

Glen Canyon Dam Adaptive Management Work Group Meeting
August 29-30, 2012

August 29, 2012

Conducting: Anne Castle, Secretary's Designee

Start Time: 9:40 a.m.

Facilitator: Mary Orton (The Mary Orton Company, LLC)

Committee Members/Alternates:

Perri Benemelis, State of Arizona
Charley Bulletts, Southern Paiute Consortium
Kurt Dongoske, Pueblo of Zuni
Alan Downer, Navajo Nation
Ann Gold, U.S. Bureau of Reclamation
Jayne Harkins, State of Nevada
Amy Heuslein, Bureau of Indian Affairs
Loretta Jackson-Kelly, Hualapai Tribe
Leslie James, CREDA
Sam Jansen, Grand Canyon River Guides
John Jordan, Federation of Fly Fishers

Ted Kowalski, State of Colorado
LaVerne Kyriess, DOE/Western Area Power Admin.
Nikolai Lash, Grand Canyon Trust
Don Ostler, State of New Mexico
Ted Rampton, UAMPS
John Shields, State of Wyoming
Larry Stevens, Grand Canyon Wildlands Council
Dennis Strong, State of Utah
Bill Stewart, AZ Game and Fish Department
Dave Uberuaga, National Park Service (GRCA)
Michael Yeatts, Hopi Tribe

Committee Members Absent:

Janet Bair, U.S. Fish and Wildlife Service
Jennifer Gimbel, State of Colorado
Chris Harris, State of California
Arden Kucate, Pueblo of Zuni

Leigh Kuwanwisiwma, Hopi Tribe
Estevan López, State of New Mexico
Larry Riley, Arizona Game and Fish Department
Frederick H. White, Navajo Nation

Grand Canyon Monitoring and Research Center

Helen Fairley, Program Manager
Ted Melis, Deputy Director

Jack Schmidt, Center Director
Scott Vanderkooi, Program Manager

Interested Persons:

Mike Anderson, AZ Game and Fish Department
Jan Balsom, NPS/GRCA
Mary Barger, U.S. Bureau of Reclamation
Rob Billerbeck, National Park Service
Aaron Bunch, AZ Game and Fish Department
Peter Bungart, Hualapai Tribe
Daniel Bunk, U.S. Bureau of Reclamation
Tom Buschatzke, State of Arizona
Shane Capron, WAPA/TWG Chair
Lori Caramanian, DOI
Brian Carey, NPS/GLNRA
Kerry Christensen, Hualapai Tribe
Marianne Crawford, USBR
Craig Ellsworth, WAPA
Dr. Dave Garrett, M³Research/Science Advisors
Allison Gitlin, Sierra Club
Katrina Grantz, U.S. Bureau of Reclamation
Martha Hahn, NPS/GRCA
John Halliday, DOI
Lynn Hamilton, Grand Canyon River Guides
Beverley Heffernan, U.S. Bureau of Reclamation
Dick Hingson, Sierra Club
Gerald Hooee, Pueblo of Zuni
Tony Joe, Navajo Nation
Vineetha Kartha, AZ Dept. of Water Resources
Robert King, State of Utah

Sarah King, Sierra Club
Glen Knowles, U.S. Bureau of Reclamation
Jane Lyder, DOI/Fish, Wildlife and Parks
Dave Lytle, GCMRC
Doug Million, Salt River Project
Gerald Myers, Federation of Fly Fishers
Brad Newsman, River Guide
David Nimkin, NPCA
Colby Pellegrino, SNWA
Gary Rosenlieb, NPS Water Resources Division
Gerald Hooee, Pueblo of Zuni
Seth Shanahan, SNWA
April Smith, public citizen
Robert Snow, DOI/SOL
Mark Sogge, USGS
Steve Spangle, U.S. Fish and Wildlife Service
Zack Stenak, River Guide
Dean Suagee, Hualapai Tribe
Jason Thiriot, State of Nevada
Meghan Trubee, NPCA
Dave Trueman, USBR
Dawn Tubbs, Hualapai Tribe
Jason Tucker, U.S. Bureau of Reclamation
Larry Walkoviak, U.S. Bureau of Reclamation
Nick Williams, U.S. Bureau of Reclamation

Recorder: Linda Whetton, USBR

Welcome and Administrative. Ms. Anne Castle welcomed the members and the public. She noted two items of importance since the last meeting: (1) Secretary Salazar issued a directive on May 23, 2012 (**Attachment 1**), acknowledging the issuance of the Findings of No Significant Impact on the High Flow Experimental Protocol and the Non-native Fish Control Program environmental assessments, and establishing a DOI leadership team to implement the actions outlined in the two EAs. (2) Alternatives for the Long-Term Experimental and Management Plan were submitted by a number of different parties in early July. Numerous meetings have been held and an update will be provided at this meeting.

1. Introductions were made and a quorum was determined.
2. Approval of February 22-23, 2012, Meeting Minutes. Motion moved by Mr. John Shields and seconded by Ms. Perri Benemelis. Pending one edit, the minutes were approved by consensus.
Approval of May 10, 2012, Meeting Minutes. Motion moved by Mr. John Shields and seconded by Ms. Perri Benemelis. Without objection, the minutes were approved by consensus.
3. Action Item Tracking Report. (**Attachment 2**). The next iteration of this report will show item 2010.Aug.02 as closed.
4. Litigation Update. Regarding the Grand Canyon Trust v. Bureau of Reclamation lawsuit, Mr. Bob Snow provided an update on the appeal to the U.S. Court of Appeals for the Ninth Circuit that was recently decided. He said that the Grand Canyon Trust brought 13 different claims in the district court case, including GCPA claims, claims based upon the 5-year experimental plan (2008-2012), and claims about the issuance of annual operating plans. The Grand Canyon Trust ultimately appealed 3 claims: whether annual operating plans were subject to NEPA, whether annual operating plans were subject to ESA, and whether the FWS could utilize draft recovery goals to prepare the biological opinions for the humpback chub. The Ninth Circuit upheld the district court's finding that issuance of annual operating plans does not require NEPA or ESA compliance because the annual operating plans are not decision documents regarding dam operations. The Ninth Circuit decision also stated that FWS's use of draft recovery goals in a biological opinion did not have the effect of finalizing those goals. Grand Canyon Trust has 45 days from August 13 to seek a re-hearing on the case. Progress on Nominations. Ms. Castle welcomed the following new members: Larry Riley (member, Arizona Game and Fish Department), Janet Bair (member, U.S. Fish and Wildlife Service), Shane Capron (alternate, Western Area Power Administration), Randy Van Haverbeke (alternate, U.S. Fish and Wildlife Service). The following TWG members were vetted: Vineetha Kartha (State of Arizona), Craig Ellsworth (WAPA), Randy Van Haverbeke (USFWS), Evelyn Erlandsen (alternate, State of Arizona), and Janet Bair (alternate, USFWS).
5. Field Work Session Overview. Dr. Jack Schmidt provided final details on transportation to Marble Canyon and arrangements for the August 30, 2012 field work session.

Basin Hydrology and Operations (**Attachment 3** = AIF and PPT). Ms. Katrina Grantz said there will be a 3-day transition to steady flows for Sep/Oct at 8,000 cfs. Every August they receive new forecasts from the River Forecast Center. The forecast for 2013 is fairly dry, the most probable forecast for Colorado River runoff into Lake Powell is 82% of average. The minimum probable is 5.0 maf (46% of average), and maximum is 16 maf (148% of average). The projected elevation for Lake Powell for January 1st is 3,615 feet which is within the Upper Elevation Balancing Tier, and Lake Mead is projected to be 1,119 feet which is within Normal Operations. The WY 2013 forecast release for Glen Canyon dam is 8.23 maf for the minimum and most probable scenarios, and 11.21 maf for the maximum probable.

