

Glen Canyon Dam Adaptive Management Work Group Webinar / Conference Call May 22, 2018

Start Time: 9:00 am MDT

Conducting: Brent Rhees, Regional Director, Bureau of Reclamation, and Designated Federal Official

Facilitator: Mary Orton, The Mary Orton Company, LLC

Recorder: Lauren Johnston, The Mary Orton Company, LLC

Action Items

- Scott will confirm whether there is any data that evaluates brown trout movement from the Bright Angel confluence up to Lees Ferry.
- Participants will send agenda topics for the August 2018 AMWG meeting for consideration to Linda Whetton (lwhetton@usbr.gov) by 12:00pm on Friday, May 25.

Motions

Motion to Approve Minutes from February 14-15, 2018 meeting

- Don Ostler moved and Larry Stevens seconded that the minutes be accepted with the changes discussed. [See below for a list of the changes.] There was no objection to the motion, which passed by consensus.

Presentations and Discussion

Details of the presentations summarized below are included in PowerPoints available on the AMWG website as noted.

Welcome and Administrative

Presenter and Affiliation: Brent Rhees, Regional Director, Bureau of Reclamation, and Designated Federal Official

Mary Orton took the roll and established a quorum with the AMWG members listed below in the Attendees section of these notes. Dr. Tim Petty, AMWG Secretary's Designee, said he plans to travel to Flagstaff, Arizona for the August AMWG meeting. He stressed that the AMWG is and will continue to be a priority for his deputy and Secretary's Designee Alternate Andrea Travnicek, as well as for the Office of the Assistant Secretary for Water and Science.

Approval of February 14-15, 2018 Meeting Minutes

The Navajo Nation requested a change in the minutes to acknowledge Navajo participation in preparing the Historic Preservation Plan (HPP). Leslie James requested several editorial and two substantive changes to the minutes, as follows:

Grammatical/editorial corrections:

- P. 3, line 1: Revise *Adviser* to *Advisors*.
- P. 7, bullet 2: Revise *agencies* to *customers*.

- P. 12, section header: Revise *Working* to *Work*.
- P. 12, 1st paragraph: No need to capitalize all letters of Reclamation.
- P. 12, 3rd paragraph: Revise *modeling* to *modeling*.
- P. 13, 3rd paragraph, last sentence: Capitalize *slightly*.
- P. 14, 1st bullet, last word: Suggest revising *reliably* to *frequently* or *often*.

Substantive suggestions and rationale:

- P. 4, 3rd full paragraph. Suggest revising as follows: “Maintenance requirements at the powerplant caused some adjustments to the ~~LTEMP~~ GCD monthly release volumes last year.” This clarifies that it is dam releases and those turbines affected by maintenance were affected during particular months, with no change to the annual release volume.
- P. 13, 2nd bullet. Suggest revising as follows: “Financial effect of bug flows ~~could result in cash out of the basin fund, which could result in a rate bump for energy purchasers~~ is estimated to be a reduction in the Basin Fund of between \$300,000 and \$400,000.” I believe this captures what Shane said, and I don’t believe there was any indication that this Basin Fund impact would result in a rate “bump.” Deletion of that text may also preclude adding to the confusion between Basin Fund cash and CRSP rates.

Minutes were approved (see motion above on page 1) with these edits. A redlined version of the notes showing approved changes and the final clean version of the notes are available on the [AMWG website](#).

Action Item Tracking Report

Three action items from the last meeting were closed. The remaining action items from the February 2018 meeting will be discussed in the future.

[Attachment 1: Action Item Tracking Report](#)

Progress on Nominations and Reappointments

Reclamation now has clear direction on how to proceed with nominations to the AMWG. Dr. Petty signed the Federal Register notice for the new nomination process and it should be published soon. Because the notice is a new call for nominations, everyone who has already submitted a letter must resubmit their letter through this new process. Reclamation will send a notification email to members when the notice is published. Katrina Grantz encouraged members to prepare their nominations in advance so they can submit them promptly. Reclamation expects that the notice will be published on an annual basis.

Brown Trout Workshop

The Brown trout workshop report ([Brown trout in the Lees Ferry reach of the Colorado River— Evaluation of causal hypotheses and potential interventions](#)) was released in April 2018 as a peer-reviewed USGS publication. The key findings from the report are as follows:

- The proximate cause of the increase in Brown trout is a Fall 2014 migration event and subsequent reproduction in 2015-2017.
- The ultimate cause(s) are still unclear. Fall HFEs, warmer water, decreasing competition from Rainbow trout, and increased Brown trout density leading to more successful spawning could all be factors. The conclusions are not definitive.
- There is a 36% chance that the Brown trout population will not increase in the next 20 years, and a 64% chance that they will, in the amount of 2-10 times the current number.

