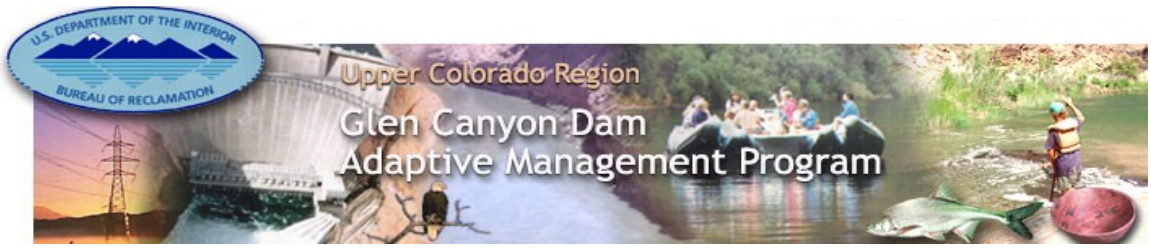

Glen Canyon

Adaptive Management Work Group Meeting

Wednesday, August 26, 2015
9:30 a.m. – 5:30 p.m.

Thursday, August 27, 2015
8 a.m. – 3 p.m.

Phoenix Per diem = $83 / 71

Meeting Location	Hotel Room Block for Mon., August 24 (20 rooms) Tue., Aug 25 (40 rooms) Wed., Aug 26 (40 rooms)
DoubleTree by Hilton Phoenix-Tempe Fiesta A or 1 2100 S. Priest Drive Tempe AZ 85282 T: 480-967-1441 F: 480-731-6397	Phone #: 800-528-6481 Rate: $ 83 + tax ($94.68) Check-in time: 3:00 p.m. Check-out time: 12 noon Cancellation Policy: 48 hours prior to arrival **BLOCK CLOSES: Mon, August 3, 2015**

Glen Canyon Dam Adaptive Management Work Group Meeting
August 26-27, 2015

Meeting Packet Order

Tabs	Documents
	• Meeting Information Page • Meeting Packet Order • Federal Register Notice • WebEx Participant Information • AMWG Ground Rules
Agenda	• Agenda for August 26-27, 2015, Meeting
Draft Minutes / Action Items	• Draft Minutes from May 28, 2015, WebEx Meeting • Action Item Tracking Report
Budget	• AIF: Glen Canyon Dam Adaptive Management Program FY 2016 Budget and Work Plan
Hydrology & Hydrograph	• AIF: Basin Hydrology, Operations, and 2016 Hydrograph
Stakeholder Perspective	• AIF: Lees Ferry Recreational Trout Fishery Management • AIF: Stakeholder's Perspective and HFE Effects on Beaches – the View from Camp
Socioeconomic Panel	• AIF: Non-Market Values for Alternative Operation of Glen Canyon Dam Panel
Science Updates	• AIF: Havasu Creek Translocation Update
Power Updates	• AIF: Colorado River Storage Project rates, Revenue, and Basin Fun Overview
Lower Basin Report	• AIF: Lake Mead Issues and Lower Basin Shortage Preparedness
GCMRC Updates	• AIF: Grand Canyon Monitoring and Research Center Science Updates
Tribal Liaison Report	• AIF: Tribal Liaison Report
LTEMP EIS	• AIF: Long-Term Experimental and Management Plan (LTEMP) EIS
Miscellaneous	• AMWG Committee Membership List • AMWG Membership (by entity)

Creek Basin) to provide a framework to enhance and improve visitor facilities and visitor experience in this area. The DCP addresses a broad spectrum of issues and use conflicts between recreational activities—in particular, day-use activities and overnight camping.

Alternative A (No Action Alternative) would continue current management, programming, facilities, staffing, and funding at their current levels, and existing plans would be implemented.

Alternative B: Silent City of Rocks (preferred alternative) would focus on the spectacular scenery, geology, biological richness, and cultural landscape experienced by past and present visitors. It would emphasize a backcountry-type visitor experience that would allow for self-discovery within a minimally developed western outdoor environment.

Alternative C: A Stage for Stewardship would protect resources through research activities, educational opportunities, and partnerships by emphasizing the national significance of the Reserve. Visitors would be provided opportunities to learn about the history and the natural wonders within the Reserve.

Alternative D: Treasured Landscapes Inspiring Stories would tell stories of the Reserve through the people who pass through, live, and recreate within it, focusing on the California Trail and the ranching heritage. It would emphasize a frontcountry, day-use experience with more formal and structured recreational opportunities and programs.

Public Engagement: Public scoping formally began on August 25, 2009, with the **Federal Register** publication of a Notice of Intent to prepare an Environmental Impact Statement, followed by widespread mailing of Newsletter #1 which generally described the conservation planning and environmental impact analysis process and the purpose and need for the planning effort. Five public meetings (in Almo, Burley, Pocatello, Boise, and Ketchum, Idaho, during September 21—October 22, 2009) provided an early opportunity for the public to identify issues. Newsletter #2 distributed in winter, 2009/2010 summarized public scoping comments. A third newsletter presenting preliminary alternatives followed in April 2011. In addition to a public meeting at park headquarters in Almo, Idaho, numerous meetings with stakeholders, including the Bureau of Land Management, occurred following announcement of the preliminary alternatives. Newsletter #3 and the stakeholders meeting were announced via news releases to several media outlets, including local newspapers and radio and television stations. Lastly, a fourth newsletter distributed in March 2012, summarized the more than 150 public comments on the preliminary alternatives.

To facilitate public review of DEIS/GMP, the Reserve Superintendent and NPS planning team will host a public meeting at park headquarters in Almo, Idaho with another meeting possible in Twin Falls, Idaho. As soon as confirmed date(s), specific location(s), and time(s) are determined, this information will be announced via local and regional news media and on the Reserve's Web site (*www.nps.gov/ciro*). Participants are strongly encouraged to review the Executive Summary and/or complete document prior to attending a meeting. The format will include a brief presentation on the essential elements of the DEIS/GMP, followed by the opportunity to ask questions and provide comments. All meeting locations will be accessible for disabled persons. A sign language interpreter may be available (request in advance by contacting the Reserve at (208) 824–5911).

How to Comment: Information about the 60 day public review and comment period will be announced via local and regional news media. An Executive Summary newsletter for the DEIS/GMP will be mailed to interested parties. Printed copies of the complete document will be available for review at park headquarters in Almo, Idaho, as well as in local public libraries in Burley and Twin Falls, Idaho. Electronic versions of the document will also be available on the Reserve's Web site (*www.nps.gov/ciro*), and limited numbers of printed or CD format documents may be requested by contacting the Reserve at (208) 824–5911.

Written comments should be addressed to: Superintendent, ATTN: City of Rocks General Management Plan, City of Rocks National Reserve, P.O. Box 169, Almo, ID 83312. Reviewers may also submit comments electronically at *http://parkplanning.nps.gov/ciro.* Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Decision Process: Following due consideration of all agency and public comments which are received, a Final Plan/EIS will be prepared; at this time it is anticipated the final document will be available for public inspection during winter, 2015/2016. Because this is a delegated EIS process, the official responsible for the final decision on the GMP is the Regional Director, Pacific West Region, National Park Service. The official responsible for implementation of the approved GMP is the Superintendent, City of Rocks National Reserve.

Dated: March 13, 2015.

Christine S. Lehnertz,

Regional Director, Pacific West Region.

Editor's note: This document was received by the Office of the Federal Register on June 29, 2015.

[FR Doc. 2015–16319 Filed 7–1–15; 8:45 am]

BILLING CODE 4312–FF–P

DEPARTMENT OF THE INTERIOR

Bureau of Reclamation

[RR04073000, XXXR4081X3, RX.05940913.7000000]

Notice of Public Meeting for the Glen Canyon Dam Adaptive Management Work Group

AGENCY: Bureau of Reclamation, Interior.

ACTION: Notice.

SUMMARY: The Glen Canyon Dam Adaptive Management Work Group (AMWG) makes recommendations to the Secretary of the Interior concerning Glen Canyon Dam operations and other management actions to protect resources downstream of Glen Canyon Dam, consistent with the Grand Canyon Protection Act. The AMWG meets two to three times a year.

DATES: The meeting will be held on Wednesday, August 26, 2015, from approximately 9:30 a.m. to approximately 5:30 p.m.; and Thursday, August 27, 2015, from approximately 8 a.m. to approximately 3 p.m.

ADDRESSES: The meeting will be held at the DoubleTree by Hilton Phoenix-Tempe, 2100 South Priest Drive, Tempe, Arizona 85282.

FOR FURTHER INFORMATION CONTACT: Glen Knowles, Bureau of Reclamation, telephone (801) 524–3781; facsimile (801) 524–3807; email at *gknowles@usbr.gov.*

SUPPLEMENTARY INFORMATION: The Glen Canyon Dam Adaptive Management Program (GCDAMP) was implemented

as a result of the Record of Decision on the Operation of Glen Canyon Dam Final Environmental Impact Statement to comply with consultation requirements of the Grand Canyon Protection Act (Pub. L. 102–575) of 1992. The GCDAMP includes a Federal advisory committee, the AMWG, a technical work group (TWG), a Grand Canyon Monitoring and Research Center, and independent review panels. The TWG is a subcommittee of the AMWG and provides technical advice and recommendations to the AMWG.

Agenda: The primary purpose of the meeting will be to approve the Fiscal Year 2016 Budget and Work Plan, and to approve the Water Year 2016 Hydrograph operation for Glen Canyon Dam. The AMWG will receive updates on: (1) The Long-Term Experimental and Management Plan Environmental Impact Statement, (2) current basin hydrology and drought impacts, (3) reports from the Glen Canyon Dam Tribal and Federal Liaisons, (4) science results from Grand Canyon Monitoring and Research Center staff. The AMWG will also address other administrative and resource issues pertaining to the GCDAMP.

To view a copy of the agenda and documents related to the above meeting, please visit Reclamation's Web site at *http://www.usbr.gov/uc/rm/amp/amwg/mtgs/15aug26.* Time will be allowed at the meeting for any individual or organization wishing to make formal oral comments. To allow for full consideration of information by the AMWG members, written notice must be provided to Glen Knowles, Bureau of Reclamation, Upper Colorado Regional Office, 125 South State Street, Room 8100, Salt Lake City, Utah 84138; telephone (801) 524–3781; facsimile (801) 524–3807; email at *gknowles@usbr.gov,* at least five (5) days prior to the meeting. Any written comments received will be provided to the AMWG members.

Public Disclosure of Comments

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Dated: June 12, 2015.

Beverley Heffernan,

Manager, Environmental Resources Division, Upper Colorado Regional Office.

[FR Doc. 2015–16286 Filed 7–1–15; 8:45 am]

BILLING CODE 4332–90–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 731–TA–1279 (Preliminary)]

Hydrofluorocarbon Blends and Components From China; Institution of Antidumping Duty Investigation and Scheduling of Preliminary Phase Investigation

AGENCY: United States International Trade Commission.

ACTION: Notice.

SUMMARY: The Commission hereby gives notice of the institution of an investigation and commencement of preliminary phase antidumping duty investigation No. 731–TA–1279 (Preliminary) pursuant to the Tariff Act of 1930 (''the Act'') to determine whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports of hydrofluorocarbon blends and components from China, provided for in subheadings 3824.78.00 and 2903.39.20 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value. Unless the Department of Commerce extends the time for initiation, the Commission must reach a preliminary determination in antidumping duty investigations in 45 days, or in this case by August 10, 2015. The Commission's views must be transmitted to Commerce within five business days thereafter, or by August 17, 2015.

DATES: Effective date: June 25, 2015.

FOR FURTHER INFORMATION CONTACT: Joanna Lo (202–205–1888), Office of Investigations, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436. Hearing-impaired persons can obtain information on this matter by contacting the Commission's TDD terminal on 202–205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000. General information concerning the Commission may also be obtained by accessing its Internet server (*http://www.usitc.gov*). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at *http://edis.usitc.gov.*

SUPPLEMENTARY INFORMATION:

Background—This investigation is being instituted, pursuant to section 733(a) of the Tariff Act of 1930 (19 U.S.C. 1673b(a)), in response to a petition filed on June 25, 2015, by the American HFC Coalition, and its members (Amtrol, Inc., West Warwick, Rhode Island; Arkema, Inc., King of Prussia, Pennsylvania; The Chemours Company FC LLC, Wilmington, Delaware; Honeywell International Inc., Morristown, New Jersey; Hudson Technologies, Pearl River, New York; Mexichem Fluor Inc., St. Gabriel, Louisiana; Worthington Industries, Inc., Columbus, Ohio); and District Lodge 154 of the International Association of Machinists and Aerospace Workers (''IAMAW'').

