

Glen Canyon Dam Adaptive Management Work Group Meeting  
May 18, 2011

**Conducting:** Anne Castle, Secretary's Designee  
**Facilitator:** Mary Orton

**Start Time: 8:35 a.m.**

**Committee Members/Alternates:**

Perri Benemelis, AZ Dept. of Water Resources  
Charley Bullets, Southern Paiute Consortium  
Alan Downer, Navajo Nation  
Ann Gold, U.S. Bureau of Reclamation  
Martha Hahn, NPS/GRCA  
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, Colo. Water Conservation Board  
Arden Kucate, Pueblo of Zuni

LaVerne Kyriss, Western Area Power Admin.  
Nikolai Lash, Grand Canyon Trust  
Estevan López, NM Interstate Stream Comm.  
Don Ostler, Upper Colorado River Commission  
McClain Peterson, Colorado River Commission/NV  
Ted Rampton, UAMPS  
Mike Senn, Arizona Game and Fish Dept.  
John Shields, WY State Engineer's Office (*via phone*)  
Sam Spiller, U.S. Fish and Wildlife Service  
Dennis Strong, Utah Div. of Water Resources  
Michael Yeatts, Hopi Tribe

**Committee Members Absent:**

Jennifer Gimbel, Colo. Water Conservation Board  
Leigh Kuwanwisiwma, Hopi Tribe

Larry Stevens, Grand Canyon Wildlands Council

**Interested Persons:**

Jan Balsom, NPS/GRCA  
Shane Capron, WAPA/TWG Chair  
Brian Carey, NPS  
Lori Caramanian, DOI  
Kerry Christensen, Hualapai Tribe  
Rick Clayton, USBR  
Marianne Crawford, USBR  
Kurt Dongoske, Pueblo of Zuni  
Helen Fairley, USGS/GCMRC  
Dr. Dave Garrett, M3Research  
Paul Grams, USGS/GCMRC  
J. Lonnie Gourley, USBR/Glen Canyon Dam  
John Halliday, DOI  
Beverley Heffernan, U.S. Bureau of Reclamation  
Norm Henderson, National Park Service  
John Hoffmann, USGS/SBSC  
Lynn Johnson, DOI Solicitor's Office  
Robert King, Utah Division of Water Resources  
Glen Knowles, U.S. Bureau of Reclamation

Dennis Kubly, U.S. Bureau of Reclamation  
Jane Lyder, DOI/Fish, Wildlife and Parks (*via phone*)  
Ted Melis, USGS/GCMRC  
Bruce Moore, Southern Nevada Water Authority  
Mary Orton, The Mary Orton Company  
Dave Slick, Salt River Project  
Bob Snow, DOI Solicitor's Office  
Mark Sogge, USGS  
Pam Sponholtz, USFWS  
Bill Swan, Imperial Irrigation District  
Jason Thiriot, Colo. River Commission/Nevada  
Shana Tighi, USBR  
Dave Trueman, USBR  
Scott Vanderkooi, USGS/GCMRC  
Marijke van Heeswijk, USGS/GCMRC  
Marc Wicke, USFWS  
Palma Wilson, NPS

**Recorder:** Linda Whetton, USBR

**Introductions and Administrative.** Ms. Castle welcomed the members and the public. She announced Deanna Archuleta has taken a new job within the Department involving Latino outreach efforts and that Lori Caramanian is the new Deputy Assistant for Water and Science.

**Approval of February 9-10, 2011, Meeting Minutes.** Without objection, the minutes were approved by consensus.

**Action Item Tracking Report.** (**Attachment 1**). Ms. Castle said good progress has been made on many pending action items.

**Secretary's Action on Charter and DFC Recommendations.** The revised AMWG Charter was vetted through the DOI Solicitor's Office and is now being reviewed by the General Services Administration which oversees FACA committees. As mentioned in the Charter AHG Report, the Grand Canyon

Protection Act requires the Secretary to consult with a variety of groups and different types of interests. There hasn't been voting representation on the AMWG of scientific or academic representatives and even though the named SAs are all active academics, there was a concern the AMWG might benefit from more academic consultation. As such, further discussions will be held on how best to accomplish a more robust consultation with the academic community through the framework of the SAs.

With respect to the DFC recommendation, it is working its way through the Department to ensure all the DOI agencies are comfortable with the precise wording that will be sent to the Secretary. That process should be completed shortly with action to be taken by the August AMWG meeting.

