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

<u>Agenda Item</u>

Technical Work Group Chair Report

Purpose of Agenda Item

To update AMWG members on the TWG meetings held October 2016 and January 2017.

Action Requested

Information item only; we will answer questions but no action is requested.

Presenter

Seth Shanahan, Technical Work Group Chair

Previous Action Taken N/A

Relevant Science

N/A

Summary of Presentation and Background Information

Highlights from the October 2016 and January 2017 TWG meetings will be shared during this portion of the agenda. Several additional TWG-related activities are discussed elsewhere on the February 2017 AMWG meeting agenda.

<u>Review the FY17 Budget to Determine if Budget or Work Plan Changes May be Needed as a Result of the LTEMP ROD</u>. As requested by the AMWG, the TWG reviewed the FY17 Budget and determined that no changes were needed.

<u>Fall 2016 High Flow Experiment and Status of Green Sunfish</u>. The HFE Protocol extends through 2020, but with an LTEMP ROD it will be extended further. Green Sunfish (GSF) were detected in a backwater slough in Glen Canyon. An effort was pursued to eradicate them before a Fall 2016 HFE could transport them to important native fish habitats. The GSF most likely will never be completely removed from the river, but plans were moving forward to apply ammonia as an experimental piscicide to minimize their potential impact. Some of the GSF will go to the tribal aviaries for beneficial use.

<u>Update on Brown Trout Management Considerations</u>. The TWG received a report about the recent increases in brown trout detections in Glen Canyon and the efforts led by the resource management agencies of the NPS, AZGFD, and Reclamation to manage the impacts of this species on humpback chub and rainbow trout.

<u>Integrating LTEMP into GCDAMP Process</u>. TWG received presentations on LTEMP and were provided the science plan for review and comment. Members discussed various elements listed in the DEIS that indicated a TWG role or responsibility once the ROD is signed.

<u>Socioeconomics Research and Monitoring Project</u>. An update of work activities was provided and Project 13.1, Economic Values of Recreational Resources along the Colorado River – Grand Canyon Whitewater Floaters and Glen Canyon Angler Values, was noted as complete at the end of FY 2016.

<u>Linkages between Lake Powell Reservoir and the Colorado River below GCD</u>. The limnological monitoring program and other monitoring activities on Lake Powell were discussed at the October TWG meeting. A retirement at GCMRC and funding challenges indicated that continued monitoring was uncertain. TWG members discussed opportunities for supporting future limnological monitoring work and water quality data collection immediately below GCD.

<u>Hualapai Tribe's Native Fish Rearing Facility</u>. The facility is capable of rearing razorback suckers, HBC, other endangered and native fish, and helping support the recovery of native species in Grand Canyon and other areas. They received significant funding to build and staff the facility and are actively trying to obtain other fish to more fully utilize it. If you have a native fish stocking need, they may be able to help.

<u>Annual Reporting Meeting Preparation</u>. TWG discussed alternate ways to organize the annual reporting meeting to improve members' understanding of the information. An assessment of the current state of knowledge was identified as a preliminary step to help achieve that goal.

<u>Review of Funding Guidance and Other Guidance for the Glen Canyon Dam Adaptive</u> <u>Management Program</u>. The TWG received an overview of program guidance, including fiscal and administrative guidance.

<u>Changes in Ad Hoc Group Chairs</u>. Ben Reeder of Grand Canyon River Guides will replace Leslie James as Socioeconomics AHG Chair. Chris Budwig is the new chair of the Trout AHG.

Technical Work Group Chair Report

Seth Shanahan TWG Chair February 15, 2017

Meetings

- Past
 - October 18-19, 2016 in Phoenix, Arizona
 - January 24-26, 2017 in Phoenix, Arizona
- Future
 - April 20-21, 2017 in Phoenix, Arizona
 - June 13-14, 2017 in Phoenix, Arizona

Ad Hoc Group Leadership

- Administrative History Larry Stevens and Craig Ellsworth
- Budget Shane Capron
- Core Monitoring Shane Capron
- Cultural Resources Kurt Dongoske
- Socioeconomics Ben Reeder
- Species of Management Concern Larry Stevens
- Trout Chris Budwig
- Operating Procedures Chris Harris



Items Reported Elsewhere on AMWG Agenda

- LTEMP EIS and ROD, Science Plan, Priorities, Hydrology, and Operations
- Budget
 - Funding Guidance and Other Guidance
 - Triennial Budget and Work Plan Process Motion
 - FY18-20 Triennial Budget and Work Plan
- Science Advisors Program
 - Fisheries PEP
- Wiki Update
- Administrative History Project
- Knowledge Assessment



Items Reported Elsewhere on AMWG Agenda

 Annual Reporting Meeting Organized to respond to TWG member requests for "information synthesis" (a.k.a., knowledge assessment) 	Presentation Sequence	Presentation Content
	1	Describe and assess your conceptual understanding of how key drivers affect resource outcomes
	2	Describe and assess how management and experimental actions affect resource outcomes
	3	Describe status and trend(s) of the resource
	4	Describe important findings from Work Plan activities
	5	Make recommendations for future monitoring and research