For further information concerning the conduct of this investigation and rules of general application, consult the Commission's Rules of Practice and Procedure, part 201, subparts A and B (19 CFR part 201), and part 207, subparts A and B (19 CFR part 207).

Participation in the investigation and public service list.—Persons (other than petitioners) wishing to participate in the investigation as parties must file an entry of appearance with the Secretary to the Commission, as provided in sections 201.11 and 207.10 of the Commission's rules, not later than seven days after publication of this notice in the **Federal Register.** Industrial users and (if the merchandise under investigation is sold at the retail level) representative consumer organizations have the right to appear as parties in Commission antidumping duty investigations. The Secretary will prepare a public service list containing the names and addresses of all persons, or their representatives, who are parties to this investigation upon the expiration of the period for filing entries of appearance.

Limited disclosure of business proprietary information (BPI) under an administrative protective order (APO) and BPI service list.—Pursuant to section 207.7(a) of the Commission's rules, the Secretary will make BPI gathered in this investigation available to authorized applicants representing interested parties (as defined in 19 U.S.C. 1677(9)) who are parties to the investigation under the APO issued in the investigation, provided that the application is made not later than seven days after the publication of this notice

Glen Canyon Dam Adaptive Management Work Group Meeting, WebEx and Conference Call
August 26-27, 2015

Get the details:

Meeting:	AMWG Meeting and Web	WebEx Control:	Glen Knowles
Date:	(Wed) August 26, 2015	Facilitator:	Mary Orton
Times:	11:30 a.m. (EDT)	Note Taker:	Linda Whetton
	9:30 a.m. (MDT)	Timekeeper:	Mary Orton
	8:30 a.m. (PDT)		

Technical Support: Sarah Casale (scasale@usbr.gov) Cell: 702-858-1570
Linda Whetton (lwhetton@usbr.gov) Cell: 801-699-7292

Get prepared:
You can find the meeting documents at http://www.usbr.gov/uc/rm/amp/amwg/mtgs/15aug26/index.html.

Get connected:
WebEx URL: https://ucbor-events.webex.com/ucbor-events/onstage/g.php?MTID=ea8cc75105f323e19735a6274e6b25f74
Conference Call: 877-913-4721, Passcode: 3330168

= = = =

Glen Canyon Dam

Adaptive Management Work Group

GROUND RULES

1. Arrive on time.
2. Commit to full participation.
3. Do homework before class begins.
4. Take private meetings outside.
5. Wait to be recognized before speaking.
6. Show respect for others
7. Be concise.
8. Stick to the topic.
9. Save new business for the appointed time.
10. Help keep the meeting on schedule.

Agenda

Glen Canyon Dam Adaptive Management Program
Adaptive Management Work Group Meeting, August 26-27, 2015

DoubleTree by Hilton, 2100 South Priest Drive, Tempe, AZ 85282, 480-967-1441

Wednesday, August 26, 2015
Webinar Information:
https://ucbor-events.webex.com/ucbor-events/onstage/g.php?MTID=ea8cc75105f323e19735a6274e6b25f74

Phone: 877-913-4721 Participant Passcode: 3330168

D R A F T A G E N D A

START TIME [1] (Duration)	Wednesday, August 26, 2015 Topic, Presenter, and Purpose[2]	Materials/ Tabs
9:30 a.m. (:30)	**Welcome and Administrative** – Jennifer Gimbel, Secretary's Designee *Information, discussion, and possible action* • Introductions and Determination of Quorum (13 members) • Approval of May 28, 2015, Meeting Minutes • Action Item Tracking Report • Progress on Nominations and Reappointments • Scott VanderKooi new Grand Canyon Monitoring and Research Center (GCMRC) Chief • Introduction of new Science Advisor • Adaptive Management Work Group (AMWG) Charter Renewal • Commemorating Jason Thiriot	Agenda Draft Minutes/ Action Items
10:00 a.m. (:30)	**FY 2016 Budget and Work Plan** – Glen Knowles, Bureau of Reclamation; Scott VanderKooi, Grand Canyon Monitoring and Research Center; and Shane Capron, Technical Work Group Vice-Chair and Budget Ad Hoc Group Chair *Information, discussion, and action* • Presentation (15 minutes) • Q&A, discussion, and action (15 minutes) **Motion Recommended by the TWG**: AMWG recommends to the Secretary of the Interior for her approval the Final FY 2015-17 Triennial Budget and Work Plan from the Bureau of Reclamation and the Grand Canyon Monitoring and Research Center as recommended by AMWG August 28, 2014 for implementation in FY 2016, with a FY 2015 corrected CPI of 1.7%, and corrections to the GCMRC overhead rates.	Budget
10:30 a.m. (:45)	**Basin Hydrology and 2016 Hydrograph** – Katrina Grantz, Bureau of Reclamation; Robert Snow, Department of the Interior; Vineetha Kartha, Technical Work Group Chair *Information, discussion, and action* • Presentation (30 minutes) • Q&A, discussion (15 minutes) **Motion Recommended by the TWG**: Please see AIF.	Hydrology and Hydrograph

START TIME [1] (Duration)	Wednesday, August 26, 2015 Topic, Presenter, and Purpose[2]	Materials/ Tabs
11:15 a.m. (:30)	**Lees Ferry Recreational Trout Fishery Management Recommendations** – John Jordan, International Federation of Fly Fishers/Trout Unlimited; John Hamill, Theodore Roosevelt Conservation Partnership *Information and discussion* • Presentation (15 minutes) • Q&A, discussion (15 minutes)	Stakeholder Perspective
11:45 a.m. (1:00)	**LUNCH**	
12:45 p.m. (3:15)	**Non-Market Values for Alternative Operation of Glen Canyon Dam Panel** – Lucas Bair**,** Grand Canyon Monitoring and Research Center; Michael Hanemann, Arizona State University; Holly Doremus, UC Berkeley Law; John Duffield, University of Montana; Hank Jenkins-Smith, University of Oklahoma *Information and discussion* • Presentation (2 hours 15 minutes) • Break at approximately 2:00 pm (15 minutes) • Questions, responses, discussion (45 minutes)	Socio-economic panel
4:00 p.m. (:45)	**Stakeholder's Perspective and HFE Effect on Beaches – the View from Camp** – Sam Jansen, Grand Canyon River Guides (GCRG); and Paul "Zeke" Lauck, GCRG Adopt-A-Beach Coordinator *Information and discussion* • Stakeholder Perspective (15 minutes) • HFE Impact on Camping Beaches (15 minutes) • Q&A, discussion (15 minutes)	Stakeholder Perspective
4:45 p.m. (:15)	**Public Comment**	
5:00 p.m.	**ADJOURN FOR THE DAY**	

[1] Every effort will be made to adhere to the schedule and agenda, but on occasion, for unforeseen reasons, some modifications may occur.
[2] Action may be by consensus or a vote; and either may be a recommendation to the Secretary of the Interior or feedback to presenter(s) or to subordinate groups.

Glen Canyon Dam Adaptive Management Program
Adaptive Management Work Group Meeting, August 26-27, 2015
DoubleTree by Hilton, 2100 South Priest Drive, Tempe, AZ 85282, 480-967-1441

Thursday, August 27, 2015
Webinar Information:
https://ucbor-events.webex.com/ucbor-events/onstage/g.php?MTID=eb0e5737636fcca798a5654597d6b3650
Phone: 877-913-4721 Participant Passcode: 3330168

D R A F T A G E N D A

START TIME [1] (Duration)	Thursday, August 27, 2015 Topic, Presenter, and Purpose [2]	Materials/ Tabs
8:00 a.m. (:15)	**Welcome and Administrative** – Jennifer Gimbel, Secretary's Designee ● Introductions and Determination of Quorum (13 members)	
8:15 a.m. (:30)	**Havasu Creek Translocation Update** – Martha Hahn, National Park Service, Grand Canyon National Park *Information and discussion* ● Presentation (15 minutes) ● Q&A, discussion (15 minutes)	Science Updates
8:45 a.m. (1:00)	**Basin Fund and Revenue Overview** – Lynn Jeka, Western Area Power Administration *Information and discussion* ● Presentation (45 minutes) ● Questions, responses, and discussion (15 minutes)	Power Updates
9:45 a.m. (:15)	**BREAK**	
10:00 a.m. (1:00)	**Lake Mead Issues and Lower Basin Shortage Preparedness** – Jayne Harkins, Colorado River Commission of Nevada; Tanya Trujillo, Colorado River Board of California; Tom Buschatzke, Arizona Department of Water Resources *Information and discussion* ● Presentation (40 minutes) ● Questions, responses, and discussion (20 minutes)	Lower Basin Report
11:00 a.m. (:45)	**Tribal Liaison Report** – Sarah Rinkevich, Federal Tribal Liaison for the Glen Canyon Dam Adaptive Management Program; Loretta Jackson-Kelly, Hualapai Tribe *Information and discussion* ● Presentation (30 minutes) ● Q&A, discussion (15 minutes)	Tribal Liaison Report
11:45 a.m. (1:00)	**LUNCH**	

START TIME [1] (Duration)	Thursday, August 27, 2015 Topic, Presenter, and Purpose [2]	Materials/ Tabs
12:45 p.m. (1:00)	**GCMRC Science Updates** – Scott VanderKooi and Paul Grams, Grand Canyon Monitoring and Research Center *Information and discussion* ● Presentation (45 minutes) ● Questions, responses, and discussion (15 minutes)	GCMRC Updates
1:45 p.m. (1:00)	**Long-Term Experimental and Management Plan EIS** – Glen Knowles, Reclamation; Rob Billerbeck, National Park Service; Kirk LaGory, Argonne National Laboratory *Information, discussion, and feedback* ● Status update on process and schedule (30 minutes) ● Q&A and discussion (30 minutes)	LTEMP EIS
2:45 p.m. (:05)	**Public Comment**	
2:50 p.m. (:10)	**WRAP-UP and ADJOURN** – Jennifer Gimbel, Secretary's Designee ● Please fill out the meeting evaluation sheet at your place.	
3:00 p.m.	**ADJOURN**	

[1] Every effort will be made to adhere to the schedule and agenda, but on occasion, for unforeseen reasons, some modifications may occur.
[2] Action may be by consensus or a vote; and either may be a recommendation to the Secretary of the Interior or feedback to presenter(s) or to subordinate groups.

Draft Minutes/ Action Items

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

Date: May 28, 2015
Conducting: Jennifer Gimbel, Acting Secretary's Designee Start Time: 10 a.m. (MDT)
Facilitator: Mary Orton, The Mary Orton Company, LLC

Committee Members/Alternates:
Cliff Barrett, UAMPS
Martha Hahn, NPS/GRCA
Jayne Harkins, State of Nevada
Leslie James, CREDA
Sam Jansen, Grand Canyon River Guides
Lynn Jeka, Western Area Power Administration
John McClow, State of Colorado
Eric Millis, State of Utah
Gerald Myers, Int'l Federation of Fly Fishers/TU
Don Ostler, State of New Mexico
Steve Spangle, U.S. Fish and Wildlife Service
Tanya Trujillo, State of California
Steve Wolff, State of Wyoming
Mike Yeatts, Hopi Tribe

Committee Members Absent:
Charley Bulletts, Southern Paiute Consortium
Tom Buschatzke, State of Arizona
James deVos, Arizona Game & Fish Dept.
Loretta Jackson-Kelly, Hualapai Tribe
Leigh Kuwanwisiwma, Hopi Tribe
David Nimkin, National Parks Conservation Assoc.
Ted Rampton, UAMPS
Larry Stevens, Grand Canyon Wildlands Council
Dave Uberuaga, National Park Service (GRCA)
VACANT, Navajo Nation
VACANT, Pueblo of Zuni
VACANT, State of New Mexico
VACANT, San Juan Southern Paiute Tribe

USGS/Grand Canyon Monitoring and Research Center
Helen Fairley, Program Manager
Dave Lytle, SBSC Manager
Scott VanderKooi, Acting Deputy Director

Interested Persons:
Adam Arellano, WAPA
Jan Balsom, NPS/GRCA
Mary Barger, U.S. Bureau of Reclamation
Shane Capron, WAPA
Lori Caramanian, DOI
Bill Chada, U.S. Bureau of Reclamation
Jennifer Crandell, State of Nevada
Marianne Crawford, U.S. Bureau of Reclamation
Chris Cutler, U.S. Bureau of Reclamation
Evelyn Erlandsen, State of Arizona
Ed Gerak, CREDA (Buckeye Water Conservation and Draining District)
Jacklynn Gould, U.S. Bureau of Reclamation
John Hamill, Int'l Federation of Fly Fishers/TU
Paul Harms, State of New Mexico
Chris Harris, State of California
Beverley Heffernan, U.S. Bureau of Reclamation
Glen Knowles, U.S. Bureau of Reclamation
Ted Kowalski, State of Colorado
Kathy Kunysz, Metropolitan Water District of Southern California
Lisa Meyer, WAPA
Heather Patno, U.S. Bureau of Reclamation
Daniel Picard, U.S. Bureau of Reclamation
Brent Rhees, U.S. Bureau of Reclamation
Marty Rozelle, The Mary Orton Company, LLC
Dr. Sarah Rinkevich, DOI Federal Tribal Liaison
Kendra Russell, U.S. Bureau of Reclamation
Seth Shanahan, SNWA
Justin Tade, DOI/SOL
Jason Thiriot, State of Nevada
Shana Tighi, U.S. Bureau of Reclamation
Jason Tucker, USBR/Glen Canyon Dam
Chris Watt, U.S. Bureau of Reclamation
Malcolm Wilson, U.S. Bureau of Reclamation

Recorder: Linda Whetton, USBR

Welcome and Administrative. Ms. Gimbel welcomed the members and general public. Introductions were made and a quorum determined.

