

Glen Canyon Dam Technical Work Group Webinar/Conference Call
January 25, 2018

Date: January 25, 2018

Start Time: 8:30 a.m. MDT

Conducting: Seth Shanahan, TWG Chair
Vineetha Kartha, TWG Vice-Chair

Committee Members/Alternates Present:

Melinda Arviso-Ciocco, Navajo Nation
Jan Balsom, NPS/GRCA
Cliff Barrett, USAMPS
Carlee Brown, State of Colorado
Charley Bullets, Southern Paiute Consortium
Shane Capron, WAPA
Kerry Christensen, Hualapai Tribe
Kevin Dahl, National Parks Conservation Assn.
Bill Davis, CREDA
Kurt Dongoske, Pueblo of Zuni
Craig Ellsworth, WAPA
Katrina Grantz, U.S. Bureau of Reclamation
Paul Harms, State of New Mexico (phone)

Ken Hyde, NPS/GLNRA
Leslie James, CREDA
Robert King, State of Utah
Ryan Mann, Arizona Game & Fish Department
Jessica Neuwerth, State of California
Don Ostler,
Ben Reeder, Grand Canyon River Guides
Peggy Roefer, CRC/Nevada
Larry Stevens, Grand Canyon Wildlands Council
Jim Strogon, Federation of Fly Fishers/TU
Steve Wolff, State of Wyoming
Michael Yeatts, the Hopi Tribe
Kirk Young, U.S. Fish and Wildlife Service

Committee Members Absent:

Chip Lewis, Bureau of Indian Affairs

Grand Canyon Monitoring and Research Center:

Helen Fairley, Program Manager
Ted Kennedy, Aquatic Biologist

Mike Moran, Deputy Center Director
Scott VanderKooi, Center Director

Interested Persons

Rob Billerbeck, NPS
David Braun, Sound Science LLC
Kathy Callister, U.S. Bureau of Reclamation
Bill Chada, U.S. Bureau of Reclamation
Marianne Crawford, U.S. Bureau of Reclamation
Paul Davidson, U.S. Bureau of Reclamation
Brent Esslin, Arizona Dept. of Water Resources
Alicyn Gitlin, Sierra Club
Jessica Gwinn, U.S. Fish and Wildlife Service
Amy Haas, Upper Colorado River Commission

Heather Hansman, Reporter
Brian Healy, NPS/GRCA
John Jordan, Federation of Fly Fishers/TU
Don Ostler, Upper Colorado River Commission
Clayton Palmer, Western Area Power Administration
Theresa Pasqual, DOI Joint Tribal Liaison
Sarah Rinkevich, DOI Joint Tribal Liaison
Dave Rogowski, Arizona Game & Fish Department
Mike Runge, U.S. Geological Survey
Steve Spangle, U.S. Fish and Wildlife Service

Meeting Recorder: Linda Whetton

Welcome and Administrative: Mr. Shanahan welcomed the members and the public. Introductions were made and a quorum determined.

- Ms. Grantz thanked everyone for their understanding in cancelling plans to attend the AR/TWG meetings as a result of the government shutdown. The ARM will be rescheduled in March.
- Approval of August 30-31, 2017, Meeting Minutes. Pending one change, the minutes were approved by consensus.
- Approval of October 12, 2017, Meeting Minutes. Pending two changes, the minutes were approved by consensus.
- Ad Hoc Group Updates. Mr. Shanahan disbanded the CRAHG, however, a Cultural Resources update will be a standing agenda item for future meetings with Mr. Chada providing updates as needed on the HPP, PA, or other issues.
- Science Advisors Program Update – Mr. Braun. The review of the Bright Angel/BT Removal Project draft report will be completed tomorrow. The SA will review the “White Paper.” Mike Runge will address the topic this afternoon. Mr. Braun will distribute the BA reviews to NPS and BOR when completed and BOR will determine

broader distribution. The new SA authorization covers: (1) external review topics for FY18-20, and (2) re-establishing a standing expert panel of science advisors to provide routine advisory services covering annual reports, work plans, triennial knowledge assessment and the triennial planning cycle. They will send out surveys for the external review topics and areas of expertise that should be represented. There will be two additional surveys for the final ranking of the external review topics and a survey for nominations for the expert panel once the list of expertise is finalized.

