

Glen Canyon Dam Adaptive Management Work Group Meeting
WebEx/Conference Call

Date: May 27, 2014

Conducting: Anne Castle, Secretary's Designee

Start Time: 10:30 a.m. MDT

Committee Members/Alternates:

Charley Bullets, Southern Paiute Consort. (phone)
Shane Capron, Western Area Power Administration
Ann Gold, U.S. Bureau of Reclamation
Jayne Harkins, State of Nevada
Gerald Hooee, Sr., Pueblo of Zuni
Loretta Jackson-Kelly, Hualapai Tribe
Leslie James, CREDA
Sam Jansen, Grand Canyon River Guides
John Jordan, Federation of Fly Fishers
Vineetha Kartha, State of Arizona

Robert King, State of Utah
Ted Kowalski, State of Colorado
Don Ostler, States of New Mexico and Wyoming
Ted Rampton, UAMPS
Larry Stevens, Grand Canyon Wildlands Council
Bill Stewart, AZ Game and Fish Department
Mike Yeatts, Hopi Tribe
Kirk Young, U.S. Fish and Wildlife Service
VACANT, State of California
VACANT, San Juan Southern Paiute Tribe

Committee Members Absent:

James deVos, Arizona Game & Fish Department
Lynn Jeka, Western Area Power Administration
Leigh Kuwanwisiwma, Hopi Tribe
John McClow, State of Colorado

David Nimkin, National Parks Conservation Assoc.
Steve Spangle, U.S. Fish and Wildlife Service
Dave Uberuaga, National Park Service (GRCA)
Frederick H. White, Navajo Nation

USGS/Grand Canyon Monitoring and Research Center

Helen Fairley, Program Manager
Dave Lytle, SBSC Manager
Chris Schill, Budget Analyst

Jack Schmidt, Center Director
Scott VanderKooi, Acting Deputy Director

Interested Persons:

Adam Arellano, WAPA
Jan Balson, NPS/GRCA
Peter Bungart, Hualapai Tribe
Rob Billerbeck, National Park Service
Lori Caramanian, DOI
Marianne Crawford, U.S. Bureau of Reclamation
Jerry Cox, Grand Canyon River Guides
Kevin Dahl, National Parks Conservation Assoc.
Ed Gerak, Buckeye Water Cons. & Draining District
Dr. Dave Garrett, M³Research/Science Advisors
Katrina Grantz, U.S. Bureau of Reclamation
Paul Harms, State of New Mexico
Chris Harris, State of California
Beverley Heffernan, U.S. Bureau of Reclamation
Glen Knowles, U.S. Bureau of Reclamation
Kirk LaGory, Argonne National Labs
Eric Millis, State of Utah
Gerald Myers, International Federation of Fly Fishers
Jill Nagode, U.S. Bureau of Reclamation

Colby Pelegriano, SNWA
Jenika Raub, Salt River Project
Dr. Sarah Rinkevich, DOI (Federal Tribal Liaison)
Dave Rogowski, Arizona Game & Fish Department
Mike Runge, USGS
Kendra Russell, U.S. Bureau of Reclamation
Seth Shanahan, SNWA
Justin Tade, DOI/SOL
Jason Thiriot, State of Nevada
Shana Tighi, U.S. Bureau of Reclamation
Tanya Trujillo, State of California
Larry Walkoviak, U.S. Bureau of Reclamation
Christi Wedig, Glen Canyon Institute
John Weisheit, Living Rivers
Malcolm Wilson, U.S. Bureau of Reclamation
Jeffrey Woner, K.R. Saline & Associates
Steve LaFalce, Trout Unlimited
Doug Milligan, Salt River Project

Recorder: Linda Whetton, USBR

Welcome and Administrative. Ms. Castle welcomed the members and general public.

- Introductions were made and a quorum determined.
- Webinar Protocols. Members were given instructions for participating on today's call.
- Purpose and Desired Outcomes. The meeting will focus on receiving updates on current basin hydrology, the LTEMP EIS process, and development of a triennial budget process.

- Approval of February 19-20, 2014, Meeting Minutes. Pending minor edits, the minutes were approved by consensus.