- If the numbers of Brown trout increase, it will have negative effects on Humpback chub, but not on Rainbow trout.
- Removal efforts could be effective in reducing the population by 50%. Removal could be accomplished by electrofishing and/or implementing an incentivized take. Manipulating other factors, such as stopping or altering fall HFEs, could have an impact, but only if the Fall HFEs were truly a factor in the initial Brown trout increase.
- The analysis recognizes there are costs and trade-offs. It is the job of managers and stakeholders to evaluate these tradeoffs, including cultural values and concerns with the taking of life in the Canyon, and to acknowledge uncertainties when determining which experimental management actions to take.

Rainbow Trout Stocking in Lees Ferry

Jim deVos reported that the AZGFD is still on track to stock approximately 16,000 triploid Rainbow trout in Lees Ferry over a five-month period, no more frequently than every two weeks. Fish will be marked with a fin clip. The FWS is handling National Historic Preservation Act Section 106 consultation. The AZGFD has held one in-person meeting with the Pueblo of Zuni and is currently working on a Memorandum of Agreement to address the Pueblo's concerns. The NPS Office of General Counsel is reviewing the research permit for this work. Jessica Gwinn from the FWS said they had received PIT tags from Reclamation and will coordinate transfer and personnel assistance to AZGFD as needed. She also noted that the final draft of the Biological Opinion is prepared and is being reviewed this week.

Basin Hydrology and WY 2019 Hydrograph

Presenter and Affiliation: Paul Davidson, Hydraulic Engineer, Bureau of Reclamation

Presentation Summary

There is not much snowpack in the basin: as of May 21, 2018, the Snow Water Equivalent was at 16% of the seasonal median peak. Many rivers in the basin have already experienced their peak flows.

Under all three potential predicted inflow scenarios, Reclamation is likely to release 9 million-acre feet of water from the Glen Canyon Dam in 2018. This places operations in the upper elevation balancing tier. Reclamation will provide an update on the flow scenarios at the AMWG meeting in August.

Discussion/Q & A

No questions or discussion followed.

- [Attachment 2: Basin Hydrology, Reservoir Operations 2018 and 2019 Hydrograph](#)

Proposed FY 2019 Budget and Work Plan

Presenters and Affiliation: Seth Shanahan, Technical Work Group Chair; Lee Traynham, Regional Liaison Officer, Bureau of Reclamation; and Scott VanderKooi, Chief, Grand Canyon Monitoring and Research Center

Presentation Summary

Seth reported that the TWG is continuing the budget review process for FY19 and will have a recommendation to the AMWG at the August meeting.

Lee reported that the proposed FY19 Reclamation budget is largely the same as in the FY18-20 Triennial Work Plan. The CPI was larger than expected in FY18 at 2.2%, as opposed to the 1% that was planned. Increases in available funds due to the CPI increase are distributed among travel and labor expenses in the Reclamation budget.

Cultural resource budget increases from CPI funds are captured in the Contingency Fund for NHPA Section 106 Compliance. The funds are not currently anticipated to be used. These funds can carry over each year.

Reclamation does not anticipate much use of the Native Fish Conservation Contingency Fund in FY18. Reclamation anticipates starting FY19 with \$1.8 million in the fund and that the fund will total \$2.1 million by the end of FY19.

Scott reported that GCMRC is proposing to adhere to the FY18-20 Triennial Work Plan as approved, with one additional proposed project to use \$120,000 from the Experimental Fund to design future trout management flows. GCMRC overhead rates will not go up in FY2019 as GCMRC will not yet be moved into their new facilities. GCMRC would use the resulting increase in available funds to retain staff and scientific capability and to provide additional funding to programs with cooperators. GCMRC no longer needs to use funds from the Native Fish Conservation Contingency Fund to make up for a budget shortfall. GCMRC expects a budget surplus of \$40,000 at the end of FY19.

Individual project elements are available for review on the AMWG website at the referenced attachment below.

Discussion/Q & A

No questions or discussion followed.

