proposed general management plan
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final environmental statement

january 1979

GLEN CANYON

NATIONAL RECREATION AREA / ARIZONA - UTAH

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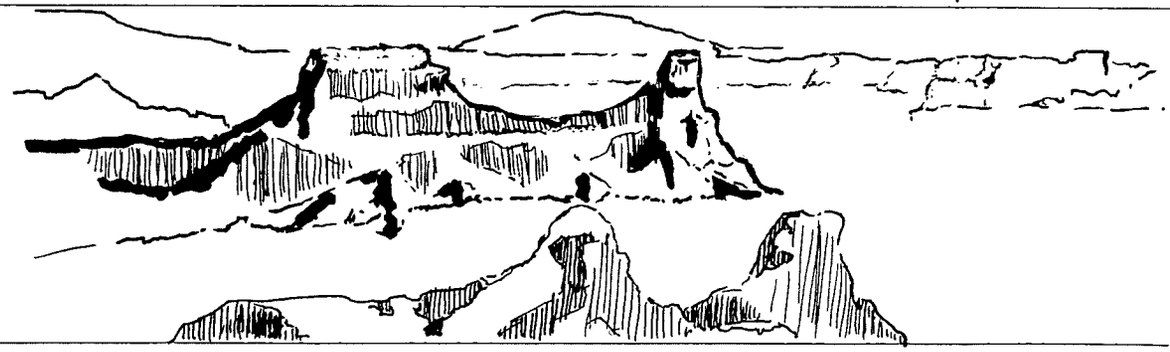

U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

Director, National Park Service

PROPOSED GENERAL MANAGEMENT PLAN
WILDERNESS RECOMMENDATION
ROAD STUDY ALTERNATIVES
FINAL ENVIRONMENTAL STATEMENT
FOR
GLEN CANYON NATIONAL RECREATION AREA
ARIZONA-UTAH
MAY 1979

ERRATA SHEET

Page 76, 9, para. 2. This paragraph should read: Under the Clean Air Act Amendments of 1977 (P.L. 95-95), the recreation area is classified Class II and may not be reclassified Class III. As a result of this designation, the total increase in suspended particulate concentration may not exceed the existing (presently unknown) level by more than an annual geometric mean of 19ug/m3 or a 24-hour maximum increase of 37ug/m3, and the sulfur dioxide concentration may not exceed the existing concentration by more than an annual arithmetic mean of 20ug/m3, a 24-hour maximum of 91ug/m3, or a three hour maximum of 512ug/m3. Redesignation to Class I in the recreation area and to Class III for most of the surrounding area was preliminarily examined by the State of Utah. After a series of public meetings, it was decided that more work was necessary before a proposal was formulated. No further action is anticipated until the State Implementation Plan for Prevention of Significant Deterioration is prepared in compliance with the Clean Air Act Amendments of 1977.

Page 81, j, para. 3, line 6. "virtually complete ignorance" should be changed to "uncertainty".

Page 88, C, and the first paragraph under it relating to endangered species are misplaced. They should be relocated to the end of the text on this page.

Page 192, response No. 94. Delete this response and substitute: Under the Clean Air Act Amendments of 1977, wilderness areas established after August 7, 1977, which are in excess of 10,000 acres, are designated Class II areas and may not be redesignated Class III. It would require action by the State under the redesignation procedure established by the Act or an act of Congress to classify as Class I any new wilderness in the recreation area. Should any of the lands attain this status, management decisions regarding the use of adjacent lands will have to be carefully analyzed to avoid violation of applicable standards.

Page 206, response No. 156, line 4. Change "designation" to "redesignation".

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In Pocket:

Overlay 1 Final Management Zoning Proposal

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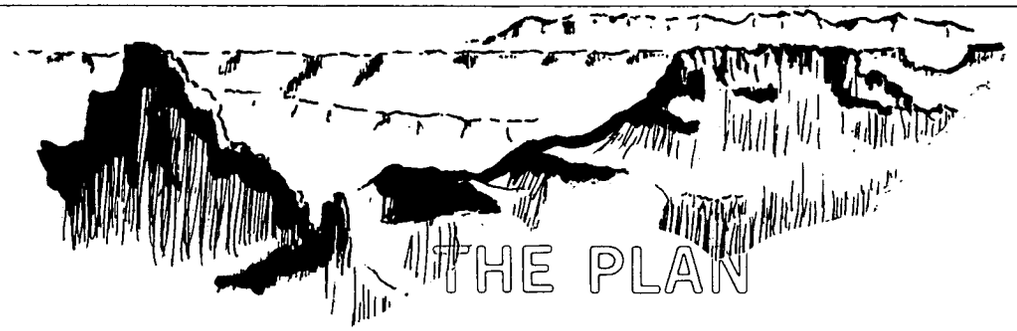
PREFACE

This document is divided into two sections, the first presenting the text of the plan and the Wilderness recommendation, and the second presenting the text of the final environmental statement. In the packet at the rear of this document is a transparent overlay which will help the reader relate the proposals to resource features. This overlay will be referenced when it is particularly useful, but the reader is encouraged to use it at any time.

This FES fully describes the impacts of the proposed actions although Draft Environmental Statement 77-28 is referenced frequently as indicated in the text by placing "DES" in front of the applicable section, map, table, figure or appendix. The transparent overlays for the FES and DES can be used interchangeably on all alike scale maps.

This has been done to reduce the cost of this document, to make it shorter, and easier to follow as compared to the DES. It is assumed that those receiving a copy would have the DES or could gain access to it if needed.

