Glen Canyon Dam

Long-Term Experimental and Management Plan EIS

Public Scoping Meeting

WELCOME

Welcome to the Public Scoping Meetings for the Glen Canyon Dam Long-Term Experimental and Management Plan Environmental Impact Statement!

The Bureau of Reclamation and National Park Service request your input on the scope of the LTEMP EIS.

Please sign in at the registration desk, pick up handouts, and use one of our options for providing comments here. You can also browse the project Website (http://ltempeis.anl.gov) and provide comments online at one of the computer stations.

Public Scoping Meeting Agenda

6 pm to 8 pm

- Open house
- Presentation
- Questions and Answers
- Open House

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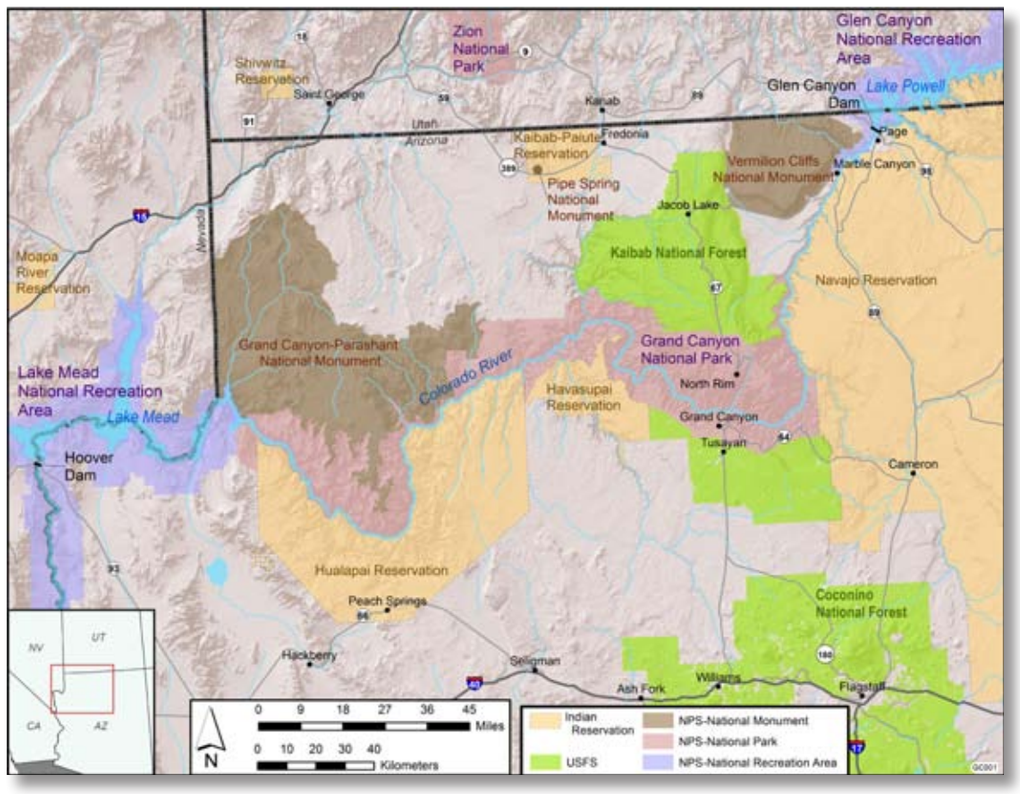
PROJECT AREA

The project area consists of the Colorado River and adjacent lands that could be affected by operations of Glen Canyon Dam including portions of Glen Canyon National Recreation Area, Grand Canyon National Park, and Lake Mead National Recreation Area, and areas of importance to American Indian tribes.



Glen Canyon Dam

- Dam closure in 1963 for the primary purposes of water storage and flood control.
- Produces hydroelectric power.

Glen Canyon National Recreation Area

- Encompasses more than 1.2 million acres of land in northern Arizona and southern Utah.
- Includes Lake Powell and a 15 mile stretch of the Colorado River within Glen Canyon downstream of Glen Canyon Dam.

Grand Canyon National Park

- Encompasses 1.2 million acres in northern Arizona.
- The Colorado River flows through the park for about 277 miles from Lees Ferry to Pearce Ferry.

Lake Mead National Recreation Area

- From the western end of the Grand Canyon, the recreation area follows the Arizona-Nevada border along what was formerly 140 miles of the Colorado River.
- Lake Mead was formed by Hoover Dam, and Lake Mohave was formed by Davis Dam. Both lakes are within the recreation area.

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PURPOSE, NEED, AND OBJECTIVES

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. The proposed action will help determine specific alternatives that could be implemented to meet the GCPA's requirements and to minimize, consistent with law, adverse impacts on the downstream natural, recreational, and cultural resources in the park units, including resources of importance to American Indian Tribes.