[Attachment 3: FY 2019 Proposed Budget](#)

Proposed FWS Downlisting of Humpback Chub from Endangered to Threatened

Presenter and Affiliation: Tom Chart, Director, Upper Colorado River Endangered Fish Recovery Program, U.S. Fish and Wildlife Service

Presentation Summary

The FWS performed a Species Status Assessment (SSA) on the Humpback chub. The focus of the assessment is to use science as background for multiple decisions and programs regarding special status species. This is part of a new process for ESA assessments that allows FWS to spend more time on science, improve consistency and transparency, distinguish between science and policy, increase conservation through collaboration, better cope with synergistic factors, and improve forecasting.

While the Upper Basin populations of Humpback chub appear to be less healthy, successful translocations in the Lower Basin and projected population figures have led the FWS to propose to downlist the Humpback chub from endangered to threatened. This will not result in changes to the recovery plan, other than an update to criteria for delisting. The next steps are to propose

the downlisting to the director of the FWS, notice the proposed downlisting in the Federal Register for public comment, and then issue a final rule that incorporates public comments.

Details of the SSA process and the specific review of the case for the Humpback chub are included in the referenced presentation below.

Discussion/Q & A

- FWS clarified that they did consider the warming environment, along with historic population dynamics and food availability, as factors in the SSA. FWS looked at measures in the LTEMP that may help manage the impacts of warm water, including bypass tubes and cold-water structures. UWSFS is watching the impacts of warm water closely.
- GCMRC stated negative impacts to Humpback chub from warm water are less likely in the short term, i.e. over the span of a couple of generations; but chances for harm increase if drought conditions continue.

[Attachment 4: Humpback Chub *Gila cypha* SSA & 5-year Review](#)

Translocation of Humpback Chub into Bright Angel Creek: A Joint Project of Grand Canyon National Park, Bureau of Reclamation, and U.S. Fish and Wildlife Service

Presenter and Affiliation: Emily Omana Smith, National Park Service Fish Biologist, Grand Canyon National Park

Presentation Summary

Following successful Brown trout removal measures in Bright Angel Creek, a team of agency personnel from the NPS, Reclamation, and the FWS successfully translocated approximately 120 healthy, spawning-condition Humpback chub from New Mexico to Bright Angel Creek starting on May 13 this year. The fish are PIT-tagged and their movements will be monitored with a monitoring antenna array. Brown trout removed during the process were put to beneficial use through human consumption and as feed for ceremonial eagles.

Discussion/Q & A

- PIT tag antennas are on a remote link. NPS has not yet had the time to read the results but plans to follow up soon.
- NPS does not have data to indicate that Brown trout have moved upstream from the Bright Angel confluence to Lees Ferry. Scott will confirm whether there is any data that evaluates such a movement.
- NPS plans to follow the same translocation schedule in Bright Angel Creek as it did with Shinumo and Havasu Creeks. This includes adding 200-300 fish over 5 years, and then reevaluating the need for continued work.

[Attachment 5: Translocation of Humpback Chub into Bright Angel Creek: A Joint Project of Grand Canyon National Park, Bureau of Reclamation, and U.S. Fish and Wildlife Service](#)

Implementation of Macroinvertebrate Production Flows ('Bug Flows') May 1 to August 31

Presenters and Affiliation: Scott VanderKooi, Chief, Grand Canyon Monitoring and Research Center; and Lee Traynham, Regional Liaison Officer, Bureau of Reclamation

Presentation Summary

Lee explained that Reclamation followed the process outlined in the LTEMP ROD to initiate a series of experimental macroinvertebrate production ("bug") flows, starting May 1 and projected to last until August 31, 2018. Scott noted that GCMRC predicts a 26% overall increase in midges, and an increase in abundance and range of caddisflies. Anecdotal and photographic evidence show many thousands of midge egg ropes in the river. GCMRC will track macroinvertebrate abundance in response to the experimental flows using data from light traps and invertebrate drift. The implementation and planning groups continue to meet regularly, and operational flexibility and emergency exception criteria will be maintained throughout the experiment.

Discussion/Q & A

- Steve Johnson (WAPA) reiterated WAPA's interest in implementing the weekend vs. weekday drift comparison study in Lees Ferry and the artificial substrate work that was agreed to during the development of the technical team report and recommendation on the bug flow experiment.
- GCMRC notes WAPA's interest in, and has discussed performing, a weekend vs. weekday drift study. This would be an intellectually interesting study but not critical to evaluating the bug flows. GCMRC is interested in continuing the discussion of weekend vs. weekday drift studies with WAPA.
- While GCMRC plans to continue discussing artificial substrates with WAPA but does not have current plans to pursue them in the immediate future.
- While this experiment is currently planned for one year, GCMRC would like to extend it for two additional years. Reclamation will follow the LTEMP implementation plan and evaluate resource status and past experiments to consider which experiments to implement each year.
- Anglers have reported high catch rates during the last three months prior to the meeting.