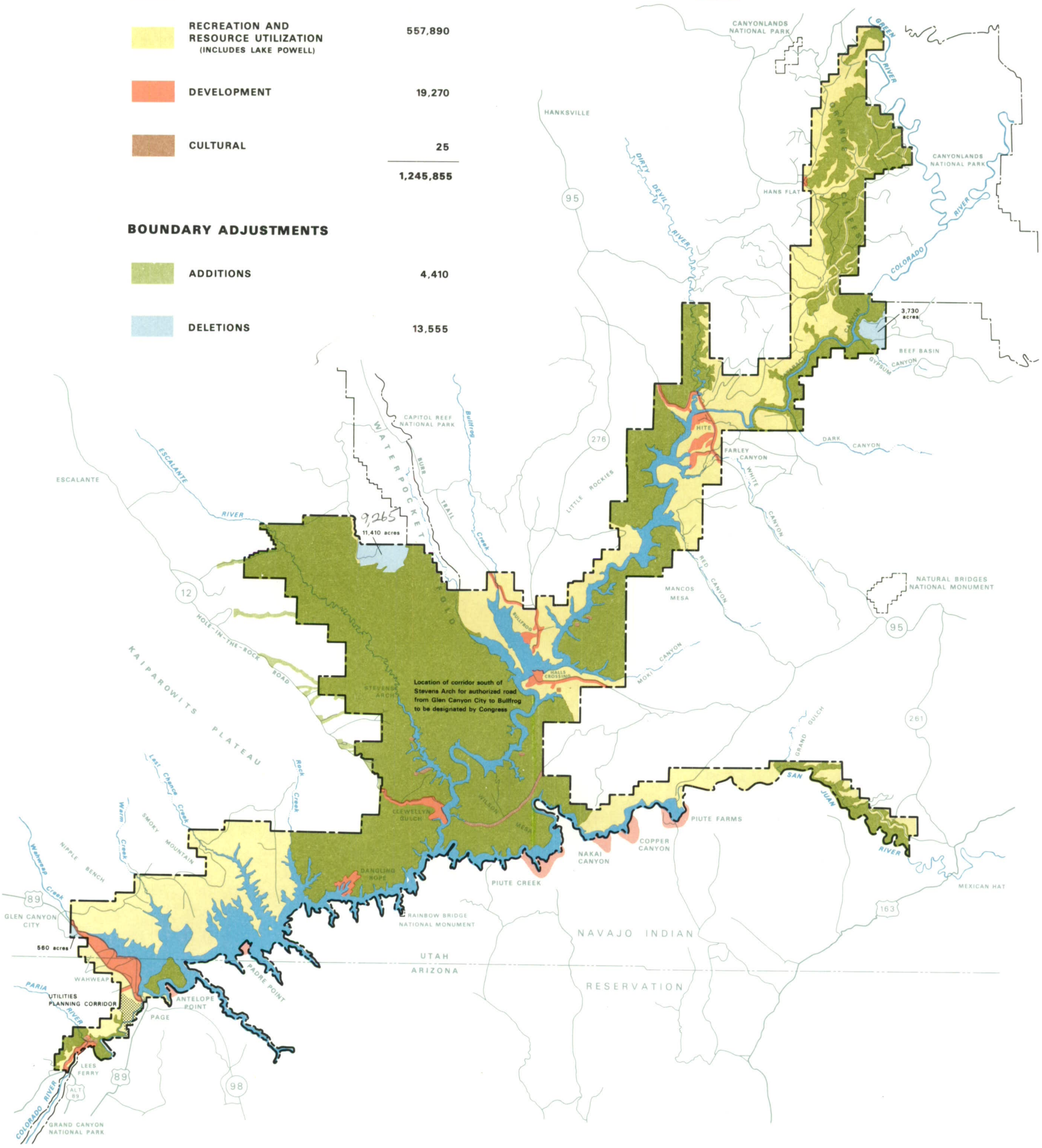

THE PLAN

MANAGEMENT ZONES	ACREAGE
NATURAL	668,670
RECREATION AND RESOURCE UTILIZATION (INCLUDES LAKE POWELL)	557,890
DEVELOPMENT	19,270
CULTURAL	25
	1,245,855

BOUNDARY ADJUSTMENTS	
ADDITIONS	4,410
DELETIONS	13,555

NAVAJO RESERVATION SHORELINE

POTENTIAL DEVELOPMENT SITES



N

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

5 MILES = 8.045 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 1

FINAL MANAGEMENT ZONING PROPOSAL

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

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THE PLAN

I. INTRODUCTION AND ORIENTATION

Created by the Glen Canyon Dam (completed in 1964) and authorized by the Colorado River Storage Project Act of April 11, 1956 (P.L. 84-485), Lake Powell exists primarily for the purposes of river regulation, irrigation, flood control, and generation of hydroelectric power. "To provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto...and to preserve scenic, scientific, and historic features contributing to public enjoyment of the area," Congress established the Glen Canyon National Recreation Area in 1972 (P.L. 92-593--Appendix 1), to be administered by the National Park Service. This act specifies that "nothing...shall affect or interfere with the authority of the Secretary...to operate Glen Canyon dam and reservoir" for the purposes of the Colorado River Storage Project Act, the achievement of which is the responsibility of the Bureau of Reclamation.

This act also specifies that "the administration of mineral and grazing leases within the Recreation Area shall be by the Bureau of Land Management. The same policy followed by the Bureau of Land Management in issuing and administering mineral and grazing leases on other lands under its jurisdiction shall be followed in regard to the lands within the boundaries of the the Recreation Area subject to the...(finding) that such...would not have significant adverse affects...on the administration of the National Recreation Area (and) the conservation and management of natural resources ..."

The national recreation area (NRA) occupies approximately 1,255,000 acres of northern Arizona and southeastern Utah (DES-Map 1). Map 1 and all subsequent maps of the recreation area show the same boundary as cited in the enabling legislation, with the exception of about 200 acres deleted for the Grand Canyon extension, effected after the Glen Canyon act. Unsurveyed lands and uncertainty about the actual location of the 3,720-foot contour comprising most of the southern boundary prevents the computation of the recreation area's precise acreage. The best estimate to date is 1,255,400 acres, or 1.5 percent (15,520 acres) more than that actually specified in the legislation (1,236,880).

Table 1 contains additional excerpts from the establishing legislation specifying (1) constraints on and obligations for the management and use of the recreation area and (2) a list of proposed objectives that together provide the framework for the general management plan's proposals. These objectives are presented in a nested series at four levels, from broad recreation area-wide objectives (Levels I and II) to specific objectives pertaining to particular topics and particular geographic areas at Levels III and IV.

Appendix 2 contains excerpts from memoranda of agreement with the Bureau of Reclamation, Bureau of Land Management, and the Navajo Tribe.

II. GENERAL MANAGEMENT PLAN

A. Final Management Zoning Proposal

The final management zoning proposal (Map 1) specifies the long-term allocation of the land and water resources of the recreation area into four management zones: the Natural Zone, covering some 668,670 acres, in which maintenance of isolation and natural processes while allowing grazing activities is the management strategy; the Recreation and Resource Utilization (RRU) Zone (557,890 acres), characterized by maintenance of natural processes while allowing to the extent possible both mining and grazing; the Cultural Zone (25 acres), in which the preservation, interpretation, and restoration (where deemed appropriate by professional analysis) of historic and archeological resources are the exclusive themes; and the Development Zone (19,270 acres), in which provision of visitor services and maintenance of facilities is practiced. Table 2 summarizes this information and contains examples of permitted activities and development in each of the zones.

The Natural Zone includes the recreation area's outstanding scenic resources, relatively undisturbed areas isolated and remote from the activities of man, or areas bordering on places with established land-use practices complementary to those of the Natural Zone. The RRU Zone consists of areas possessing somewhat less scenic value, greater susceptibility to the activities of man, potential or actual mineral resources, or value for utility rights-of-way or development. The Cultural Zone embraces historic or cultural resources, and the Development Zone centers around the existing developed areas, except at Dangling Rope Canyon, Llewellyn Gulch, and Farley Canyon, areas that are currently undeveloped.

The lakeside boundary of the Natural Zone is coincident the fluctuating surface of Lake Powell except at Antelope Island. For the purposes of the impact analyses in the final environmental statement, the 3,700-foot contour has been identified as the boundary. However, as the water surface fluctuates when it is lower than this contour, there would be more Natural Zone acreage with a corresponding decrease in RRU Zone acreage. Conversely, the opposite would occur when the fluctuating water surface is higher than this contour. The Natural Zone for Antelope Island has to be treated differently because if Lake Powell's surface falls below about contour 3620 this area ceases to be an island. For this situation the Natural Zone would be coincident with the top of the south side of the channel between this island and Castle Rock. When lower, the Natural Zone would remain at this channel.

The riverside boundary of the Natural Zone downstream from Glen Canyon Dam is coincident with the fluctuating surface of the Colorado River along its right bank. Its left bank is, for the most part, in the Navajo Indian Reservation. The same principal for increase or decrease in the Natural Zone acreage at Lake Powell would apply along the affected portion of the Colorado River.

Implementation of the final management zoning proposal will result in closure of 86.3 of the recreation area's 474.3 miles of roads, principally below the Orange Cliffs, along the San Juan River, above the Escalante River, and on Wilson Mesa, leaving 388 miles of road to remain open (Map 2). An additional 1.5 miles of a road outside the recreation area, near Lees Ferry will be unusable because the closed road within the recreation area provides the only access to this road.

B. Development Proposals

The development proposals of this plan are general concepts only; detailed planning, to be conducted later, will specify the numbers, kinds, extent, and locations of facilities and activities in each of the developed areas. Studies of environmental conditions and visitor perceptions aimed at determining capacities for particular uses will also be included in this future planning, which will begin soon after approval of this plan (probable start: FY 1979). No development will be proposed without well-grounded estimates of capacity.

At Wahweap and Wahweap/Lone Rock, the principal visitor-use areas, and at Bullfrog, Halls Crossing, and Hite (Map 1), facilities for both day and overnight use of and access to the lake (such as bathing and ski beaches, picnic areas, boat storage areas and launching ramps, parking areas, employee residences, stores, and service stations) will be expanded and augmented. Much less extensive development is proposed for Lees Ferry, where the emphasis is on the area's history and access to the Colorado River; and Hans Flat, which is to remain essentially a wilderness outpost. Dangling Rope, to replace the Rainbow Marina, will be a marina with visitor access by water only. Llewellyn

Table 1. Planning Objectives.

PURPOSE OF THE RECREATION AREA ". . . To provide for public outdoor recreation use and enjoyment . . . and to preserve scenic, scientific, and historic features contributing to public enjoyment of the area"

LEGISLATIVE CONSTRAINTS ON MANAGEMENT

I. "The Secretary shall administer, protect, and develop the recreation area . . . for the conservation and management of natural resources . . ."

