

Glen Canyon Dam Adaptive Management Work Group
Agenda Item Information
August 29-30, 2012

Agenda Item

Long-Term Experimental Management Plan (LTEMP) Environmental Impact Statement (EIS)

Action Requested

✓ This is an information item.

Presenters

Rob Billerbeck, Environmental Protection Specialist and LTEMP Project Manager, National Park Service (NPS)

Glen Knowles, Chief, Adaptive Management Group, Environmental Resources Division, Upper Colorado Region, Bureau of Reclamation (Reclamation)

Previous Action Taken

✓ Other:

December 2009: Secretary of the Interior Ken Salazar announced that the development of a Long-Term Experimental and Management Plan (LTEMP) for Glen Canyon Dam was needed. The Secretary emphasized the inclusion of stakeholders, particularly those in the Glen Canyon Dam Adaptive Management Program (GDAMP), in the development of the LTEMP.

November 2011: Public scoping meetings were held in Phoenix, Flagstaff, Page, Salt Lake City, Las Vegas, and Denver. A webcast was also held to capture participation from those that could not attend in person.

April 4-5, 2012: A public workshop was held in Flagstaff, AZ to receive feedback on the preliminary alternative concepts.

April 30, 2012: The Secretary of the Interior responded to a recommendation from the AMWG by stating, "With respect to the report of the Socioeconomic Ad Hoc Group, I appreciate the comprehensive nature of the program and plan proposed, and the support of the AMWG for the implementation of these socioeconomic impact assessment studies. I am directing the interagency team for the Department of the Interior to communicate to the AMWG the specific studies and activities that should be prioritized for utilization as part of the ongoing National Environmental Policy Act process to develop a Long Term Experimental and Management Plan (LTEMP) for Glen Canyon Dam. The Technical Work Group can then identify information needs and research priorities not addressed through the LTEMP process so that the [Grand] Canyon Monitoring and Research Center can refine and develop a work plan."

Relevant Science

Science and research completed since the GCDMP was established will be used in the development of the EIS and assessment of impacts.

Background Information

The Department of the Interior (Department), through Reclamation and NPS, is preparing a draft EIS for adoption of the LTEMP for the operation of Glen Canyon Dam. The purpose of the proposed LTEMP is to utilize current, and develop additional, scientific information to better inform Departmental decisions and to operate the dam in such a manner as to improve and protect important downstream resources while maintaining compliance with the GCPA, the Law of the River, and the Endangered Species Act, among others, and to fully evaluate dam operations and identify management actions and experimental options that will provide a framework for adaptively managing Glen Canyon Dam over the next 15 to 20 years, consistent with the GCPA and other provisions of applicable Federal law.

NPS and Reclamation will provide an update on recent activities and meetings to develop the EIS, and will review the current schedule for completion of the EIS.

Per the Secretary's directive noted above under "Previous Action Taken," an interagency team at DOI has been working to identify the specific socioeconomic studies and activities that will be undertaken under LTEMP and will provide an update as part of the presentation.

In response to an invitation from the co-lead agencies, two alternatives have been submitted by AMWG stakeholders from the Colorado River Energy Distributors' Association (CREDA), and from the Basin States. An opportunity will be provided for these stakeholders to give presentations on their alternatives.

United States Department of the Interior



BUREAU OF RECLAMATION
Upper Colorado Regional Office
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Salt Lake City, UT 84138



NATIONAL PARK SERVICE
Intermountain Region Office
12795 Alameda Parkway
Denver, CO 80225

August 15, 2012

VIA ELECTRONIC MAIL ONLY

Shane Capron
Chair, Technical Work Group
Glen Canyon Dam Adaptive Management Work Group

Dear Mr. Capron:

The Glen Canyon Dam Long Term Experimental and Management Plan Environmental Impact Statement (LTEMP EIS) team was directed by the Secretary of the Interior in a memo dated April 30, 2012 to reply to the Socioeconomic Ad Hoc Group (SEAHG) regarding its proposed list of socioeconomic studies (referred to as Table 2) from its February recommendation to the Secretary. The Secretary directed the LTEMP team to review the list and communicate to the Adaptive Management Work Group (AMWG) which of the studies have been prioritized for intended completion as part of the LTEMP EIS.