- Update on GCMRC Water Quality Review – Mr. Moran. The review was held Oct 24-26, 2017, in Page, AZ. It went quite well with a good mix of presentations and discussions. A field trip was scheduled to Lake Powell, including Wahweap Station, and a GCD tour, and a boat trip to Horseshoe Bend. Mike received a draft report 3 weeks ago and expects the report to be final in a few weeks.
- Update on Potential Rainbow Trout Stocking in Glen Canyon – Mr. Spangle. The FWS has a proposed action from AZGF and are trying to arrange a meeting with Jim deVos and Chris Cantrell to better understand the scope of the proposed action. Their intent is to do Section 7 consultation and enter into an MOU with AZGFD on fish stocking in the Colorado River. Dr. Grantz will talk offline with Steve about a presentation at the upcoming AMWG meeting. Mr. Dongoske expressed Pueblo of Zuni concerns about stocking RBT followed by mechanical removal. Mr. Reeder pointed out that the lack of nutrients in the system limits invertebrate production and it cannot support the additional trout.
- Update on Monitoring and Research Trips ([Attachment 1](#)) – Mr. VanderKooi. A table of planned GCMRC River Trips and field activities through April 2018 was provided. Mr. Healy: NPS added that periodic BT tracking trips were taking place in GLCA. Starting monthly in March there will be some RBS trips going out, small bodied and larval fish sampling, and work at Shinumo Creek as part of translocation projects outside the AMP.

Long-Term Experimental and Management (LTEMP) Biological Opinion Conservation Measures Update ([Attachment 2](#)) – Mr. VanderKooi and Ms. Grantz. Reclamation completed a report on the status of progress on compliance for the LTEMP BO and sent it to the FWS for their review. Once the report is finalized, it will be shared with the TWG. The numbers of HBC in 2017 were above the Tier-1 threshold of 9,000 HBC.

Discussion of Possible Experimental and Management Actions that May be Implemented for CY18 – Ms. Grantz. The process of communication and consultation for the LTEMP was explained. It's important to hold an in-person annual reporting meeting to review the work that will be done under the LTEMP ROD. Reclamation will meet with tribes in a separate venue to develop a 2-step consultation and notification process regarding experiments. Based on the types of experiments envisioned in the LTEMP, the earliest one could be implemented would be beginning in May. There is support for doing bug flows and to consider partial TMFs, although an appropriate design for TMFs would take some time to develop.

Discussion Regarding the Development of Monitoring Metrics for the Goals and Objectives in Section 1.4 of the LTEMP Final Environmental Impact Statement ([Attachment 3](#)) – Mr. Shanahan. A review of past work done by the AMWG and TWG and their respective roles in developing metrics was presented. One of the standing requirements of the TWG is to consult with GCMRC in developing criteria and standards for monitoring and research programs but this is not the same as developing goals and metrics. He suggested using the Knowledge Assessment as a possible framework that could be used in a longer-term perspective. Even if that activity didn't have enough time to resolve all issues, it provided a way to organize all the information in what we know about how experiments affect resources. However, there are still some gaps. Next steps: (1) TWG members should outreach to their AMWG representatives and, (2) Reclamation needs to develop a process to complete the work.

Update on Hydrology and Operations ([Attachment 4](#)) – Mr. Davidson. Due to extremely dry conditions, we're trailing the worst hydrologic year on record. As of January 23, the upper basin SWE is 66% of median with 36% of total average accumulation and 61% through the snow accumulation season. The inflow forecast for Lake Powell is 54% of average. The Lake Powell 2018 Operating Tier was set in August 2017 as the Upper Elevation Balancing Tier. The minimum, most, and maximum probable inflow scenarios show a projected initial annual release of 8.23 maf, with an April adjustment to balancing

releases of 9.0 maf. None of the inflow scenarios show a chance of equalization. Lake Powell ended CY2017 at 3,622.85 feet (58% full). Projections for 2019, show some variance in the range of projected reservoir elevations. With projected annual releases from Lake Powell of 9.0 maf in the minimum, most and maximum probable inflow scenarios, there is not a lot of variance in the range of projected elevations at Lake Mead. The only thing that would vary are the side inflows into Glen Canyon and Lake Mead. Scheduled maintenance at GCD currently projects that all hydropower 8 units would be available for a possible HFE in November 2018.

