recently removed from Lees Ferry