II.A. "The lands within the recreation area, subject to valid existing rights, are withdrawn from location, entry, and patent under the United States mining laws"

II.B. ". . . The Secretary shall permit the removal of the nonleasable . . . (and) leasable minerals . . . if such . . . would not have significant adverse effects . . . on the administration of the national recreation area . . ."

III. ". . . Nothing in this Act shall affect or interfere with the authority of the Secretary . . . to operate Glen Canyon dam and reservoir . . . for river regulation, irrigation, flood control, and generation of hydroelectric power"

IV. ". . . The Secretary may designate zones where, and establish periods when, no hunting, fishing, or trapping shall be permitted for reasons of public safety, administration, or public use and enjoyment"

V. "The Secretary shall grant easements and rights-of-way on a nondiscriminatory basis upon, over, under, across, or along any component of the recreation area unless he finds that the route of such easements and rights-of-way would have significant adverse effects on the administration of the recreation area"

VI. "The administration of mineral and grazing leases within the recreation area shall be by the Bureau of Land Management. The same policies followed by the Bureau of Land Management in issuing and administering mineral and grazing leases on other lands under its jurisdiction shall be followed in regard to the lands within the boundaries of the recreation area, subject to the . . . (finding) that such . . . would not have significant adverse effects . . . on the administration of the national recreation area (and) the conservation and management of natural resources . . ."

VII. "The Secretary, together with the Highway Department of the State of Utah, shall conduct a study of proposed road alinements within and adjacent to the recreation area. Such study shall locate the specific route of a scenic, low-speed road, hereby authorized, from Glen Canyon City to Bullfrog Basin . . . and shall designate what additional roads are appropriate and necessary for full utilization of the area for the purposes of this Act and to connect with all roads of ingress to, and egress from, the recreation area"

VIII. "Within two years from the date of enactment of this Act, the Secretary shall report to the President . . . his recommendations as to the suitability or nonsuitability of any area within the recreation area for preservation as wilderness . . . in accordance with (the) Wilderness Act"

IX. "Any lands owned by the States of Utah or Arizona . . . may be acquired only by donation or exchange."

X. "The Secretary . . . may revise the boundaries . . . from time to time . . . but the total acreage may not exceed [1,236,880] acres."

LEVEL I OBJECTIVE	LEVEL II OBJECTIVES	LEVEL III OBJECTIVES	LEVEL IV OBJECTIVES
To manage the recreation area so that it provides maximal recreational enjoyment to the American public and their guests	To maximize the recreational experience and the number of opportunities for enjoying the recreation area To provide the richest possible interpretive experience to visitors to the recreation area To manage the recreation area within its legislatively imposed constraints	To accommodate many varieties of use but to favor water-oriented recreation To create varying kinds and uneven intensities of use along the length of the reservoir and throughout other portions of the recreation area To interpret historical and archeological resources and the culture of aboriginal societies while centering interpretive themes around outdoor recreation To promote a sense of exploration and fortunate discovery while visiting and enjoying the recreation area To manage mineral and grazing use in accordance with the preservation of "scenic, scientific, and historic features contributing to public enjoyment of the area" To encourage the maintenance of high water quality in all bodies and sources of water and to perpetuate the natural flow of free water To maximize the efficiency and effectiveness of the management of the recreation area and adjacent lands To cooperate with the Bureau of Reclamation in their management of the reservoir To cooperate with the Navajo Tribe in managing and developing the southern shoreline of Lake Powell for recreational use	To facilitate trail-biking on areas capable of sustaining such activity and where conflicts with other uses do not occur To utilize local public communications media in providing information about the recreation area to residents and tourists of the Colorado Plateau To facilitate and encourage air travel over the canyon country

WAHWEAP

In the Wahweap/Lone Rock and Warm Creek areas, to provide for intensive water-recreation use

At Wahweap to provide indoor activities for those visitors not using the lake

LEES FERRY

To give primary emphasis to historical interpretation and access to recreational pursuits on the Colorado River

To maintain and enhance function as a river runners' put-in and take-out point

To maintain as a trailhead for day hikers and trail terminus for overnight hikers coming down through the Paria Canyon

To provide access for fishermen to the Colorado River above Lee's Ferry

ESCALANTE

To maintain a relatively primitive experience

To minimize air traffic over the Escalante River drainage

To regulate use of the Escalante Canyons

SAN JUAN

To maintain and provide a wild-river experience, relatively primitive boating opportunities, and the present degree of isolation

BULLFROG/HALLS CROSSING/HITE

To utilize as a major center for both water and land-oriented recreation, offering opportunities for a wide range of experiences

ORANGE CLIFFS

To maintain as a critical backdrop for Canyonlands National Park and as a major vantage point for spectacular views into the park

To maintain year-round access to Panorama Point

To maintain a relatively primitive, undeveloped atmosphere

Table 2. Management zones.

MANAGEMENT ZONE	EXAMPLES OF PERMITTED ACTIVITIES			DEVELOPMENT PERMITTED		MANAGEMENT STRATEGY FOR THE ZONE	ACREAGE	PERCENTAGE
	Recreational	Nonrecreational	Comments		Comments			
NATURAL	Hunting, hiking, camping, picnicking, horseback riding, swimming, backpacking, canoeing, kayaking.	Grazing.	Examples are not all-inclusive. Grazing may be subsequently prohibited in certain areas identified by a future Grazing Resources Management Plan. Recreational uses of motorized equipment prohibited. Motorized equipment permitted where it constitutes a "minimum management tool" (Appendix 3). Mining prohibited.	Management facilities necessary for the preservation and enjoyment of recreational values. Management facilities and practices necessary to sustain grazing limited to non-mechanical types.	No utility rights-of-way.	Maintenance of isolation and natural processes. Consumption of renewable resources subject to protection of recreational values.	668,670	54
RRU (RECREATION & RESOURCE UTILIZATION)	Same as NATURAL management zone but includes bicycling, scenic touring (auto, 4-wheel-drive, boat), speedboating, water skiing, fishing, sailboating, houseboat touring, river rafting, riding trailbikes and dunebuggies.	Grazing, mining, installation of utility and transportation systems. Includes the utilities planning corridor.	Examples are not all-inclusive. Riding trailbikes and dunebuggies restricted to designated areas. Grazing may be subsequently prohibited as described above. Mining may be subsequently prohibited in certain areas identified by a future Mineral Resources Management Plan.	Same as for the NATURAL management zone, except includes mining facilities, utility lines, unpaved roads, and primitive trailhead facilities (such as parking and sanitary devices).		Maintenance of natural processes. Enhancement of fish and game populations. Consumption of renewable and nonrenewable resources subject to protection of recreational values.	557,890	45
DEVELOPMENT	Bicycling, picnicking, horseback riding, swimming, fishing, trailer and motorhome camping, arts and crafts activities, outdoor resort activities, interpretive programs, riding trailbikes and dunebuggies.	Grazing, management of dam and utility structures.	Examples are not all-inclusive. Grazing prohibited in the developed areas within the Development zone. Mining prohibited.	Relatively elaborate and permanent structures necessary to support recreational activities.	Includes dam.	Maintenance of the facilities. Provision of visitor services.	19,270	<2
CULTURAL	Interpretation of historic and archeological features.	Scholarly study.	Examples are not all-inclusive. Grazing and agriculture may be permitted. Mining prohibited.	Access to the cultural resources. Trails for confining and containing use. Protective enclosures. Interpretive facilities.		Preservation. Restoration where deemed appropriate by professional analysis. Interpretation.	25	<1
							1,245,855	

ROAD WITHIN N.R.A. TO BE CLOSED

ROAD OUTSIDE N.R.A. BLOCKED BY CLOSURE OF ROAD WITHIN N.R.A.