This list was comprehensive and thoughtful and the LTEMP team found this list very helpful to this EIS project. The LTEMP team thoroughly reviewed the list in consultation with Grand Canyon Monitoring and Research Center (GCMRC) staff as well as experts with the NPS and Reclamation such as Dr. Bruce Peacock and Dr. David Harpman and Argonne National Laboratories modeling and economics staff. Based on this review we are attaching a list on the following pages that identifies which studies we are planning to complete as part of the LTEMP EIS effort and which may remain to be pursued by the AMWG or GCMRC.

Several studies are planned such as an updated recreation analysis to be lead by Dr. David Harpman from Reclamation and a non-use survey for resources and recreation that will be completed as part of the previously planned NPS study under the leadership of Dr. Bruce Peacock, in close cooperation with Reclamation and USGS. Several of the hydroelectric market impact studies that were proposed will be completed by Argonne National Laboratories, with input from cooperating agencies with special expertise such as Western Area Power Administration. There are a few studies that the team envisions a role for in the EIS such as a non-use survey for hydropower that may be best completed through the AMWG with assistance from Western Area Power Administration. There were also a few studies that proposed to evaluate impacts to water delivery, which the LTEMP EIS team does not intend to use in the course of the EIS analysis because the purpose and need of the LTEMP EIS ensure that any action taken by the action agencies is not intended to change annual water deliveries between Lake Powell and Lake Mead. The LTEMP EIS team would like to extend sincere thanks to the SEAHG group for all of its hard work on these issues.

The Technical Work Group had also requested additional information as to the role of the Science Advisors in LTEMP. We have been working on an Information Quality Plan that will ensure that the quality of scientific information used in the EIS conforms to the standards of the scientific and technical community, although that plan is not yet final. Generally speaking, however, environmental impact

statements and records of decision do not require formal peer review, although some products such as models that might be relied on could require such review. As TWG is aware, USGS' Ted Melis is the LTEMP science manager. In this capacity, Ted will be advising the joint leads with regard to which products might require external expert review. That input could come from an independent group with expertise, such as the Science Advisors, or from other experts. At this point, however, the team does not foresee a need for significant involvement by the Science Advisors in the LTEMP.

We are happy to answer any questions regarding the work that is being planned on the LTEMP EIS. Please call us with any questions: Glen Knowles, 801-524-3781 and Rob Billerbeck 303-987-6789.

Sincerely,



Beverley C. Heffernan
Manager
Environmental Resources Division
Upper Colorado Region
Bureau of Reclamation



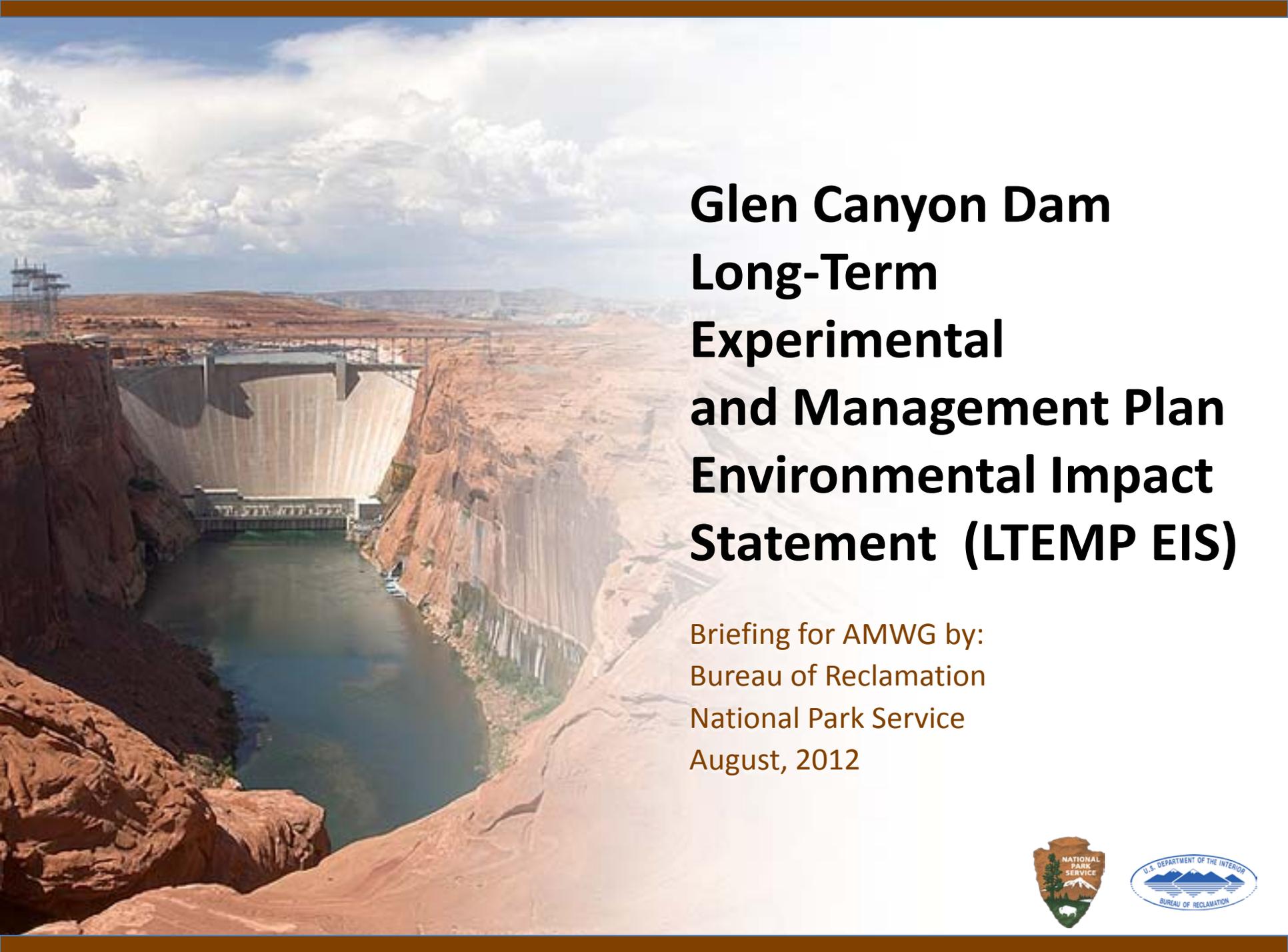
Rob Billerbeck
Colorado River Coordinator
Resource Stewardship and Science
Intermountain Region
National Park Service