- Webinar Protocols. Members were given instructions for participating on today's call.

- Purpose and Desired Outcomes. The meeting will focus on passing a motion to recommend a revised AMWG Charter to the Secretary, and receiving updates on current basin hydrology, the Water Year 2016 hydrograph, the LTEMP EIS process, and changes to the FY16 budget.
- Approval of February 25-26, 2015, Meeting Minutes. Motion to approve, including edits submitted by Jason Thiriot, proposed by Jayne Harkins and seconded by Leslie James. The minutes were approved by consensus.
- Progress on Reappointments and Nominations. Mr. Don Ostler was reappointed as the alternate for the State of New Mexico. A number of nominations are working through the Department's vetting and surnaming process.
- Update on GCMRC Chief. Mr. Dave Lytle reported that since the first search didn't result in a selection, a second vacancy announcement was issued. He should receive a new list of candidates tomorrow and will conduct a similar interview process.
- Update on Science Advisors Contract. Mr. Glen Knowles said Reclamation has received a number of proposals and is evaluating them. Reclamation intends to make an award within next two months.
- Introduction of New Regional Archeologist. Ms. Gimbel welcomed Bill Chada. He has a Master's Degree from the University of Nebraska and 30+ years experience as a professional archaeologist. He transferred from Reclamation's Great Plains Region and has also worked with the Navajo Nation, the National Park Service, and several state and private organizations.
- Tribal Consultation Plan. DOI and the Tribes have agreed on a Tribal Consultation Plan that defines how the Tribes and Interior interact. Once the Plan is completely finalized, it will be shared with the AMWG.
- Tribal River Trip. This will be held July 17-27. Interested persons should contact Sarah Rinkevich (sarah_rinkevich@fws.gov or Loretta Jackson-Kelly (lorjac@frontiernet.net) by close of business tomorrow. Due to the length of time on the river, there will be options for hiking in and out of the canyon.
- Retirement News. Ms. Martha Hahn will be retiring in October.

AMWG Charter (***Attachment 1*** = *AIF, PPT*) – Ms. Heffernan. In August 2014, then-Secretary's Designee Anne Castle called for formation of a new Charter Ad Hoc Group (CAHG) to review the AMWG Charter as part of the renewal process. Issues raised previously were discussed and revisions were recommended to the AMWG in February, although action was not taken at that meeting because additional issues were raised. Additional CAHG meetings were held since then. DOI Solicitor review and input was sought throughout the process, as appropriate, for certain concerns. Ms. Gimbel noted that the Ad Hoc Group discussed whether and how to include an academic person or academic input to the AMWG, per the Grand Canyon Protection Act. The Ad Hoc Group decided the AMWG would work to include that academic perspective and consider amendments to the charter on this subject in the future. This decision will be documented in a letter to the Secretary's Designee.

Motion (Proposed by Chris Harris, seconded by Leslie James)**: The AMWG recommends approval by the Secretary of the AMWG Charter dated May 1, 2015**. Ms. Gimbel asked if there were any objections to passing the motion by consensus. Hearing none, the motion was passed by consensus.

Technical Work Group Report (***Attachment 2***) – Mr. Shane Capron.

- Humpback Chub Translocations. Tributary translocation summaries from the 2015 AR meeting indicated that translocations may be successful in Havasu Creek and chub may be reproducing. GCMRC reports on HBC aggregations indicated that these translocations have contributed to mainstem populations and catches at mainstem locations such as Pumpkin Springs. There was stakeholder interest in pursuing mainstem locations of HBC. The TWG expressed support for scoping the feasibility of mainstem translocations and asked agencies that as details emerge, to include TWG in those discussions.

- Lees Ferry Fishery. Reports from the spring electrofishing survey indicate the trout have been declining since 2012 and fish condition is the lowest since 1991. The GCMRC April trip confirmed declines of trout numbers in most reaches including a decline of more than 50% near the confluence of the Little Colorado River. Lees Ferry anglers, guides, and businesses presented a few recommendations to the TWG that included proactive efforts to identify actions to maintain and enhance trout fishery without negatively impacting fish downriver.
- Razorback Sucker Research and Monitoring in the lower Grand Canyon. Evidence of reproduction by RBS and HBC was seen during the 2014 larval fish sampling in the lower Grand Canyon. RBS monitoring and research activities by Biowest, USBR, and NPS also showed the presence of larvae at the Colorado River inflow to Lake Mead for the fifth year in a row. Native fish dominate the total fish community in the lower Grand Canyon and Lake Mead inflow area. Responsible entities will continue to monitor the Colorado River inflow area for larval and small bodied fish sampling.

FY 2016 Budget and Work Plan (***Attachment 3a*** = AIF)
Ms. Gimbel reminded the group that they had approved a three-year budget and work plan in August 2014. AMWG will approved the FY 2016 part of that budget and work plan in August 2015, due to federal government budgeting requirements. However, changes to the budget approved in 2014 will be minimal.

- Reclamation Overview (***Attachment 3b***) – Mr. Knowles. The budget spreadsheet was adjusted to reflect CPI changes. In keeping with the Federal budget process, the AMWG and TWG are required to review the TWP every year. The AMWG will continue to discuss the budget and be prepared to make a recommendation on the FY16 budget to the Secretary at its August meeting.
- GCMRC Update (***Attachment 3c***) – Mr. VanderKooi reminded the members that the City of Flagstaff will be demolishing the buildings that USGS currently leases. On behalf of the USGS, GSA negotiated lease rates with the City for current facilities until the new USGS building is constructed and occupied (June 2017). The FY15 rate decreased from the initial estimate of 15.6% to approximately 13.6%. The FY16 rate was estimated to be 21.3%, but is now projected to be about 13%. It's too late in the year to adjust the USGS overhead rates so some of the burden that GCMRC paid to USGS (in an amount approximately equal to the CPI adjustment) will be returned to GCMRC. The SBSC had some additional funds ($150K) and made them available to scientists within SBSC and GCMRC to submit short proposals and apply for that money.
- In April, the TWG heard similar presentations that the projects that lacked funding in FY16-17 would now likely be fully funded. The TWG didn't have any proposed changes to the FY16 budget and work plan, and will make a recommendation in June for the AMWG to consider in August.

Basin Hydrology, Operations, and 2015 Hydrograph (***Attachment 4*** = *AIF and PPT*)
Hydrology – Ms. Heather Patno. Conditions were very warm throughout the Upper Basin in 2015. The snowpack peaked at approximately 74% of average on March 9, about one month earlier than normal. The weather conditions changed in May and through yesterday, with precipitation 210% of average for the basin above Lake Powell for that period. A lot of precipitation has been coming in as rain instead of snow, but the total seasonal precipitation remains below average. In 2015, Lake Powell is operating in the upper elevation balancing tier as determined by the August 2014 24-Month Study and is currently projected to release 9.0 maf in 2015 subject to observed inflows. Results from the April 2015 24-Month Study show Lake Powell's pool elevation above 3,575 feet and Lake Mead's elevation below 1,075 feet at the end of WY2015. This condition triggers balancing operations in WY 2016 (8.23 - 9.0 maf). Looking ahead there is significant uncertainty regarding the WY2016 operating tier. Based on the May 4 official inflow forecast, current projections show Lake Powell's elevation just below 3,575 feet at the end of the WY2015 calendar year. If observed hydrology is consistent with forecasted inflows, and the August 2015 24-Month Study also projects Lake Powell to be below 3,575 feet at the end of the calendar year, Lake Powell will be in the mid-elevation release tier in WY2015. This would result in a release volume of 7.48 maf in WY2016. However, if the mid-May forecast

projects increased inflows due to recent storm activity, the most probable release scenario for WY2016 could return to 9.0 maf in June. The final operating tier determination for WY2016 will be made in August 2015.

Maintenance at Glen Canyon Dam – Ms. Heather Patno. There are eight hydropower units available at GCD. The current plan is to have seven units available should sediment conditions be sufficient for a fall 2015 HFE. Based on the forecast for increased precipitation expected in June, most probable release plan could increase to 9.0 maf (which is currently the maximum probable).

DOI/DOE WY 2016 Hydrograph – Mr. Glen Knowles. As with past AMWG hydrograph proposals, the purpose is to improve on the typical MLFF pattern in benefitting downstream resources. The proposed hydrograph attempts to improve on retention of sand inputs in the system in anticipation of a potential Fall HFE by targeting lower August and September monthly releases. At the request of FWS, the proposal also includes some reduction in June volumes to increase water temperature in the mainstem Colorado River at the Little Colorado River to benefit juvenile HBC as they move into the mainstem at that time. The proposed hydrograph has no effect on the WY 2016 annual release, which is determined under the 2007 Interim Guidelines by the August 24-Month Study. The following draft motion language will be considered by the TWG on their June 11 webinar:

WY2016 Hydrograph
TWG recommends the AMWG recommend to the Secretary of the Interior her approval of the DOI-DOE Proposed Hydrograph for Water Year 2015 as follows:

- *Annual Release Volumes will be determined by the 2007 Interim Guidelines and shall be reviewed and adopted through the normal annual operating plan process (in consultation with the Basin States as appropriate).*
  Monthly Release Volumes are anticipated to shift depending upon: (1) the projected Annual Release Volume, (2) powerplant capacity, and (3) the magnitude of a potential High Flow Experiment.
  Monthly Release Volumes may vary within the targets identified below. Any remaining 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 and in compliance with all applicable NEPA compliance documents (HFE EA, NNFC EA, 2007 IG).
- *Release objective for June is:*
  600 to 650 kaf for annual releases below 9.0 maf
  800 kaf for annual releases of 9.0 maf to less than 9.5 maf
  900 kaf for annual releases of 9.5 maf to less than 10 maf
  Greater than 900 kaf for annual releases 10 maf and greater
- *Release objective for August is 800 kaf*
  Release objective for September is:
  600 kaf for annual releases below 9.0 maf
  700 kaf for annual releases of 9.0 maf to less than 10.0 maf
  800 kaf or greater for annual releases of 10.0 maf or greater; up to powerplant capacity for high equalization releases
- *Monthly Release Volumes will generally strive to maintain 600 kaf levels in the shoulder months (spring and fall) and 800 kaf in the December/January and July/August timeframe.*

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 in 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.

Long-Term Experimental and Management Plan EIS Update (***Attachment 5***) – Mr. Glen Knowles. Much of the analysis work has been completed and a draft EIS is now in administrative review. Some of the details of the various analyses will appear in appendices, and these might not be available in time for the cooperating agency draft.

Next Steps:

- Reclamation and NPS review Administrative Draft EIS.
- Send Review Draft EIS to Cooperating Agencies for review by end of June.
- 30-day Cooperating Agency review period. Comments due end of July.
- Publish public Draft EIS end of August.
- Hold public meetings in September.
- 60-day public review period until end of October.