UNAFFECTED ROAD

CURRENT STATUS

PAVED

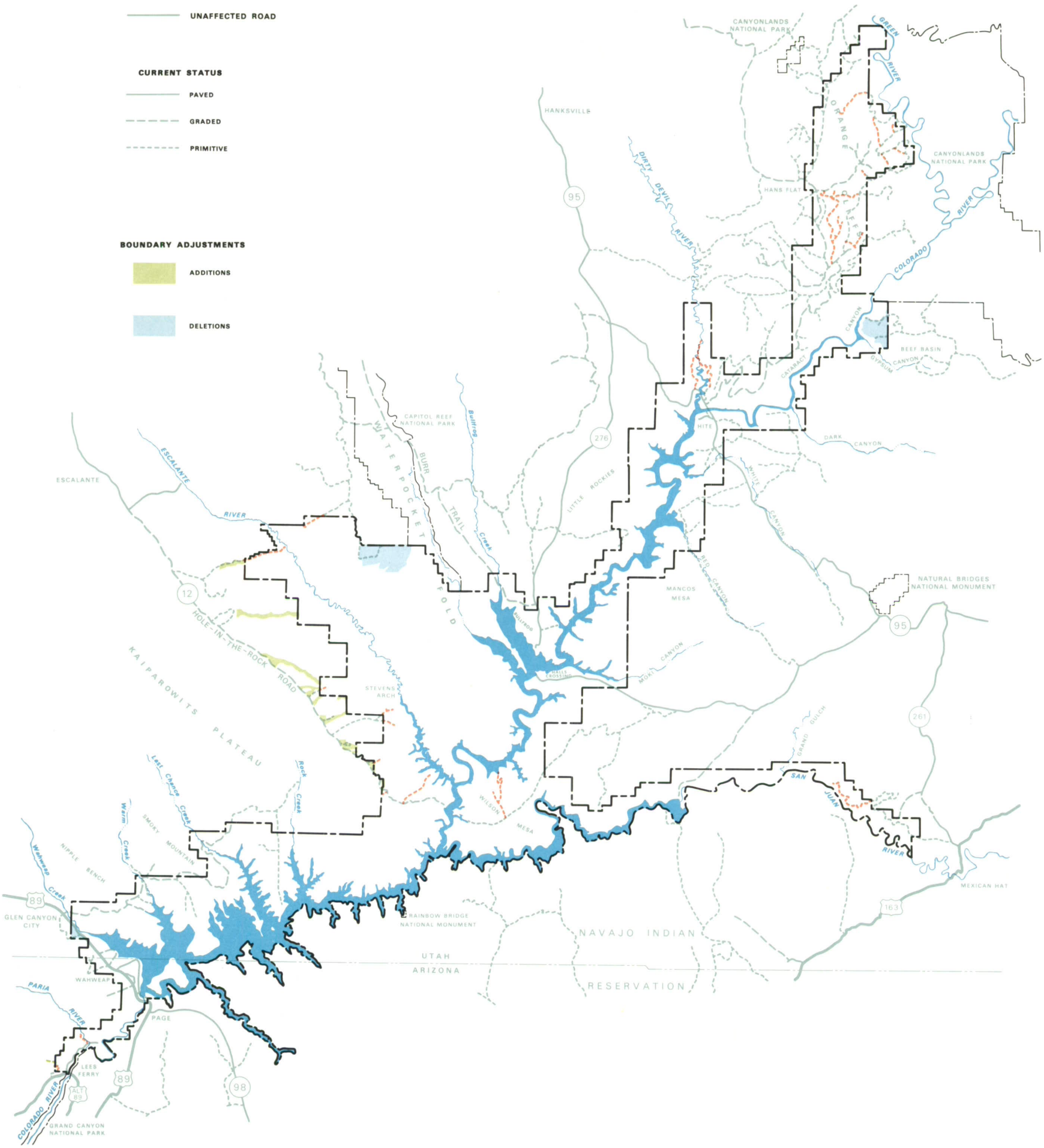
GRADED

PRIMITIVE

BOUNDARY ADJUSTMENTS

ADDITIONS

DELETIONS



N

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

5 MILES = 8.045 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 2

EFFECT ON ROADS

of

FINAL MANAGEMENT ZONING PROPOSAL

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

608	40,075A
APRIL 78	DSC

Table 3. Existing and proposed development.

DEVELOPMENT ZONE	EXISTING			PROPOSED		
	ACREAGE	ESTIMATED CAPACITY (VISITORS/DAY)	SCOPE OF DEVELOPMENT	ACREAGE	ESTIMATED CAPACITY[d] (VISITORS/DAY)	SCOPE OF DEVELOPMENT
Lees Ferry	280	800- 1,000	Low-key development; primary emphasis on area history and access to Colorado River	810	1,700- 2,200	Low-key development; primary emphasis on area history and access to Colorado River
Wahweap	420[a]	6,800- 8,800[a]	The major tourist resort facility; emphasis on overnight use; administrative functions; dam; visitor center	10,010	7,800-10,100	The major tourist resort facility; emphasis on overnight use; paved road to Page landfill
Lone Rock	20	900- 1,300	Random camping; boat launching	100	3,200- 4,200	Extensive day-use facilities (such as bathing, ski beaches, picnic areas, boat launching ramps, parking areas, and access roads); campground; dock, fuel and camping supplies
Dangling Rope			Nonexistent	1,350	2,400- 3,100	Marina facilities accessible only by boat, STOL aircraft (for emergency and administrative use) and emergency anchorage to replace Rainbow Marina
Rainbow Marina	<1	2,000- 2,500[b]	Floating marina; primary refueling stop for boaters; store; employee housing			Relocation to Dangling Rope
Llewellyn Gulch			Nonexistent	190	(no overnight accommodations)	Potential marina, according to future needs (boat launching ramp, refueling, store)
Escalante Operations Center			Nonexistent	5	(No overnight accommodations)	Administrative use and facilities (ranger station, employee housing, equipment storage, stock corrals)
Bullfrog	520	1,500- 2,000	Major visitor resort (marina, dry-boat storage, ferry facilities, launching ramps, lodging, campgrounds, employee housing, recreation vehicle park, picnic area, administrative offices, airstrip)	1,635	7,900-10,300	Major visitor resort (marina, dry-boat storage, ferry facilities, launching ramps, lodging, campgrounds, employee housing, recreation vehicle park, picnic area, administrative offices, village center); paving of portion of Burr Trail; improvement of existing airstrip
Halls Crossing	320	600- 800	Major visitor resort (marina, dry-boat storage, ferry faciliites, lodging, campground, employee housing, service station, airstrip)	1,355	3,400- 4,400	Major visitor resort (marina, dry-boat storage, ferry facilities, lodging, campgrounds, employee housing, service station, village center); relocation of airstrip
Farley Canyon		100- 200	Undeveloped; informal use only	2,420	5,000- 6,500	Potential development site (marina, lodging, campground, etc.)
Hite	30	800- 1,000	Development oriented to tourists on Utah Highway 95, river runners in Cataract Canyon, and backcountry hikers and motorists in the Orange Cliffs (marina, dry-and-wet boat storage, boat rental, campground, employee housing)	1,160	2,500- 3,300	Major visitor resort (marina, dry-and-wet boat storage, lodging, food service, campground, service station, store, recreation vehicle park, employee housing)
Hans Flat	5		Wilderness outpost (visitor contact station, employee housing, maintenance and utility facilities,[b] airstrip at Gordon Flats)	235	(no overnight accommodations)	Wilderness outpost with expanded facilities (visitor contact station, employee housing, maintenance and utility facilities); airstrip at Gordon Flats (zoned RRU)
TOTAL	**1,595**	**13,500-17,600[c]**		**19,270**	**33,900-44,100**	

[a]Includes Carl Hayden Visitor Center and Glen Canyon Dam

[b]No overnight accommodations; visitors stopping here are included in capacities for other developments

[c]Excludes Rainbow Marina

[d]For areas with overnight accommodations only

Bench and Farley Canyon are potential use sites, to be developed only when future need requires. An operations center for administrative use will be established at a site to be subsequently chosen somewhere along the Hole-in-the-Rock road. The Glen Canyon City-to-Bullfrog road will be constructed if funded by Congress. A hangar will be constructed at the Page airport for NPS aircraft. Table 3 displays this information, along with anticipated capacity ranges, by geographic area.

C. Proposed Boundary Adjustments

Proposed deletions of 13,555 acres and additions of 4,410 acres will decrease the recreation area's acreage by 9,145 acres to 1,245,855 or 8,975 acres more than the legislative limit (Section I). Deletions (Map 1) are proposed in the Imperial-Bull Valley (3,730 acres; a flat, isolated tableland not accessible from the recreation area and, accordingly, not readily manageable by the NPS), Purple Hills (9,265 acres; a mineralized area of relatively low scenic value), and the isolated rolling shrubland south of Highway 89 in the northwest corner of the Wahweap Development Zone (560 acres). Additions (Map 1) consist of establishing trailheads along the Hole-in-the-Rock road (4,410 acres) to facilitate NPS management of backcountry use in the canyons of the Escalante.