Maintenance at Glen Canyon Dam. Ms. Grantz reported that Unit 6 is only 75% operational. Unit 4 is scheduled for turbine runner replacement in October-November, but may be postponed slightly to accommodate a possible fall HFE.

High Flow Experiment Protocol Implementation.

Sediment Update (**Attachment 4a**). Dr. Jack Schmidt said when fine sediment enters the river from tributaries, primarily the Paria River, sand and mud are initially deposited on the channel bottom and at low elevations. The sand and mud are quickly transported downstream and the sand that remains on the bed becomes coarser. The purpose of controlled floods is to entrain this sand from the bed and redistribute high on the banks. Most of the sand exported from the canyon since January 1, 2011, has eroded from the eddies. Between 300,000 and 560,000 metric tons have been delivered from the Paria

River into the Colorado River since July 1, 2012. He noted that this is an estimate based on acoustic and laser measurements and has a relatively high error bound. These estimates are then calibrated to real sediment samples in the lab, which is time-consuming, but provides a more refined estimate. Nevertheless the error bounds are around 0.5 million metric tons of sand which is in the range necessary for a high flow experiment.

High Flow Experiment Protocol Implementation (**Attachment 4c**). Mr. Glen Knowles said the HFE protocol allows for up two high flow experiments in any given year. As such, DOI is in the process of completing and documenting the HFE Protocol decision process for a fall HFE in 2012. Only one fall HFE has been conducted in the past and monitoring was less robust for key resources for that test (November 2004). A fall HFE could have effects on young trout and humpback chub, but levels of monitoring now in place will provide key information on effects of fall HFEs if a fall HFE occurs in 2012. Signatories to the HFE and NNFC MOAs will be notified 30 days in advance of a fall HFE when a decision is made to conduct a fall 2012 HFE.

Modeling Used for HFE Preparation (**Attachment 4d**). Mr. Nick Williams explained there are two types of modeling, hydrology and sediment, the latter referring only to sand. Fine sediment such as clay and silt are not being modeled. In order to perform the sand modeling they require historic, hourly, or forecasted hourly patterns at Glen Canyon Dam. The forecast comes from the 24-month study which provides a monthly volume and then WAPA provides hourly patterns for those flows. The model requires those hourly flows to be input at three locations: the downstream end of the upper Marble Canyon Reach, the downstream end of the lower Marble Canyon Reach, and the downstream end of the Eastern Grand Canyon Reach. The hourly flows at these locations are achieved through the USGS unsteady flow model which determines the HFE peak and duration. The potential range for an HFE in the model is 31,000 cfs up to 45,000 cfs and the duration from 1 to 96 hours. The output they evaluate is the sand mass balance in the upper Marble Canyon Reach (RM0 at Lees Ferry) down to the end of Marble Canyon (RM61). At 8,000 cfs (the operation for September and October) there is essentially no erosion out of these reaches. The model simulating an HFE potential on November 1 will select an HFE type that will not result in a negative sand balance for the reach. In this case it has selected a 37,000 cfs magnitude for 60 hours duration, although this is preliminary and subject to change. The models will be updated as more sediment inputs are received, and the determination to conduct an HFE will be based on those inputs.

Ms. Castle said the HFE Protocol committed Reclamation to inform the AMWG if an HFE release was being contemplated. Therefore, today's discussion would serve as notification of an early November HFE. She said a lot of people have been under the impression that there is a specific number of metric tons of sand that is the trigger. This is incorrect: the modeling component of the HFE Protocol evaluates how much sand is in the system and whether a high flow would result in a positive net balance of sand in the system. If the answer is no, no high flow release; if the answer is yes, then a HFE is considered.

The following concerns were expressed:

- Notification of HFE to general public, especially campers, rafters, fishermen, etc.
 - Reclamation is working with NPS and other partners to make sure MOA signatories and others receive as much advance notice as possible. Public safety is of utmost concern.
- Need to be looking ahead at dam maintenance schedule. If we get a good water year and need some equalization releases done in 2013, then it needs to be done before end of water year.
 - Reclamation is looking at a fairly short 2-3 week delay for work starting on Unit 4.
- DOI agencies have consulted with WAPA on transmission and power deliveries. If the other reservoir conditions and transmission allows, WAPA is prepared to move as much of their spinning reserves as possible to the Aspinall unit.
- All models are not the same. When working with different time scales, different elements need to be subtracted or added that are relevant or not. This is the rough coarse model, and details of the weather need to be factored in before a decision can be made to conduct an HFE.
- The Reclamation model will need to be re-calibrated monthly. Because the lab analysis hasn't been completed, the error bars are relatively large at present. The leadership team has talked about this and it will continue to be an issue of concern.

Non-Native Fish Control Implementation.

GCMRC Update on Native and Non-native Fish Populations. Dr. Scott Vanderkooi presented results from river sampling trips conducted this year (**Attachment 5a**). Based on 2012 USFWS spring monitoring and closed population estimates in the LCR, the adult HBC population is still stable. There was a very strong cohort of young-of-the-year and age-1 HBC in the LCR during spring and still evident in July. Abundance estimates of humpback chub 150-199 mm total length were far higher than the 910 fish specified in the Biological Opinion trigger. They will not have an updated estimate of annual juvenile HBC survival in the reach from RM 63-64.5 until later in the year, after juvenile chub monitoring is completed. Rainbow trout densities in April and July were extremely high in the Lees Ferry reach downstream to approximately House Rock rapid (RM 17) where they decline. Densities declined again at about RM 40, and again at the confluence of the LCR. Estimated trout abundance during July 2012 in the reach downstream of the LCR (RM 63-64.5) was less than the 760 fish trigger.

The Age Structured Mark Recapture (ASMR) maximum likelihood estimate of HBC age 4 and older was approximately 9,000 fish using data compiled through 2011. A revised adult HBC mortality estimate of 0.094 was less than the estimated mortality of 0.13 from previous ASMR estimates. Based on revised mortality estimates, the adult HBC population is between approximately 9,000 and 12,000 fish. Further revisions to the ASMR model are being evaluated.

Whirling Disease Update. Mr. Bill Stewart said AGFD received news on May 16, 2012, that several rainbow trout samples from their October 2011 Lees Ferry survey tested positive for the presence of whirling disease. The Washington Animal Disease Diagnostic Lab at Washington State University confirmed that four of 18 pools of fish were infected with the disease. AGFD has been testing for whirling disease annually since 1999, and this represents the second discovery in Lees Ferry. While the first detection occurred in 2007, follow-up surveys that year and annual surveys through 2010 did not detect the presence of the disease. Before the 2011 samples, many biologists surmised that the 2007 detection represented an exposure that had failed to become established in the population. He described the life cycle of whirling disease (**Attachment 5b**) saying the parasite can affect the nerves and cause cartilage damage that results in the outward signs of whirling disease. Trout are most susceptible to the disease at an earlier age, and after about four months old they become fairly resistant. The disease has been reported in 25 states and does not always result in a dramatic population loss. Lees Ferry appears to be the only whirling-disease positive water in Arizona, and to date the AGFD has not observed losses of trout due to the disease. It's important to note that the spores are very resistant and can be easily transported. Studies have shown that they are able to withstand freezing and can still be active having sat in mud for 13 months. AGFD is notifying visitors to Lees Ferry of the problem.