[Attachment 6: Implementation of Macroinvertebrate Production Flows \(Bug Flows\)](#)

AMWG Next Steps

Presenter and Affiliation: Brent Rhees, Designated Federal Official

Presentation Summary

The next AMWG Meeting is scheduled for August 22-23, 2018, in Flagstaff, Arizona, venue to be determined. GCMRC will prepare a barbeque for meeting participants the evening of August 22. The major agenda topics are as follows:

- Recommendation to the Secretary on FY2019 budget and workplan
- Spring HFEs and accounting period
- Overview of AMWG goals
- GCMRC science updates
- Stakeholder's Perspective

- **Tribal Liaison Report**

Members were requested to send any additional proposed agenda items to Linda Whetton by noon, May 25, 2018.

Public Comment

No public comments were offered.

Meeting Adjourned at 11:58 am, MDT

Meeting Attendees—Tuesday, May 22, 2018

AMWG Leadership

Tim Petty, Assistant Secretary of the Interior and
Secretary's Designee

Brent Rhees, Regional Director, Bureau of
Reclamation and Designated Federal Official

* Members with unexpired terms

AMWG Members and Alternates

*Melinda Arviso-Ciocco, Navajo Nation (Alternate)
*Clifford Barrett, UAMPS (Alternate)
Richard Begay, Navajo Nation
Carlee Brown, State of Colorado
*David Brown, Grand Canyon River Guides
*Charley Bullets, Southern Paiute Consortium
*Kathleen Callister, Reclamation (Alternate)
Kerry Christensen, Hualapai Tribe (Alternate)
*Kevin Dahl, NPCA (Alternate)
James deVos, AZGFD
*John Hamill, IFFF/Trout Unlimited (Alternate)
*Jayne Harkins, State of Nevada
*Chris Harris, State of California (Alternate)
*Dawn Hubbs, Hualapai Tribe

Leslie James, CREDA
Steve Johnson, WAPA
Vineetha Kartha, Arizona (Alternate)
*Robert King, State of Utah (Alternate)
*Chris Lehnertz, NPS-GRCA
John McClow, State of Colorado
Jessica Neuwerth, State of California
David Nimkin, NPCA
*Don Ostler, State of New Mexico (Alternate)
*Daniel Picard, Reclamation
*Larry Stevens, Grand Canyon Wildlands Council
*Mike Yeatts, The Hopi Tribe (Alternate)
*Kirk Young, FWS (Alternate)

USGS/GCMRC Staff

Helen Fairley
Ted Kennedy

Michael Moran
Scott VanderKooi

Bureau of Reclamation Staff

Bill Chada
Marianne Crawford
Paul Davidson
Katrina Grantz

Tyler Larsen
Shana Tighi
Lee Traynham
Linda Whetton

Interested Persons

Rob Billerbeck, NPS
Howard Brandenburg, American Southwest
Ichthyological Researchers
David Braun, Science Advisors
Shane Capron, WAPA
Tom Chart, FWS
Bill Davis, CREDA
Kurt Dongoske, Pueblo of Zuni
Craig Ellsworth, WAPA
Bret Esslin, ADWR
Jessica Gwinn, FWS
Paul Harms, State of New Mexico
Ryan Mann, AZGFD

Kevin McAbee, FWS
Joe Miller, Trout Unlimited
Emily Omana Smith, NPS
Clayton Palmer, WAPA
Sarah Rinkevich, DOI
Megan Rodrigo
Peggy Roefer, State of Nevada
David Rogowski, AZGFD
Seth Shanahan, SNWA
William Shott NPS-GLCA
Garwain Sinyella, Hualapai Tribe
Jim Strogon, Trout Unlimited