It is proposed that the boundary as shown on Map 1 be established by Congress, and, that the present limitation of not to exceed 1,236,880 acres be changed to approximately 1,250,000 acres.

D. Proposals for Subsequent Planning

Planning documents dealing with resources management, backcountry use, and development (Table 4) will be prepared and implemented to fulfill the objectives of this plan. The resources management plan will be composed of four components: cultural resources, natural resources, grazing resources, and mineral resources. Each component will contain a detailed inventory of the subject resources, a description of management problems, and recommended solutions to these problems. Specific attributes of these plans are listed in Table 4. The backcountry-use plan will specify the way in which the recreation area's backcountry is to be managed and used. The development plans will detail the nature, scope, location, and capacities of facilities and activities within the Development Zones.

The precise capacities of the Development Zones will be set during the subsequent area-specific planning. In the recreation area's backcountry (e.g., the canyons of the Escalante and Little Rockies, and the Orange Cliffs) the backcountry-use plan will determine carrying capacity and specific use limits. The approximate priority sequence for future planning projects has not yet been determined. However, it is the Park Service's intention to complete the projects listed in Table 4 during the period from FY 1979 through FY 1984.

E. Proposals for Land Exchange

The acquisition of state lands and interests in land is a long range goal of the National Park Service so as to better facilitate the management and use of the N.R.A's resources. The recreation area's enabling legislation permits such acquisition only by donation or exchange. This congressional limitation should be amended to permit acquisition also by purchase so that acquiral will be enhanced. The ongoing program, so far unsuccessful, for exchanging federal lands administered by the Bureau of Land Management outside the NRA boundary for Arizona and Utah state lands within it should continue. Under this program, the National Park Service, the Bureau of Land Management, and the states are trying to determine the priorities and scheduling for exchanging particular holdings.

F. Other Proposals

A 4,770-acre "utilities planning corridor" (Map 1) will be established in the RRU Zone below the dam. (A "planning corridor" is a broad linear strip of land, of variable width, reserved between two geographic points, which has ecological, technical, and/or economic advantages over adjacent areas for the location of transportation and/or utility systems (Bureau of Land Management 1975, p. C-2).

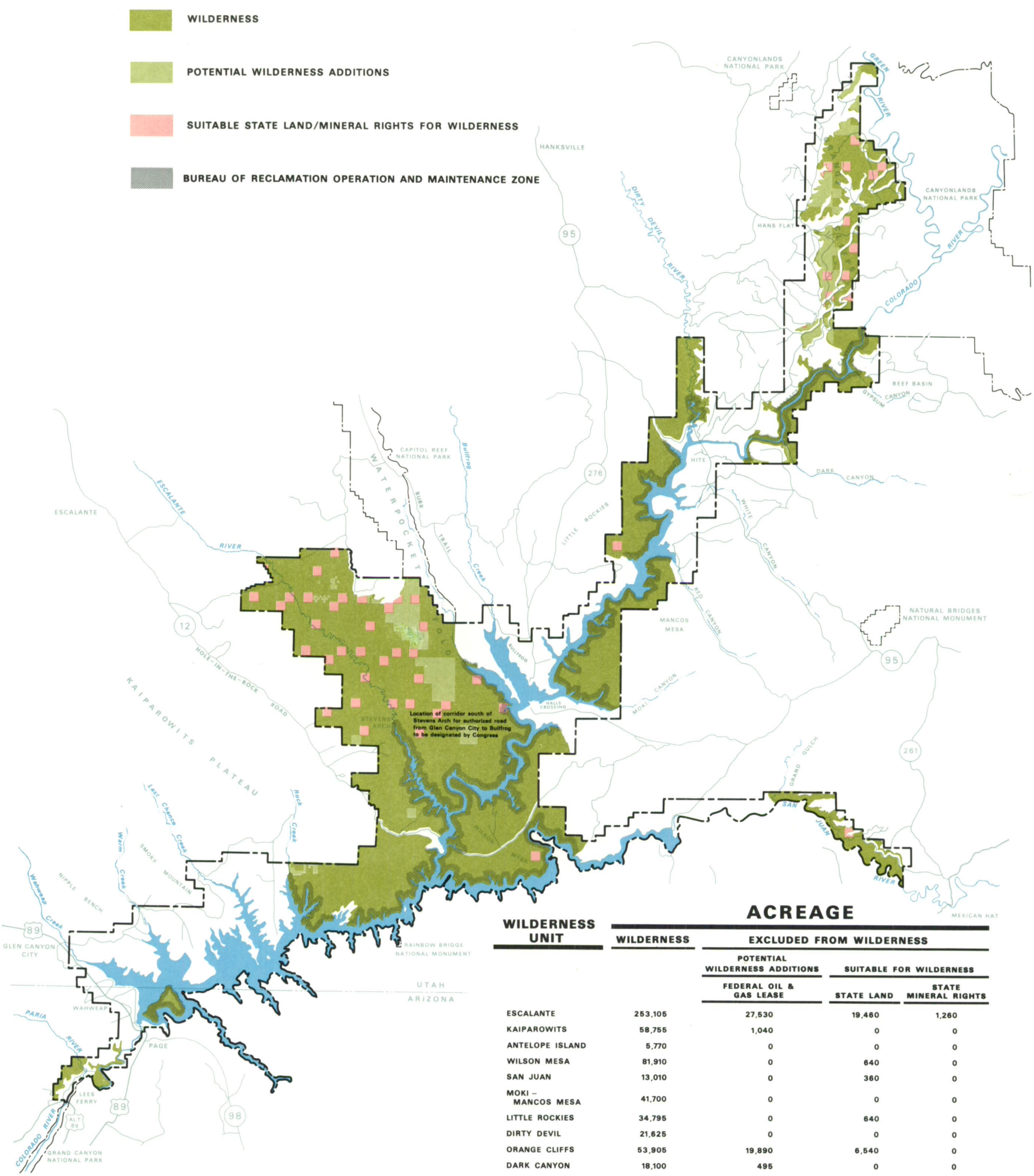
G. The Road Study Alternatives

In response to a requirement in the Glen Canyon enabling legislation that "the Secretary, together with the Highway Department of the State of Utah, ...conduct a study of proposed road alinements within and adjacent to the recreation area... /and/ locate the specific route of a scenic, low-speed road, hereby authorized, from the Glen Canyon City to Bullfrog Basin" (Table 1, item VII), an

Table 4. Proposed subsequent planning. Subject to available funding, all plans will be initiated following approval of the General Management Plan.

PLAN	CONTENT	COOPERATING AGENCY
Resources Management		
Cultural Resources Component*	Cultural resources inventory of Canyonlands region Outline and priorities for research Needs for stabilization and protection Nominations to the National Register Program for execution	U.S. Forest Service Bureau of Land Management
Natural Resources Component (terrestrial and riverine communities)	Natural resources inventory Statement of natural-resources management problems with recommendations for their mitigation or elimination	Bureau of Land Management Fish and Wildlife Service Utah Division of Wildlife Resources
Grazing Resources Component	Detailed description of the condition of the range Recommendations for specific range improvement practices and devices, management activities, and maximum grazing intensities compatible with the purpose of the recreation area	Bureau of Land Management
Mineral Resources Component	Detailed minerals inventory of the RRU management zone Within the RRU zone, precise identification of areas where mining will be permitted Delineation of regulations and policies for access and on-site activities	Bureau of Land Management U.S. Geological Survey Utah Geological and Mineralological Survey
Backcountry Use	Identification of permissable activities on the recreation area's roads, trails, and undeveloped areas Use levels, regulations, and management policies for the permissable activities	Bureau of Land Managemen
Development	Nature and extent of visitor-use facilities in each of the Development Zones Interpretive themes and facilities for each of the Development Zones	

* To be prepared and implemented in three phases: an overview consisting of the collection and organization of all pertinent cultural resources data; the formulation of the plan itself involving the identification of needs and programs for filling those needs; and implementation of the plans recommendations. Appendix 3 contains a detailed description of these activities.