Several members representing Cooperating Agencies expressed concern about having only 30 days to review the draft EIS given the size of the document. Ms. James added that members wouldn't know if questions raised at the hydropower webinar were answered if the appendices are not provided. Reclamation will consider their requests.

AMWG Next Steps:

- Next Meeting: August 26-27, 2015, in Tempe, Arizona. Purpose will be to approve budget, workplan, and WY2016 hydrograph.
    - Send any additional proposed agenda items to Linda Whetton (lwhetton@usbr.gov) by June 8.
- Upcoming AMWG Meetings:
    - February 24-25, 2016, in Tempe, Arizona (in-person)
    - May 2016 – date and time To Be Determined (WebEx)
    - August 24-25, 2016, in Flagstaff, Arizona (in-person)

Public comments: None

Adjourned: 11:50 a.m. MDT

Respectfully submitted,

Linda Whetton
Bureau of Reclamation
Upper Colorado Region

Key to Glen Canyon Dam Adaptive Management Program Acronyms

ADWR – Arizona Dept. of Water Resources
AF – Acre Feet
AGFD – Arizona Game and Fish Department
AIF – Agenda Information Form
AMP – Adaptive Management Program
AMWG – Adaptive Management Work Group
AOP – Annual Operating Plan
ASMR – Age-Structure Mark Recapture
AS-WS – Assistant Secretary Water and Science
BA – Biological Assessment
BAHG – Budget Ad Hoc Group
BCOM – Biological Conservation Measure
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
BWP – Budget and Work Plan
CAHG – Charter Ad Hoc Group
CESU – Cooperative Ecosystems Studies Unit
cfs – cubic feet per second
CFMP – Comprehensive Fisheries Management Plan
CMINS – Core Monitoring Information Needs
CMP – Core Monitoring Plan
CPI – Consumer Price Index
CRBC – Colorado River Board of California
CRAHG – Cultural Resources Ad Hoc Group
CRE – Colorado River Ecosystem
CREDA – Colorado River Energy Distributors Assn.
CRSP – Colorado River Storage Project
CWCB – Colorado Water Conservation Board
DAHG – Desired Future Conditions Ad Hoc Group
DASA – Data Acquisition, Storage, and Analysis
DBMS – Data Base Management System
DOE – Department of Energy
DOI – Department of the Interior
DOIFF – Department of the Interior Federal Family
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
GCES – Glen Canyon Environmental Studies
GCMRC – Grand Canyon Monitoring & Research Center
GCNP or GRCA Grand Canyon National Park
GCNRA – Glen Canyon Nat'l Recreation Area
GCPA – Grand Canyon Protection Act
GLCA – Glen Canyon Nat'l Recreation Area
GCRG – Grand Canyon River Guides
GCWC – Grand Canyon Wildlands Council
GSA – U.S. General Services Administration
HBC – Humpback Chub (endangered native fish)
HFE – High Flow Experiment
HMF – Habitat Maintenance Flow
HPP – Historic Preservation Plan
INs – Information Needs
KA – Knowledge Assessment (workshop)
Kaf – thousand acre feet
KAS – Kanab Ambersnail (endangered native snail)
LCR – Little Colorado River
LCR MSCP – Lower Colorado River Multi-Species Conservation Program
LTEMP – Long-Term Experimental and Management 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
NNFC – Non-native Fish Control
NOI – Notice of Intent
NPCA – National Parks Conservation Association
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 Proposal
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
SOW – Statement of Work
SPAHG – Strategic Plan Ad Hoc Group
SSQs – Strategic Science Questions
TCD – Temperature Control Device
TCP – Traditional Cultural Property
TEK – Traditional Ecological Knowledge
TMC – Taxa of Management Concern
TWG – Technical Work Group
TWP – Triennial Work Plan
UAMPS – Utah Associated Municipal Power Systems
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

(Updated: 6/1/15)

GLEN CANYON DAM ADAPTIVE MANAGEMENT WORK GROUP
ACTION ITEM TRACKING REPORT

Updated: February 27, 2015

Note: Items marked "Closed" will be removed from the next iteration of the report.

ITEM NO. / DATE	ACTION ITEM	ASSIGNED TO / DUE DATE	STATUS
Item 2006.Dec.02	Secretary's Designee Limbaugh directed the Roles AHG to address Dr. Garrett's recommendations: 1. Develop improved methods and/or procedures for managers to establish and articulate priorities for specific 3-5 year time intervals. 2. Develop improved methods for managers and scientists to permit effective tradeoff assessments. 3. Develop more effective scientist/managers collaborative working procedures. 4. Implement methods to monitor and improve the adaptive management process. 5. Implement methods to define future conditions for the CRE resources of concern. **2/19/14 Update**: This will remain open as some items may evolve as the LTEMP EIS nears completion and have a better idea of where the science priorities are going as a result of the new long-term plan.	Roles Ad Hoc Group	Open
Item 2012.Aug.01	Glen Knowles will work with Anne Castle to compare the 2004 AMWG/TWG priorities and the Secretary's Designee's priorities as established in 2011. The Secretary's Designee will report to AMWG on the results of this comparison. **2/19/14 Update**: The science plan for the LTEMP EIS will establish the science priorities looking forward and is an independent process from the AMWG. Upon completion of the LTEMP, the AMWG would reconsider science priorities to integrate with the LTEMP and a possible referral to the TWG.	G. Knowles A. Castle	Open
Item 2013.Feb.01	The Charter Ad Hoc Group (CAHG) will assess the feasibility of adding Havasupai Tribe to AMWG, per Charter section 12 and considering operation costs, under Section 7. CAHG will draft a revised Charter that reflects its findings, if necessary. **5/8/13**: Reclamation staff made contact with the tribe and will hold additional meetings to see if they want to join. **2/19/14**: The Havasupai Tribe has been contacted and BOR is awaiting a response from them. **8/28/14**: Loretta Jackson-Kelly, AMP Federal Tribal Liaison, requested AMWG keep this action item open so she may meet with the Havasupai Tribe to discuss AMWG membership. She will follow up with Reclamation staff on previous outreach efforts before meeting with the Havasupai.	CAHG And Loretta Jackson-Kelly, AMP Federal Liaison	Open

ITEM NO. / DATE	ACTION ITEM	ASSIGNED TO / DUE DATE	STATUS
Item 2015.Feb.25	AMWG members were requested to send their technical questions on hydropower modeling to Rob Billerbeck and Glen Knowles in preparation for the WebEx/conference call to be held in two weeks with the hydropower experts on the LTEMP EIS.	AMWG	Open

Budget

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Glen Canyon Dam Adaptive Management Program (GCDAMP) FY 2016 Budget and Work Plan

---

Action Requested

Motion requested. The following proposed motion is based on the recommendation from the TWG. However, no motion is presumed to be made unless and until an AMWG member makes the motion in accordance with the AMWG Operating Procedures.

AMWG recommends to the Secretary of the Interior for her approval the Final FY 2015-17 Triennial Budget and Work Plan from the Bureau of Reclamation and the Grand Canyon Monitoring and Research Center as recommended by AMWG August 28, 2014 for implementation in FY 2016, with a FY 2015 corrected CPI of 1.7%, and corrections to the GCMRC overhead rates.

Presenters

Glen Knowles, Adaptive Management Group Chief, Bureau of Reclamation, Upper Colorado Region
Scott VanderKooi, Chief, Grand Canyon Monitoring and Research Center
Shane Capron, Western Area Power Administration Technical Work Group (TWG) TWG Vice-Chair and TWG Budget Ad Hoc Group (BAHG) Chair

---

Previous Action Taken

- ✓ **June 11, 2015** – TWG passed the following motion by consensus:
  TWG recommends that the AMWG recommend to the Secretary of the Interior for her approval the Final FY2015-17 Triennial Budget and Work Plan from the Bureau of Reclamation and the Grand Canyon Monitoring and Research Center for implementation in FY 2016, with a FY 2015 corrected CPI of 1.7%, and corrections to the GCMRC overhead rates (as presented to the TWG at their meeting June 11, 2015).
- ✓ **September 29, 2014** – Secretary Jewell approved the FY 2015-17 Triennial Budget and Work Plan.
- ✓ **August 28, 2014** – AMWG Motion: AMWG recommends the FY2015-17 Triennial Budget and Work Plan from the Bureau of Reclamation and the Grand Canyon Monitoring and Research Center, as presented to the AMWG at their meeting August 27-28, 2014, to the Secretary of the Interior for approval. Motion passed by consensus.

Relevant Science

- Memo from Anne Castle on GCDAMP Triennial Budget and Work Plan (dated May 17, 2014): http://www.usbr.gov/uc/rm/amp/amwg/mtgs/14may27/Attach_02b.pdf
- Final FY2015-17 Budget and Work Plan (approved by the AMWG on August 28, 2014): http://www.usbr.gov/uc/rm/amp/amwg/mtgs/14aug27/Attach_06f.pdf

- Report and Recommendations Memo from Secretary's Designee Anne Castle to DOI Secretary Sally Jewell (dated Sept. 29, 2014): http://www.usbr.gov/uc/rm/amp/amwg/mtgs/14aug27/Attach_11.pdf

---

Summary of Presentation and Background Information

In May 2014, the Secretary's Designee directed GCMRC and Reclamation to create a three-year budget and work plan for the GCDAMP for FY15-17, and to work with the AMWG and TWG to create a new process for development of future three-year budget and work plans. While the GCDAMP FY15-17 Triennial Budget and Work Plan (TWP) was completed and approved by the Secretary, the three-year budget process is still in development.

Although the TWP process greatly streamlines budget development, the TWG and AMWG are still required to review the TWP every year to be consistent with the Federal budget process. This requires the TWG and AMWG to review the TWP with GCMRC and Reclamation, and the AMWG to provide a recommendation to the Secretary on the current year's budget at its August meeting. The only changes to the TWP for FY 2016 involve CPI and overhead rates. The TWP was developed with a projected CPI of 3.0%. In October 2014, CPI was actualized at 1.7%. The original estimate of the FY15 TWP at projected CPI of 3.0% of $10,892,444 has been reduced to the actual CPI of 1.7%, $10,754,967. USGS overhead rates for FY15 and 16 have been revised downward, due to lower than anticipated lease costs. GSA, on behalf of USGS, has renegotiated lease rates with the City of Flagstaff for current facilities until the new USGS building is constructed and occupied. The FY15 rate decreased from the initial estimate of 15.6% to approximately 13.6%. The FY16 rate was estimated to be 21.3%, but is now projected to be as low as 12%. Reclamation and GCMRC will discuss the effects of changes in the CPI and USGS overhead rates on the budget, as well as any other potential changes for FY16.

Shane Capron, TWG Budget Ad Hoc Group Chair, will discuss ongoing development of the triennial budget process, including the process for FY17.

Hydrology & Hydrograph

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Basin Hydrology and FY 2016 Hydrograph

Action Requested

- ✓ Motion requested. The attached motion is recommended by TWG. However, no motion is officially made unless and until an AMWG member makes the motion in accordance with the AMWG Operating Procedures.

Presenters

Katrina Grantz, Hydraulic Engineer, Bureau of Reclamation, Upper Colorado Region
Vineetha Kartha, State of Arizona AMWG Alternate and Technical Work Group Chair

Previous Action Taken

- ✓ **June 11, 2015** – TWG passed the WY2016 Hydrograph motion (as stated below) by consensus.
- ✓ **August 27, 2014** – At the August 2014 meeting, the AMWG passed a motion to recommend to the Secretary of the Interior her approval of the DOI-DOE Proposed Hydrograph for Water Year 2015. Previous year hydrographs (water years 2012, 2013, 2014 and 2015) were also reviewed by the TWG, and the AMWG and approved by the Secretary of the Interior

Relevant Science

The TWG has been presented with sediment and financial results from the DOI-DOE analysis of operational scenarios for the 2016 Hydrographs. The anticipated range of conditions and objectives for 2016 remain similar to the previous years; therefore, the targeted approach adopted as the 2012, 2013, 2014, and 2015 Hydrographs is recommended again for the 2016 Hydrograph.

Summary of Presentation and Background Information

Basin Hydrology

The first portion of the presentation is intended to provide pertinent information to AMWG members on current water supply and forecasted hydrologic conditions within the Upper Colorado River Basin. The presentation will focus on projected reservoir conditions and operations at Lake Powell/Glen Canyon Dam for the remainder of water year 2015 and provide an outlook for 2016.