cc: Jane Lyder, Department of the Interior
Lori Caramanian, Department of the Interior
Bob Snow, Department of the Interior
Rodney Smith, Department of the Interior
Justin Tade, Department of the Interior
Larry Walkoviak, Bureau of Reclamation
David Harpman, Bureau of Reclamation
John Wessels, National Park Service
Dave Uberuaga, National Park Service
Bruce Peacock, National Park Service

Information Needs	Draft Comment for Response to AMWG
<p>CRIN 1. What are the market, non-market and non-use values for CRE resources valued by tribes as affected by dam operations?</p>	<p>The LTEMP EIS team is planning to conduct meetings with the seven tribal cooperating agency representatives and invite conversations with other interested tribes. Through these meetings we will discuss whether the proposed recreation, non-use and hydropower impact studies detailed below will address socioeconomic concerns or whether there are quantitative or qualitative approaches beyond these that need to be pursued. The NPS socioeconomic study will address non-use values for the overall population and is targeted for completion between spring 2013 and fall 2013.</p>
<p>GIN 1. What are merits of market, non-market, non-use and existence values being proposed for development, i.e., reliability of information gained, costs, area of proposed use in program..</p>	<p>A discussion of the reliability of non-use studies will be part of the NPS study.</p>
<p>GIN 2. Define how socioeconomic research information should be used by AMP</p>	<p>The LTEMP EIS team will explain through updates/ presentations, as requested, how socioeconomic research is being addressed in the EIS.</p>
<p>GIN 3. Determine methods to assist more real time assessments of resource impacts of alternative management activities.</p>	<p>The LTEMP EIS team has the understanding that this could not be addressed until after the rest of the socioeconomic studies were complete, so the expectation is that this would be more useful after the LTEMP EIS, than during the timeline of the LTEMP EIS. In the EIS analysis its likely we will update existing models and that work could inform better assessments of real time assessments.</p>
<p>GIN 4. Evaluate, as needed, market, non- market, and non-use values for other resources also found to have impacts from dam operations and deemed important to the AMP</p>	<p>The LTEMP socioeconomic analyses and impact analyses are expected to cover all major potential impacts.</p>
<p>HIN 1. What are the impacts to federal hydropower customers from implementation of Record of Decision (ROD) dam operations and various other flow regimes and segregate those effects from other causes such as changes in the power market.</p>	<p>The MLFF and baseline will be performed as part of the LTEMP EIS analyses and it is expected that Argonne will be the primary entity conducting modeling. Comparisons of MLFF operations to pre-ROD are being discussed in relationship to which type of model will be used to estimate revenue and ratepayer impacts to hydropower. These discussions are targeted for a decision in August 2012.</p>
<p>HIN 2. What would be the market impacts on marketable capacity and energy of: 1. Increasing the daily fluctuation limit Increasing up-ramp and down-ramp limits 2. · Raising maximum power plant flow limit above 25,000 cfs · 3. Lowering the minimum flow limit below 5,000 cfs</p>	<p>As part of the LTEMP EIS, Argonne will be conducting analysis of market impacts to some aspects mentioned here if they are part of LTEMP draft alternatives agreed upon in August. Some aspects may not be covered depending on how the draft alternatives are resolved in August of 2012.</p>