ACREAGE

WILDERNESS UNIT	WILDERNESS	EXCLUDED FROM WILDERNESS		
		POTENTIAL WILDERNESS ADDITIONS	SUITABLE FOR WILDERNESS	
		FEDERAL OIL & GAS LEASE	STATE LAND	STATE MINERAL RIGHTS
ESCALANTE	253,105	27,530	19,460	1,260
KAIPAROWITS	58,755	1,040	0	0
ANTELOPE ISLAND	5,770	0	0	0
WILSON MESA	81,910	0	640	0
SAN JUAN	13,010	0	360	0
MOKI – MANCOS MESA	41,700	0	0	0
LITTLE ROCKIES	34,795	0	640	0
DIRTY DEVIL	21,625	0	0	0
ORANGE CLIFFS	53,905	19,890	6,540	0
DARK CANYON	18,100	495	0	0
PARIA	6,180	0	0	0
TOTALS	**588,855** (47%)	**48,955** (4%)	**27,640** (2%)	**1,260** (0.1%)

TOTAL AREA IN WILDERNESS, POTENTIAL WILDERNESS ADDITIONS AND SUITABLE STATE = 53%

TOTAL APPROXIMATE N.R.A. ACREAGE = 1,246,000

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

MAP 3

WILDERNESS RECOMMENDATION

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

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engineering report identifying four feasible routes from Glen Canyon City to Bullfrog Basin was issued in October 1974. One of these four was the above-cited "authorized" route, the construction of which could be initiated upon the appropriation of funds by Congress. The National Park Service makes no proposals on any of these routes. A survey of the environmental impacts of constructing and using the four routes appears in Section VIII of the accompanying final environmental statement.

III. THE WILDERNESS RECOMMENDATION

The Act of Congress which established the National Recreation Area requires a wilderness review in accordance with subsections 3(c) and 3(d) of the 1964 Wilderness Act. This environmental statement contains a National Park Service wilderness recommendation that is subject to revision. Wilderness Act procedures require a subsequent recommendation by the Secretary of the Interior to the President concerning wilderness and provides that the President shall advise the Congress of his recommendation with respect to wilderness designation. Wilderness can only be designated by an Act of Congress.

The Wilderness recommendation (Map 3), formulated in response to a requirement in the enabling legislation (Table 1, item VIII), is precisely congruent with the Natural Zone of the management zoning proposal (place Overlay 1 on Map 3), and, accordingly, includes lands of the same character: scenically outstanding, relatively undisturbed, isolated and remote from the activities of man, or bordering on areas with complementary land-use practices. However, because it excludes (1) suitable state lands and state mineral rights, (2) federal oil-gas leases (zoned as potential Wilderness additions--PWAs), and (3) boundary additions, it is comprised of only 567,265 acres, or 45 percent, of the NRA, compared to 671,205 acres for the Natural Zone (compare final management zoning proposal and the Wilderness recommendation). Potential wilderness additions are to become wilderness once the nonconforming conditions or uses are terminated. Note that, just as in the Natural Zone (Table 2), motorized equipment may be used in Wilderness wherever it constitutes a "minimum management tool" (Appendix 3).

The lakeside boundary of the Wilderness recommendation is coincident with the fluctuating surface of Lake Powell, except for Antelope Island.

For this plan and the accompanying final environmental statement the 3,700-foot contour has been used as the boundary. However, as the water surface fluctuates when it is lower than this contour, there would be more Wilderness acreage with a corresponding decrease in non-wilderness acreage. Conversely, the opposite would occur when the fluctuating water surface is higher than this contour.

The Wilderness at Antelope Island has to be treated differently because if Lake Powell's surface falls below about elevation 3620 this area ceases to be an island. For this situation the Wilderness would be coincident with the top of the south side of the channel between this island and Castle Rock. When lower, the Wilderness boundary would remain at this channel.

The riverside boundary of the Wilderness recommendation downstream from Glen Canyon Dam is coincident with the fluctuating surface of the Colorado River along its right bank. Its left bank is, for the most part, in the Navajo Indian Reservation. The same principal for increase or decrease in the Wilderness acreage at Lake Powell would apply along the affected portion of the Colorado River.

A Bureau of Reclamation O&M (Operation and Maintenance) zone, (Map 3) extending from the high water elevation (3,711 feet m.s.l.) 1/2-mile horizontal distance back, or to the withdrawal boundary, whichever is the lesser distance, will be superimposed over the wilderness area. This zone would provide the Bureau of Reclamation latitude to conduct emergency and routine operational and maintenance activities.

The language of the authorizing legislation would recognize this "O&M Zone", and include a similar provision to Section 4 of P.L. 92-593. "... provided that nothing in this Act shall affect or interfere with the authority of the Secretary granted by Public Law 485, 84th Congress, Second Session, to operate Glen Canyon Dam and Reservoir in accordance with the purposes of the Colorado River Storage Project Act for river regulation, irrigation, flood control and generation of hydroelectric power."

IV. DESCRIPTION OF THE ENVIRONMENT

A. The Region

Within approximately 100 miles of the recreation area's boundary lies an area of about 45 million acres (DES Map 9), containing all of eight counties in Utah and portions of 22 counties in Utah, Arizona, Colorado, and New Mexico.

1. Ownership

Slightly over half of the region is federally owned, the Bureau of Land Management administering 34 percent, the Forest Service 14 percent, and the National Park Service 7 percent. Indian reservations constitute some 29 percent of the area, state holdings 6 percent, and private ownership 10 percent. (DES Map 9 shows only larger concentrations of lands in these latter two categories; most are too widely scattered and cover too small areas to be included.) The recreation area itself occupies almost 3 percent of the region.

2. Use

Grazing is the most widespread use of the recreation area's land base, regardless of ownership. In general, almost all accessible areas containing adequate forage and water are grazed. In terms of acreage, recreational activity is the second-most widespread use of the land, occurring widely in conjunction with grazing and other land uses. The utilization of the region's commercially valuable forests, covering about 10 to 15 percent of the area, constitutes the third-most prevalent use of the land. Crop production occurs over about 2 to 3 percent of the region and includes land under cultivation and former cropland now in pasture. Facilities for mining and power generation, towns, industries, and utility and transportation rights-of-way cover about 2 percent of the area, reservoirs between 1 and 2 percent.

3. Areas with outstanding natural or scenic qualities, Wilderness, and related areas

Approximately 7 percent of the region consists of areas recognized by the National Park Service, Forest Service, and Bureau of Land Management as containing outstanding natural or scenic qualities.

Presidents Carter, Ford, Nixon, and Johnson have recommended to the Congress that over a million acres administered by the National Park Service and the Forest Service within the region be added to the Wilderness Preservation System. Of these, legislation has been enacted on approximately 8,000 acres in Mesa Verde National Park in October 1976. As described in Section I.C.1. of the final environmental statement, preliminary Wilderness proposals, totaling almost one-half million acres, for Canyonlands, Arches, and Capitol Reef National Parks have been prepared. Several other areas, consisting of a total of about 300,000 acres, have been identified by the Forest Service and the National Park Service for study of their suitability for Wilderness designation. Another 350,000 roadless and undeveloped acres of the National Forest System within the region are candidates for additional Wilderness study areas.

The Bureau of Land Management administers slightly over 200,000 acres designated by the Secretary of the Interior as primitive or outstanding natural areas. The management objectives for these lands call for protecting and preserving their natural and cultural environments.

Portions of three rivers within the region have been or will be considered for addition to the National Wild and Scenic Rivers System. A recommendation on the Escalante River is described in Section I.D. of the final environmental statement. The Bureau of Outdoor Recreation (now Heritage Conservation and Recreation Service), Forest Service, and Colorado Department of Natural Resources jointly prepared a report and accompanying draft environmental statement, dated December 1975, on a proposal to add 105 miles of the Dolores River, including 56,400 acres of adjacent lands, to the system. On January 3, 1975, in amending the Wild and Scenic Rivers Act, the Congress designated several rivers, including the Colorado from its confluence with the Dolores in Utah to a point upstream 19.5 miles beyond the Colorado/Utah border, for potential addition to the system and directed that reports on them be submitted by October 2, 1979.