Legislative Update. Nothing to report.

Litigation Update. Regarding the Grand Canyon Trust litigation, Mr. Snow said the case was heard before Judge Campbell of the U.S. District Court in Phoenix. On March 30, 2011, Judge Campbell issued a final order and the case was terminated. In the most recent opinion the judge found that the FWS actions were appropriate under the law which led to the final resolution of the claims before the District Court. The Grand Canyon Trust still has the right to appeal up until May 30, 2011.

Progress on AMWG/TWG Nominations and Reappointments. The following individuals were appointed to the AMWG: Frederick White (member, Navajo Nation); Beverly Heffernan (alternate, USBR); Garry Cantley (alternate, BIA); LeAnn Skrzynski (alternate, Southern Paiute Consortium); and Mike Yeatts (alternate, Hopi Tribe). The following were approved to serve on the TWG: Gerald Myers (member, Federation of Fly Fishers); John Jordan (alternate, Federation of Fly Fishers); and David Bennion (alternate, WAPA).

Update on GCMRC Chief Recruitment. Mr. Sogge announced Jack Schmidt was selected as the new chief of GCMRC and will report for duty in mid-August.

**GCMRC Updates** (**Attachment 2** = AIF: GCMRC Updates and PPT presentations)

2011 Knowledge Assessment II. Dr. Melis provided background information on past knowledge assessment work and said the following expert workshops will be held at GCMRC:

- June 1-3, 2011           Aquatics (food web and fish)
- July 11-12, 2011       Sediment and Water Quality
- TBA                       Cultural, Recreation, Hydropower + other Terrestrial Resources

Additional information will be shared with the TWG at its June meeting and with the AMWG in August. A joint workshop with scientists and stakeholders is being planned for fall 2011 to provide results from the expert workshops and allow stakeholders to offer input about the type of report that will best serve the needs of the resource managers and the GCDAMP.

Ms. Castle asked Ted to describe the context in which goals were generated and used during the recent knowledge assessment conference calls, because she felt there was some confusion about how those goals relate to the broader AMP goals and the DFCs. Ted said that during the second knowledge assessment conference call, the federal family agencies were asked what knowledge assessment products, types of information and output would be useful. The federal management agency representatives said that to be useful, the information would need to help them achieve their resource objectives and goals. This led to a discussion in which the individual agencies described some example goals and then looked for areas of overlap, as an exercise in identifying the type of knowledge assessment information and products that would be most useful. These example goals were not intended to replace or supplant the GCDAMP goals; they just provided a framework for discussion. Those example goals were later shared with the non-federal TWG members during a subsequent

conference call. Some TWG members were concerned that this was an attempt to promote new or different goals. However, the goals were described only in order to inform the rest of the TWG of what had occurred during the product and information discussion among the Federal Family members.

**Sediment Update.** Dr. Grams said they are using a combination of sampling and models to track tributary sediment mainly from the Paria River, the Little Colorado River, and estimates from the un-gauged tributaries. They're also tracking transport at five locations on the mainstem Colorado River to see how sand is coming through the system and moving past different points along the river in order to provide estimates of how much sand is sitting on the bed of the river in different reaches in the Grand Canyon. There were above average sand inputs in July through October 2010. As of January 7, 2011, most of those inputs were still in upper Marble Canyon (above RM 30). The relatively high volume dam release of winter-spring 2011 (-17,000 cfs average) do not permit sand retention. Sand is moving out of Upper Marble Canyon by deflation (the pile of sand is shrinking and transported through the downstream reaches in suspension, not moving downstream as a "wave" on the bed).