Non-native Fish Control Implementation (**Attachment 5c**). Mr. Knowles said non-native fish control is an important conservation measure of the Final BO and prior opinions because non-native RBT and BT prey on and compete with HBC which can affect HBC recruitment and adult abundance and thereby potentially affect recovery. Because whirling disease has now been detected in the fishery, live removal of trout to stock into other waters is no longer a viable strategy due to the potential to spread the disease. If non-native fish control is required, additional tribal consultation will be necessary. In part, due to this new issue, the PBR reach removal trips planned for later this year will likely be cancelled.

Mr. Steve Spangle said the FWS doesn't believe canceling PBR removal will affect the outcome of the biological opinion, but FWS will review and provide a rationale for that conclusion. The FWS wants to be respectful of tribal wishes that no LCR removal take place since the fish would have to be euthanized. If the FWS should find for any reason there is a need to do non-native fish control, even if the triggers are not met, Reclamation and FWS will do consultation.

Mr. Kurt Dongoske said the Zuni feel the FONSI for the NNFC EA should be invalid because the presence of whirling disease in the system creates an inability to do live removal which is an adverse effect. This new information wasn't adequately incorporated into the EA so he questioned the sufficiency of the EA's analysis. Similarly, the FONSI for the HFE Protocol does not consider the effects of doing high flows on transporting the whirling disease spores and host worms downstream near the LCR where

the habitat may be more favorable to the worms. He expressed concern that whirling disease could be spread further downstream.

Water Year 2013 Hydrograph. (Attachment 6a = AIF and PPT).

Reclamation Report. Mr. Dave Trueman said in 2011 Reclamation began looking at ways to help conserve sand and sediment in the system. The result was a targeted approach approved for the 2011 hydrograph, which lowers releases in August during the sediment input season and helps retain it for a possible HFE. Because the targeted approach is able to conserve sediment under a variety of dam release scenarios, and helps retain sediment for a possible fall HFE that is looking more probable, it is also the hydrograph recommendation for water year 2013.

TWG Report (Attachment 6b). Mr. Shane Capron said the TWG heard a proposal from DOI/DOE in June expressing two concerns: (1) impacts of an HFE on the hydrograph, and (2) request for financial analysis of the proposed hydrograph. He read the motion TWG passed by consensus in support of the DOI/DOE hydrograph for water year 2013. As follow-up to financial concerns, Western did an analysis of the net revenue difference between the targeted and non-targeted approaches. The differences were very small and resulted in a negligible difference in dollars. The larger difference was under Reclamation's maximum probable release scenario with an increase of \$1.8 million in costs for this targeted approach.

Ms. Leslie James asked how volumes would be shifted around in other months if there is an HFE in November. Ms. Grantz told her that depending on how Western moves reserves and if the dam maintenance schedule is altered, about 700K acre-feet would be released. They have 600K programmed for November and would need to pull 100K from the following spring. Ms. James suggested the Leadership Team carefully consider which month to take water from because there could be a bigger impact to hydropower in March.

Ms. Castle explained that the targeted hydrograph costs more because, as opposed to having more freedom to schedule water in particular months when there is high energy demand, there is some dampening effect on the ability to change from month-to-month and so that dampening effect costs some money in some years but not in the most probable scenario.

Motion proposed by LaVerne Kyriss, seconded by Don Ostler, and approved by consensus:

AMWG recommends to the Secretary of the Interior his approval of the DOI-DOE Proposed Hydrograph for Water Year 2013 as follows:

- **Monthly Release Volumes will be adjusted each month based on the most current forecast of the annual release required by the 2007 Interim Guidelines.**
- **Monthly Release Volumes are anticipated to vary within the targets identified for each month as set forth below. This monthly operational flexibility will be used for existing power production operations under the Modified Low Fluctuating Flow (MLFF) alternative selected by the 1996 ROD and contained in the 1995 FEIS. The targeted operation will also be adjusted as necessary to accommodate a targeted release volume for the month of August 2013 based on the schedule below:**

- January:** August 2013 Volume target set to greater of 800 kaf or 10% remaining annual release volume.
- February:** August 2013 Volume target set to greater of 800 kaf or 10% remaining annual release volume.
- March:** August 2013 Volume target set to greater of 800 kaf or 12% remaining annual release volume.
- April:** August 2013 Volume target set to greater of 800 kaf or 15% remaining annual release volume.

- May:** August 2013 Volume target set to greater of 800 kaf or 20% remaining annual release volume.
- June:** August 2013 Volume target set to greater of 800 kaf or 25% remaining annual release volume.
- July:** August 2013 Volume target set to greater of 800 kaf or 40% remaining annual release volume.
- August:** Release volume established as 100% of remaining annual release volume (release could be less than 800 kaf in some cases).

Remaining Annual Release Volume - will be computed as the projected WY2013 annual release volume pursuant to the Interim Guidelines less volume already released in WY2013 less the September 2013 Release Target Volume (below).

The September 2013 Release Target Volume - will be adjusted with the forecast to:

- 600 kaf/month for annual releases at or below 9.0 maf
- 700 kaf/month for annual release above 9.0 maf up to 10.0 maf
- 800 kaf/month for annual release above 10.0 maf up to 11.0 maf
- 900 kaf/month for annual release above 11.0 maf up to 12.0 maf
- Up to powerplant capacity for high equalization releases

- **Monthly release volumes will be modified each month in consultation with Western Area Power Administration.**
- **Additionally, the Bureau of Reclamation will continue to apply best professional judgment in conducting actual operations and in response to changing conditions throughout the water year. Such efforts will continue to be undertaken in coordination with the DOI/DOE agencies, and after consultation with the basin states as appropriate, to consider changing conditions and adjust projected operations in a manner consistent with the objectives of these parameters as stated above and pursuant to the Law of the River.**

Technical Work Group Chair (**Attachment 7a** = AIF and PPT). Mr. Shane Capron identified four items for the AMWG's consideration:

- **Socioeconomic Issues - Response from USBR/NPS** dated August 15, 2012 (**Attachment 7b**) addressed two issues of concern regarding TWG and SA work associated with the LTEMP EIS. In response to those, Shane said the following will occur:
 - The TWG will move forward on identifying information needs and research priorities not addressed through the LTEMP process so that GCMRC can refine and develop a work plan. There was no objection with the TWG doing this work.
 - The AMWG should consider what role the Science Advisors might assume in the LTEMP EIS process. This issue will be addressed in the budget portion of the meeting.
- **Administrative History Prospectus.** This issue was first introduced in August 2010 to the AMWG, but no substantive action has occurred, and Mr. Capron said the TWG is again asking the AMWG to consider the prospectus.

The following motion (proposed by Larry Stevens, seconded by Mike Yeatts) was approved by consensus: AMWG accepts the Administrative History Prospectus dated August 2011, and directs TWG to review it for potential implementation.

- **CRAHG Report.** Mr. Capron said the TWG received the final CRAHG report in June 2012 and formed the Operating Procedures Ad Hoc Group (OPAHG) to look at changing the operating procedures and ways to implement the CRAHG recommendations. Kurt gave a short presentation (**Attachment 7c**) and said that in adopting the CRAHG's recommendations there is a higher expectation for consensus building, developing a greater commitment to hear each other's viewpoints, and refraining from being confrontational. While it may be a more laborious effort than a vote, Mr. Dongoske said in the long run it will create more unity and buy-in from the stakeholders. Based on supportive comments from the members, Ms. Castle directed the TWG to have further discussion and bring a more refined, concrete proposal as a framework for AMWG operations at the February 2013 meeting. She also suggested the TWG may want to consider doing some collaborative process training.

ACTION ITEM: AMWG directed TWG to make a recommendation to AMWG on the outcomes of the work of the TWG Operating Procedures Ad Hoc Group.