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 so that the Secretary may continue to meet statutory responsibilities for protecting downstream resources for future generations, conserving Endangered Species Act-listed species, and protecting Native American interests, while meeting water delivery obligations and for the generation of hydroelectric power.

Objectives:

- Operate Glen Canyon Dam in such a manner as to improve and protect downstream resources in Glen Canyon National Recreation Area and Grand Canyon National Park.
- Make use of the latest science considering all relevant studies, especially those conducted since 1996.
- Adhere to the "Law of the River" and ensure water delivery to the communities and agriculture that depend on its water.
- Respect the interests of the tribal nations.
- Ensure Glen Canyon Dam operations are consistent with the Grand Canyon Protection Act, Endangered Species Act, National Historic Protection Act, and other relevant laws.
- Consider potential future modifications to Glen Canyon Dam operations and other flow and non-flow actions to protect and manage downstream resources.
- Determine whether to establish a Recovery Implementation Program for endangered fish species below Glen Canyon Dam.

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IMPORTANT MILESTONES

- An EIS on Glen Canyon Dam Operations was completed in 1995 to comply with the Grand Canyon Protection Act of 1992.
- The Modified Low Fluctuating Flow Alternative was selected in the 1996 Record of Decision (ROD).
- The ROD established the Glen Canyon Dam Adaptive Management Program (GCDAMP) to provide for cooperative integration of dam operations, downstream resource protection and management, and monitoring and research information.
- The GCDAMP includes the Glen Canyon Dam Adaptive Management Work Group, a technical work group, the U.S. Geological Survey's Grand Canyon Monitoring and Research Center, and independent scientific review panels.
- A Long-Term Experimental Plan (LTEP) EIS for Glen Canyon Dam was partially developed in 2006 and 2007, but was put on hold in 2008.
- The LTEMP now takes the place of the LTEP. It will include experimental and non-experimental management actions and dam operations, and will be coordinated with the existing GCDAMP.

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SCHEDULE

Reclamation and the National Park Service anticipate that the LTEMP EIS will be completed by fall of 2013.

Public Scoping	Draft EIS	Final EIS	Record of Decision
What Happens: Gather Public Comments on Scope Use Public Comments in Determining Issues and Alternatives	***What Happens:*** Publish Draft EIS Public Review and Comment Period Accept Public Comments	***What Happens:*** Review and Incorporate Public Comments Revise Draft EIS Publish Final EIS	***What Happens:*** Write and Publish ROD
November and December 2011	Publish Draft EIS December 2012	Publish Final EIS Fall 2013	Publish ROD Winter 2013
Public Involvement Activities: Public Scoping Meetings Submit Public Comments via Web, Mail, or in Person at Meetings	***Public Involvement Activities:*** Public Meetings Submit Public Comments via Web, Mail, or in Person at Meetings	***Public Involvement Activities:*** Public Distribution of Final EIS	***Public Involvement Activities:*** Public Distribution of ROD

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GETTING INVOLVED

You can provide comments on the scope of the EIS, comment on the Draft EIS when it is published, attend public meetings, and read the Final EIS and related documents.

Reclamation and the National Park Service request your input on the scope of the LTEMP EIS.

- Public scoping is a phase of the National Environmental Policy Act analysis process, and is intended to give the public the chance to comment on the LTEMP, recommend alternatives, and identify and prioritize the resources and issues to be considered in the EIS analyses.

We are particularly interested in your input on:

- The resources or issues to be evaluated in the LTEMP EIS
- The alternatives to be included in the LTEMP EIS
- Concerns or observations regarding Glen Canyon Dam operations and downstream resources.

Scoping is the earliest, but not the last, opportunity for people to provide input on the LTEMP EIS.

- Public availability of the Draft EIS will be announced in the Federal Register, in the local news media, through direct contact with interested parties, and on the project Website.
- You will be invited to participate in public meetings and provide comments on the Draft EIS when it is published.
- Periodic updates and new information will be provided on the project Website (http://ltempeis.anl.gov) throughout the project.

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OPERATIONS & HYDROELECTRIC PRODUCTION

Hydroelectric power production from the Glen Canyon Dam is a critical component of the Colorado River Storage Project and may be affected by LTEMP actions. Changes to flow regimes may have beneficial or adverse effects on hydroelectric production.

Glen Canyon Dam and the Colorado River Storage Project (CRSP)

- The CRSP was established to regulate the flow of the Colorado River, store water for beneficial use, provide for irrigation of arid and semiarid lands, provide flood control and recreation, and generate hydropower.
- Lake Powell provides more storage capacity than all other storage features of the CRSP combined.
- Glen Canyon Dam delivers water from the Upper Colorado River Basin to the Lower Basin according to the “Law of the River,” which is a collection of legal agreements, federal laws, court decisions and decrees, contracts, and regulatory guidelines used to allocate water rights and uses among the basin states.