FY 2016 Hydrograph

The second portion of the presentation will cover the potential range of annual release volumes from Lake Powell in water year 2016 and the proposed 2016 Hydrograph. Vineetha Kartha, TWG Chair, will provide a brief summary of the TWG deliberation and motion.

Motion requested: The following proposed motion is based on the recommendation from the TWG. However, no motion is presumed to be made unless and until an AMWG member makes the motion in accordance with the AMWG Operating Procedures.

AMWG recommends to the Secretary of the Interior for her approval the WY2016 Hydrograph for Glen Canyon Dam.

In cooperation with the other federal agencies, Reclamation has developed a recommendation for the 2016 Hydrograph. The 2016 hydrograph for Glen Canyon Dam is designed to help retain sediment inputs in the system in anticipation of a possible high flow experiment, and also addresses a request from Western Area Power Administration to adjust July and August monthly volumes to better meet hydropower demand.

- Annual Release Volumes will be determined by the 2007 Interim Guidelines and shall be reviewed and adopted through the normal annual operating plan process (in consultation with the Basin States as appropriate).

- Monthly Release Volumes are anticipated to shift depending upon: (1) the projected Annual Release Volume, (2) power plant capacity, and (3) the magnitude of a potential High Flow Experiment.

- Monthly Release Volumes may vary within the targets identified below. Any remaining 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 and in compliance with all applicable NEPA compliance documents (HFE EA, NNFC EA, 2007 IG). Monthly release volumes proposed in this hydrograph will not affect operating tier determinations for Lakes Powell and Mead under the 2007 Interim Guidelines.

- Release objective for June is:
  600 to 650 kaf for annual releases below 9.0 maf
  800 kaf for annual releases of 9.0 maf to less than 9.5 maf
  900 kaf for annual releases of 9.5 maf to less than 10 maf
  Greater than 900 kaf for annual releases 10 maf and greater

- Release objective for August is:
  800 kaf for annual release below 9.0 maf
  900 kaf for annual releases of 9.0 maf to less than 10 maf
  Greater than 900 kaf for annual releases 10 maf and greater

- Release objective for September is:
  600 kaf for annual releases below 9.0 maf
  700 kaf for annual releases of 9.0 maf to less than 10.0 maf
  800 kaf or greater for annual releases of 10.0 maf or greater; up to power plant capacity for high equalization releases

- Monthly Release Volumes will generally strive to maintain 600 kaf levels in the shoulder months (spring and fall) and 800 kaf in the December/January and July/August timeframe.

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 in 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.

Stakeholder Perspective

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Lees Ferry Management Plan Update

Action Requested

Information item only. We will answer questions; no action is requested.

Presenter

John Jordan, International Federation of Fly Fishers/Trout Unlimited
John Hamill, Arizona Field Representative, Theodore Roosevelt Conservation Partnership

Previous Action Taken

N/A

Relevant Science

N/A

Summary of Presentation and Background Information

The National Park Service Comprehensive Fishery Management Plan (CFMP) Environmental Assessment (EA) for the Colorado River between Glen Canyon Dam and Lake Mead was published May 2014. The intent of the CFMP is to maintain a thriving native fish community within Grand Canyon National Park (GCNP) and a highly valued recreational trout fishery in the Glen Canyon National Recreation Area (GCNRA). The CFMP was developed with supportive participation from angling and area guiding and business communities, including national and state fishing organizations and individual anglers. The CFMP acknowledges that within the plan area there are two geographically divided fisheries: the cold water post-dam recreational trout fishery primarily located within GCNRA and the resident pre-dam warm water fishery primarily located within GCNP.

The AMWG recreational fishing representation and the angling community, with the cooperative participation of Arizona Game and Fish Department (AZGFD), recognized that the provisions of the CFMP for both the recreational trout fishery and the fishery as a whole would benefit from an expansion of the goals in the CFMP to include more detailed proposed actions. With that in mind, the angling community, supported by AZGFD, prepared the Lees Ferry Recreational Trout Fishery Management Recommendations (LFMR). The goals of the LFMR include that it be consistent with and fit within the CFMP and that any proposed actions be based on the best contemporary science available. The draft LFMR was provided to interested agencies and organizations for review, suggestions, and comment. Among the responses received were those from AZGFD, Grand Canyon Monitoring and Research Center, U.S. Fish and Wildlife Service, Basin States, Colorado River Energy Distributors Association, and Western Area Power Administrative. Some of the major comments on the review draft related to: the efficacy and criteria for the use of Trout Management

Flows, the feasibility of enhancing the aquatic food base, concerns about proposed adjustments to Lake Powell-Lake Mead equalization guidelines, the use of anglers to control trout populations in both Lees Ferry and Marble Canyon, the use of trout stocking in Lees Ferry in the event of a collapse of the trout fishery, and the costs and priorities of the recommendations. Responses were considered, and when appropriate, incorporated into the LFMR. The final report will be available in early August 2015.

An executive summary of the Recommendations Report is attached.

Executive Summary-- Lees Ferry Recreational Trout Fishery Management Recommendations

The 15.5-mile stretch of Colorado River winding through Glen Canyon between the Glen Canyon Dam and the beginning of Marble Canyon (within Grand Canyon National Park) is commonly referred to as Lees Ferry. Since 1964, with the completion of the Glen Canyon Dam, this unique tailwater has hosted a recreational trout fishery that has grown in importance and reputation locally, regionally, nationally, and internationally. This blue ribbon recreational sport fishery has also become a financial and economic mainstay for the small community of Marble Canyon and Coconino County, supporting fishing guide services, hotels, restaurants, fishing and outdoor recreation equipment and supplies, and visitor services.

A primary purpose of the Lees Ferry Recreational Fisheries Management Recommendations is to complement and augment the National Park Service's (NPS) 2014 Comprehensive Fisheries Management Plan (CFMP) for the Colorado River below Glen Canyon Dam. Additionally, the recommendations are provided for the consideration of the Arizona Game and Fish Department (AZGFD), Bureau of Reclamation (USBR), Glen Canyon Dam Adaptive Management Work Group (AMWG), and Department of Interior (USDOI) to inform decisions about future management of Glen Canyon Dam and the blue ribbon rainbow trout fishery in Glen Canyon National Recreation Area. Another key purpose is to help shape alternatives in the Glen Canyon Dam Long Term Experimental and Management Plan (LTEMP) Environmental Impact Statement.
These recommendations are intended to:

1. Maintain and enhance a wild (self-sustaining) blue ribbon rainbow trout fishery at Lees Ferry that does not adversely affect the native aquatic community in Grand Canyon National Park.

2. Provide a dependable, high-quality recreational trout fishery that sustains local businesses and the economy of Coconino County.

Currently, the Lees Ferry trout fishery is ecologically unstable due to an impaired aquatic food base and high levels of trout recruitment resulting in a population that exceeds the carrying capacity of the river. Specific management recommendations are provided for:

- Establishing a more diverse aquatic food base by repatriating the Lees Ferry reach with native aquatic invertebrates.
- Continuing the current modified low-fluctuating flow regime with adjustments to develop a more diverse aquatic food base.
- Conducting spring and fall high flow experiments to restore more natural flow regimes to the river, enhance the aquatic food base, and improve trout survival/recruitment when needed.
- Carefully testing trout management flows to help achieve desired trout recruitment and abundance targets.
- Developing an action plan to respond to low dissolved oxygen conditions that are lethal to rainbow trout in Lees Ferry.
- Assessing the feasibility of adjusting Lake Powell-Lake Mead equalization guidelines to better manage trout survival and recruitment.
- Enacting fishing regulations to provide for a quality fishery and help manage the Lees Ferry trout population.

- Explore ways to use tribal members, local guides, and recreational anglers to harvest rainbow trout in Marble Canyon as means of reducing downstream emigration of rainbow trout, and enhancing recreational use and employment and business opportunities in the local community.
- Restocking of rainbow trout in Lees Ferry in the event of a catastrophic loss of the fishery.
- Implementing a water temperature control device at Glen Canyon Dam to maintain a water temperature regime that will support a healthy trout and native fish population in Lees Ferry and downriver.
- Introducing turbidity at the confluence of the Paria and Colorado rivers as a means of controlling trout populations below the Paria River.
- Evaluating the feasibility of making structural modifications to the bypass tubes at Glen Canyon Dam to allow for water temperature regulation, mitigation of low DO levels, and electrical generation when the bypass tubes are in use.
- Conducting long-term resource monitoring to support adaptive management and to measure progress toward achieving goals and desired future condition

The Recommendations are consistent with and will benefit many other Colorado River resource values below Glen Canyon Dam including humpback chub recovery, sand conservation, hydropower generation, and cultural resource protection.

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Stakeholder's Perspective and High Flow Experiments (HFE) Effects on Beaches--the View from Camp

Action Requested

Information item only; we will answer questions but no action is requested.

Presenters

Sam Jansen, Grand Canyon River Guides; Paul "Zeke" Lauck, GCRG Adopt-A-Beach Coordinator

Previous Action Taken

N/A

Relevant Science

N/A

Summary of Presentation and Background Information

This talk will have two parts: (1) the Grand Canyon River Guides Stakeholder perspective; who we are, what we do, and what we care about and (2) the river runner's take on effects of the High Flow Experiments, based on what we've learned through our Adopt-A-Beach program (started in 1996) and experience in the canyon.

The Adopt-A-Beach program was implemented by Grand Canyon River Guides after the first High Flow Experiment in 1996. Its purpose is to keep tabs on changes to the camping beaches that river runners depend upon. It's a volunteer program where river guides stop and take photos of their chosen beaches each time they pass by during the summer. The repeat photographs are collected and analyzed, and a report is published each year. This program is one of the many ways guides work to be good stewards of the place the care so much about.

Socioeconomic Panel

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Non-Market Values for Alternative Operation of Glen Canyon Dam Panel

---

Action Requested

Information item only; we will answer questions but no action is requested.

Presenters

Lucas Bair, Grand Canyon Monitoring and Research Center – Moderator
Michael Hanemann, Arizona State University
Holly Doremus, UC Berkeley Law
John Duffield, University of Montana
Hank Jenkins-Smith, University of Oklahoma

Previous Action Taken

N/A

Relevant Science

The following describes the relevant research or monitoring on this subject:
Glen Canyon Environmental Studies completed a non-use value study in 1995. Non-use values are economic values attributed to goods or services that are not traded in a market setting. The National Park Service (NPS) is currently updating the non-use value study, and a recent University of Oklahoma study is investigating non-market values outside of Glen and Grand Canyons, impacted by changes in operation of Glen Canyon Dam.

Summary of Presentation and Background Information

The purpose of this panel is to review non-market values associated with the operation of Glen Canyon Dam. The panel will discuss the economic concept of non-market values, relevance from a legal and public policy perspective, and current studies that identify non-market values in and around Glen and Grand Canyons that are impacted by the operation of Glen Canyon Dam.

Dr. Michael Hanemann will review the economic concept of non-market values and their applicability to resources impacted by the operation of Glen Canyon Dam. Dr. Hanemann is a professor at Arizona State University, a member of the National Academy of Sciences and has published extensively on the economic theory of non-market valuation. Dr. Hanemann has reviewed socioeconomic research associated with the GCDAMP in the 1987 and 1990 National Research Council reviews of river and dam management and was part of an expert panel in 2009.

Dr. Holly Doremus will discuss the legal aspects of non-market values with an emphasis on the distinction between equity and efficiency. Dr. Doremus teaches environmental and natural resource law and is the co-director of the Center for Law, Energy and the Environment at UC Berkeley. She

has written extensively on the interrelationship of environmental law and science with specific emphasis on endangered species and adaptive management of natural resources.

Dr. John Duffield will present an update on the NPS non-use value study, identifying non-market values for resources in Glen and Grand Canyons. Dr. Duffield is an economist with extensive experience in survey research and applied valuation of natural resources throughout the western United States. Dr. Duffield is also actively involved in non-market valuation of recreation resources downstream of Glen Canyon Dam with GCRMC.

Dr. Hank Jenkins-Smith will present the methods and results of a recent pilot study identifying preferences for non-market resources in the Glen Canyon and Grand Canyon region. Dr. Jenkins-Smith is a professor of political science and the associate director of the Center for Applied Social Research at the University of Oklahoma. He has written extensively on non-market valuation and public perception of energy and the environment.

Science Updates

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Havasu Creek Translocation Update

Action Requested

Information item only. We will answer questions; no action is requested.

Presenter

Martha Hahn, Chief, Science & Resource Management, Grand Canyon National Park, National Park Service

Previous Action Taken

See below.