- **POAHG Report (*Attachment 7d*)**. Mr. Sam Jansen identified the FY13 proposed projects: website video of “high flow experiments, video podcast on “Key AMP accomplishments, ongoing AMP website updates and maintenance, identifying key AMP Accomplishments, and developing laminated flyers for on-river use and reference by river guides, private boaters, and fishermen.” The projected budget for POAHG for FY13 is \$55,519.

Concerns/suggestions:

- Need for POAHG to consider if and how information should be disseminated on the HFE
- If POAHG is going to prepare any videos, the scripts should be circulated through the AMWG for comments
- Under Project #5 - include information on mudsnails and whirling disease
- Have better communication between DOI and POAHG on HFE communication plans. Ms. Ann Gold will act as intermediary between DOI and the POAHG.

Hearing no objections, the POAHG budget and work plan was approved by the AMWG.

- **TWG Chair Election Update**. Mr. Knowles said Shane has changed the makeup of the TWG chair position by helping the TWG work through complicated technical and policy issues. It's become a more complex position and those changes need to be reflected in the TWG Operating Procedures. He said it's hopeful a new chair will be elected at the October TWG meeting. Ms. Castle expressed her appreciation to Shane for doing such a tremendous job in the last four years. He was given a well-deserved round of applause.

Fiscal Year 2013-14 Budget and Work Plan (*Attachment 8a*) = AIF and Memo from Jack Schmidt and Glen Knowles Dated August 24, 2012 to Anne Castle, Subject: Background Information Regarding Final Draft of the Glen Canyon Dam Adaptive Management Program Biennial Budget and Work Plan for FY 2013-2014). Fiscal Year Budget and Work Plan for FY2013-14 Planning Document (*Attachment 8b*)

Bureau of Reclamation Budget Overview. Glen gave a PPT (*Attachment 8c*) identifying some of the major areas of concern:

- TWG Facilitation. Depending on how the TWG chair position is filled, there may be a need to seek additional funding for a facilitator.
- Compliance Documents. Because there is a HFE Protocol in place, compliance has been done on a package of potential high flows for a 10-year period. The LTEMP EIS process is being funded with appropriated dollars and so no money is being funded for compliance in FY13-14. This has obviated the need for this line item.
- Experimental Funds. This line item has been used to fund the monitoring and research associated with HFEs. Because GCMRC has now subsumed the necessary monitoring and research for those experiments into the BWP, this line item is no longer needed. They propose indexing the \$500K by CPI and making the money available for experiments. If the funds aren't needed, they will be rolled over into another new project called the Native Fish Conservation Carryover Fund.
- Native Fish Conservation Carryover Fund. This fund would support non-native fish control and native fish conservation projects. The line item is carryover in FY13 and is anticipated to increase in FY14 due to Experimental Fund moneys rolling over into this line item as carryover.
- Integrated Tribal Resources Monitoring. Marianne Crawford has been working on a protocol to incorporate the tribal reports into the AMP. They also want to have the tribes more involved in the annual reporting meeting in January.
- Tribal Contracts. Each DOI agency contributes \$95K of appropriated funding. In response to requests to index this amount by the CPI, DOI said that due to current budget constraints, these funds couldn't be indexed at this time.
- Cultural Resources Program Implementation. The following new projects are being proposed as a coordinate cultural resources program:

- Implementation of HFE Protocol MOA. Reclamation will treat sites affected by HFEs and monitor the effects of HFEs conducted under the protocol. The amount proposed for FY13 is \$66K in FY13 and \$50K in FY14 for one site in Grand Canyon. This funding may not be sufficient as identified in a recent meeting with the signatories so Reclamation may be looking to increase it.
- Documentation of Associative Values. With the NHPA compliance completed on the two EAs, Reclamation is now treating the Grand Canyon as a traditional cultural property at the request of the five tribes. This project is designed to document the connection between the tribes to the traditional cultural property and their connection to the canyon. The amount budgeted for FY13 is \$100K and \$30K in FY14.
- Non-native Fish Control Consultation. As part of the MOA, the tribes would like to participate in non-native fish control activities because of their interest in that and their concerns about how it gets implemented. This funding is to meet that stipulation in the MOA. This is budgeted for \$10,000 for FY13-14.
- GCMRC Monitoring Support. This is Project J3 in GCMRC's budget. It's the large-scale geomorphology of the Colorado River Valley, Glen, Marble, and Grand Canyons. With regard to cultural resources this project will provide a better understanding of Aeolian transport and help identify how dam operations affect archaeological sites.
- Traditional Ecological Knowledge Project. This project will support the development of a pilot TEK project with the tribes for monitoring and treatment. At a meeting on July 31 the tribes presented three TEK proposals for consideration. Reclamation is in the process of evaluating those and working with the tribes on potential implementation. The amount budgeted for FY13 is \$15K and \$50K in FY14.
- LTEMP Planning and Implementation EIS. As part of Reclamation's NHPA compliance for the EIS, they will have to do compliance as part of the EIS process. At this stage it's too preliminary to say what that will be so is just a placeholder in the budget.

Traditional Ecological Knowledge (TEK) Pilot Project. Ms. Mary Barger said the tribes have requested more integration of TEK into the AMP. One of the three TEK proposals was from the Hopi Tribe and it proposed integrating traditional ecological knowledge and associative values into traditional archaeological excavation. There was a lot of interest in this and the sites being proposed for mitigation for the HFE Protocol may be the starting point. Two proposals were submitted by the Hualapai Tribe, one relating to the oral transmission of traditional knowledge along with a publication of the history to retain it as well as a curriculum development, and the other one to expand existing monitoring to include an analysis of tribal information in comparing pre-dam photographs to evaluate plant communities. The Hualapai Tribe was asked to combine the two projects and work with Dr. Schmidt to determine if the work could be integrated with GCMRC work.

GCMRC Budget Overview (**Attachment 8d**). Because there had already been a number of presentations on GCMRC's proposed budget, Dr. Schmidt said he would focus on changes made since the TWG passed two motions in June for explicit changes in the budget: (1) add funding to AGFD for \$25K to conduct an angler study/creel survey, and (2) add \$10K for the SAs so they could bring on a SA for cultural resources.

The GCMRC biennial budget and work plan focuses on two big questions: (1) What is an appropriate rehabilitation goal for the physical habitat of the Colorado River, given the limited supply of fine sediment and the characteristics of the large-scale flow regime? (2) How can a non-native trout sport fishery in Glen Canyon co-exist with an endangered humpback chub population in Marble and Grand Canyons? A number of things had to be balanced and guidance from the AMWG was used to develop it including Ms. Castle's March 2011 memo directing GCMRC science planning to primarily focus on sediment and fish and Secretary Salazar's April 2012 memo directing the AMWG to utilize the desired future conditions to guide their future considerations. The old biennial work plan was 40-45 projects that went to different agencies and often had similar topics. Dr. Schmidt directed his staff to develop a budget that would be responsive to the monitoring and research direction. The result is 10 overarching projects in FY13 that total \$10,441,000.

GCMRC carried over approximately \$400K due to savings from not filling several positions over a 6-8 month period, overflights that were canceled, and modifications that resulted in cost savings for several

fish-related projects. Of the carryover, 60% was allocated to fund other projects as directed by the AMWG. Absolutely essential to this was funding from BOR for project J3 and \$250K to fund the Lake Powell Water Quality Program. For FY14, the amount of funding increases slightly to \$10,518,400.