Linkages between Lake Powell and Glen Canyon Dam outflows

Linkages – DISSOLVED OXYGEN

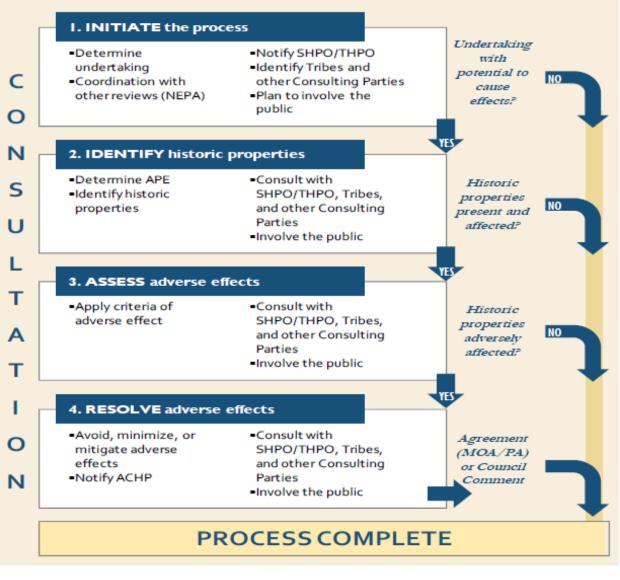
- Drawing from mid-column, GCD can pass water from which oxygen has been depleted
- Low oxygen levels can kill aquatic organisms,
- especially trout
- Low oxygen that can pass through the dam is created at the inflow
 Organic matter resuspended from the bottom and coming in with the river can use up the oxygen
 - Low oxygen water cannot get oxygen if travelling deep
 - These flows can be detected months before they reach the dam
 - Can be taken to mitigate the effects on the river manon (in forebay or at turbines), Cavitation, other?

Hualapai native fish rearing facility



- Programmatic Agreement
 - Area of Potential Affect
 - Relationship to NEPA

THE SECTION 106 PROCESS



Fall 2016 HFE Planning

Green sunfish



Fall 2016 HFE Planning

Katrina Grantz Reclamation

Scott VanderKooi GCMRC

TWG presentation October 18, 2016



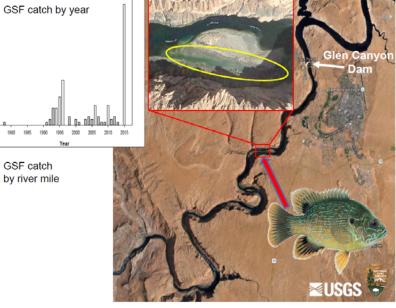
U.S. Department of the Interior Bureau of Reclamation



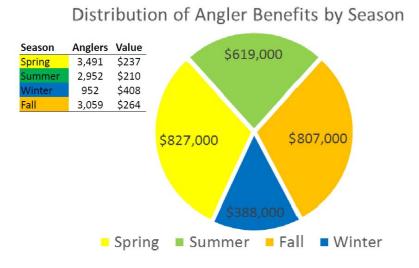
≈USGS

Number of Green Sunfish 2000 2005

GSF catch by river mile

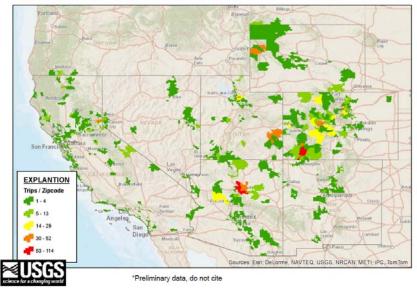


Socioeconomic Project Update Economic Value of Angling



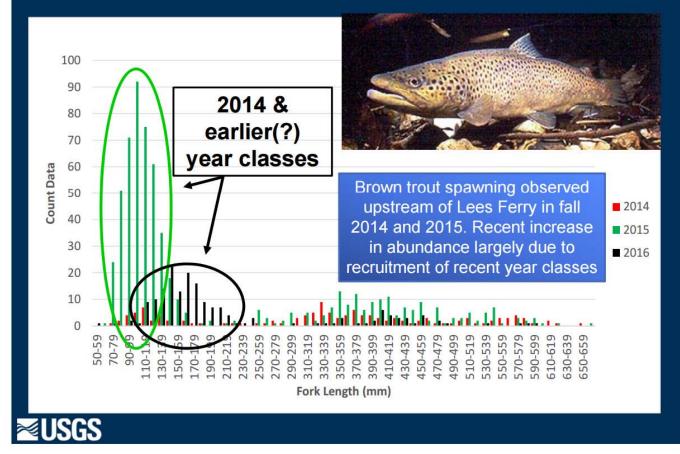
Socioeconomic Project Update Whitewater Economic Value

Private Whitewater Floaters*



 Brown trout management considerations

Brown Trout Catches in Glen Canyon





AMWG motion on August 24, 2016:

 "...AMWG also requests TWG to review the FY17 budget after issuance of the LTEMP ROD, to determine if budget or work plan changes may be needed as a result of the ROD."

Page 20 of the ROD signed on December 15, 2016:

 "Research and monitoring projects already approved in the 2015-2017 triennial work plan and budget shall continue until September 30, 2017."