End of Fiscal Year 2017 Reclamation Budget Report ([Attachment 5a](#)) - Ms. Grantz. The budget is on a 3-year triennial budget cycle and FY17 was the third and final year of that budget cycle. In FY17 the total amount allocated with a CPI of CPI rate of 1.5% was \$10,916,000 for the overall program. The total amount was divided with Reclamation’s portion at \$2,110,000 and GCMRC’s receiving \$8,806,000 from power revenues. Reclamation’s total expenditures for FY17 was \$1,359,642. The current balance for the Native Fish Conservation Contingency Fund is estimated at \$1,600,000, but needs to be confirmed.

GCMRC FY 2017 Budget Update ([Attachment 5b](#)) – Mr. VanderKooi. He presented a pie chart showing the division of research projects out of the FY15-17 work plan specifically for FY17. Each of the projects are listed and what proportion of the budget they comprise. The budget that was initially recommended by the AMWG and approved by the Department assumed an incorrect an CPI rate of 3% which resulted in a lower level. They also had projected that they would be in their new building but that hasn’t happened. The amount of \$9,040,000 is funding that was needed after changes and overhead rates, CPI change, and what was required to do the work outlined in the FY17 work plan.

Brown Trout in Lees Ferry: Evaluation of Causal Hypotheses and Potential Interventions ([Attachment 6](#)) - Mr. Runge. Increases in brown trout were observed in Lees Ferry from 2013-16 which led to questions about the causes and potential interventions. A BT workshop was held in September 2017 to investigate the questions. Following the workshop, a writing team was convened to continue the evaluation in greater depth. The report should provide information on what the possible tradeoffs are using different strategies. The following schedule was provided:

- Jan 25 Update to TWG
- Jan 30-31 Working meeting, finalize results
- Feb 14 Present results to the AMWG
- Mar 1 Submit report for peer review
- Mar 15 Reviews returned
- Apr 1 USGS Open-File Report published

Expanded Non-Native Management Plan Below Glen Canyon Dam ([Attachment 7](#)) – Mr. Billerbeck. Many of the threats of non-natives have been addressed from tools under two processes, the CFMP and aspects of the LTEMP. GSF were located in Glen Canyon in multiple years right after the LTEMP was completed. BT also appeared to be increasing. Other non-natives will likely appear over time. There will be no change to the existing compliance; the CFMP and LTEMP. Additional tools will be considered to prevent, control, minimize, or eradicate potentially harmful non-native species or the risks associated with their presence. The Lees Ferry recreational RBT fishery is very important to NPS and there are many partners that have a vested interest in this recreational opportunity. Public scoping meetings were held and they were asked to consider other threats to native species and some tools may be ruled out.

Date/Time Frame	Activity or Event
Nov 15, 2017 – Jan 5, 2018	Public scoping and meetings held in Arizona with one webinar
January – April 2018	Review public comments/produce scoping report, collect contributing studies, coordinate with cooperators, revise

	alternative options or dismiss options, analyze impacts and prepare a draft EA
May 2018	EA made available for 30-day public review and comment public meetings
Late Summer/Early Fall 2018	NPS issues decision document, as appropriate

Discussion of Emerging Issues and Request for Agenda Items for Next Meeting – Mr. Shanahan.

- The Trout Ad Hoc Group has expressed a desire to have the TAHG review and discuss the NPS EA as it relates to impacts on the RBT fishery and TWG provide feedback.
- Stocking issues
- Possible experiments
- Consideration of a springtime HFE as soon as possible (2020) and the process involved.
- Request from WAPA to include a presentation by Dr. Hank Jenkins-Smith relative to hydropower evaluation.
- It may be timely to have a NOAA presentation on climate changes affecting hydrology within the basin
- Action following the release of the BT Workshop report.
- Plans for a TCD feasibility study
- GCMRC report on how much life was lost during the work in the canyon doing monitoring and research and/or management actions.

Public Comment: None

Adjourned: 2:55 p.m.