Dr. Schmidt said the TWG met in late June where Dr. Garrett made a presentation of the critique by several science advisors on the draft work plan. He said Dr. Garrett shared with him the original comments, removing the names, and made it a blind process, distributed them to every project leader and asked them to respond to the comments. He distributed copies of GCMRC's response to the SAs comments (**Attachment 8e**) and said across-the-board cuts were made to program areas as a result.

TWG Chair Report (**Attachment 8f**). Shane said there were six policy issues forwarded to the AMWG on the May 10th webinar. There were a lot of technical discussions and issues dealt with by the TWG which led to changes and modifications in the work plan. The only lingering issue was whether the 2004 AMWG priority questions were still relevant, or if new questions should be developed.

ACTION ITEM: Mary Orton will work with Glen Knowles and Anne Castle to compare the 2004 AMWG/TWG priorities and the Secretary's Designee's priorities established in 2011. The Secretary's Designee will report to AMWG on the results of this comparison.

Science Advisors Report on the Proposed Budget (**Attachment 8g**). Dr. Garrett said the SA presented a 30-page, single-spaced review which entailed a lot of comments. They were very complimentary of the work plan and could see the amount of thought and detail that had gone into it. An additional science advisor was brought in to help with the review because Dr. Garrett wanted more strength in the aquatic ecology and systems ecology. He provided the following recommendations:

- Add a first chapter that clarifies stakeholder goals, objectives, DFCs, etc., AM processes, and ecosystem science design
- Provide linkages between first chapter and chapters on projects to clarify how stakeholder goals will be met
- Complete a USGS KA report document
- Complete Core Monitoring Plans
- Conduct biometric assessment of integrated system sampling, analysis, and modeling effectiveness in meeting stakeholder multi-resource needs

Since the budget recommendation is scheduled for tomorrow, Ms. Castle asked if there were any remaining policy issues or concerns. Those were captured and e-mailed to the members following the meeting (refer to page 12 for further information).

Public Comments

- Allison Gitlin (Sierra Club, Grand Canyon Chapter): I want to ask you to consider the health of Grand Canyon and the Colorado River in all of your decisions in accordance with the Grand Canyon Protection Act. Hope you'll consider the river as a living system, not just as a conglomerate of moving parts or worse, even as an assemblage of economically viable resources. Please make choices that will prioritize the native species of the river, both in the water and on the floodplain. Thank you for coming to Flagstaff.
- Dick Hingson (Sierra Club's National Committee on National Parks and Monuments and a member of the Grand Canyon Chapter): We support the development of an administrative history of this program. It's important for new members coming in and to have a record of past decisions that have been made.
- Lynn Hamilton (Grand Canyon River Guides): On behalf of GCRG, and the river guides in general, we are thrilled and excited that 45 of you are coming to dinner tomorrow. The field trip that you're going to embark on starting tomorrow night and into Friday will really put you in touch with the spirit of the Canyon. We've had some exciting developments through the AMWG and the adaptive management program the last couple of years with the development of the DFCs, with the two EAs around the cusp of the LTEMP, and so we're at a time where we can't forget why we're here. The Grand Canyon is one of the most astoundingly beautiful, special, and sacred places on this earth and we're here to be its stewards. So thank you very much to Anne Castle and to everyone who is making this happen.
- Sarah King (Member of Sierra Club and Chairman of the Earth Care Commission at the Arizona Ecumenical Council). I've spent the last year working with the National Consulate of Churches Eco-justice programs and in that respect we've been sending out a letter which I will hereto refer to as the Leviticus

Letter to communities of faith all over the state asking for support of our public lands, wild wilderness, and open spaces. At the risk of sermonizing, I will just read a verse from Leviticus 25:23-24: "The land must not be sold permanently, because the land is mine and you reside in my land as foreigners and strangers. Throughout the land that you hold as a possession, you must provide for the redemption of the land." Sharing the land with our neighbors and creatures gives us a sense of place and belonging within our communities and the whole of creation. Experiencing the solitude of wilderness reminds of the Creator's power and grace in our lives. Please protect our beaches, our native vegetation, our fish, and the entire food system for which we all depend. And with that, I say, Amen.

- April Smith: Thank you for setting up this LTEMP approach. You've done a good job on this and I'd like to see it continue. I'd like to see an approach with the overall view not of the power needs but for the ecology of the river, and consideration of establishing flows all the way down into the delta and Yuma. Steady flows in between the high floods should also be considered. Restoration of water levels that are needed for native fishes to reproduce and for other animals to survive in the Grand Canyon and on the Colorado River should also be a priority. I would encourage including the Grand Canyon Monitoring and Research Center in drafting and implementing any plans that prioritize the survival of the river as an ecological system. Thanks for coming to Flagstaff.
- Brad Newman: I've been a river guide for 26 years in Glen and Grand Canyons. I want to speak about the last of Glen Canyon which is 16 miles from the Dam to Lees Ferry. More folks make that trip than go downstream in Grand Canyon. It's a great way to create a huge cadre of enthusiasm for the river and the canyon and to sell a lot of downriver trips. When people spend a day with us in Glen Canyon, they're ready to make the leap and get on the list for their downriver trip. There are tremendous resources in that 16 miles, no inflow, but I have to submit to you good people that in the high flow a lot of those resources are lost to thousands of people who pay their fee to be in the park and be part of that experience. These beaches which you can count on one hand are inundated and then that experience is diminished. I'll just leave with you as well as my gratitude for your being here in Flagstaff and your fine work. Thank you very much.
- Zack Stenak: In the early to mid-90's I did some HBC work in the canyon for FWS. On my own time I would often go snorkeling along the rocks and key spots where there were some cattails up the Little Colorado River about 10 kilometers up the river there. It was fascinating about a month after the eggs were laid, seeing thousands of HBC. Once a year I would go downstream to other sites and it was only once we found a little chub. It would be nice to see a functioning, healthy ecosystem in the river. I appreciate all the work you're doing and hope you enjoy your trip and being cool up here.

Ms. Castle thanked people for their comments and for their efforts to attend today's meeting. She said a list of the policy issues would be e-mailed following the meeting in preparation for tomorrow's budget discussion.

Adjourned: 5:45 PM

Glen Canyon Dam Adaptive Management Work Group Meeting
August 29-30, 2012

August 30, 2012

Conducting: Anne Castle, Secretary's Designee

Start Time: 9:40 a.m.

Facilitator: Mary Orton (The Mary Orton Company, LLC)

Committee Members/Alternates:

Perri Benemelis, State of Arizona
Charley Bulletts, Southern Paiute Consortium
Kurt Dongoske, Pueblo of Zuni
Alan Downer, Navajo Nation
Ann Gold, U.S. Bureau of Reclamation
Jayne Harkins, State of Nevada
Amy Heuslein, Bureau of Indian Affairs
Loretta Jackson-Kelly, Hualapai Tribe
Leslie James, CREDA
Sam Jansen, Grand Canyon River Guides
John Jordan, Federation of Fly Fishers
Ted Kowalski, State of Colorado

LaVerne Kyriess, DOE/Western Area Power Admin.
Nikolai Lash, Grand Canyon Trust
Gerald Myers, Federation of Fly Fishers
Don Ostler, State of New Mexico
Ted Rampton, UAMPS
John Shields, State of Wyoming
Larry Stevens, Grand Canyon Wildlands Council
Dennis Strong, State of Utah
Bill Stewart, AZ Game and Fish Department
Dave Uberuaga, National Park Service (GRCA)
Michael Yeatts, Hopi Tribe

Committee Members Absent:

Janet Bair, U.S. Fish and Wildlife Service
Jennifer Gimbel, State of Colorado
Chris Harris, State of California
Arden Kucate, Pueblo of Zuni