Relevant Science

See below.

Summary of Presentation and Background Information

The Humpback Chub (*Gila cypha*), is a federally endangered cyprinid fish species endemic to the Colorado River basin, with its largest remaining population occurring in nine aggregations within Grand Canyon National Park (GRCA), Arizona (Valdez and Ryel 1995, reviewed in Coggins et al. 2006). Despite recent increases in abundance (Coggins and Walters 2009), the Grand Canyon population remains threatened by habitat modifications related to the construction and operation of Glen Canyon Dam and introduced nonnative fish species. Translocations of Humpback Chub and associated nonnative fish control were established as Conservation Measures in Biological Opinions on the operations of Glen Canyon Dam (USFWS 2008, 2011).

Translocations of juvenile Humpback Chub from the Little Colorado River to other Colorado River tributaries within GRCA is one option proposed to attempt to establish a second population in Grand Canyon (Valdez et al. 2000), as well as meet National Park Service (NPS) mandates for species conservation (NPS 2006), and contribute towards goals and objectives within the Comprehensive Fisheries Management Plan for GRCA (NPS 2013). Translocations may contribute to restoration of native fish communities, and may result in range expansion and the establishment of a second spawning aggregation of Humpback Chub. Translocations and associated nonnative fish control in tributaries also contribute to partially fulfilling the Bureau of Reclamation's commitment to implement conservation measures established under the 2008 and 2011 Biological Opinions for the operation of Glen Canyon Dam (USFWS 2008, 2011). These conservation measures include translocation of Humpback Chub to Shinumo, Havasu, and Bright Angel creeks in GRCA. Objectives of translocations vary by tributary and operate under the adaptive management framework established in the Comprehensive Fisheries Management Plan (2013). Desirable outcomes may include: 1) the establishment of a second spawning and recruiting population in the mainstem or tributary; or 2) sufficient survival and growth to provide a rearing ("grow-out") opportunity to augment the local mainstem aggregation.

From 2011-2015, a total of 1350 Humpback Chub from the Little Colorado River have been translocated into Havasu Creek in GRCA. Monitoring metrics established for translocations included Humpback Chub survival, growth, abundance, evidence of reproduction, and presence in the adjacent mainstem aggregation. Apparent survival of translocated Humpback Chub has remained constant over time in Havasu Creek. Humpback Chub growth rates have been comparable to, and generally greater than, published growth rates found for juvenile Humpback Chub in the Little Colorado River, and greater than growth rates found for Humpback Chub in the Colorado River. Evidence of reproduction of translocated Humpback Chub was found in Havasu Creek in 2012-2015. Large proportions of the total catch of mainstem Humpback Chub have been translocated chub from Havasu or Shinumo creeks, meaning these translocations have augmented mainstem aggregations (GCMRC/USFWS unpublished data). Funding for this project was provided by the Bureau of Reclamation (Upper Colorado Region) and NPS.

Power Updates

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Colorado River Storage Project (CRSP) Rates, Revenue, and Basin Fund Overview

Action Requested

Information item only. We will answer questions; no action is requested.

Presenter

Lynn Jeka, Senior VP and Colorado River Storage Project Manager, Western Area Power Administration, Department of Energy

Previous Action Taken

N/A

Relevant Science

N/A

Summary of Presentation and Background Information

Congress created the Colorado River Storage Project (CRSP) though the CRSP Act of 1956 (Act of April 11, 1956, ch. 203, 70 Stat. 105). The Act authorized the Secretary of the Interior to construct, operate, and maintain the Colorado River Storage Project and participating projects. In the same Act, Congress authorized a separate fund in the Treasury of the United States to be known as the Upper Colorado River Basin Fund (referred to as the Basin Fund). Fifty-nine years later the Western Area Power Administration's CRSP Management Center works collaboratively in partnership with the Bureau of Reclamation (Reclamation) to generate and market power from the Colorado River Storage Project, Collbran, Seedskadee, Dolores and Rio Grande projects (marketed together as the Salt Lake City Area Integrated Projects) and deliver it to Firm Electric Service customers. With a total investment of $2.375 billion, 11 power plants, 24 generating units, and 2,325 miles of transmission lines CRSP and the Bureau of Reclamation provide clean, reliable, wholesale electric service to 130 wholesale customers in the west including 53 Native American tribes. Our service territory spans Arizona, New Mexico, Nevada, Colorado, Utah, Texas and Wyoming.

This informational presentation will provide an overview of CRSP. You will have an opportunity to learn about how we establish the rates our customers pay for the power they receive, how the resulting revenues are used, and how the approximately $20 million per year for environmental programs are funded. In addition, you'll learn how the Basin Fund is operated and why it is critical to CRSP, Reclamation, the seven Basin States, the Upper Colorado and San Juan River Recovery Implementation Programs, and the Glen Canyon Adaptive Management Program.

Lower Basin Report

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Lake Mead Issues and Lower Basin Shortage Preparedness

Action Requested

Information item only; we will answer questions but no action is requested.

Presenter(s)

Jayne Harkins, Colorado River Commission of Nevada
Thomas Buschatzke, Arizona Department of Water Resources
Tanya Trujillo, Colorado River Board of California

Previous Action Taken

N/A

Relevant Science

N/A

Background Information

Colorado River water is apportioned, regulated and managed among the seven basin states (Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming) and the Republic of Mexico through compacts, treaty, federal laws, court decisions, decrees, contracts, regulatory guidelines and other documents, collectively known as the "Law of the River".

To prepare for possible shortages in the Lower Basin and to guide Colorado River operations during low reservoir conditions, water delivery operations are described and contemplated in the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (2007 Interim Guidelines). Each year, the Secretary of the Interior determines the projected plan of operations of the storage reservoirs in the Colorado River Basin and determines when normal, surplus, or shortage conditions occur in the Lower Colorado River Basin. According to the 2007 Interim Guidelines, a shortage condition is determined when insufficient mainstream water is available to satisfy 7.5 million acre-feet (maf) of annual consumptive use in the Lower Division states. A key factor for determining annual operations is the amount of storage (as measured by water elevation) in Lake Mead.

Releases and diversions are made from Lake Mead to meet water deliveries in Arizona, California, Nevada, and Mexico, while Lake Powell is operated to deliver water from the Upper Basin to the Lower Basin. As part of the 2007 Interim Guidelines, water levels in these two reservoirs are coordinated to allow better management of the Colorado River supply. The 2007 Interim Guidelines outlines a method for releasing water from Lake Powell to Lake Mead that takes into consideration

the elevations of both reservoirs – modifying annual delivery volumes according to reservoir elevations.

Three factors that significantly affect the water levels in lakes Powell and Mead are:

1. The hydrology of the Colorado River, such as the amount of precipitation that falls within the basin and the resulting runoff that flows into the river and reaches the reservoirs,
2. Colorado River water use, such as the amount of water needed for agricultural and urban purposes in both the Upper and Lower Basins, and
3. Colorado River reservoir operations.

To date, the Secretary has never determined a shortage condition in the Lower Basin pursuant to the 2007 Interim Guidelines. However, the Colorado River Basin is now likely experiencing the lowest 16-year period in the observed historical record dating back over 100 years. Further, the Basin runoff during this period is comparable with the lowest 16-year period in the paleo record that dates back over 1200 years. In addition, given the basic apportionments in the Lower Basin, the allotment to Mexico, and evaporation losses, Lake Mead annual outflow is about 1.2 maf more than the annual inflow. The result is an imbalance that causes Lake Mead to drop by 12 feet or more every year when there is a "normal" release of 8.23 maf from Lake Powell. Lake Mead elevation has fallen approximately 126 feet from 2000 to the end of 2014, bringing it closer to elevations critical to a shortage determination. If a shortage is determined in the near future, quantified reductions in deliveries to Arizona, Nevada, and Mexico (pursuant to Minute 319 in effect through December 2017) would be implemented as shown below:

Lake Mead Jan 1, Elevation*	**Shortage Tier**	**Arizona Reduction**	**Nevada Reduction**	**Mexico Reduction**
1075'	1	320,000 AF	13,000 AF	50,000 AF
1050'	2	400,000 AF	17,000 AF	70,000 AF
1025'	3	480,000 AF	20,000 AF	125,000 AF
	** Projected Jan 1 Elevation from August 24-Month Study*			

<u>Nevada – *Perspective provided by Colorado River Commission of Nevada*</u>

Lake Mead is currently at 37% of capacity and lake elevation is projected to decrease this summer to levels not observed since Lake Mead was filled. Reclamation modeling predicts continued decreases in lake elevations and a near equal probability of a Lower Basin shortage in 2017. If a Tier 1 shortage is determined, Nevada would suffer a 4% reduction in Colorado River deliveries. Nevada's consumptive use, however, is currently about 75,000 acre-feet less than its full allocation due in part to the significant investment in water conservation programs by the Southern Nevada Water Authority.

Southern Nevada relies on Colorado River water for about 90% of its water supply. The Southern Nevada Water Authority is responsible for pumping and treating Colorado River water from Lake Mead for delivery to the Cities of Boulder City, Henderson, North Las Vegas, and the Las Vegas Valley Water District (the Las Vegas Valley Water District serves the City of Las Vegas and portions

of unincorporated Clark County in the metropolitan area). Currently, there are two intakes and two pumping stations in Lake Mead at depths of 1,050 and 1,000 feet above mean sea level. If lake surface elevations continue to decline, there are risks of losing the ability to access and pump water. Design and construction of a new intake and pumping station are under way and when completed they will have the ability to pump water at a depth of 860 feet. The new intake will be completed in the fall of 2015 and the new pumping station will not be completed for another 5 years at a cost estimated around $1.4 billion dollars for the entire project. The new lower intake will connect to the current pumping station to allow for pumping from the new intake. The cold, clear water at lower depths provides for better quality water and reduces water treatment costs. Once the intake is complete, southern Nevada will have access to better quality water and once the new pumping station is complete Nevada will have improved access if drought conditions continue.

Lower water levels in Lake Mead have reduced the amount of potential energy generated at Hoover Dam. When lake elevations are high, more energy is produced from the weight (or head) of the water pushing through the turbines. Decreased power production often causes customers to purchase power on the open market at higher costs. At lower elevations, turbines run less efficiently and can cause operational issues. Reclamation believes that power can be generated to an elevation of 950 feet with less efficiency, but there is some uncertainty of operations at these low elevations. Hoover Dam, Parker Dam, and Davis Dam derived power also fund the Colorado River Basin Salinity Control Program. Reduced power production reduces the available funding for this program.

The physical and chemical properties of water released from Glen Canyon Dam can influence Lake Mead. Temperature and salinity between the river and lake can dictate the depth at which the water inserts itself into the lake. Water inserted at the top layer can reinforce stratification and lead to less oxygenated conditions. Increased sediment delivery that reaches the water intakes can impact water treatment costs.

Arizona – *Perspective provided by Arizona Department of Water Resources*

The Colorado River supplies approximately 40% of Arizona's water needs. The remaining needs are met through use of other surface water supplies such as the Salt and Gila River systems, reuse of treated wastewater, water recharged in groundwater aquifers and groundwater supplies. If a shortage is declared on the Colorado River, Arizona bears the brunt of the reductions, with the Central Arizona Project (CAP) taking most of the reductions. Operational agreements and policies have been in place for many years establishing priorities for the different water use sectors of Arizona's Colorado River water.

Who in AZ will be impacted by tier 1 shortage?
Based on established priorities and the existing policies, tier 1 shortages to Colorado River water in the next few years will primarily impact agricultural users that receive CAP water. In addition, supplies available to the Arizona Water Banking Authority and the Central Arizona Groundwater Replenishment District would also be eliminated. Arizona cities will not see a reduction in their Colorado River supplies at the higher tiers of shortages.

Is Arizona prepared for shortage?
Because Arizona has recognized its lower priority on the Colorado River, Arizona has been proactively building resilience and implementing innovative water management strategies to secure and manage its other water supplies. Arizona has set a precedent with rigorous water conservation and sustainability laws that protect Arizona water users. Arizona's Groundwater Management Act is the most far-reaching groundwater management regulatory framework in the United States. Arizona leads the nation in the implementation of efficient water reuse programs to use treated wastewater for beneficial uses including agriculture, municipal uses, groundwater recharge, power generation, industrial uses, and turf irrigation uses. Arizona's engagement in collaborative long-term planning and comprehensive strategies has allowed water providers and private entities to store water supplies underground to reduce their vulnerability to shortage. Collectively, Arizona has stored over 8 million acre-feet (more than 2.5 trillion gallons) of water. Over 3.2 million acre-feet of this stored water has been recharged by the Arizona Water Banking Authority to provide back-up supplies for municipal, industrial and Native American Colorado River water users in times of a shortage.