Basin Hydrology, Operations and 2015 Hydrograph (**Attachment 1** = AIFs and PPT) – Ms. Katrina Grantz. The snowpack this water year was very good. The peak of the snowpack was in the 120-150% of normal in the Upper Green/Yampa area. Throughout the rest of the basin and in the San Juan Basin it was average to slightly below average. The snowpack for the upper basin peaked at 111% on April 7, 2014. As of May 21st approximately half of this season's snow remained. The current forecast for most probable is for 105% of average at 7.55 maf. The range from minimum to maximum is from 88% to 132% of average as of May 2nd. There is a 10% chance that the inflows could be less than the minimum probable and a 10% chance that they could be higher than the maximum probable. This water year is looking significantly better than the past two years, 2012-2013. In terms of operation, we're in the mid-elevation release tier this water year. This was determined in August 2013. We will continue in the mid-elevation release tier regardless of what the inflow is. Due to the reservoir elevation projections we are locked into releasing 7.48 maf this water year. Unlike past water years when there was the potential for an April adjustment, in this tier we are locked in for the full water year. Looking ahead to WY 2015 there is a lot more uncertainty. We won't know what the operating tier will be until August, recent modeling done in April and May indicate a minimum and most probable of 9.0 maf in April and May and 11.4 maf as a maximum probable in April-May. These will probably change depending on the actual inflow this runoff season. The 2015 operating tier will be set in August.

Maintenance at GCD: The power outage schedule indicates all units will undergo some service with units 3 and 6 being offline the greatest amount of time. When a unit is undergoing maintenance, no water can be passed through the turbines. Maintenance in WY 2015 is being scheduled to allow for a possible fall HFE in November. The maximum capacity would be 20,600 cfs through the power plant.

DO/DOE 2015 Hydrograph. Decreasing the montly volume can significantly decrease sand transport. Recent hydrographs have attempted to retain sand inputs high in the canyon in anticipation of a potential fall HFE. At the request of FWS, Reclamation also looked at ways to improve temperatures at the mouth of the LCR early in the season (June). The proposed hydrograph lowers August through October releases to conserve sediment prior to a potential HFE in the fall, moves water from August to other equal value months for hydropower (Dec/Jan), and avoids shifting "extra" water to June which would cool temperatures at the mouth of the LCR.

FY 2015-17 Budget and Work Plan. (**Attachment 2a** = AIF) – Ms. Castle. In a memo to Dr. Jack Schmidt (GCMRC) and Mr. Knowles (BOR) dated May 7, 2014 (**Attachment 2b**), Ms. Castle directed the two agencies to develop a 3-year budget. The processes described in the memo have been under development for several months and many of the stakeholders have been involved in these discussions. There's consensus this is a good step forward in resolving 2-year budget problems. Specifically, the AMWG has been approving a budget in August which goes into effect on October 1. The first field season it covers is the following summer. For example, a budget that starts on October 1, 2014, and the field season starts in 2015. The results of the monitoring and experimentation that occurred during that field season are just becoming available the following winter (winter 2015-2016) and that's when development of the next 2-year budget begins. Given that timing, it's difficult to respond to the science in that next iteration of the budget and work plan. Developing the budget is a time and resource consuming process. It's an intense process for BAHG, TWG, BOR and GCMRC so by establishing a 3-year scientific vision with some opportunity for mid-course adjustment, seems to be a better fit. That 3-year vision would be used to develop the annual budget. Part of that memo requests GCMRC and BOR work with the TWG to develop a timeline and process for this that can be followed in the future.

In addition, the memo provides information on an expected increase in the rent and overhead that GCMRC will be subject to starting next year. GCMRC has been fortunate in having low rent and no rent increases for many years, unfortunately, the City of Flagstaff will be demolishing many of the buildings GCMRC uses and GCMRC will have to build new ones. USGS has no control over this matter and with

DOI leadership they are trying to figure out how to soften the rent increases USGS will incur over the next few years. More information will be provided in Dave Lytle's presentation.

Bureau of Reclamation Budget (Attachment 2c) – Mr. Glen Knowles. Reclamation is responsible for the administrative portion of the AMP budget. The FY15-17 budget is available online. Changes to the FY15 were noted:

- AMWG Facilitation. This line item was zeroed out in FY14 but Reclamation is looking to bring in a facilitator for the August meeting and reestablish the funding for outyears.
- Public Outreach (POAHG). There hasn't been a lot of action in this ad hoc group but the TWG's Administrative Ad Hoc Group is seeking to use some funding for a pilot administrative history project.
- TWG Chair. Reclamation's contracting office questioned funding this item and is currently awaiting a legal opinion with additional review by Reclamation's Denver Office.
- Science Advisor Contract. Oversight of this contract will move from GCMRC to BOR.
- Native Fish Conservation Contingency Fund NFCCF. This is a contingency fund to be used for mechanical removal of non-native fish if necessary. Money was borrowed from this fund last year to deal with the 5% sequester reduction. The balance is approximately \$670,000. They're proposing to move the experimental fund from FY14 into the NFCCF in each year of the 3-year budget cycle to provide an adequate cushion to implement nonnative fish control in the future if necessary.
- Cultural Program. This includes Reclamation administrative and travel charges, cultural program activities, and integrated tribal resources monitoring.