Glen Canyon Dam and Hydropower

- Dams convert energy from falling water into electricity. Hydropower is a clean, renewable and reliable energy source.
- Glen Canyon Dam is an important source of electricity for the region and has the capacity to generate enough electricity to serve 1.3 million residential customers. On an average annual basis, it generates enough energy to supply 425,000 households with electricity.
- Power generated at Glen Canyon Dam is sold to customers in the states of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming.

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SEDIMENT RESOURCES

Fine sediment in Glen and Grand Canyons is considered a vital component of the canyon ecosystem and may be affected by LTEMP actions. Changes to flow regime may have beneficial or adverse effects on sediment deposition.

Why Are Sediment Resources Important to the Grand Canyon Ecosystem?

- Ecological resources of the Colorado River are adapted to and depend on a sediment-rich environment.
- River users need numerous and well-distributed sand bars of sufficient size for camping.
- Erosion at some archaeological sites along the river may be related to a decrease in sediment.

How Does Glen Canyon Dam Affect Sediment Resources?

- Essentially all of the sediment that flows into Lake Powell is trapped in the reservoir rather than being transported into the Grand Canyon.
- Clear, sediment-free water is released from the dam and the only fine sediment in the river downstream of the dam comes from tributaries of the Colorado River.
- Dam operations affect the amount of fine sediment that is deposited within the Grand Canyon or transported into Lake Mead.

What Experiments or Studies Have Been Conducted?

- Glen Canyon Dam release fluctuations have been studied to determine if modifications to them could slow sand bar erosion and transport of sediment out of the Grand Canyon into Lake Mead, while minimizing impacts to power generation.
- Artificial floods have been used to redeposit sediment at higher elevations along the river banks.
- The feasibility of sediment augmentation using sand from various sources to increase the amount of fine sediment downstream of Glen Canyon Dam has been studied.

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AMERICAN INDIAN TRIBES & TRIBAL RESOURCES

Areas and resources important to American Indian Tribes could be affected by LTEMP actions.

- The Colorado River and river corridor has been used by humans for at least 12,000 years. Today, at least 11 contemporary American Indian tribes have traditional cultural ties to this area including: Havasupai Tribe, Hopi Tribe, Hualapai Tribe, Kaibab Band of Paiute Indians, Las Vegas Band of Paiute Indians, Moapa Band of Paiute Indians, Navajo Nation, Paiute Indian Tribe of Utah, San Juan Southern Paiute Tribe, Yavapai-Apache Nation, and The Pueblo of Zuni.
- The Colorado River corridor through Glen and Grand Canyons includes portions of the Hualapai and Navajo Reservations.
- Tribal resources of the canyon include traditional cultural properties, archaeological sites, tribal origin locations, historic sites, landforms and geologic features, ceremonial sites, springs, and resource collection areas.
- Tribal concerns may also include recreational activities, nonnative fish concerns, water rights, and commercial operations.

Involvement in the Process

- Tribes are being formally invited to participate and will be involved as sovereign nations collaborating directly with the Department of Interior, Reclamation, and the National Park Service to determine their desired nature and level of involvement. Several American Indian tribes have indicated their interest in being cooperators in this NEPA process.

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HISTORIC PROPERTIES

Historic properties have the potential to be affected by LTEMP actions. Sediment deposition can cover sites and sediment erosion can expose sites.

Archaeological Sites

- Make up the largest number of historic properties in the canyon and include dwellings, agricultural fields, roasting pits, trails, and other evidence from past peoples in Glen and Grand Canyons.
- Are generally related to the ancestors of the American Indian tribes that have traditional cultural ties to the area around the Grand Canyon.

Historic Sites

- Are related to the activities of miners, scientists, the federal government, and recreationists. These include such things as mines, houses, inscriptions, and boats.

Traditional Cultural Properties

- Are places of importance to tribes that serve a role in maintaining cultural continuity.
- Includes the Colorado River corridor and related natural and cultural resources.

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TERRESTRIAL ECOLOGY

Terrestrial resources that could be affected by LTEMP actions include riparian vegetation, desert scrub communities, several threatened and endangered species, and other wildlife. Dam operations affect water flow patterns, sediment erosion, sediment accumulation, soil moisture levels, and natural disturbance processes, which in turn affect terrestrial resources.

Riparian Vegetation

- Areas nearest the river have higher soil moisture levels and support dense “riparian” vegetation of small trees and shrubs. Creation of Glen Canyon Dam resulted in an increase in the amount of riparian vegetation along the river.
- Riparian areas tend to support more species and higher population densities than adjacent vegetation types.
- Riparian areas provide important nesting and foraging areas for a wide variety of birds and other wildlife.