Information Needs	Draft Comment for Response to AMWG
<p>HIN 3. What are the total market, non- market and non-use impacts on upper and lower basin water users from proposed alternative dam operations?</p>	<p>The LTEMP EIS alternatives will not impact or modify annual water delivery by design and by description of Purpose & Need. Therefore no analysis of annual changes to water delivery is appropriate or necessary. Any impacts to water delivery will be limited to intra-year variations and modifications. Effects from monthly changes to water volumes on recreation and hydropower will be evaluated in those categories.</p>
<p>HIN 4. What are the socioeconomic impacts of Glen Canyon Dam operations and experiments to tribal communities, including market, non-market and non- use?</p>	<p>The LTEMP EIS team is planning to conduct meetings with the seven tribal cooperating agency representatives and invite conversations with other interested tribes. Through these meetings we will discuss whether the proposed recreation, non-use and hydropower impact studies detailed below will address socioeconomic concerns or whether there are quantitative or qualitative approaches beyond these that need to be pursued. The NPS socioeconomic study will address non-use values for the overall population and is targeted for completion between spring 2013 and fall 2013.</p>
<p>HIN 5. What are the market, non-market and non-use values associated with Glen Canyon electrical power, and determine these values.</p>	<p>The LTEMP EIS will thoroughly evaluate market and non-market hydroelectric impacts, but it is anticipated that the non-use study for hydropower would not be performed through the LTEMP EIS process, but it is our understanding that Western Area Power Administration is proposing to pursue this independently. To be considered in the LTEMP EIS, involvement with LTEMP EIS experts on the design will be necessary for validity and consistency with other studies.</p>
<p>HIN 6. What are the market, non-market and non-use values associated with water released through Glen Canyon Dam, and determine these values.</p>	<p>The LTEMP EIS alternatives will not impact or modify annual water delivery by design and by description of Purpose & Need. Therefore no analysis of annual changes to water delivery is appropriate or necessary. Any impacts to water delivery will be limited to intra-year variations and modifications. Effects from monthly changes to water volumes on recreation and hydropower will be evaluated in those categories.</p>
<p>RIN 1. What are the total market, non-market, and non-use values for the following recreational uses of the Colorado River Ecosystem downstream from Glen Canyon Dam, including pre-ROD and post-ROD demand and economic assessments: 1) Glen Canyon boating and walk-in trout fishery and related components 2) Glen Canyon recreational boating industry 3) CRE day hiking and overnight camping 4) Grand Canyon private and commercial rafting operations including Native American enterprises</p>	<p>The NPS study will conduct a new survey for non-use values. For market and non-market recreational values, there are discussions about resurveying some of the recreational information but for most of it update existing information on recreation uses and regional economic impacts based on current numbers of users. The baseline to which the LTEMP EIS alternatives will be compared would be the MLFF no-action baseline. The NPS socioeconomic study is targeted for completion between spring 2013 and fall 2013.</p>

Information Needs	Draft Comment for Response to AMWG
<p>RIN 2. Define and value key attributes and key benefits that affect the Grand Canyon wilderness and Glen Canyon recreation experiences: 1) How do they affect market values for these different CRE recreation activities? 2) How do they affect non-market and non-use values for these different CRE recreation activities? 3) How do they differ under differing flow regimes and events such as HFEs, Low Steady Flows and other experiments? 4) How do they differ under differing management actions?</p>	<p>The NPS study will address portions of this, but some aspects are beyond the scope of the analyses required for the LTEMP EIS.</p>
<p>Develop Core Monitoring Information Needs (CMINs) - Develop a Core Monitoring plan - every 2 years for socioeconomic</p>	<p>The LTEMP EIS will inform the GCMRC and the AMP of future monitoring needs.</p>
<p>RIN=Recreation Info Needs, HIN=Hydropower Info Needs, GIN=General Info Needs, CRIN=Cultural Resources/Tribal Info Needs</p>	