GCMRC Triennial Budget and Work Plan (Attachment 2d) – Dr. Jack Schmidt. The FY13 budget was \$10,441,000 with about 30% work in earth sciences and 40% in aquatic and fish science. In 2014 the allocation of the projects was proportioned the same as FY13. It's important to note that the total AMP funding in FY14 was \$8.4 million. This year's BWP is \$8.7 million with \$150,000 coming from BOR's support of cultural resources work Jack gave a PPT, "Development of a new GCMRC Work Plan and Budget" (Attachment 2e) depicting the potential allocation of GCDAMP Funds for FY15 which is \$100K over budget. He presented a pie chart with the budget broken down by program area and said it's critical that stakeholders provide feedback to him on the proposed projects. He noted the following:

- Project 1 - Lake Powell & GCD water quality monitoring. (~\$0.29M) This work is not funded by the GCDAMP. GCMRC continues to talk with BOR about what this project involves. In FY16 they want to do a science review (PEP panel) on reservoir limnology and ecology and how it affects the CRE.
- Project 2 – Stream flow, water quality and sediment transport. (\$1.35M)
- Project 3 – Sandbars and storage dynamics. (\$1.33M)
- Project 4 – Quantifying the relative importance of river-related factors that influence upland geomorphology and archaeological site stability (\$0.41M, including \$0.15M from BOR)
- Project 5 – Mainstem foodbase studies in Glen, Marble, and Grand Canyons (\$0.52M)
- Project 6 – Mainstem Colorado River humpback chub aggregations and fish community dynamics (\$0.66M)
- Project 7 – Population ecology of humpback chub in and around the LCR (\$1.56M)
- Project 8 – Management actions to increase abundance and distribution of native fishes in Grand Canyon (\$0.19M)
- Project 9 – Understanding the factors limiting the growth of rainbow trout in Glen and Marble Canyons (\$0.81M)
- Project 10 – Mapping and assessment of aquatic habitats in Glen and Marble Canyons (\$0.70M; \$0.80M unfunded).
- Project 11 – Riparian vegetation studies (\$0.35M)
- Project 12 – Dam-related effects on the distribution and abundance of selected culturally-important plants in the CRE (\$0.05M unfunded)
- Project 13 – Socioeconomic monitoring and research (\$0.19M)
- Project 14 – USGS/SBSC/GCMRC administration and support (\$1.56M)

To reduce the cost of this budget, a number of agencies were involved in trying to develop a streamlined and efficient fish monitoring program but could only get so far in their discussions. GCMRC is proposing a science evaluation panel to help facilitate science recommendations on how that can be done.

SBSC Facilities & Overhead (Attachment 2f) – Mr. Dave Lytle. USGS charges overhead in three different components: (1) at the Bureau level at 12% for IT, infrastructure and human resources, but this rate has been waived for AMP funding; (2) USGS charges overhead at the Center level (Southwest

Biological Science Center) at 26% on agreements with outside partners like the AMP. By policy, the Center overhead rate for the AMP funding is set at 7.5%. Neither of these two policies are changing. The facilities at GCMRC are beyond their design life and the City of Flagstaff will not renew their lease. However USGS is requesting a lease extension so that they can construct new facilities. This will extend their lease cost by about 60% from \$11/sf to \$18/sf and will be effective in FY15 and FY16. In FY17 they hope to have a new facility in Flagstaff. This facility will also be leased through GSA from the City of Flagstaff and will be much better designed for the kind of work that USGS/GCMRC does. It will be about 38,000 square feet which represents an 11% decrease in the leased space from what they currently occupy. The maximum size of the offices in the new facility will be 100 square feet so a 10x10 office is the largest office that anyone will occupy and most offices will be smaller than that. These reductions will allow larger spaces for labs and a warehouse.

TWG/BAHG Report, Initial FY 2015-17 Budget and Workplan (**Attachment 2g**) – Mr. Shane Capron. The BAHG and TWG reviewed and supports the FY15-17 triennial budget. They developed 35 technical issues which were forwarded to DOI on April 22 and are now seeking initial guidance from the AMWG on the following four policy issues:

1. Evaluate the feasibility of options to maintain water quality (e.g., temperature) to support a quality trout fishery in Lees Ferry and native fish downstream (TCD, water management options, etc.)
2. The cost for new GCMRC facility in Flagstaff could result in a devastating reduction in research due to the increased USGS burden.
3. Utility of the POAHG – some funding may be appropriate, but review the costs and benefits – less money may be appropriate.
4. Role of Science Advisors in the GCDAMP. TWG needs to be involved in the development of the role of the SAs, and SA budget may need to be increased.