Respectfully submitted,

Linda Whetton
Upper Colorado Region
Bureau of Reclamation

Key to Glen Canyon Dam Adaptive Management Program Acronyms

ADWR – Arizona Dept. of Water Resources	HFE – High Flow Experiment
AF – Acre Feet	HMF – Habitat Maintenance Flow
AZGFD – Arizona Game and Fish Department	HPP – Historic Preservation Plan
AIF – Agenda Information Form	IG – Interim Guidelines
AMP – Adaptive Management Program	INs – Information Needs
AMWG – Adaptive Management Work Group	KA – Knowledge Assessment (workshop)
AOP – Annual Operating Plan	LCR – Little Colorado River
ARM – Annual Reporting Meeting	LCRMCP – Lower Colorado River Multi-Species Conservation Program
ASMR – Age-Structure Mark Recapture	LTEMP – Long-Term Experimental and Management Plan
BA – Biological Assessment	LTEP – Long Term Experimental Plan
BAHG – Budget Ad Hoc Group	MAF – Million Acre Feet
BCOM – Biological Conservation Measure	MA – Management Action
BE – Biological Evaluation	MATA – Multi-Attribute Trade-Off Analysis
BHBF – Beach/Habitat-Building Flow	MLFF – Modified Low Fluctuating Flow
BHMF – Beach/Habitat Maintenance Flow	MO – Management Objective
BIA – Bureau of Indian Affairs	MRP – Monitoring and Research Plan
BO – Biological Opinion	NAU – Northern Arizona University (Flagstaff, AZ)
BOR – Bureau of Reclamation	NEPA – National Environmental Policy Act
BWP – Budget and Work Plan	NHPA – National Historic Preservation Act
BT – Brown Trout	NNFC – Non-native Fish Control
CAHG – Charter Ad Hoc Group	NOI – Notice of Intent
CAP – Central Arizona Project	NPCA – National Parks Conservation Association
CESU – Cooperative Ecosystems Studies Unit	NPS – National Park Service
cfs – cubic feet per second	NRC – National Research Council
CFMP – Comprehensive Fisheries Management Plan	O&M – Operations & Maintenance (Reclamation Funding)
CMINS – Core Monitoring Information Needs	PA – Programmatic Agreement
CMP – Core Monitoring Plan	PBR – Paria to Badger Creek Reach
CRBC – Colorado River Board of California	PEP – Protocol Evaluation Panel
CRAHG – Cultural Resources Ad Hoc Group	POAHG – Public Outreach Ad Hoc Group
CRCN – Colorado River Commission of Nevada	Powerplant Capacity = 31,000 cfs
CRE – Colorado River Ecosystem	R&D – Research and Development
CREDA – Colorado River Energy Distributors Assn.	RBT – Rainbow Trout
CRSP – Colorado River Storage Project	RFP – Request for Proposal
CWCB – Colorado Water Conservation Board	RINs – Research Information Needs
DAHG – Desired Future Conditions Ad Hoc Group	ROD Flows – Record of Decision Flows
DASA – Data Acquisition, Storage, and Analysis	RPA – Reasonable and Prudent Alternative
DBMS – Data Base Management System	SA – Science Advisors
DOE – Department of Energy	SAEC – Science Advisors – Executive Coordinator
DOI – Department of the Interior	Secretary – Secretary of the Interior
DOIFF – Department of the Interior Federal Family	SCORE – State of the Colorado River Ecosystem
EA – Environmental Assessment	SHPO – State Historic Preservation Office
EIS – Environmental Impact Statement	SOW – Statement of Work
ESA – Endangered Species Act	SPG – Science Planning Group
FACA – Federal Advisory Committee Act	SSQs – Strategic Science Questions
FEIS – Final Environmental Impact Statement	SWCA – Steven W. Carothers Associates
FRN – Federal Register Notice	TCD – Temperature Control Device
FWS – United States Fish & Wildlife Service	TCP – Traditional Cultural Property
FY – Fiscal Year (October 1 – September 30)	TEK – Traditional Ecological Knowledge
GCD – Glen Canyon Dam	TES – Threatened and Endangered Species
GCES – Glen Canyon Environmental Studies	TMC – Taxa of Management Concern
GCT – Grand Canyon Trust	TMF – Trout Management Flows
GCMRC – Grand Canyon Monitoring & Research Center	TWG – Technical Work Group
GCNP – Grand Canyon National Park	UCRC – Upper Colorado River Commission
GCNRA – Glen Canyon Nat'l Recreation Area	UDWR – Utah Division of Water Resources
GCPA – Grand Canyon Protection Act	USBR – United States Bureau of Reclamation
GLCA – Glen Canyon Nat'l Recreation Area	USFWS – United States Fish & Wildlife Service
GRCA – Grand Canyon National Park	USGS – United States Geological Survey
GCRG – Grand Canyon River Guides	WAPA – Western Area Power Administration
GCWC – Grand Canyon Wildlands Council	WY – Water Year
GSF – Green Sunfish	
HBC – Humpback Chub (endangered native fish)	