Glen Canyon Dam Long-Term Experimental and Management Plan Environmental Impact Statement (LTEMP EIS)

Briefing for AMWG by:
Bureau of Reclamation
National Park Service
August, 2012





Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



Glen Canyon Dam LTEMP Environmental Impact Statement Overview

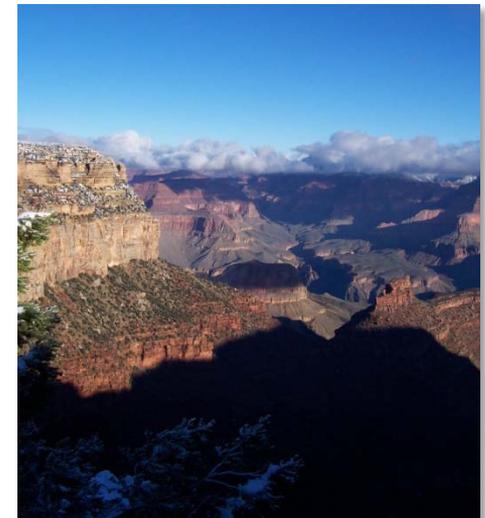
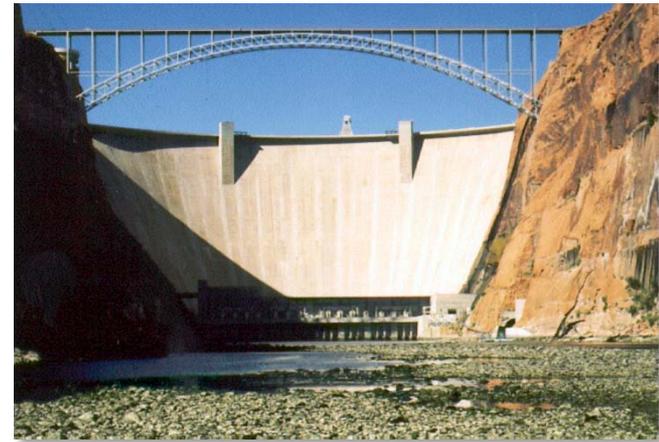
Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



Joint Lead Process

- Bureau of Reclamation operates Glen Canyon Dam
- National Park Service manages Grand Canyon National Park and Glen Canyon and Lake Mead National Recreation Areas
- Argonne National Laboratory staff will prepare EIS



Cooperating Agencies

- Arizona Game and Fish Department
- Bureau of Indian Affairs
- Colorado River Commission of Nevada
- The Hopi Tribe
- The Hualapai Tribe
- The Havasupai Tribe
- Kaibab Band of Paiute Indians
- The Navajo Nation
- The Pueblo of Zuni
- Salt River Project
- U.S. Fish and Wildlife Service
- Upper Colorado River Commission
- Utah Associated Municipal Power Systems
- Western Area Power Administration
- Yavapai-Apache Nation

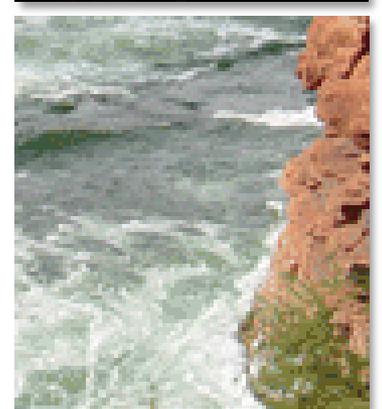
Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



Why a New Plan?

- To utilize the past 15 years of scientific information gathered since the last EIS on Glen Canyon Dam operations
- To comply with ongoing requirements and to protect natural and cultural resources in compliance with applicable federal law including particularly the Grand Canyon Protection Act