What is being done?
The Arizona Department of Water Resources, along with other stakeholders such as the CAP, are committed to continuing work with the other Colorado River Basin States, Mexico and federal partners to implement proactive measures that will reduce the near-term risks of drought as well as address the long-term imbalances between supply and demands on the Colorado River system. Addressing the challenges facing the Colorado River System will require solutions that incorporate creativity, cooperation, and shared sacrifice.

California – *Perspective provided by Colorado River Board of California*

California and the other Basin States have been working since at least the 1990's to prepare for potential water supply shortages in the Lower Basin. Shortages to allocations, although hopefully avoided, are a fundamental element of western water law's basic priority system that has been embedded within the allocations and operations of the Colorado River Basin system. For example, in addition to addressing coordinated operations between Lake Powell and Lake Mead, the 1968 Colorado River Basin Project Act recognized existing allocations of water among the States and identified a process for allocation of shortages among Arizona, California, and Nevada. The 1968 Act provides that the Secretary should allocate water first by satisfying the present and perfected water rights that existed prior to 1929 in all three States, then to the remaining normal apportionment rights within California, then to other uses in Arizona and Nevada, and finally to the uses to be developed through the Central Arizona Project, which was newly authorized for construction through the 1968 Act. Adopted forty years later, the 2007 Interim Guidelines describe the specific delivery amounts for each of the Lower Basin states under defined Shortage Conditions when Lake Mead's elevations are projected to meet certain specified trigger levels. To date, neither the shortage provisions in the 1968 Act or the 2007 Interim Guidelines have been applied, but current low elevation levels at Lake Mead have led to continued efforts to try to improve system efficiencies, increase conservation and look for innovative ways to manage and expand existing water supplies.

In addition to the Colorado River Basin's current historic drought, California has been experiencing its own unprecedented, multi-year drought, with record-low snowpack in the northern California Sierra-Nevada Mountains, exacerbated by record-high temperatures. As a result of well below-

average precipitation, the water supply for urban and agricultural contractors from the California State Water Project and federal Central Valley Project has been severely diminished over the past three years. In response to the unprecedented drought conditions, California's Governor Brown issued an Executive Order on April 1, 2015, requiring each municipal water supplier in the State to reduce its water use in order to achieve a 25% average statewide reduction. Over 500,000 acres of irrigated land has been fallowed within California during each of the past three years due to lack of water. During these exceptionally dry years, the Colorado River provides a very important component of the water supply for over 19 million people in southern California in addition to providing water to irrigate over 800,000 acres of farmland.

For over two decades, California's Colorado River water users have spent billions of dollars to implement programs to conserve and efficiently utilize Colorado River water, which has resulted in a reduction in overall use by California of approximately 800,000 acre-feet of water per year since 2003, and has allowed California to stay within the normal allocation of 4.4 million acre-feet of Colorado River water allocated to California under the 1928 Boulder Canyon Project Act. To date, over 3 million acre-feet of water have been conserved and transferred from agricultural to municipal users per the 2003 Quantification Settlement Agreement (QSA) and other long-term, innovative agreements such as the fallowing agreement between the Palo Verde Irrigation District and Metropolitan. Over the past two years, the Metropolitan Water District (MWD) has invested over $500 million on turf removal, appliance rebates and other conservation programs, in addition to amounts spent on conservation programs by the State of California and other local agencies. In November 2014, California voters approved a $7.4 billion bond initiative that will enable construction of additional water storage and conservation projects and other programs over the next several years. On the Colorado River, California entities have participated with other States to fund ongoing programs to generate additional water for the Colorado River System, improve system reliability and create additional water for storage in Lake Mead. Flexibility and innovative programs on the Colorado River System have helped California manage its diverse water supplies during the current drought.

As water levels drop in Lake Mead, California entities (representing 56% of the contracted power allocation from Hoover Dam) are affected along with contractors in Arizona and Nevada by decreased power production capacity at Hoover Dam and decreased benefits from programs such as the Colorado River Basin Salinity Control Program. During Shortage Conditions under the 2007 Interim Guidelines, Colorado River contractors in California, Arizona and Nevada are subject to reduced water delivery flexibilities in connection with programs such as the Inadvertent Overrun Payback Policy.

There are strong incentives for California to continue its efforts to coordinate with Arizona and Nevada, the other Basin States, federal agencies, and our partners in Mexico through the efforts to implement Minute 319 and potential successor agreements, on efforts to bolster the strength of the Colorado River System, prevent Lower Bain shortages, improve water use efficiencies and increase the amount of water stored in Lake Mead.

GCMRC Updates

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Grand Canyon Monitoring and Research Center Science Updates

Action Requested

Information item only; we will answer questions but no action is requested.

Presenter(s)

Scott VanderKooi and Paul Grams, Grand Canyon Monitoring and Research Center

Previous Action Taken

N/A

Relevant Science

N/A

Summary of Presentation and Background Information

Between December 1, 2014, and July 1, 2015, the sand storage in upper Marble Canyon increased by approximately 120,000 metric tons (mt) (lower and upper uncertainty bounds are: 0 to 240,000 mt), while the sand storage in lower Marble Canyon decreased by approximately 48,000 mt (-82,000 to -14,000 mt) and sand storage in eastern Grand Canyon decreased by approximately 140,000 mt (-220,000 to -57,000 mt). The increase in upper Marble Canyon is the result of Paria River floods that delivered approximately 400,000 mt of sand in early June 2015. During the 7-month period ending July 1, 2015, the amount of sand eroded from lower Marble Canyon and eastern Grand Canyon exceeded the amount of sand that accumulated in upper Marble Canyon by a small amount.

Between December 1, 2014, and March 3, 2015 (the date of the last download at RM166), sand storage in east central Grand Canyon (RM87-RM166) increased by 96,000 mt (61,000 to 130,000 mt), and sand storage in west central Grand Canyon (RM166-RM225) increased slightly by 29,000 mt (6,000 to 51,000 mt). The sand budgets for east and west central Grand Canyon will be updated through September 1, 2015, following downloads during the upcoming river trip.

Between December 1, 2014, and July 1, 2015, approximately 410,000 mt of sand (390,000 to 430,000 mt) were transported past Diamond Creek (RM225) into western Grand Canyon and the Lake Mead Delta. In summary, the amount of sand eroded from all segments between Lees Ferry and Diamond Creek in the past 7 months was approximately balanced by the late spring inputs from the Paria River.

These data are available for inspection at
http://www.gcmrc.gov/discharge_qw_sediment/reaches/GCDAMP/.

The fall 2014 HFE resulted in sandbar deposition similar to previous HFEs. Sandbar monitoring sites will be surveyed in late September/early October. Analysis of images from remote cameras showing changes between the fall 2014 HFE and September 2015 will be available by October 16. Photographs and sandbar data are available at http://www.gcmrc.gov/sandbar/.

Rainbow trout densities remain highest in Glen Canyon and the upstream third of Marble Canyon and lowest downstream of the confluence with the Little Colorado River. Abundance of rainbow trout in all these reaches decreased sharply over the last year. Trout densities downstream of the Little Colorado River confluence are now below trigger levels identified in the 2011 USFWS Biological Opinion on nonnative fish control for the first time in two years. Mark-recapture efforts in Glen Canyon before and after the November 2014 HFE indicate that most rainbow trout moved little during that period. On average, marked rainbow trout were recaptured just downstream (0.05 km) of their initial release locations. As observed in 2013 and 2014, evidence of some rainbow trout reproduction was detected in 2015 at sites downstream from Lees Ferry including near Buck Farm (RM 38-41) and the reach just upstream of the Little Colorado River confluence (RM 60-61). Catches of brown trout in the Tapeats Gorge near the confluence of the Little Colorado River remained low, similar to numbers observed in July 2014. Trout removal using elecrofishing occurred in the mainstem Colorado River near the confluence with Bright Angel Creek from February 6-17, 2015. This experimental action is being conducted in collaboration with Grand Canyon National Park, consistent with the NPS Comprehensive Fisheries Management Plan and related compliance documents. The removal effort was re-scheduled to February 2015 to avoid conflicts with the November 2014 High Flow Experiment and associated logistical constraints. As with the previous effort in late 2013, turbid conditions made electrofishing efficacy and capture probability low. Crews removed 391 rainbow trout and 84 brown trout. All harvested fish were cleaned, vacuum sealed in bags, and frozen for human consumption.

Juvenile humpback chub catches in the mainstem near the Little Colorado River in July were similar to those observed in July 2013 and 2014. Population estimates generated by the USFWS for sub-adult (150-199 mm) and adult (> 200 mm) humpback chub in the Little Colorado River were considerably lower than estimates from recent years. Spring humpback chub population estimates in the Little Colorado River were 921 (95% CI, 756 to 1,086) sub-adult fish and 3,078 (95% CI, 2,597 to 3,559 adult fish. It is unknown at this time if this represents a real decline in the abundance of adult humpback chub, or if the low estimates were the result of variability in timing of the spawning run (i.e., humpback chub may have spawned and left the system earlier in the year). Some evidence of an early spawn comes captures of age-0 fish in the Little Colorado River during May (usually not seen until later in the year). Further evidence may come from detections on the remote PIT-tag arrays anchored in the lower Little Colorado River. Data from these arrays will be available by mid-August and presented.

Tribal Liaison Report

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Tribal Liaison Report

Action Requested

Information item only; we will answer questions but no action is requested.

Presenter(s)

Sarah Rinkevich, Glen Canyon Dam Adaptive Management Program Federal Tribal Liaison

Previous Action Taken

N/A

Relevant Science

N/A

Summary of Presentation and Background Information

Deputy Assistant Secretary for Water and Science Lori Caramanian will provide an update on the Tribal Consultation Plan.

The Tribal-Stakeholder river trip was held July 17-27. Attendees included representatives from WAPA, Colorado River Conservation Board, Colorado River Board of California, Arizona Department of Water Resources, Grand Canyon Wildlands Council, Park Service, Fish and Wildlife Service, Reclamation, BCMRC, DOI, Hualapai Tribe, Pueblo of Zuni, Navajo Nation, Southern Paiute Consortium, Hopi Tribe, National Park Conservation Association, Federation of Flyfishers, and Grand Canyon River Guides. Sarah Rinkevich will report on the highlights of the river trip.

Sarah Rinkevich will report on presentations at the Native American Fish and Wildlife Society conference in Reno and other activities from February through August 2015.

LTEMP EIS

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 26-27, 2015

Agenda Item

Long-Term Experimental and Management Plan EIS

Action Requested

- ✓ Information item only; we will answer questions but no action is requested.

Presenters

Kirk LaGory, Senior Program Manager, Ecological Resources and Systems, Argonne National Laboratory
Rob Billerbeck, Environmental Protection Specialist and LTEMP Project Manager, National Park Service
Glen Knowles, Chief, Adaptive Management Group, Environmental Resources Division, Upper Colorado Region, Bureau of Reclamation

---

Previous Action Taken

- ✓ N/A

Relevant Science

- ✓ N/A

Summary of Presentation and Background Information

The Cooperating Agency Draft EIS, Volume 1 was released on June 29, 2015. The Appendices, Volume 2, was released on July 31, 2015. Comments are due September 30, 2015. A Public Draft EIS will be completed by the end of calendar year 2015. The LTEMP Team will provide an update on the latest efforts to develop a consensus preferred alternative.

