A wide-angle photograph of the Glen Canyon Dam, a massive concrete structure spanning a deep, narrow canyon. The canyon walls are composed of reddish-brown sandstone. The Colorado River flows through the dam's spillways. In the background, there are more canyons and a power transmission tower under a cloudy sky.

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

Presented by:

Beverley Heffernan, Bureau of Reclamation

Rob Billerbeck, National Park Service



Purpose of This Presentation

- Provide background information on the LTEMP EIS
- Describe activities that have already occurred
- Provide a preliminary synopsis of scoping comments received
- Describe the agencies' plans for production of the LTEMP EIS

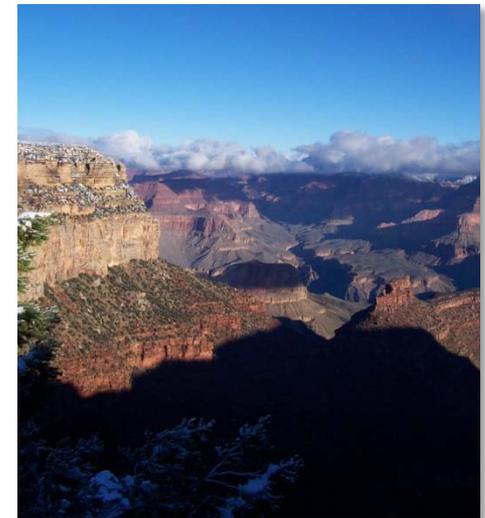
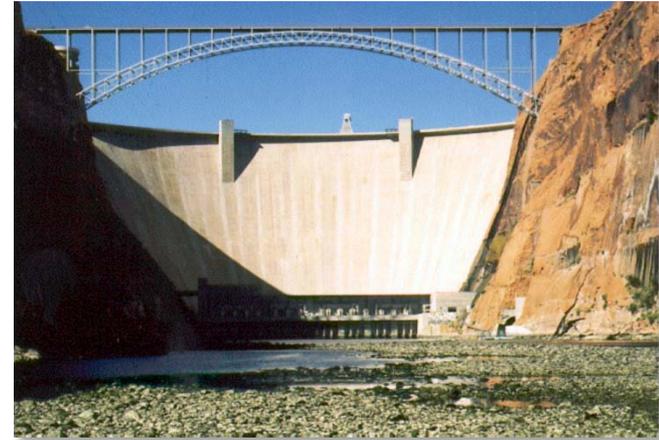
Glen Canyon Dam

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



Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



Cooperating Agencies

- Arizona Game and Fish Department
- Bureau of Indian Affairs
- Colorado River Commission of Nevada
- The Hopi Tribe
- The Hualapai 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

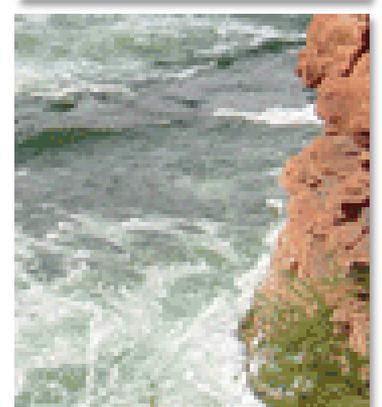
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Long-Term Experimental and Management Plan EIS



Why a New Plan?

- To utilize the past 15 years of scientific information gathered on Glen Canyon Dam operations
- To comply with ongoing requirements and to protect natural and cultural resources in compliance with the Grand Canyon Protection Act



Grand Canyon Protection Act (1992)

- Requires the operation of Glen Canyon Dam in a manner to:
 - Protect, mitigate adverse impacts to, and improve the values for which the Grand Canyon National Park and Glen Canyon National Recreation Area were established including natural and cultural resources and visitor use
 - Comply with water delivery laws and requirements
- Requires long-term scientific monitoring and research



Purpose and Need from NOI

- Purpose: “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 Grand Canyon Protection Act (GCPA) and other provisions of applicable Federal law.”
- Need: “The need for the proposed action stems from the need to utilize scientific information developed over the past 15 years to better inform Departmental decisions on dam operations and other management and experimental actions. . .”

Alternatives

- Specific alternatives for the LTEMP EIS have not yet been developed
- 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



Glen Canyon Dam

Long-Term Experimental and Management Plan EIS

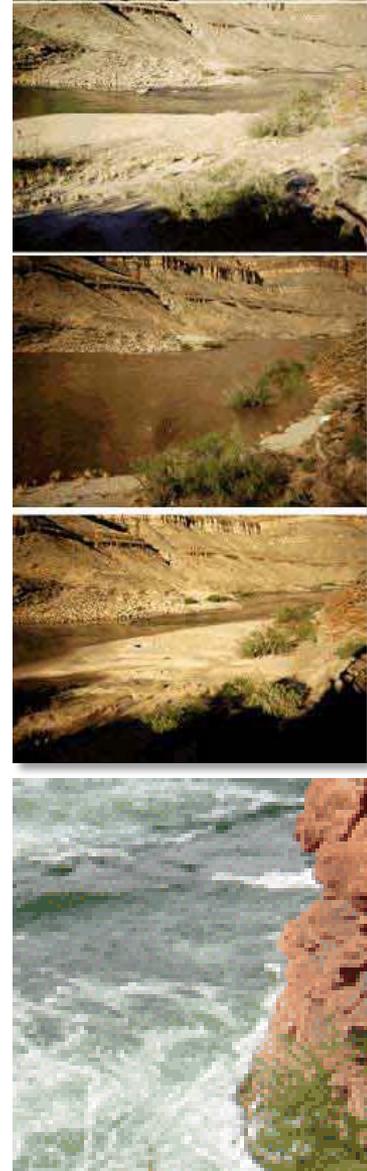


Alternatives Must Be Reasonable

- Technically feasible
- Economically feasible
- Display common sense
- Meet the objectives of taking action
- Not necessarily the cheapest or easiest solution