Leigh Kuwanwisiwma, Hopi Tribe
Estevan López, State of New Mexico
Larry Riley, Arizona Game and Fish Department

Grand Canyon Monitoring and Research Center

Helen Fairley, Program Manager
Ted Melis, Deputy Director

Jack Schmidt, Center Director
Scott Vanderkooi, Program Manager

Interested Persons:

Mike Anderson, AZ Game and Fish Department
Jan Balsom, NPS/GRCA
Mary Barger, U.S. Bureau of Reclamation
Rob Billerbeck, National Park Service
Aaron Bunch, AZ Game and Fish Department
Peter Bungart, Hualapai Tribe
Daniel Bunk, U.S. Bureau of Reclamation
Tom Buschatzke, State of Arizona
Shane Capron, WAPA/TWG Chair
Lori Caramanian, DOI
Brian Carey, NPS/GCNRA
Kerry Christensen, Hualapai Tribe
Marianne Crawford, USBR
Craig Ellsworth, WAPA
Dr. Dave Garrett, M³Research/Science Advisors
Martha Hahn, NPS/GRCA
John Halliday, DOI
Beverley Heffernan, U.S. Bureau of Reclamation
Dick Hingson, Sierra Club
Tony Joe, Navajo Nation
John Jordan, Federation of Fly Fishers
Vineetha Kartha, AZ Dept. of Water Resources
Robert King, Utah Division of Water Resources

Glen Knowles, U.S. Bureau of Reclamation
Jane Lyder, DOI/Fish, Wildlife and Parks
Dave Lytle, GCMRC
Janet Mancos, SNWA
Doug Milligan, Salt River Project
Gerald Myers, Federation of Fly Fishers
David Nimkin, NPCA
Colby Pellegrino, SNWA
Gary Rosenlieb, NPS Water Resources Division
Seth Shanahan, SNWA
Bob Snow, DOI/SOL
Mark Sogge, USGS
Steve Spangle, USFWS
Dean Suagee, Hualapai Tribe
Justin Tade, DOI/SOL
Jason Thiriot, Colo. River Commission/Nevada
Meghan Trubee, NPCA
Dave Trueman, USBR
Dawn Tubbs, Hualapai Tribe
Jason Tucker, U.S. Bureau of Reclamation
Rich Valdez, SWCA (on behalf of Basin States)
Larry Walkoviak, U.S. Bureau of Reclamation

Recorder: Linda Whetton, USBR

Fiscal Year 2013-14 Budget and Work Plan (cont.) Based on the policy issues that were raised at yesterday's meeting, Ms. Castle opened up the floor for further questions and discussion. She said that the comments received from the TWG and SAs at the June TWG meeting were included in the revised version of the budget that was distributed to the members.

Budget

1. Should the Core Monitoring Program be implemented now or later?
Consensus Resolution: The TWG will continue to work with GCMRC and come back to AMWG with a recommendation on a General Core Monitoring Plan.
2. Page 35 of BWP, concern about language "maintenance of predam physical template": "The monitoring and research themes described in the various GCDAMP documents and agreements written during the past decade concern (1) maintenance of the predam physical template, especially regarding fine sediment, upon which the native ecosystem developed ..."
Consensus Resolution: GCMRC will revise the text in the next iteration of the BWP.
3. Page 36: "For the first time, the program for measurement of campsites is integrated with this fine sediment measurement program." Why is it integrated here?
Consensus Resolution: This issue was resolved per discussion between John Shields and Jack Schmidt.
4. Page 48: Why is this sentence correct? "Thus, it is critical to develop and enhance modeling tools with which future fine sediment conditions can be predicted, because it is inevitable that reservoir operating rules that balance multiple resource objectives will be considered in the future."
Consensus Resolution: GCMRC will revise the text in the next iteration of the BWP.
5. AMWG's place and position in the LTEMP process. If there is a role, what information is needed and how does it receive that information? Can the SAs play a role here? What are budgetary implications?
Response: Mr. Bob Snow said DOI has an obligation to keep the AMWG informed of the LTEMP process, but this FACA committee isn't under any obligation to provide input to the Department on the LTEMP. AMWG members who are participating as cooperating agencies are involved on a regular basis. As for engaging the SAs in the process, it's a little tricky because NEPA is a public process. The SAs participation and input to the SPG and LTEMP process definitely helped DOI develop the alternatives being developed in the LTEMP EIS. The budgetary implications are unknown at this time, but the AMWG could amend the budget if they wanted the SAs to do a review. See also discussion of LTEMP below.
6. If the administrative history project is approved, can the program work with outside funding sources?
Consensus Resolution: Yes, they should consider in-kind/partnering opportunities.

LTEMP

7. What can DOI members do in terms of LTEMP alternatives? Can they participate in discussion without a vote?
Response: Ms. Castle reminded the members that DOI, GCMRC, and Argonne have offered to assist stakeholders in developing alternatives and/or providing scientific advice. In addition, a science workshop is being planned and will be open to anyone who wishes to participate. While it's appropriate for the Adaptive Management Work Group to have a role in this long-term plan, she said the struggle is figuring out what that looks like and what that role should be. Because of DOI's role in the process and NEPA restrictions, Ms. Castle asked Ms. Orton to manage the discussion.

Concerns raised during discussion:

- Not clear how the AMP and LTEMP programs run parallel to each other.
- Need for improvement in disseminating information to the AMWG and public.
- This process may actually lead to either the dissolution or alteration of this body and loss of collective knowledge.
- Can the AMWG send a formal recommendation on one alternative to the Secretary?

- Excluding the DOI agencies, does the AMWG want to have a consensus position now or later in the EIS process?
- Are we actually approving a budget and then making a recommendation that we fund it?

Hearing the concerns expressed, Ms. Castle said there are no plans for the LTEMP EIS to alter anything having to do with the AMP, the AMWG, or the process by which AMWG provides input to the Secretary on GCD operations. With respect to the budget, the GCMRC budget and the BWP that are on the table provide sufficient resources to respond to questions about the LTEMP. As to SA advice to the AMWG on the LTEMP, that is still a question, but funding in the BWP would allow for SA involvement if needed.

Mr. Kowalski asked if it would be possible to get a presentation of the alternatives at the AMWG February 2013 meeting so people would know what other stakeholders, including the federal agencies, are thinking about. Mr. Billerbeck said that could be done. Ms. Jackson-Kelly suggested holding a conference call prior to the February meeting because February is too late in the LTEMP process to weigh all the information they would need to consider.

Motion (moved by Larry Stevens and seconded by Ted Rampton): AMWG requests that the February 2013 AMWG meeting agenda include a detailed description of the LTEMP alternatives; time for discussion and identification of issues, questions, and concerns; and possible development of a recommendation from non-DOI AMWG members.

Report on Long-Term Experimental and Management Plan EIS (AIF and PPT = **Attachment 9a**). Mr. Knowles and Mr. Billerbeck presented information from their respective agencies as co-leads in the LTEMP process. Mr. Billerbeck said the process was started with an NOI in July 2012 following by public scoping meetings in November. Information from the two recent Knowledge Assessment workshops have been utilized in the LTEMP effort and, along with other activities, he said they have gone above and beyond what is required by NEPA. In terms of the socioeconomic analysis, Reclamation has contracted with the Denver Technical Service Center to have Dave Harpman (Reclamation economist) work on the EIS. Dave had actually worked on the 1995 EIS and will be updating 1995 EIS data relative to recreation economics and market economic analysis for activities like river rafting, recreational trout fishing, and boating on Lakes Mead and Powell. They will also utilize new data that's been collected.