Miscellaneous

Glen Canyon Dam Adaptive Management Work Group
Committee Membership List
(Updated August 10, 2015)

Secretary's Designee:	**Secretary's Designee's Alternate**:
Jennifer Gimbel Principal Deputy Assistant Secretary Office of the Assistant Secretary for Water and Science 1849 C Street NW Washington, DC 20240 Tel: 202-208-3186 Fax: 202-208-6948 EM: Jennifer_gimbel@ios.doi.gov	Brent Rhees Regional Director Upper Colorado Region 125 S. State Street, Room 8100 Salt Lake City, UT 84138 Tel: 801-524-3600 Fax: 802-524-3855 EM: brhees@usbr.gov

Federal Agencies

Bureau of Reclamation, Upper Colorado Region
Daniel Picard (member)
Deputy Regional Director
125 S. State Street, Room 8100
Salt Lake City, UT 84138
Tel: 801-524-3602 Fax: 801-524-3855
EM: dpicard@usbr.gov

Beverley Heffernan (alternate)
Tel: 801-524-3712 Fax: 801-524-3858
EM: bheffernan@usbr.gov

U.S. Fish and Wildlife Service
Steve Spangle (member)
Field Supervisor
Arizona Ecological Services Office
2321 W. Royal Palm Road
Phoenix, AZ 85021
Office: 602/242-0210, x-244 Fax: 602/242-2513
EM: steve_spangle@fws.gov

Kirk Young (alternate)
Arizona Fish and Wildlife Conservation Office
2500 S. Pine Knoll Drive
Flagstaff, AZ 86001
Tel: 928-556-2124 Fax: 928-556-2125
EM: kirk_young@fws.gov

Bureau of Indian Affairs
Charles "Chip" Lewis (member)
Western Regional Office
2600 North Central Avenue, 4th Floor
Phoenix, AZ 85004-3050
Tel: 602-379-6782 Fax: 602-379-3837
EM: charles.lewis@bia.gov

Garry J. Cantley (alternate)
Tel: 602-379-6750 x1257 Fax: 602-379-3833
EM: garry.cantley@bia.gov

National Park Service
Dave Uberuaga (member)
Superintendent
Grand Canyon National Park
P.O. Box 129
Grand Canyon, AZ 86023
Tel: 928-638-7945 Fax: 928-638-7815
EM: dave_uberuaga@nps.gov

Martha Hahn (alternate)
Tel: 928-638-7759 Fax: 928-638-7815
EM: martha_hahn@nps.gov

Indian Tribes

Hopi Tribe
Leigh J. Kuwanwisiwma (member)
Director, Hopi Cultural Preservation Office
The Hopi Tribe
P.O. Box 123
Kykotsmovi, AZ 86030
Tel: 928-734-3611 Fax: 928-734-3629
EM: lkuwanwisiwma@hopi.nsn.us

Navajo Nation
Proposed to nominate: Ora Marek-Martinez
Tel: Fax:
EM:

VACANT (alternate)

Hopi Tribe
Michael Yeatts (alternate)
Dept. of Anthropology/Hopi Cultural Preservation Office
P.O. Box 15200
Flagstaff, AZ 86011-5200
Tel: 928-523-6573 Fax: 928-523-9135
EM: michael.yeatts@nau.edu

Hualapai Tribe
Loretta Jackson-Kelly (member)
Director/Tribal Historic Preservation Officer (THPO)
Department of Cultural Resources
P.O. Box 310
Peach Springs, AZ 86434
Tel: 928-769-2223 Fax: 928-769-2309
EM: lorjac@frontiernet.net

Kerry Christensen (alternate)
Natural Resources
947 Rodeo Way
Peach Springs, AZ 86434-0300
Tel: 928-769-2255 Fax: 928-769-2309
EM: cuszhman@yahoo.com

Pueblo of Zuni
VACANT (member)

VACANT (alternate)

San Juan Southern Paiute Tribe
(no specific representation)
P.O. Box 2656
Tuba City, AZ 86045

Southern Paiute Consortium
Charley Bulletts (member))
Director, Southern Paiute Consortium
H.C. 65 Box 2
Fredonia, AZ 86022
Tel: 928-643-6278 Fax: 928-643-7260
Cell: 435-689-1557
EM: cbulletts@kaibabpaiute-nsn.gov

Meghann Olson *(alternate)*
Southern Paiute Consortium
H.C. 65 Box 2
Fredonia, AZ 86022
Tel: 928-643-8314 Fax: 928-643-7260
EM: molson@kaibabpaiute-nsn.gov

Seven Basin States

Arizona
Tom Buschatzke (member)
Arizona Dept. of Water Resources
Water Planning Division
3550 N. Central Avenue
Phoenix, AZ 85012
Tel: 602-771-8412 Fax: 602-771-8681
EM: tbuschatzke@azwater.gov

Vineetha Kartha (alternate)
Colorado River Water Management Section
Tel: 602-771-8552 Fax: 602-771-8686
EM: vkartha@azwater.gov

New Mexico
Deborah Dixon (member) *(nomination in process)*
Director, New Mexico Interstate Stream Commission
Bataan Memorial Building
P.O. Box 25102
Santa Fe, NM 87504-5102
Tel: 505-827-6103
EM: deborah.dixon@state.nm.us

Don Ostler (alternate)
Upper Colorado River Commission
355 South 400 East
Salt Lake City, UT 84111-2969
Tel: 801-531-1150 Fax: 531-9705
EM: dostler@ucrcommsion.com

California
Tanya M. Trujillo (member)
Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1068
Tel: 818-500-1625 ext. 308 Fax: 818-543-4685
EM: ttrujillo@crb.ca.gov

Christopher S. Harris (alternate)
Tel: 818-500-1625, ext. 309 Fax: 818-543-4685
EM: csharris@crb.ca.gov

Colorado
John H. McClow (member)
(Colorado Water Conservation Board)
Upper Gunnison River Water Conservancy District
210 West Spencer, Suite B
Gunnison, CO 81230
Tel: 970-641-6065 Fax: 970-641-1162
EM: jmcclow@ugrwcd.org

Edward "Ted" Kowalski (alternate)
Colorado Water Conservation Board
Program Manager, Water Supply Protection Section
Tel: 303-866-3441 x3220 Fax: 303-866-4474
EM: ted.kowalski@state.co.us

Nevada
Jayne Harkins (member)
Colorado River Commission of Nevada
555 E. Washington Avenue, Suite 3100
Las Vegas, NV 89101-1048
Tel: 702-486-2670 Fax: 702-486-2695
EM: jharkins@crc.nv.gov

VACANT (alternate)
Tel: Fax:
EM:

Utah
Eric L. Millis (member)
Director, Division of Water Resources
1594 W. North Temple
Salt Lake City, UT 84114
Tel: 801-538-7230 Fax: 801-538-7279
EM: ericmillis@utah.gov

Robert King (alternate)
Tel: 801-538-7230 Fax: 801-538-7279
EM: robertking@utah.gov

Wyoming
Steven W. Wolff (member)
Colorado River Coordinator, Interstate Streams Division
State Engineer's Office
122 W. 25th Street
Cheyenne, WY 82002-0370
Tel: 307-777-1942 Fax: 307-777-5451
EM: steve.wolff@wyo.gov

Don Ostler (alternate)
Upper Colorado River Commission
355 South 400 East
Salt Lake City, UT 84111-2969
Tel: 801-531-1150 Fax: 531-9705
EM: dostler@ucrcommission.com

Environmental Interests

Grand Canyon Wildlands Council
Larry Stevens (member)
P.O. Box 1315
Flagstaff, AZ 86002
Tel: 928-380-7724
EM: larry@grandcanyonwildlands.org

National Parks Conservation Association
David Nimkin (member)
307 West 200 South, Suite 5000
Salt Lake City, UT 84101
Tel: 801-521-0785 Fax: 801-359-2367
EM: dnimkin@npca.org

Kevin Dahl (alternate)
NPCA, Southwest Region
738 N. 5th Avenue, Suite 222
Tucson, AZ 85705
Tel: 520-624-2014 Cell: 520-603-6430
EM: kdahl@npca.org

Recreational Interests

International Federation of Fly Fishers/Trout Unlimited
John Jordan (member)
Federation of Fly Fishers
4510 E. Joshua Tree Lane
Paradise Valley, AZ 85253
Tel: 602-840-4224
EM: jcjordan1@cox.net

John Hamill (alternate) (nomination in process)
1254 N. Fox Hill Road
Flagstaff, AZ 86004
Tel: 928-606-4234 (cell)
EM: hamilldsrt50@msn.com

Grand Canyon River Guides
Sam Jansen (member)
23 West Cedar Avenue, Apt. 3
Flagstaff, AZ 86001
Tel: 928-699-1752
EM: smdjansen@gmail.com

Jerry Cox (alternate)
3131 E. 5th Avenue
Durango, CO 81301-4311
Tel: 970-247-1270
EM: jerryleecox@durango.net

Federal Power Purchase Contractors

CREDA
Leslie James (member)
10429 S. 51st Street, Suite 230
Phoenix, AZ 85044
Tel: 480-477-8646 Fax: 480-477-8647
EM: creda@creda.cc

Edward A. Gerak (alternate)
Buckeye Water Conservancy and Draining District
3100 N. Summer Street
Buckeye, AZ 85396
Tel: 623-238-1374
EM: edgerak@msn.com

UAMPS
Ted Rampton (member)
155 North 400 West, Suite 480
Salt Lake City, UT 84103
Tel: 801-566-3938 Fax: 801-561-2687
EM: ted@uamps.com

Clifford Barrett (alternate)
845 Lakeview
Stansbury Park, UT 84074-1912
Tel: 435-882-0164
EM: cibarre@q.com

Other Stakeholders

Arizona Game & Fish Department
James deVos (member)
Asst. Director, Wildlife Management Division
5000 W. Carefree Highway
Phoenix, AZ 85086-5000
Tel: 623-236-7302 Fax: 623-236-7366
EM: jdevos@azgfd.gov

Chris Cantrell (alternate)
Tel: 602-942-3000 7259
EM: ccantrell@azgfd.gov

Dept of Energy-Western Area Power Administration
Lynn Jeka (member)
Western Area Power Administration
150 Social Hall Avenue, Suite 300
Salt Lake City, UT 84111
Tel: 801-524-6372 Fax:
EM: jeka@wapa.gov

Brian Sadler (alternate)
Western Area Power Administration
150 Social Hall Avenue, Suite 300
Salt Lake City, UT 84111
Tel: 801-524- 5506 Fax:
EM: sadler@wapa.gov

Glen Canyon Dam Adaptive Management Work Group Membership
(U:\gcamp\AMWG\3_Membership by entity.doc)

Updated: August 10, 2015

Secretary's Designee: Jennifer Gimbel (1/5/15 - present)

	AMWG Member	Appointed	AMWG Alternate	Affiliation
Federal Agencies				
1	Charles "Chip" Lewis	8/6/13	Garry Cantley	Bureau of Indian Affairs
2	Daniel Picard	7/10/15	Beverley Heffernan	Bureau of Reclamation
3	Dave Uberuaga	2/16/12	Martha Hahn	NPS – Grand Canyon National Park
4	Steve Spangle	1/4/13	Kirk Young	U.S. Fish and Wildlife Service
Indian Tribes				
5	Loretta Jackson-Kelly	2/8/02	Kerry Christensen	Hualapai Tribe
6	Leigh J. Kuwanwisiwma	6/27/1997	Mike Yeatts	Hopi Tribe
7	***VACANT***		***VACANT***	Navajo Nation
8	***VACANT***		***VACANT***	Pueblo of Zuni
9	Charley Bulletts	12/4/06	Meghann Olson	Southern Paiute Consortium
Seven Basin States				
10	Tom Buschatzke	11/19/12	Vineetha Kartha	Arizona Department of Water Resources
11	Tanya Trujillo	7/25/14	Christopher Harris	Colorado River Board of California
12	John McClow	12/19/13	Ted Kowalski	Colorado Water Conservation Board
13	Jayne Harkins	12/27/11	***VACANT***	Colorado River Commission of Nevada
14	***VACANT***		Don Ostler	New Mexico Interstate Stream Commission
15	Steve Wolff	2/3/2015	Don Ostler	Wyoming State Engineer's Office
16	Eric Millis	2/3/2015	Robert King	Utah Department of Water Resources
Environmental Groups				
17	Larry Stevens	12/4/06	***VACANT***	Grand Canyon Wildlands Council
18	David Nimkin	12/13/13	Kevin Dahl	National Parks Conservation Association
Recreation Interests				
19	Sam Jansen	8/20/14	Jerry Lee Cox	Grand Canyon River Guides
20	John Jordan	8/20/14	***VACANT***	Federation of Fly Fishers/Trout Unlimited
Federal Power Purchase Contractors				
21	Ted Rampton	6/27/1997	Clifford Barrett	Utah Associated Municipal Power Systems
22	Leslie James	7/30/1998	Ed Gerak	Colorado River Energy Distributor's Association
Other Stakeholders				
23	Lynn Jeka	3/25/13	Brian Sadler	DOE - Western Area Power Administration
24	Jim deVos	4/15/14	Chris Cantrell	Arizona Game and Fish Department
25	***VACANT***			San Juan Southern Paiute Tribe