SOURCES FOR SECTIONS IV.A.1.-3.

National Park Service, Bureau of Land Management, U.S. Geological Survey, and Forest Service Maps.

4. Socioeconomic environment

This section contains direct and indirect interpretations from statistical data (Appendix 4) for the Utah counties of Wayne, Garfield, Kane, and San Juan that surround over 95 percent of the recreation area (DES Map 9); and Coconino County in Arizona with particular emphasis on the City of Page.

a. Utah

(1) Introduction

The four-county region, while still below most of the State of Utah in measures of economic well-being, has changed from an area of declining population and relatively stagnant economic conditions to one of fairly rapid population growth and improved economic performance. Among the factors which explain this turnabout in the economic fortunes of the region are (1) the growth in recreation and tourism activities and expenditures which directly affect the trade, services and governmental sectors; (2) the migration of retired persons into the southern portions of the state--mainly in the Kanab area of Kane County; and (3) the increase in mining and energy-related activity in San Juan County. However, these anticipated energy developments have impacted on the four counties in varying degrees.

(2) Population

The four-county area is sparsely settled (with densities ranging from 0.6 to 1.5 persons per square mile), even for states with relatively low population densities such as Arizona and Utah (20 and 15 persons per square mile respectively). Population is largely scattered in rural, non-farm residences; according to 1975 population estimates there were only five communities in the area with total populations exceeding 500 persons. Blanding, San Juan

County, is the largest community with an estimated population of 2,768 (Bureau of the Census, Population Estimates and Projections, Series P-25).

From 1960-1970 all of the counties experienced significant out-migration (largely among younger people who left the area for other educational and employment opportunities), and as a result three of the four counties experienced net declines in population. Only San Juan County, because of its high rate of natural increase achieved an increase in population. Estimates for the 1970-1976 period indicate that all of the counties with the exception of Garfield have reversed the out-migration trend and are now growing faster than the state as a whole.

Youth-dependency ratios (explained in Appendix 5) as of 1970 were generally high for the four counties while aged dependency varied from county to county. Using Utah aged dependency as a basis for comparison, low aged dependency was found in San Juan County. High aged dependency was found in Garfield, Kane and Wayne Counties. These higher aged dependency ratios were more comparable to those of the nation. The increase in population growth rates that has occurred since 1970 will tend to increase the youth dependency ratios, decrease the aged dependency ratios, and decrease the median age. A significant proportion of Kane County's immigration has consisted of retired people and that county's aged dependency ratio and median age will be higher as a result of that migration trend.

San Juan has a sizable Indian population (57.2 percent). Because of the character of living conditions on the reservation and the generally low economic development in this county, median age and family income are low and youth dependency is quite high.

(3) Economic Activity and Employment

The region around Glen Canyon is less developed economically than many other parts of the state. Per capita personal income of residents in all four surrounding counties have been significantly below the state average; however, per capita personal income in Garfield and Wayne Counties has been growing faster than it has for the state as a whole since 1965. The regional economy has a narrow, undiversified economic base, largely tied to primary production sectors and tourism. This is especially true of individual counties that have a large part of their economic activity dependent upon a single activity like agriculture, mining or recreation.

The most important economic sectors in each county are identified in Appendix 5. In 1975 the government sector employed over one-fourth of the work force in three of the counties and over one-third of the work force in San Juan County. Agriculture was most important in Wayne County, accounting for over 26 percent of total employment; and least important in San Juan County, employing 10.5 percent of the work force. In contrast, the agricultural sector for the State of Utah accounted for about 4 percent of total employment. Other important employment sectors include the manufacturing and services sectors in Garfield County, the trade sector in Kane County, and the mining sector in San Juan County.

In each of the four counties, the agricultural sector's contribution to total county earnings was smaller than that sector's contribution to total county employment. Farm employment (including proprietors) accounted for 16.7 percent and 15.2 percent of total employment in Garfield and Kane Counties, yet that sector's share of total county earnings in 1975 was -1.2 percent in Garfield County and 0.9 percent in Kane County. Low earnings in this particular sector are partly responsible for the low per capita incomes in the region. The government and mining sectors (both relatively high-paying sectors) tended to have a more than proportional impact on earnings. This was also true of the manufacturing sector in Garfield County and to a lesser extent the trade and services sectors in Kane County.

Rates of unemployment have changed significantly in the four-county region. Since the early 1960's, Wayne and San Juan Counties have experienced increasing rates of unemployment and currently have unemployment rates that are among the highest in the state. Rates of unemployment in Garfield and Kane Counties, while still high, have decreased considerably since 1970 when the two counties had the highest rates of unemployment in the entire state. Figure 1 illustrates the monthly variation of unemployment for Garfield, Kane, San Juan and Wayne Counties. Agriculture, construction, timber, and tourism all follow a similar seasonal pattern of economic activity, accentuating problems of maintaining acceptable levels of full-time employment.

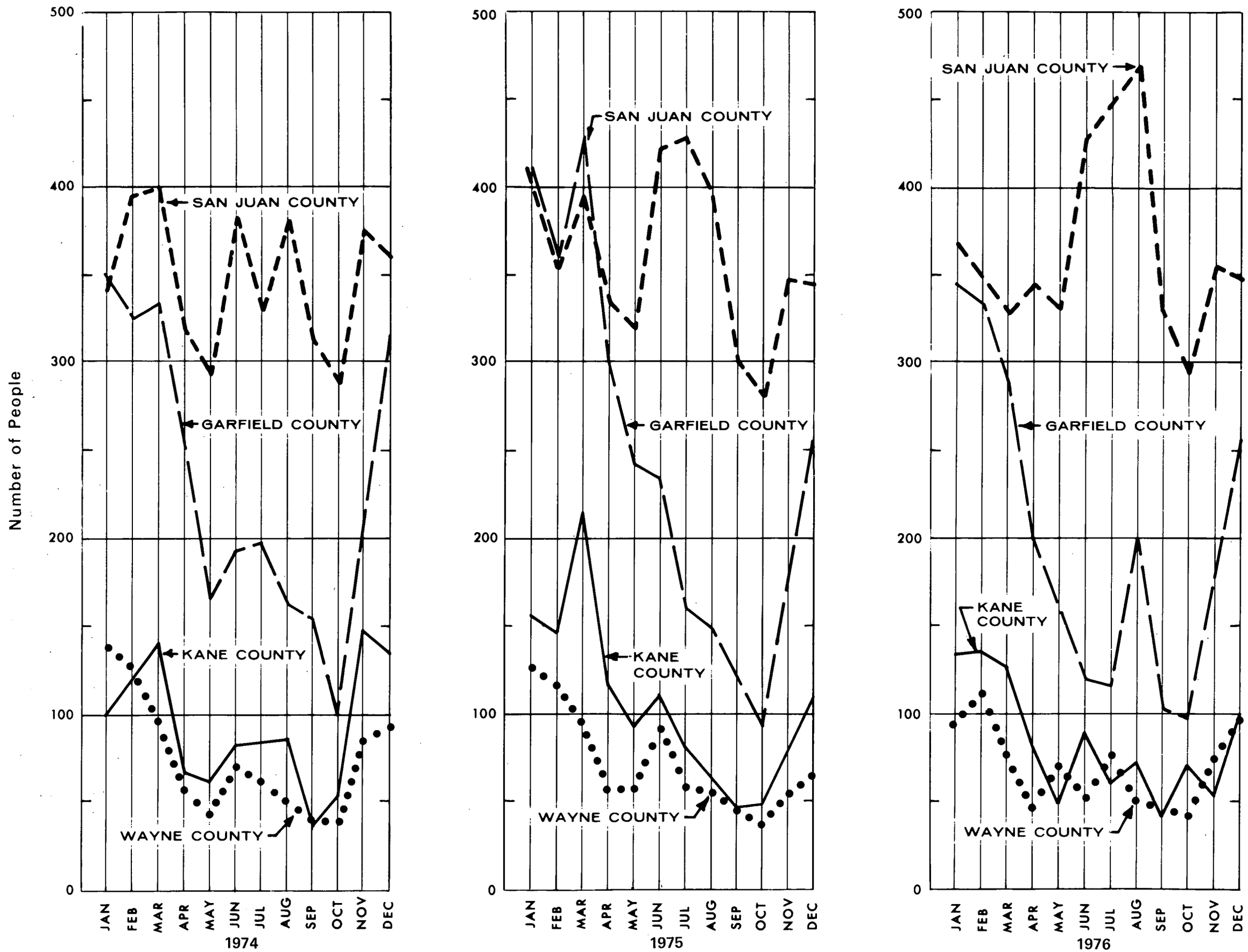

FIGURE 1 Seasonal unemployment, Kane, Wayne, Garfield, and San Juan Counties, 1974-1976