Ms. Castle thanked the TWG for reducing many different questions to just four policy issues and said they're appropriate for AMWG consideration. The June TWG meeting will focus primarily on the FY15-17 BWP and to the extent the AMWG wants to give direction to their TWG representatives, that is the time to do it.

Comments:

- *Many projects have review components; those reviews should be done externally.*
- *Need for identification of GCMRC staff time being used in support of the LTEMP EIS process.*
- *The program needs to be guided by an ecosystem model.*
- *Need for a more fully developed LTEMP before engaging in trout fishery issues, TCD, etc.*
- *Need for good understanding on what the AMP wants the Science Advisors do and ensure there is sufficient funding for that work. [Refer to **Attachment 2h**, Memo from Dave Garrett to TWG Chair dated May 19, 2014. SA funding in FY13 was \$171,700 and in FY14 it was \$148,600.]*
- *USGS and DOI discussions about mitigating for the increased rents on new GCMRC buildings will continue, but it wouldn't be a substantial offset.*

Long-Term Experimental and Management Plan EIS Update (**Attachment 3**) – Mr. Kirk LaGory.

There are six alternatives being analyzed in the EIS:

1. No-Action Alternative
2. Balanced Resource Alternative
3. Condition-Dependent Adaptive Strategy
4. Resource Targeted Condition-Dependent Alternative
5. Seasonally Adjusted Steady Flows
6. Year-Round Steady Flows

All the alternatives have high flow releases, non-native fish control actions, are in compliance with the 2007 ROD on Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead, and have NPS management activities (durations as specified in management documents). A stakeholder workshop was held the end of March to review the modeling results for the six alternatives. Some alternatives were broken down into their component parts which were modeled separately as long-term strategies. A total of 15 different alternative long-term strategies were modeled. Swing-weighting results were distributed to the participating agencies. Additional webinar

workshops were held to review the swing-weighting results and begin discussions of a preferred alternative and experimental design.

The swing-weighting analysis provides a ranking of the alternatives relative to how stakeholders weighted the different resource goals. Most stakeholders ranked Balanced Resources, CDAS, and RTCD as better than No-Action. The value in resolving uncertainties was relatively low, had little effect on ranking and didn't support the development of a complex experimental design. Developing an experimental design that would identify best management practices related to some of the key resources of concern is in process: sediment conservation, HBC, and vegetation control. Identification for all experiments include; hypotheses being tested, design of a monitoring component, adaptive response to information generated by experiment, implementation of multiple tests and avoidance of confounding effects.

Next Steps:

- Complete adaptive strategy and experimental design of a preferred alternative (June)
- Prepare structured decision analysis for inclusion in EIS (July)
- Prepare preliminary administrative draft EIS for internal review (July)
- Distribute preliminary draft EIS to cooperating agencies for review (August)
- Release Draft EIS to public (October)

Mr. Ostler expressed difficulty in understanding the experimental design with the information that was presented on the swing-weighting exercise. It placed the expected value of perfect information for the 16 science questions as being extremely low and he sees this as inconsistent with a rationale for continued significant expenditures many research areas. How is that concept being rationalized? Dr. Schmidt replied that within the context of GCMRC, the science program supporting the AMP has to be robust enough to meet the detailed and precise questions associated with the choice of an alternative in this EIS, but also must have robust enough monitoring to deal with the unknowns that lie beyond this EIS.

Mr. Runge said the analysis of the value of information wasn't high in addressing the uncertainties that were identified and specifically defined in the LTEMP EIS process. However, there are other uncertainties that perhaps weren't analyzed or that haven't been identified yet. In the next EIS, 20 years from now, there will be new alternatives for consideration. This experimental design is starting to look at more fine-tuned questions – turn on/off HFES, do/not do trout management flows, etc.

Ms. Castle said there will continue to be opportunities for people to present their concerns and input and said the Department is continuing to try and involve AMWG members in an appropriate way in the process.

AMWG Next Steps:

- Next Meeting: August 27-28, 2014 in Flagstaff, Arizona.
- Tribal Liaison Position: Ms. Loretta Jackson Kelly was selected as the Tribal Liaison to assist Sarah Rinkevich as the Federal Tribal Liaison for the AMP.
- AMWG River Trip. Ms. Caramanian said there's the possibility of Navajo Nation sponsoring a river trip for AMWG members following the August meeting. Ms. Rinkevich and Ms. Jackson-Kelly will be working on gaging the interest of AMWG participation.
- USGS Boat Services Contract. The USGS selected the lowest bid for the next 5-year contract. The previous contractor said he would protest the award. The protest period ends today. If a protest is filed, it will impact GCMRC doing science work.

Public comments: None

Adjourned: 1:30 p.m. MDT

Respectfully submitted,

Linda Whetton
Bureau of Reclamation
Upper Colorado Region

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