Glen Canyon Dam

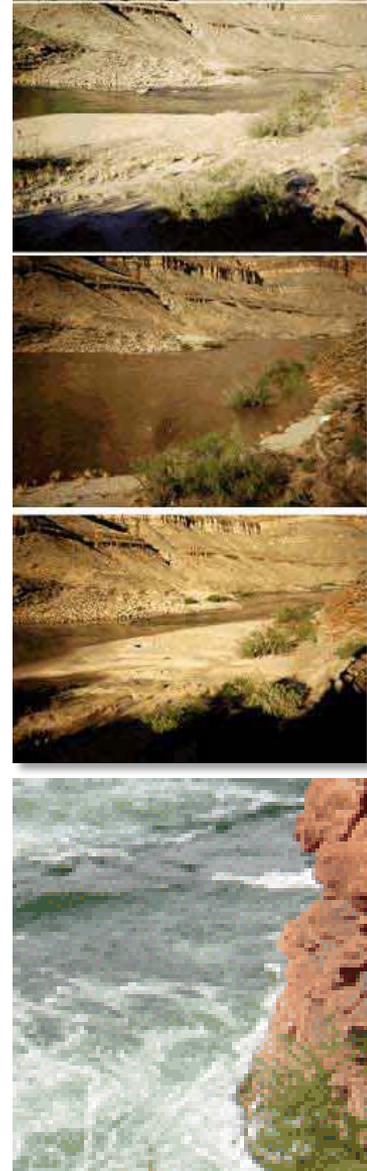
Long-Term Experimental and Management Plan EIS



Purpose

To identify dam operations, management actions, and experimental options that will provide a framework for adaptively managing Glen Canyon Dam over the next 15 to 20 years consistent with the Grand Canyon Protection Act (GCPA) and other provisions of applicable federal law.

The proposed action is to develop a plan that will determine specific options for dam operations, non-flow actions, and appropriate experimental and management actions that will meet the GCPA's requirements and minimize impacts to resources, including those of importance to Indian Tribes.



Need

The proposed action is needed to incorporate scientific information developed since the 1996 Record of Decision to better inform Department of the Interior decisions on dam operations and other management and experimental actions so that the Secretary continues to meet statutory responsibilities for protecting and improving Glen Canyon National Recreation Area and Grand Canyon National Park resources and values for future generations, conserving ESA-listed and other native species, respecting Indian Tribal interests, meeting water delivery obligations, and generating hydroelectric power.

Sideboards

Will the removal of Glen Canyon Dam be considered as an LTEMP alternative?

No, dam removal will not be considered because it does not fit the purpose and need of the LTEMP and would be beyond the scope of the EIS.

Will the LTEMP EIS consider effects on water availability for communities or agriculture or on water levels in Lake Powell or Lake Mead?

The LTEMP will not affect the annual amount of water that moves between Lake Powell and Lake Mead, as that is determined by the "Law of the River" and the 2007 "Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead." The same amount of water will still be available annually for communities and agriculture. However, potential changes to the timing of the water flow between Lake Powell and Lake Mead may be considered. Nothing in this process will affect water allocation among the basin states or the Secretary of Interior's responsibility for water deliveries.

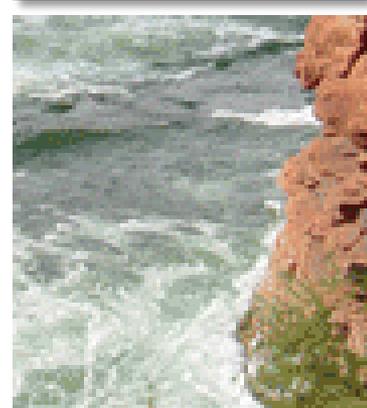
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Long-Term Experimental and Management Plan EIS



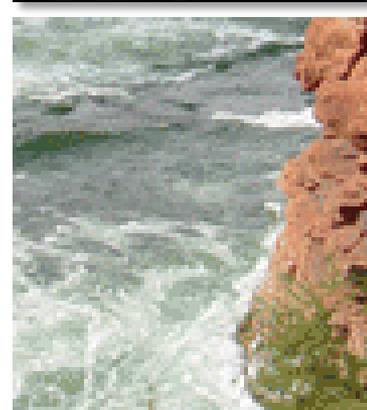
Recent Activities

- July, 2011 - announced intent to prepare LTEMP EIS
- November, 2011 – January 2012: public scoping period including meetings held in:
 - Phoenix, Flagstaff, Page, Salt Lake, Las Vegas, Denver, Webcast
- November, 2011 – letters initiating tribal consultation
- March 27, 2012 – public web presentation of scoping report
- April 4-5, 2012 - public meeting in Flagstaff to discuss preliminary alternative concepts
- April-June 2012: draft tribal consultation plan shared for tribal review and comment
- June 7, 2012: Latest draft alternatives shared with cooperating agencies.
- June 8, 2012 - Webinar briefing for cooperating agencies on June 8.