**Basin Hydrology and Operations.** (**Attachment 3** = AIF and PPTs). Mr. Clayton said on April 1<sup>st</sup> they had 160% of average snow basin-wide above Lake Powell which caused the Weather Forecast Center to increase the forecast from 9.5 maf to 11.5 maf. Because that was such a large jump in the forecast, they had to increase the release rate from Glen Canyon Dam in order to achieve equalization with the new inflow projection by the end of the water year. Not only is Lake Powell projected to have very large inflows this year, but Flaming Gorge is looking at a forecast of 140% of average and Blue Mesa at 130% of average. Consequently, Reclamation is trying to figure out how to manage the volume of inflow and also meet the environmental objectives for below Crystal Dam. With the April final forecast for Apr-Jul (9.5 maf), the 24-month study indicated that equalization was controlled by a Lake Mead end of water year elevation of 1105 feet above sea level. With the May final forecast for Apr-Jul of 11.5 maf (an increase of 2.0 maf) the 24-month study indicated that equalization would no longer be controlled by the Lake Mead elevation of 1105 but rather would be controlled by the equalization level in Lake Powell for 2011 which is 3643 feet above sea level. The May 24-month study indicated that the annual release volume to achieve equalization by end of water year would be 13.31 maf and Lake Mead would be projected to end the water year at an elevation of 1123.4 feet. The May projection is that Equalization for 2011 will be fully achieved by late November and before December 1, 2011.

Dr. Melis said he spoke with Dr. Walters who assumed the adaptive managers would want to take advantage of the changing forecasts and do a seasonally adjusted steady flow test. Dr. Walters told him that GCMRC and its cooperators should approach this as if it were an official experiment because of the opportunity that has arisen. It's not really an SASF test like the one alluded to in the 1995 EIS, but because it's a much wetter period, the flows are much higher. They're stable flows throughout a period when stable flows under an SASF test would also be occurring, particularly in the spring into summer. There will be lower flows as seen in September and October which would be along the lines of that concept. The habitat stability question is one of the primary concerns GCMRC is focusing on in an SASF test. It's not so much a warming or thermal regime test, as much as it is habitat stability along the shorelines presumably to benefit the juvenile native fish. Dr. Melis has been in contact with Dr. Bill Pine (University of Florida) who is the lead PI in that nearshore ecology study and in the knowledge assessment workshop scheduled in the next few weeks. There will be a lot of discussion on this topic because the fish and food scientists are thinking about this as if it were a planned experiment for at least one year. He said the scientists would like support for at least monitoring what's going on as if it were a stable flow throughout the summer and into fall with at least conceptually a pattern that is somewhat similar to what had been previously alluded to for an SASF test. They don't expect as much warming to occur because the water is moving through the system much more quickly, but it certainly is an opportunity to look at stability of shorelines throughout the summer and into the fall. The NSE studies will begin in July and the scientists have been discussing how they might actually collect the data and then

try to make some analyses or interpretations of the data. Dr. Melis said it seems to be a wise choice to try and monitor the nearshore habitat used by juvenile native fish. More discussion will occur at the upcoming KA workshops.

Ms. Castle asked Rick to address how the projection for the remainder of WY2011 will change as new inflow information is obtained. He said the current forecast is to have over 15 maf of inflow and with each month they're going to look at what happened in May and will make adjustments to their forecasts and modeling. The amount of water projected for release in each 24-month study for each month of the remainder of the water year will change and adjustments will be made later because of all the uncertainty.

Because of all the water releases, Mr. Rampton said a lot of people can't take the hydropower because of other commitments and so that value decreases. Ms. Kyriss added that because everyone is pushing lots of water out this time of year, including the Pacific Northwest, some places have negative prices and people have to be paid to take power and transmission has to be bought. It's a difficult situation for the basin fund and rate payers. It's a very complex process and WAPA is trying not to sell power below cost.

FY 2012 Hydrograph Development. (**Attachment 4** = AIF and PPT). Mr. Trueman said the charge from Secretary Salazar was to look at 2012 hydrograph options for operating Glen Canyon Dam based on the original 2011 operations and use that as a benchmark for comparing other options with 2012. For 2011, operations are limited to plus or minus 100 kaf from the monthly average release with allowance for the operation of Glen Canyon Dam to move around as the forecast changes. It included caps for peaking, for release of flows at or below 9 maf for the year. They had a cap of 16,000 & 22,000 cfs unless they're in operations like this year in which maximum capacity releases are required. For 2012, Reclamation has been looking to improve the cost and/or benefit within existing environmental compliance of MLFF. Non-MLFF ideas may be referred to the LTEMP EIS discussion. With their analyses they had to make some assumptions about what times sediment inputs might occur. He said an option referred to as the "targeted proposal" looks promising in part because it doesn't have any restrictions on it early in the year and allows a great deal of flexibility until they see the forecast that develops from this year's snowpack. Ms. Kyriss said Reclamation and WAPA are trying to figure out how to deal with the water allocation considering changing forecasts every month. The benefit of the targeted proposal is that it allows them to be better able to respond to the changing conditions, but still appears to be an improvement in terms of sediment conservation.