Desert Scrub and Pre-Dam Riparian Vegetation

- Just up-slope of present-day riparian vegetation is pre-dam riparian and desert scrub vegetation, which support unique plants and animals more typical of the pre-dam environment.

Threatened and Endangered Terrestrial Species

- Species along the river corridor that are listed under the Endangered Species Act include the southwestern willow flycatcher, California condor, Mexican spotted owl, and Kanab ambersnail.

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AQUATIC ECOLOGY

Aquatic resources that could be affected by LTEMP actions include a variety of native and nonnative species and the food base on which they depend. Dam operations affect water flow patterns and temperatures, which in turn affect the aquatic food base, humpback chub, trout, and other fish.

Food Base

- Because Lake Powell traps much of the incoming fine sediment, the river downstream of Glen Canyon Dam is now relatively clear and allows aquatic plants to capture more of the sun's energy.
- Aquatic insects and other invertebrates consume these aquatic plants and make up the food base for fish in the Colorado River ecosystem.

Humpback Chub

- Is a 20 in., long-lived, endangered fish that historically lived throughout the Colorado River and its tributaries in the Grand Canyon.
- A persistent and increasing reproducing population of humpback chub occurs in the Grand Canyon.

Razorback Sucker

- Is a 3 ft, long-lived, endangered fish that historically occurred in Grand Canyon, but is now absent. A reproducing population still occurs in Lake Mead, just downstream of the Grand Canyon.

Trout

- Rainbow and brown trout were introduced to and became established in the Colorado River downstream of Glen Canyon Dam.
- Downstream of Lees Ferry, trout compete with and prey on young fish, including the endangered humpback chub.

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RECREATION

Recreational activities that could be affected by LTEMP actions include boating, fishing, camping, and hiking. Recreation is a significant source of revenue for the regional economy.

Boating

- Both flatwater and whitewater boating are popular activities downstream of Glen Canyon Dam.
- Demand for whitewater trips grew rapidly after completion of the dam.
- Dam operations may affect the boating experience in several respects, including the accumulation of rock debris.

Camping

- Dam operations affect the erosion or rebuilding of sandbars important to camping.
- Studies have indicated a decline in the size and availability of camping beaches.

Fishing

- Glen Canyon Dam created ideal conditions for a sport fishery for nonnative trout immediately below the dam.
- Changes in dam operation have resulted in natural reproduction of rainbow trout and subsequent increases in population size.
- Dam operations can affect fishing on the river, especially for wading fishermen.

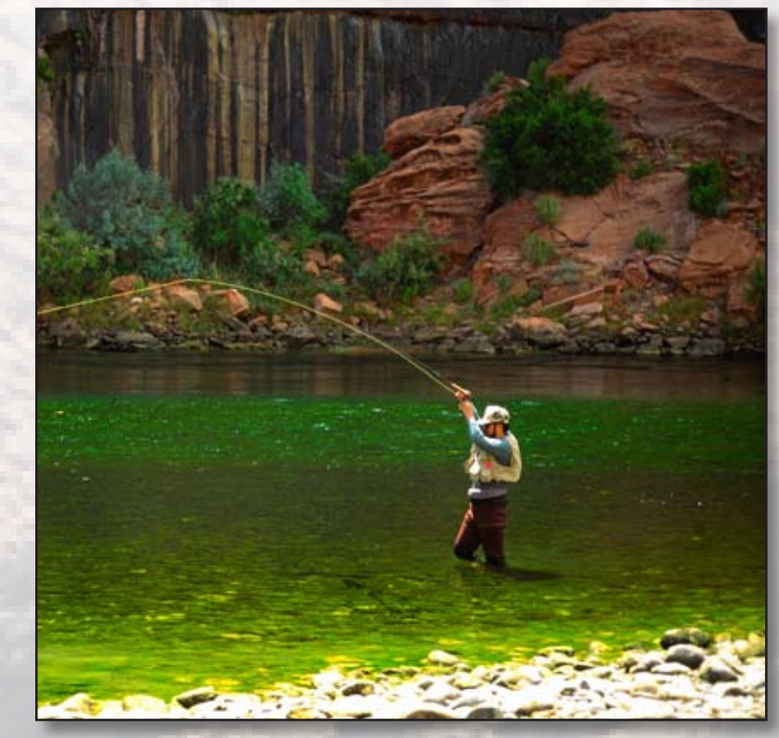

Photo Credit: Terry Gunn

Hiking and the Wilderness Experience

- Hiking in the Grand Canyon is popular and demand exceeds the availability of permits.
- Both Grand Canyon and Glen Canyon have areas proposed as wilderness where solitude and visitor experience is very important.