Recent Activities

- July 6 NOI announced intent to prepare LTEMP EIS
- Developed LTEMP Website: ltempis.anl.gov
- Public scoping meetings held in November:
 - Phoenix, Flagstaff, Page, Salt Lake, Las Vegas, Denver, Webcast
- Public scoping closed January 31
- Internal scoping meetings held in January and February





Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



Scoping Summary

- 221 attendees total; 12 for Web-based meeting
- 447 correspondences
- Commenters from 39 states, several from Canada, one from Spain

Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



Organizations Commenting

- American Whitewater
- Arizona Department of Water Resources
- Arizona Power Authority
- Arizona Raft Adventures
- The State of Arizona Game and Fish Department
- Arizona State Council of Trout Unlimited
- Colorado River Basin State Representatives of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming
- Colorado River Energy Distributors Association
- Environmental Defense Fund
- Farmington River Club
- Federation of Fly Fishers
- Glen Canyon Institute
- Grand Canyon Private Boaters Association
- Grand Canyon River Guides, Inc.
- Grand Canyon River Runners Association
- Grand Canyon Trust
- Grand Canyon Whitewater
- Grand Canyon Wildlands Council, Inc.
- Irrigation and Electrical Districts Association of Arizona
- Living Rivers
- Marble Canyon Business Interests
- Salt River Project Agricultural Improvement & Power District (SRP)
- San Pedro Flycasters
- Sun City Grand Fly Fishing Club
- U.S. Fish and Wildlife Service
- Utah Associated Municipal Power Systems
- Western Area Power Administration
- Western Resource Advocates
- White Mountain Fly Fishing Club

Resources of Concern Identified in Scoping

- Sediment
- Camping beaches
- Rafting
- Trout
- Humpback chub
- Other native species
- Aquatic food base
- Extirpated species
- Non-native species
- Riparian vegetation
- Cultural resources
- Tribal resources and concerns
- Recreational economics
- Non-use values
- Secondary impacts on air quality
- Climate change effects on operations
- Hydropower (pros and cons)
- Wilderness
- Water quality and temperature
- Human health
- Safety
- Visual

Alternatives Suggested in Scoping

- Grand Canyon First!
- Fill Lake Mead First
- Run of the River (re-engineer the dam)
- Frequent high flow release separated by steady flows
- Steady flows with sediment-triggered high flows
- Year-round steady flows
- Pre-96 ROD operations
- Full-powerplant capacity
- Modified low fluctuating flows
- 12-Year experiment of two steady flow alternatives (SASF, YRSF, separated by MLFF)
- Species community and habitat-based alternative
- Stewardship alternative (protect resources with no consideration of hydropower effects)

Suggested Alternative Considerations from Scoping

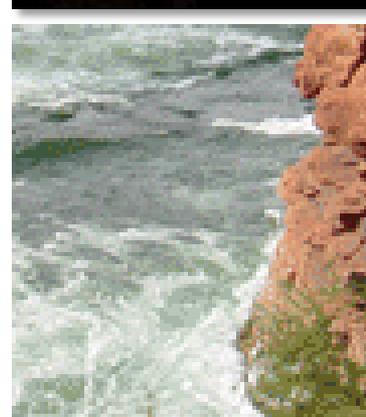
- Sediment augmentation
- Temperature control device
- Modification of monthly and annual flows
- No mechanical removal of trout
- Mechanical removal of brown trout only
- Trout control to improve fishery and benefit humpback chub population
- Continuation of research and experimentation
- Equalization flow release over several years rather than a single year
- Equalization flow release patterns that minimize impacts and provide benefits
- High flow releases in rapid response to sediment inputs
- More natural flow regime that mimics pre-dam conditions
- High flow releases that are greater than 45K cfs

Suggested Alternative Considerations (Cont.)

- Restoration of extirpated and other native species to canyon
- Adjusted ramping rates
- Reduced fluctuations
- Greater fluctuations to dry trout redds in spring
- Minimum flows of 8,000 cfs
- More relocation of humpback chub to tributaries
- Restriction of camping on certain beaches with alternative camp shelving instead
- Use Paria River check dams to increase turbidity in river
- Provide bubblers in forebay to breakdown thermocline and increase release temperature

Upcoming Near-Term Activities

- Cooperating agency meeting (February 24)
- Complete and post scoping report (mid March)
- Present scoping results to public in Webcast (end of March)
- Alternative development meetings (mid March)
- Alternative input session with AMWG (April 4 and 5)
- Finalize alternatives (end of April)
- Newsletter/Website rollout of alternatives to public





Glen Canyon Dam

Long-Term Experimental and Management Plan EIS



LTEMP EIS Schedule Milestones

- Complete preliminary DEIS August 2012
- Cooperating agency meeting to review preliminary DEIS September 2012
- Complete DEIS November 2012
- Publish DEIS December 31, 2012