Recent Activities

- June 27 – Teleconference with cooperating agencies regarding alternative comments
- July 2 – Alternative submission date
- July 11-13 – Additional alternatives workshop using structured decision making in Flagstaff focused on scientific uncertainties and condition-dependent alternative
- July 18 – Teleconference with cooperating agencies
- August 10: Face to face meeting with tribes
- August 10: Face to face meeting with cooperating agencies
- August 13: Alternatives submitted to GCMRC for review.
- August 27: Webinar briefing for GCMRC related to comments on the alternatives.



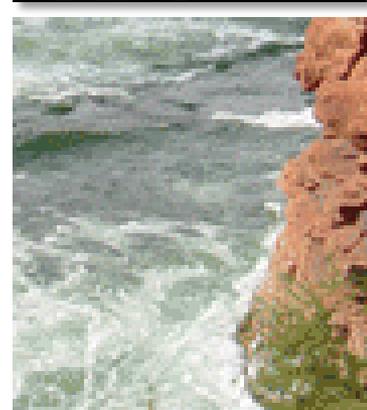
Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



Recent Activities

- Tribal Consultation Plan finalized
- Public Involvement Plan finalized
- Tribal Perspectives sections distributed to tribes for comment
- Several meetings with tribes



Socioeconomics studies for LTEMP

- Recreational impact study – Dr. David Harpman, Reclamation
 - Will consider impacts to:
 - River rafting
 - Rainbow trout fishery
 - Boating on Lake Mead and Lake Powell
 - Will consider past studies and recent visitation statistics
- Passive Use/Existence Value Survey – Dr. Bruce Peacock, NPS
 - OMB Review
 - Survey of public via phone and/or mail

Socioeconomics studies for LTEMP

- Hydroelectric Impact Study
 - Will consider financial impacts and impacts to ratepayers
 - Discussions regarding modeling
- Additional Studies Proposed by Western Area Power Admin
 - Literature review for:
 - Passive use/existence values for hydroelectric power
 - Water impacts



Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



Alternative Concepts

Alternatives

- Alternatives are different ways to solve the problems identified in the purpose and need
- A “No Action” alternative must always be included and the benefits or impacts of other alternatives will be compared to the “No Action” alternative
- Draft alternatives for LTEMP EIS were shared with cooperating agencies on June 7 and discussed on June 8 in a webcast/conference call. Shared again on August 8 and discussed at a face-to-face meeting with tribes and cooperating agencies on August 10

Draft Alternatives under development (*not listed in order of priority*)

- No action
- Condition-dependent adaptive strategy
- Naturally patterned flows
- Seasonal fluctuations with summer steady flows
- Seasonally adjusted steady flows
- Seasonally increased fluctuating flows
- Seasonally increased fluctuations with low-fluctuating summer flows
- Year-round steady flows

Alternative Concepts Submitted in July

- “Resource Targeted Condition-Dependent Strategy” (submitted by the Colorado River Basin States representatives)
- “Balanced Resource Alternative” (submitted by the Colorado River Energy Distributors Association)

Alternatives Must Be Reasonable

- Must meet purpose and need
- Must be technically feasible
- Must be economically feasible
- Must display common sense
- Not necessarily the cheapest or easiest solution



Glen Canyon Dam

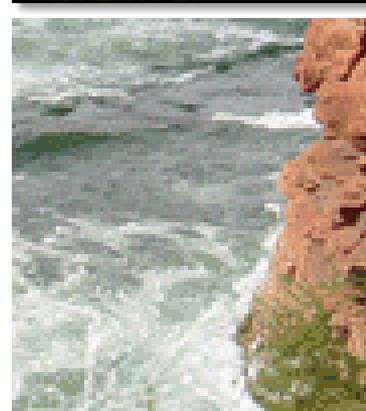
Long-Term Experimental and Management Plan EIS



Next Steps

Upcoming Near-Term Activities

- Development of alternatives with cooperating agencies (including participating tribes) continues over the next 2 months
- Continued meetings with tribes regarding alternatives and Tribal Perspectives section of the EIS
- Monthly conference calls with cooperating agencies continue, but now alternating with face to face meetings.
- Public presentation of alternatives



LTEMP Website

For more information, visit the project website:

<http://ltempeis.anl.gov>

Anyone may sign up for the mailing list

Joint lead project managers:

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