LTEMP Update (**Attachment 5** = AIF: LTEMP EIS). Ms. Heffernan said a Notice of Intent has been finalized and should be published by late June in the Federal Register. A second notice will follow which will include hearing dates and locations for LTEMP scoping meetings. Due to budget constraints, there will probably only be three or four meetings held concurrently with the comment period. She and Martha Hahn are working on contract details and a scope of work. Once the notice is published, the Park and Reclamation will prepare formal letters of invitation to the cooperating agencies. Anyone wanting to be a cooperator should send a request during the scoping period to Beverley Heffernan or Martha Hahn. Ms. Castle encouraged the members to participate in the process and provide very specific comments.

Report on Two Environmental Assessments (**Attachment 6** = AIF and PPTs).

High-Flow Experiment Protocol EA Update. Mr. Dennis Kubly said the last update was given at the February 2011 meeting. He provided several slides focused on the chronology of the EA, the protocol, purpose and need, comments received, and ongoing compliance. Reclamation needs to complete consultation with FWS, tribal consultation and NHPA compliance, and NEPA compliance to implement the HFE protocol. Additional cooperating agency and public review are being scheduled.

Update on Non-native Fish Control EA: Mr. Glen Knowles said they received a lot of input and changes will be reflected in the next revision. Reclamation intends to hold additional meetings to seek consultation on the proposed action and related NHPA compliance. He provided the major concerns expressed in the comments. Reclamation intends to provide the Cooperating Agencies with another review period and then conduct a second two-week public comment period. The process should be concluded during the summer with a decision notice issued.

Report on Science Plans. During the EA process, Dr. Melis said GCMRC participated in the structured decision making (SDM) workshops last fall and have been working on developing science plans for the two EAs. In the process of developing USGS Circular 1366, which tried to summarize and synthesize the results of three high flow experiments since 1996, it became very apparent there was a linkage between high flows and biotic responses which hadn't formally been the focus of experiments in 1996-2004, specifically the rainbow trout response as it seemed to be tied to food web dynamics in the Lee's Ferry tailwaters reach. New information obtained in the last 10 years indicates that rainbow trout abundance downstream near the LCR confluence reach primarily comes from upstream sources. That was a controversial topic in the 2005 symposium. The planning that goes into the non-native fish control is less evolved than the high flow experimental protocol because it's a newer concept that's only been tested in the past 5-7 years and is going to require a lot more thought on the part of the fisheries and aquatics food web cooperators because of the complex interaction between trout and food web responses. He encouraged people to attend the Aquatics KA Workshop because their proposed agenda looks back at the information they've acquired over the last decade. GCMRC wants to see the details from the revised EAs in terms of what the proposed actions are and then will proceed with planning the upcoming expert workshops and revising the science plans as necessary.

Several concerns were expressed: 1) high flow effects on trout reproduction; 2) need to give sufficient time to the scientific community to look at all integrated approaches and craft good science and management actions; 3) how Pueblo of Zuni comments were incorporated into the EAs, integration of 106 compliance, and combining HFE and NNFC EAs into one EIS; 4) reassessment on adult HBC numbers; and 5) financial impact of frequent HFEs.

**FY12 Budget Development and Process.** (**Attachment 7a** = AIF). Referencing her memo of May 4, 2011, Ms. Castle stated it's important the AMWG focus their time and attention on significant policy issues and refrain from "getting in the weeds" on budget issues. The TWG needs to resolve non-policy issues and elevate only policy issues they can't resolve to the AMWG. The TWG needs to be empowered to do that and the TWG chair needs to be empowered to make decisions about going forward and elevating issues to the AMWG. She asked for comments on how that could be accomplished and ideas for keeping the AMWG focused on policy level issues.

Ms. Jackson-Kelly said she was concerned about the proposed revision to the AMWG Charter identifying federal AMWG members as being ex-officio voting members and how that would apply to the TWG voting ratio. Mr. King said the only time when voting becomes an issue on the TWG is when there is a budget motion as the federal agencies often abstain. Ms. Castle told her this was discussed in a federal agency meeting yesterday and the expectation is that the federal agencies will continue to be active participants and their viewpoints would be shared accordingly with the entire AMWG.

