

**OPERATION OF
GLEN CANYON DAM
Colorado River Storage Project, Arizona**

*FINAL ENVIRONMENTAL
IMPACT STATEMENT*

March 1995



U. S. Department of the Interior
Bureau of Reclamation

The logo of the Bureau of Reclamation, featuring a mountain range and the text "MANAGEMENT FOR THE FUTURE", "U.S. DEPARTMENT OF THE INTERIOR", and "BUREAU OF RECLAMATION".

Acronyms and Abbreviations

AGC	Automatic generation control	IPP	Inland Power Pool
AGFD	Arizona Game and Fish Department	kV	Kilovolt
AMP	Adaptive Management Program	kW	Kilowatt
AMWG	Adaptive Management Work Group	kWh	Kilowatthour
AOP	Annual Operating Plan	LCR	Little Colorado River
BIA	Bureau of Indian Affairs	maf	Million acre-feet
CFR	Code of Federal Regulations	mg/L	Milligrams per liter
cfs	Cubic feet per second	mm	millimeter
Corps	U.S. Army Corps of Engineers	MW	Megawatt
CROD	Contract rate of delivery	MWh	Megawatthour
CRSM	Colorado River Simulation Model	NEPA	National Environmental Policy Act
CRSP	Colorado River Storage Project	NERC	North American Electrical Reliability Council
CRSS	Colorado River Simulation System	NHWZ	New high water zone
DO	Dissolved oxygen	NO_x	Nitrogen oxide
DOE	Department of Energy	NPS	National Park Service
EA	Environmental assessment	OHWZ	Old high water zone
EIS	Environmental impact statement	P.L.	Public Law
°F	Degree Fahrenheit	Reclamation	Bureau of Reclamation
FERC	Federal Energy Regulatory Commission	RM	River mile
FONSI	Finding of no significant impact	ROD	Record of decision
FWCA	Fish and Wildlife Coordination Act	SLCA/IP	Salt Lake City Area Integrated Projects
FWS	U.S. Fish and Wildlife Service	SO₂	Sulfur dioxide
GCES	Glen Canyon Environmental Studies	SRP	Salt River Project
GCPA	Grand Canyon Protection Act	USC	United States Code
GLCA	Glen Canyon National Recreation Area	USGS	U.S. Geological Survey
GRCA	Grand Canyon National Park	WAUC	Western Area Upper Colorado
GWh	Gigawatthour	Western	Western Area Power Administration
IMPLAN	U.S. Forest Service input-output economic model	WSCC	Western Systems Coordinating Council
hr	Hour	>	Greater than
		<	Less than

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources, protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. Administration.



The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

**Final Environmental Impact Statement
Operation of Glen Canyon Dam
Colorado River Storage Project
Coconino County, Arizona**

Cooperating Agencies:

U.S. Department of the Interior
Bureau of Reclamation (lead agency)
Bureau of Indian Affairs
Fish and Wildlife Service
National Park Service
U.S. Department of Energy
Western Area Power Administration
Arizona Game and Fish Department
Hopi Tribe
Hualapai Tribe
Navajo Nation
San Juan Southern Paiute Tribe
Southern Paiute Consortium
Zuni Pueblo

For Further Information Contact:

Mr. Gordon S. Lind
Colorado River Studies Office
Bureau of Reclamation
125 South State Street, Room 6107
Salt Lake City UT 84138-1102
(801) 524-5479

This final environmental impact statement (EIS) analyzes the impacts of operations from 1963 to 1990 (baseline conditions) and alternative operations of Glen Canyon Dam on downstream environmental and cultural resources of Glen and Grand Canyons. Alternative operations evaluated include three that would provide steady flows and six, including no action, that would provide various levels of fluctuating flows. Additional measures have been combined with the alternative operations, where appropriate, either to mitigate adverse impacts of the alternative or to enhance resources. The EIS team and the cooperating agencies attempted to balance benefits to all resources in identifying a preferred alternative. As a result of comments on the draft EIS and discussions with the U.S. Fish and Wildlife Service, the preferred alternative described in the draft EIS was modified for the final EIS. The preferred alternative is the Modified Low Fluctuating Flow Alternative.

This final EIS was prepared in compliance with the National Environmental Policy Act and Bureau of Reclamation procedures and is intended to serve environmental review and consultation requirements pursuant to Executive Order 11988 (Floodplain Management), Executive Order 11990 (Wetlands Protection), National Historical Preservation Act (Section 106), Fish and Wildlife Coordination Act, and Endangered Species Act (Section 7c). This final EIS will be used by decisionmakers in the Bureau of Reclamation and the Department of the Interior and is provided for public information. A record of decision can be approved 30 days after publication of release of the final EIS in the *Federal Register*. Any decision regarding the operation of Glen Canyon Dam as well as opportunities for future public involvement will be well publicized.



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
GLEN CANYON DAM
ENVIRONMENTAL IMPACT STATEMENT
GENERAL MAP

DENVER, COLORADO DECEMBER 1994

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