Another study the TWG has discussed over the year was a passive use or existence value survey that would be done with the general public and led by Dr. Bruce Peacock (NPS). Although that's been in development and in coordination with Dave Harpman as well as the USGS and many others, that study was planned before the LTEMP started. It has been tailored to fit some of the needs of LTEMP and will require OMB review. Mr. Billerbeck presented a list of potential draft alternatives but cautioned there will be a large amount of review in the next few months to finalize draft alternatives. In addition, there were two alternatives submitted by stakeholders: (1) the Resource Targeted Condition-Dependent Strategy submitted by the Basin States, and (2) the Balanced Resources Alternative submitted by CREDA. For more information, people were encouraged to visit the LTEMP EIS website at: <http://ltempeis.anl.gov>

Concerns raised during discussion:

- Need for ongoing discussion on how tribal socioeconomics interests will be addressed.
- Ensure public are involved in the process and know how to provide comments.
- Have other agencies/entities share the alternatives they're proposing with the public.
- Inability to use GTMax to inform individual customer impacts, particularly the contractual arrangements the tribes have for the CRSP resource. That model doesn't have any ability to quantify the bill-crediting impacts to the tribes.

Alternative from AMWG Stakeholders. Ms. Castle invited representatives from the basin states and CREDA to present their proposed alternatives.

- Resource Targeted Condition-Dependent (RTCD) Strategy Ms. Jayne Harkins introduced Dr. Rich Valdez who has been working with the states in developing a proposal. She said the States' alternative provides benefits for all key resources given the current state of knowledge, and uses experiments and research to develop future actions. The alternative is also careful to avoid actions considered to be high risk to specific resources, and humpback chub in particular. The states submitted their alternative to DOI in early July and DOI responded with questions and comments, and the Basin States are working with scientists and others to prepare a response to DOI.

Dr. Rich Valdez said a panel was convened to help develop the RTCD alternative with expertise in four areas: HBC, trout, foodbase, and sediment. The RTCD alternative focuses on these areas, with a principle focus on HBC and its relationship with trout. With the experts that contributed in some way included Colden Baxter, Josh Korman, Bill Pine, Bob Mussetter, and Carl Walters. Reviewers included Duncan Patten from Montana State Univ./Bozeman, and also Dick Marzolf. Duncan had served as the first scientist for the old GCES program and Dick Marzolf led the first review of the National Academy of Sciences of the GCES program so they were able to provide some perspective in comparison to work done in the early 1990s. He gave a PPT presentation (**Attachment 9b**).

Question and concerns raised during discussion:

- How do you know how to interpret results if you run experiments in a system that's very complex, the Colorado River ecosystem? How do you know cause and effect if you run experiments consecutively and they confound your understanding of how the experiments work or don't work, and (2) How does the information about whirling disease in running high flows impact the whole system?
 - The experiments were designed to first establish association but also causality and relationships. The association can come about if you want an experiment for one or two years and you see something happening. The causality comes when you repeat that experiment over some period of time. It's uncertain how many times it will take to answer the causality question. One example of that is this whole idea of using a reverse titration for looking at the effect of trout suppression flows on abundance of trout. Whirling disease has been suspected in this system for a number of years and is now known to be present. Only continued monitoring of the trout population will reveal how this parasite will affect the population; so far, it appears relatively unaffected.
- How do you explain some of the assumptions in your proposal that appear to be based on dated scientific assumptions or conclusions that have more recently been subject to greater scrutiny about the interaction of HBC and RBT?
 - Based on the work Josh Korman did from 2003 to 2005, and in other systems as well, there is a density dependent response in this population so that the abundance of RBT builds up to a certain level that there is enough competition and pressure on individual fish that they either have low survival or simply leave the area. We're looking at how to best regulate that density in Lees Ferry while also looking at the question of trout to HBC abundance relationships.
- Cataract Canyon provides a good control for comparison to a more natural ecosystem. Are you considering this, or some other kind of experimental arena in the field for smaller experiments before we subject the whole river to treatments that are both costly and potentially generate unanticipated consequences?
 - We do have in-situ experiments in a laboratory situation described in the alternative. Some specific questions about foodbase may be best answered by research in other reaches of the Colorado River, such as Cataract Canyon.
- CREDA Balanced Resource Alternative (**Attachment 9c**). Ms. Leslie James said CREDA used the LTEMP Alternative A Prime or A Variation as a starting point. A report entitled, "Assessment of the Estimated Effects of Four Experimental Options on Resources Below Glen Canyon Dam" (**Attachment 9d**) was presented to the AMWG in December 2006 and provides more background information. The thinking behind this fairly conservative alternative is to recognize the current positive HBC status, look at a conservative approach to experimentation, and retain the new high flow experimental protocol and non-native fish control protocol. It also uses a reverse titration science design. The alternative includes flow and non-flow actions and experiments to address non-native fish control, sediment resources, and temperature impacts to

native and non-native fish communities. It retains existing operating criteria with modest increases to daily fluctuations and downramp rates. It constrains the frequency of high flow events, limiting HFEs to one every other year. Other key actions include trout management flows and non-flow actions for HBC conservation.

FY 2013-14 Biennial Budget (cont).

Ms. Castle said the remaining piece of the budget discussion was money being available to the SA to provide input to the AMWG on the LTEMP EIS. She suggested waiting until February when the AMWG has had an opportunity to review the alternatives.

The following motion was passed by consensus:

Motion (proposed by Larry Stevens, seconded by LaVerne Kyriss): AMWG recommends the FY2013-14 Biennial Budget and Workplan from the Bureau of Reclamation and Grand Canyon Monitoring and Research Center, as reviewed by TWG on June 20-21, 2012 and as revised by GCMRC and presented at the August 2012 AMWG meeting, to the Secretary of the Interior for approval.

Special Announcements:

- Ms. Castle presented Jack Schmidt with a Star Award from the USGS. This was in recognition of going above and beyond his normal job assignments in completing the FY 2013-14 budget and workplan. He took it upon himself to revamp the budget and reorganized it around the desired future conditions.
- Ms. Castle announced this would be the last meeting for LaVerne Kyriss who is planning to retire. She thanked LaVerne for being an extraordinary AMWG member and providing much valued information during many AMWG deliberations.
- Ms. Castle also thanked Mr. John Halliday his all his hard work as the first AMP tribal liaison for the program. He is taking a new job with BIA attached to the Warm Springs agency in Oregon.

Stakeholder Perspective: Navajo Nation Historic Preservation Department. Mr. Alan Downer expressed his appreciation to Ms. Castle saying this is the first time the tribes have felt they've had consistent interest and involvement at the policy level within Interior. The tribes are sovereign nations and the relationship exists not between the Indian tribes and the Department of the Interior, but as a relationship between the Indian Nations and the United States. As a consequence, the Federal Government has obligations to tribes that it doesn't necessarily have with other stakeholders. He provided background information on the Navajo Nation: It's the largest reservation in the United States covering 27,000 square miles (size of the state of West Virginia), is home to approximately 350,000 Navajo members, 50% of the population is 19 years old or younger, the unemployment rate averages about 40%, and more than 40% of the housing is sub-standard. He went on to explain how the Navajo Nation government functions and their business developments.

Mr. Tony Joe, supervisory anthropologist for the Historic Preservation Department, said the Navajo Nation refers to the Grand Canyon, the river itself, as Bit' IIS Nineezi, "the neverending life." They consider everything down the Grand Canyon, including the river, as sacred places. He went on to explain their beliefs on how man came into the world, how the Grand Canyon was formed, and other sacred beliefs. He said some of the archaeologists are working on their cultural affiliation statement and it should be available next year.