Responding to a request from Mr. Jansen about the budget process, Mr. Capron said the AMWG approved a budget protocol process paper in 2010 which outlined the different roles of each body with proposed timelines for budget reviews and possible revisions to the budget and workplan in year two of the budget. He wasn't prepared to make a presentation on the budget process and suggested that be scheduled for the next AMWG meeting. He said DOI has proposed a number of changes to the budget

process and the TWG hasn't met to discuss those in detail. The BAHG and TWG will hold meetings in the next couple of months and make a recommendation to the AMWG in August.

Budget AHG Report: Mr. Capron said the budget was developed using the Budget Protocol Paper the AMWG approved last year and as modified by DOI. Based on results from the Annual Reporting meeting held in January 2011, the TWG met in March and identified 24 issues which were given to GCMRC and Reclamation for consideration. The TWG received further instruction (via phone) from Ms. Castle during their March meeting on their expanded role and requirements for elevating unresolved policy issues to the AMWG. A BAHG conference call was held on May 11, 2011, with more discussion on the 24 issues, which resulted in a revised table (**Attachment 7b**). He said the BAHG will hold a meeting on June 13<sup>th</sup> followed by a TWG meeting on June 28-29 in which the technical issues will be resolved. If the AMWG wants to provide technical input, they need to do so through their TWG members. He said it will be important for GCMRC to be engaged at the BAHG and TWG levels and that a resolution process needs to be developed. In his role as TWG Chair, he felt it would be important to try and get resolution on the technical issues and possibly work with someone at DOI to help him make the choice between technical and policy issues that go forward to the AMWG and to obtain input from Interior. Ms. Castle asked if there were any objections to having Lori Caramanian assist in that effort, and there were none.

GCMRC Budget. In revising the workplan, Dr. Melis said GCMRC evaluated each activity in the provisional workplan to determine if it met the core DOI priorities. Adaptive management program operational activities (e.g., Reclamation and USGS administrative programs, independent science reviews, etc.) were also evaluated. In addition, the workplan was modified to include socio-economic analysis activities. Activities other than support for a quality adaptive management program were organized around the four Phase I DFC categories:

- DFC #1: Colorado River Ecosystem – food base/food web, native and non-native fish, spring habitats, riparian vegetation, quality of water, and sediment.
- DFC #2: Cultural Resources – traditional cultural properties, archaeological and historical sites.
- DFC #3: Recreation – rafting, camping, fishing, educational activities, spiritual engagement.
- DFC #4: Hydropower – maintaining or increasing the dam's power-generating capacity.

The revised workplan also considers or assumes the following:

1. The 24 recommendations provided by the TWG from its March 2011 meeting.
2. Anticipated support needs for proposed experimental management and compliance efforts, including monitoring and research activities for the proposed HFE Protocol and Non-native Fish Control experiments proposed to begin in 2011-12.
3. Continued monitoring of priority resources during the proposed experimental treatments for at least a decade.
4. Continued monitoring and research in support of ongoing HBC translocations within the LCR.
5. Completion of nearshore ecology study, which is tied to the 2008-12 fall steady-flow testing.
6. Provision of science activities to support LTEMP EIS efforts in 2012.

BOR Budget. Mr. Knowles gave a PPT (**Attachment 7c**) and said in year two, a full work plan is not developed; instead a memo from GCMRC and Reclamation outlining changes to the work plan is provided with a modified spreadsheet. There were no changes on Reclamation's side of the budget and proposed projects provide full support of DFCs and DOI priorities. He reviewed the next steps:

- BAHG conference call on June 3 2:00-5:00 pm MDT, meeting on June 13 9:30-4:30 pm PDT in Phoenix to finalize BAHG recommendations to TWG.
- June 28-29, 2011 TWG meeting - resolve any technical or financial issues with the 2012 Budget and Work Plan and develop a list of possible policy concerns for AMWG to consider.
- August 24-25, 2011 AMWG meeting - discuss and resolve any remaining policy concerns and finalize FY 2012 Budget and Work Plan recommendations to the Secretary.