Abbreviations

ADWR – Arizona Dept. of Water Resources	FY – Fiscal Year (October 1 – September 30)
AF – Acre Feet	GCD – Glen Canyon Dam
AGFD – Arizona Game and Fish Department	GCDAMP - Glen Canyon Dam Adaptive Management Program
AIF – Agenda Information Form	GCES – Glen Canyon Environmental Studies
AMP – Adaptive Management Program	GCMRC – Grand Canyon Monitoring & Research Center
AMWG – Adaptive Management Work Group	GCNP – Grand Canyon National Park
AOP – Annual Operating Plan	GCNRA – Glen Canyon National Recreation Area
ARM – Annual Reporting Meeting	GCPA – Grand Canyon Protection Act
ASMR – Age-Structure Mark Recapture	GCRG – Grand Canyon River Guides
ASWS – Assistant Secretary of Water and Science (DOI)	GCWC – Grand Canyon Wildlands Council
AZGFD – Arizona Game and Fish Department	GLCA – Glen Canyon National Recreation Area
BA – Biological Assessment	GRCA – Grand Canyon National Park
BAHG – Budget Ad Hoc Group	GSF – Green Sunfish
BCOM – Biological Conservation Measure	HBC – Humpback Chub (endangered native fish)
BE – Biological Evaluation	HFE – High Flow Experiment
BHBF – Beach/Habitat-Building Flow	HMF – Habitat Maintenance Flow
BHMF – Beach/Habitat Maintenance Flow	HPP – Historic Preservation Plan
BIA – Bureau of Indian Affairs	IG – Interim Guidelines
BO – Biological Opinion	INs – Information Needs
BOR – Bureau of Reclamation	IFFF – International Federation of Fly Fishers
BT – Brown Trout	KA – Knowledge Assessment (workshop)
BWP – Budget and Work Plan	KAS – Kanab Ambersnail (endangered native snail)
CAHG – Charter Ad Hoc Group	LCR – Little Colorado River
CAP – Central Arizona Project	LCRMCP – Lower Colorado River Multi-Species Conservation Program
CESU – Cooperative Ecosystems Studies Unit	LTEMP – Long-Term Experimental and Management Plan
CFMP – Comprehensive Fisheries Management Plan	LTEP – Long Term Experimental Plan
cfs – cubic feet per second	MA – Management Action
CMINS – Core Monitoring Information Needs	MAF – Million Acre Feet
CMP – Core Monitoring Plan	MATA – Multi-Attribute Trade-Off Analysis
CPI – Consumer Price Index	MLFF – Modified Low Fluctuating Flow
CRAHG – Cultural Resources Ad Hoc Group	MO – Management Objective
CRBC – Colorado River Board of California	MRP – Monitoring and Research Plan
CRCN – Colorado River Commission of Nevada	NAU – Northern Arizona University (Flagstaff, AZ)
CRE – Colorado River Ecosystem	NEPA – National Environmental Policy Act
CREDA – Colorado River Energy Distributors Assn.	NHPA – National Historic Preservation Act
CRSP – Colorado River Storage Project	NNFC – Non-native Fish Control
CWCB – Colorado Water Conservation Board	NOI – Notice of Intent
DAHG – Desired Future Conditions Ad Hoc Group	NPCA – National Parks Conservation Association
DASA – Data Acquisition, Storage, and Analysis	NPS – National Park Service
DBMS – Data Base Management System	NRC – National Research Council
DFO – Designated Federal Officer	O&M – Operations & Maintenance (Reclamation Funding)
DOE – Department of Energy	PA – Programmatic Agreement
DOI – Department of the Interior	PBR – Paria to Badger Creek Reach
DOIFF – Department of the Interior Federal Family	PEP – Protocol Evaluation Panel
EA – Environmental Assessment	POAHG – Public Outreach Ad Hoc Group
EIS – Environmental Impact Statement	Powerplant Capacity = 31,000 cfs
ESA – Endangered Species Act	R&D – Research and Development
FACA – Federal Advisory Committee Act	RBT – Rainbow Trout
FEIS – Final Environmental Impact Statement	
FRN – Federal Register Notice	
FTE – Full Time Employee	
FWS – United States Fish & Wildlife Service	

Reclamation – United States Bureau of Reclamation
RFP – Request for Proposal
RINs – Research Information Needs
ROD Record of Decision
RPA – Reasonable and Prudent Alternative
SA – Science Advisors
SAEC – Science Advisors Executive Coordinator
Secretary – Secretary of the Interior
SCORE – State of the Colorado River Ecosystem
SHPO – State Historic Preservation Office
SOW – Statement of Work
SSQs – Strategic Science Questions
SWCA - Steven W. Carothers Associates
TCD – Temperature Control Device

TCP – Traditional Cultural Property
TEK – Traditional Ecological Knowledge
TES – Threatened and Endangered Species
TMC – Taxa of Management Concern
TMF – Trout Management Flows
TWG – GCDAMP Technical Work Group
UAMPS – Utah Associated Municipal Power Systems
UCRC – Upper Colorado River Commission
UDWR – Utah Division of Water Resources
FWS – United States Fish & Wildlife Service
USGS – United States Geological Survey
WAPA – Western Area Power Administration
WY – Water Year