Final Tribal Liaison Report. Mr. John Halliday expressed his appreciation for being able to work with the tribes and other stakeholders. He explained how feathers and pipes are used in tribal ceremonies and said that sometimes people get so caught up in the mission of their work they forget what it's like to "walk in another person's moccasins." He thanked Anne and her staff for the opportunity to work the program and said he would miss everyone.

Ms. Loretta Jackson-Kelly presented him with some wild tobacco explaining that it has powerful medicinal purposes and is also used in tribal ceremonies. She was very moved that John had given her a feather and told him it would be used in a ceremony tomorrow while on the river trip.

Fishery Management Plan. Ms. Martha Hahn said they just finished a 2.5 year period of pre-scoping which included a meeting with entities involved in the Glen Canyon Reach of the river - fly fishermen, people at Marble Canyon, and tribal businesses along the river, and river runners. They received 57 comments during that scoping process. The interagency team includes representatives from FWS, AGFD, NPS/GRCA, and NPS/GLCA. They're now in the process of drafting alternatives. They expect to have a draft document out for public review by the end of October and a final document by the end of the year.

Concerns raised during discussion:

- We should consider downlisting the HBC to threatened given its greatly improved status.
 - Anyone can petition the FWS to change the listing status of HBC. But currently HBC below the dam are not a distinct population in terms of delisting with regard to HBC above the dam. So the only way that the chub is going to end up getting delisted is if there is similar success in the upper population which is not doing as well as the population below the dam.
- The AMWG hasn't dealt with the issue of HBC missing from the Lees Ferry area. Need to look at the mouth of the Paria as a possible place to propagate fish and bring them back in a way that doesn't necessarily conflict with trout fishing.

Public Comments:

- Gerald Hooee (Senior member with Pueblo of Zuni) said they call themselves the Ashiwi and are associated with the Ashiwi Tribe. He formerly worked in law enforcement but decided that he wanted to be more involved in how things are done at Zuni so he decided to get involved in politics and became a member of the council. In the short time he's been involved with the AMP, he has seen some positive changes – differences in attitudes and moving forward. He's looking forward to being on the river trip tomorrow and getting to know the other stakeholders.

Ms. Castle thanked the members and public for the excellent discussions and said the next AMWG meeting would be held in February 2013.

Adjourned: 2:10 pm

Attachment 10: Letter from Anne Castle to the AMWG dated September 18, 2012, Subject: Sharing Experiences from AMWG Field Work Session held August 31, 2012.

Attachment 11: Memo from Secretary Ken Salazar to Anne Castle, January 15, 2013, Subject: Report and Recommendations from the Glen Canyon Dam Adaptive Work Group Federal Advisory Committee Meeting, May 10, 2012, and August 29-30, 2012 and Memo from Anne Castle to Secretary Ken Salazar dated January 9, 2013, Subject: August 2012 Glen Canyon Dam Adaptive Management Work Group (AMWG) Federal Advisory Committee Recommendations to the Secretary.

Respectfully Submitted,

Linda Whetton
Bureau of Reclamation
Upper Colorado Region

General Key to Adaptive Management Program Acronyms

ADWR – Arizona Dept. of Water Resources	KAS – Kanab ambersnail (endangered native snail)
AF – Acre Feet	LCR – Little Colorado River
AGFD – Arizona Game and Fish Department	LRRMCP – Lower Colorado River Multi-Species Conservation
AIF – Agenda Information Form	Program
AMP – Adaptive Management Program	LTEP – Long Term Experimental Plan
AMWG – Adaptive Management Work Group	LTEMP – Long-Term Experimental and Management Plan
AOP – Annual Operating Plan	MAF – Million Acre Feet
ASMR – Age-Structure Mark Recapture	MA – Management Action
BA – Biological Assessment	MATA – Multi-Attribute Trade-Off Analysis
BAHG – Budget Ad Hoc Group	MLFF – Modified Low Fluctuating Flow
BCOM – Biological Conservation Measure	MO – Management Objective
BE – Biological Evaluation	MRP – Monitoring and Research Plan
BHBF – Beach/Habitat-Building Flow	NAU – Northern Arizona University (Flagstaff, AZ)
BHMF – Beach/Habitat Maintenance Flow	NEPA – National Environmental Policy Act
BHTF – Beach/Habitat Test Flow	NHPA – National Historic Preservation Act
BIA – Bureau of Indian Affairs	NPS – National Park Service
BO – Biological Opinion	NRC – National Research Council
BOR – Bureau of Reclamation	O&M – Operations & Maintenance (USBR funding)
CAHG – Charter Ad Hoc Group	PA – Programmatic Agreement
CAPA – Central Arizona Project Association	PEP – Protocol Evaluation Panel
GCT – Grand Canyon Trust	POAHG – Public Outreach Ad Hoc Group
CESU – Cooperative Ecosystems Studies Unit	Powerplant Capacity = 31,000 cfs
cfs – cubic feet per second	R&D – Research and Development
CMINs – Core Monitoring Information Needs	RBT – Rainbow Trout
CRBC – Colorado River Board of California	RFP – Request For Proposals
CRAHG – Cultural Resources Ad Hoc Group	RINs – Research Information Needs
CRCN – Colorado River Commission of Nevada	ROD Flows – Record of Decision Flows
CRE – Colorado River Ecosystem	RPA – Reasonable and Prudent Alternative
CREDA – Colorado River Energy Distributors Assn.	SA – Science Advisors
CRSP – Colorado River Storage Project	Secretary – Secretary of the Interior
DAHG2 – Desired Future Conditions Ad Hoc Group	SCORE – State of the Colorado River Ecosystem
DASA – Data Acquisition, Storage and Analysis	SHPO – State Historic Preservation Office(r)
CWCB – Colorado Water Conservation Board	SOW – Scope of Work
DBMS – Data Base Management System	SPAHG – Strategic Plan Ad Hoc Group
DOE – Department of Energy	SPG – Science Planning Group
DOI – Department of the Interior	SSQs – Strategic Science Questions
DOIFF – Department of the Interior Federal Family	SWCA – Steven W. Carothers Associates
EA – Environmental Assessment	TCD – Temperature Control Device
EIS – Environmental Impact Statement	TCP – Traditional Cultural Property
ESA – Endangered Species Act	TEK – Traditional Ecological Knowledge
FACA – Federal Advisory Committee Act	TES – Threatened and Endangered Species
FEIS – Final Environmental Impact Statement	TMC – Taxa of Management Concern
FRN – Federal Register Notice	TWG – Technical Work Group
FWS – United States Fish & Wildlife Service	UCRC – Upper Colorado River Commission
FY – Fiscal Year (October 1 – September 30)	UDWR – Utah Division of Water Resources
GCD – Glen Canyon Dam	USBR – United States Bureau of Reclamation
GCT – Grand Canyon Trust	USFWS – United States Fish & Wildlife Service
GCMRC – Grand Canyon Monitoring & Research Center	USGS – United States Geological Survey
GCNP – Grand Canyon National Park	WAPA – Western Area Power Administration
GCNRA – Glen Canyon National Recreation Area	WY – Water Year
GCPA – Grand Canyon Protection Act	
GLCA – Glen Canyon National Recreation Area	
GRCA – Grand Canyon National Park	
GCRG – Grand Canyon River Guides	
GCWC – Grand Canyon Wildlands Council	
HBC – Humpback Chub (endangered native fish)	
HMF – Habitat Maintenance Flow	
HPP – Historic Preservation Plan	
INs – Information Needs	
KA – Knowledge Assessment (workshop)	

Updated: July 20, 2012