## **Technical Work Group Chair Report (Attachment 8 = AIF and PPTs)**

Progress Report on Implementing Socioeconomics Plan FY2011-12. Dr. Fairley said the Socio-economics Ad Hoc Group developed a 5-year socioeconomic study plan to compile economic data (both cost/expenditure and benefits data) for recreation and hydropower. She gave an overview of what has transpired since then indicating there are areas of overlap between the AMP SEAHG Plan and in a similar ongoing NPS effort, specifically in market and non-market recreation use studies. Still unresolved are base case and change case definitions and applications. She posed a question for AMWG and/or TWG: Will base case and change case analyses be used to inform LTEMP and if so, what is TWG's role in determining base case and change cases (alternative operations) to evaluate in FY2012?

Following up on a comment Dr. Fairley made on overlap with work the Park was going to do on power modeling, Ms. James said she was on the conference call with Bruce Peacock and didn't recall there was necessarily an overlap with power modeling. Dr. Fairley said she hasn't been able to get clarity on that issue and hopes there will be more discussion at the June TWG meeting. With a June deadline quickly approaching for the Park to submit their comments to OMB, Ms. James expressed concern that she hasn't received anything on the survey. Dr. Fairley said she only received survey instrument information two days ago and wasn't sure whether the AMWG needed to be involved in providing comments. Ms. Castle said the program wanted to take advantage of the work the Park is doing and felt it was important for the AMWG to see the survey questions and offer input on them. She gave Dr. Fairley her authorization to send the information to the AMWG.

Additional concerns were expressed: 1) limited budget and time to do work, 2) potential for increased staff costs, 3) need to discuss what the target data is, 4) deadline to get information to OMB this summer, and 5) hiring an economist at GCMRC to do the work. Ms. Castle said a discussion for a decision point on the socioeconomics work would be scheduled for the next AMWG meeting. Mr. Capron said the Park work is much more complicated and beyond his expertise of economics and suggested that if it is going to be in the TWG realm, someone needs to chair the group with the expertise required to move the project forward. As an economist by training, Mr. Peterson said it didn't sound like there was a real concise plan in place. Ms. Castle suggested Dr. Fairley, Mr. Capron, and Mr. McClain meet with USGS/GCMRC staff during the break to see if a plan can be developed in the short term and bring something back to the AMWG by the end of the day.

Core Monitoring Plan. Mr. Capron provided a history of the plan and explained the process the TWG used in the consensus building workshop held March 9, 2011. He said the workshop provided an opportunity for everyone to define issues and get all their ideas discussed. The next steps are to: 1) Final revisions to TWG Appendix B, integrate SA comments and workshop results with a TWG review in June, 2) work with next GCMRC chief to finalize GCMP with Appendix B, and 3) forward to AMWG later this year.

Ms. Castle encouraged the AMWG members to work with their TWG representatives on the details of the budget. She said the June 3<sup>rd</sup> conference call will be focused on technical questions, not a discussion on the merits of the projects. That will occur at the June 13 meeting with a more thorough discussion with GCMRC to resolve issues of concern.

Establishment of the Survey Instrument Ad Hoc Group. Mr. Sogge said he met with several individuals and it was decided Dr. Dave Garrett and Mr. McClain Peterson should co-chair an ad hoc group for the purpose of refining the socioeconomics needs and working with NPS. Ms. Castle said the group would include people from the Park, AMWG, TWG, and others who would like to help develop questions that would aid the AMWG in the NPS survey and prepare a proposal to NPS. Ms. Kyriss said she may be

able to provide some non-AMP funding to help in the process. The following charge was developed and agreed upon by the AMWG:

**The Secretary’s Designee appoints an ad hoc group chaired by Dave Garrett and McClain Peterson, with participation by NPS and TWG and interested members, to give feedback to NPS on its economic survey and how it could be enhanced for the purpose of providing information to the AMP that will assist in evaluating alternatives for the LTEMP.**

SIAHG Membership. (Updated: 6/7/2011 by meeting recorder). The following members have volunteered to serve on this group:

Name	Affiliation	Status
Dr. Dave Garrett (co-chair)	M3Research/Science Advisors	Science Advisors
McClain Peterson (co-chair)	Colorado River Comm./Nevada	AMWG Alternate
Jan Balsom	NPS-GRCA	TWG Member
Brian Carey	NPS-GRCA	Deputy Supt.
Martha Hahn	NPS-GRCA	AMWG Alternate
Beverley Heffernan/ Ann Gold	U.S. Bureau of Reclamation	AMWG Alternate AMWG Member
Chris Hughes	NPS-Glen Canyon Nat’l Recreation Area	TWG Member
Leslie James / Cliff Barrett	CREDA	AMWG Member AMWG Alternate
Sam Jansen / Jerry Lee Cox	Grand Canyon River Guides	AMWG Member AMWG Alternate
John Jordan	Federation of Fly Fishers	AMWG Member
Ted Kowalski	Colorado Water Conservation Board	AMWG Alternate
Nikolai Lash	Grand Canyon Trust	AMWG Member
Clayton Palmer	Western Area Power Administration	AMWG Alternate
Ted Rampton	Utah Association Municipal Power Systems	AMWG Member
John Shields / Don Ostler	Wyoming Interstate Stream Commission	AMWG Member AMWG Alternate
Sam Spiller	U.S. Fish and Wildlife Service	AMWG Member
Bill Stewart	Arizona Game and Fish Department	AMWG Alternate

**Tribal Liaison Report.** (**Attachment 9a** = AIF and PPT). Mr. Halliday said the Department issued a Federal Register Notice on May 17, 2011, (**Attachment 9b**) requesting comments on a proposed policy on consultation with Indian tribes. The comment period will close July 18, 2011. If there are things in the AMP consultation plan that runs contrary to the Department, then the AMP plan will be modified to be in conformance. In an effort to coordinate consultation activities among DOI agencies, tribes, and other parties, the GCDAMP DOI Tribal Consultation Team (Core Team) held several conference calls and created a table of FY2011-12 projects funded through the GCDAMP that require or potentially may require tribal consultation in FY11-12. This information will be forwarded to the tribal representatives and interested tribes. Consultation has been made with several tribes and the primary issues were identified as: economic impact, sufficient notice of HFEs, sacred site protection, traditional cultural properties protection, traditional cultural knowledge inclusion, and consultation policy implementation.

The following concerns were expressed: 1) lack of funding for participation on projects, 2) need for individual tribal input into consultation process and that “one size doesn’t fit all” concerns into one plan, 3) ensure information being disseminated goes to all departments within the various tribes and not to just the governor or council offices, 4) the list of 41 projects doesn’t include concerns from local tribes that may be affected by the two proposed actions and/or other experimental actions, 5) tribal representatives want the tribal liaison to act as a conduit for relating issues between the AMWG and the tribes and

support tribal issues, 6) need for better communication between DOI and the tribes, 7) more dialog between the tribal liaison and the tribes, and 8) have the tribal liaison present at tribal meetings.

Ms. Castle said Mr. Halliday is faithfully conveying the concerns from his tribal meetings to the Department and to the Core Team. As a result of suggestions that have been made by tribal representatives, she said a group will be created to see how things have been working in the past six months and identify possible improvements.

**Secure Water Act.** (**Attachment 10** = AIF) Due to limited time remaining on the agenda, this item was deleted from the agenda. Ms. Castle said it's an excellent report and recommended the members read it. The full report is available online at: <http://www.usbr.gov/climate/SECURE>

**Next AMWG Meeting.** The next AMWG meeting will be held (Wed-Thu) August 24-25, 2011. Ms. Castle said she anticipates the new charter will be in place shortly and, as such, the group may not be bound to hold meetings in Phoenix in August. Linda will send an e-mail following the meeting requesting suggestions for other meeting locations.

Ms. Castle thanked everyone for their participation and adjourned the meeting.

**Public Comments: None**

**Adjourned:** 4:40 p.m.

**Action Item** (E-mail sent to AMWG on 5/24/11): Comments on Glen Canyon Draft Report to Congress for 2010-11 due to Richard Beeman ([rbeeman@usbr.gov](mailto:rbeeman@usbr.gov)) and Patti Aaron ([paaron@usbr.gov](mailto:paaron@usbr.gov)) by close of business Tuesday, June 14, 2011.

**Attachment 11** (added 12/8/11): Memo from AS-WS Anne Castle to Ken Salazar Dated Dec. 5, 2011, Subj: Report and Recommendations from the Glen Canyon Dam Adaptive Management Federal Advisory Committee, May 18, 2011, and August 24-25, 2011, Meetings.

Respectfully submitted,

Linda Whetton  
Bureau of Reclamation  
Upper Colorado Region

### Key to Adaptive Management Program Acronyms

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