In many of the sectors, these two counties do not employ enough people to meet the needs of the county for locally demanded goods and services. These commodities must be imported from outside the county. This situation is characteristic of many rural areas and does not, by itself, imply economic depression or lack of opportunity. There may be potential for economic expansion into areas of economic activity now served outside the counties if personal income levels are sufficiently high. The narrowness of the economic base in these counties does pose problems of economic stability, however. If key industries falter, economic dislocations may be severe. For instance, if a drought were to occur in Wayne or Garfield Counties (counties heavily dependent upon the agricultural sector), their economies might be hard pressed until the drought ended. Likewise, a slowdown in tourism (reflected in the retail trade and personal services sectors) in Kane County could produce economic dislocations that would be felt countywide.

(4) Income

Relative to the nation and the State of Utah, personal income in the region is low. In 1975, the county with the highest per capita personal income, Garfield County, had attained only 76.7 percent of the state's average per capita income and only 64.7 percent of the national average. San Juan County's per capita personal income, which has historically been the lowest of the four counties, was 56.8 percent of the state average and 47.9 percent of the national average. In terms of growth rates, Wayne County's per capita personal income grew most rapidly in the ten-year period from 1965-75 and San Juan County had the lowest growth rate.

The income of 67 percent of the families was less than $10,000 in 1969. By comparison, only 55 percent of the families in the state of Utah had incomes below $10,000 for the same year. Estimates of the 1975 distribution of income which were developed for the state and the four counties indicated that 24.3 percent of all families in the state had incomes less than $10,000 while 40.3 percent of the families residing in Garfield County had incomes below that figure. Corresponding percentages from Kane, San Juan and Wayne Counties were 31.6 percent, 51.7 percent and 49.6 percent respectively.

Care should be taken in the interpretation of the raw income data, particularly in rural areas like those that predominate in the Glen Canyon region. For example, family income may be lower than elsewhere because fewer members of the family are employed outside the home; food requirements are often supplemented from home- or farm-grown sources; housing, work-commuting expenses, and other costs of living may be relatively low; income reported by self-employed people may not reflect capital accumulation and additions to net worth as in the appreciation and debt reduction of land ownership; and in a broader sense, the association with uncrowded natural amenities contributes importantly to the value of a life-style chosen by people who live in the region. These are real values not captured in statistical income measurements.

For example, when other indicators such as housing, auto ownership, education and medical care are taken into account, Kane and Garfield Counties, which rank very low in terms of personal income alone, fall about midway among all Utah counties (DES 75-43, Bureau of Land Management 1975).

(5) Housing

The vacancy rate for rental units in the study area has been high, reflecting in part a condition of transient activity associated with seasonal variations in employment (see discussion on employment). Between 1960 and 1970, the per capita availability of housing improved, because population changes were generally surpassed by changes in the amounts of year-round housing. There is, at the same time, much dependence on mobile home and trailer accommodations. While such accommodations are often comparable to permanent housing in quality, the amount of permanent housing is more frequently associated with stable community development.

Population increases of the magnitude that have occurred since 1970 would be expected to worsen the per capita availability of housing, particularly permanent housing. Population in the region increased by an estimated 2,500 persons from 1975 to 1977 and construction data indicates that during that time, a total of 428 new dwelling units were built which had a value of $11.07 million. Future housing availability is uncertain and will depend upon the type and magnitude of regional economic development.

(6) Social Services

Health, education and social services (such as police and fire protection) are minimally provided in this sparsely settled area. As with most low density areas, cooperative agreements between areas and voluntarism account for many necessities (e.g. fire protection). The degree to which this minimal provision is entirely adequate is a function of the needs and desires of the resident population. Of all counties described, it is evident that Garfield, Kane and Wayne are quite marginal in their social services coverage.

Demands for social services reflected in public welfare appear to be generally low. One exception is San Juan, which has an extraordinarily high demand for aid to families with dependent children. In general, throughout the region, a tradition of small community and religious solidarity and mutual self help tends to mitigate the apparent dearth of amenities and at the same time contributes to a quality of living higher than might be deducted from the available numerical indicators (DES 75-43, Bureau of Land Management 1975, p. 358).

Barriers to future growth are the availability of water and the capacities of existing sewage treatment facilities. In Kane and Garfield Counties, the facilities are only able to serve the existing population (ibid., P. 360).

(7) Local Government Finances

Although social services of a variety of forms are generally available, they may not be characterized as providing a rich climate for the satisfaction of public needs. Local government revenues are apparently strained to provide more, or better services than now exist, should government officials so desire. Fiscal time lag is a limiting factor, inasmuch as local government finances are dependent upon property tax income, which is fixed to property value levels.

Sources of income more responsive to short-term fluctuation (sales taxes, consumption taxes, liquor profits and personal income taxes, among others) are constrained due to the relative economic inactivity of the area. The local counties would be at an initial disadvantage in serving new populations, unless returns through such short-term sources were increased. Since 1970, the counties have enacted a state-authorized room tax of 1.5 percent on hotel, motel and other transient accommodations. This income is given to the counties for tourist-travel promotion and in-county development.

(8) Attitudes

A public opinion survey (DES Appendix 36) found that the desire for growth and willingness to pay for its costs varied from community to community. The most distinct difference found was that between the southern Utah counties and Page, Arizona. Residents of the southern Utah Counties were more in favor of change (population increase, taxation increase and general economic development) than were the residents of Page. Willingness to change employment was greatest among residents of the counties, especially among the younger people. Willingness to accept monetary investment by outside interests was about the same for the two study areas. One possible explanation for the differences of opinion between the two groups is the experience of Page residents with several recent "boom and bust" cycles, an experience that may temper their otherwise optimistic expectations of benefits, without costs, of economic development. Another explanation may lie in the greater support of highway improvements by rural (southern Utah) versus urban (Page) populace (McMillan and Assael 1968).

The study did reveal, however, certain reservations among the southern Utah interviewees. Concern with the adequacy of water supplies and sewage treatment was expressed. Greater opposition to growth was reflected by residents of Boulder and Kanab than by other communities. Some stipulated that they would favor outside investment if the money were used to benefit the community or if the investors were the "proper" kind of people.

The southern Utah findings may be cast in the context of information covered under the preceding sections on population, economy and social services. Economic underdevelopment and strong community ties have been mentioned as dominant characteristics of this area. With these conditions in mind, support of economic development can be interpreted as both a desire for objective improvements in the physical amenities of living and a desire for subjective improvements in the socio-

emotional atmosphere of living in these communities. Favor of economic development means favor of improved employment opportunities for young persons who would otherwise have to leave their homes and families to earn a living in the "outside" world. Economic development can serve to reinforce and stabilize an undercurrent that otherwise weakens community solidarity.

b. Arizona

In addition to the communities in Utah, the city of Page in Coconino County, Arizona, is within the proposal's zone of influence. Page was created by the Bureau of Reclamation in 1957 to house workers constructing the Glen Canyon Dam. The population peaked in 1962 at about 6,200 persons and then declined to about 1,000 in the next four years. A second boom occurred in 1970 when construction began on the 2,250 megawatt, Navajo generating station, with population reaching a peak of over 9,000 in early 1975. The Bureau of Reclamation turned over operation of the town to locally-elected officials in March, 1975 as a result of Public Law 93-493. Seventeen square miles of land, along with all municipal services, were transferred to the town. Current population is estimated to be between 4,000 and 4,500.

Three employment areas comprise the majority of employment in the Page area: employment at the Navajo generating station (transportation, communication and utilities sector); Federal government; and tourism-related employment (trade and service sectors).

During the rapid growth period and for several years after, municipal facilities and community services were hard pressed to accommodate the population. At the present time, however, Page could handle a population of about 10,000 without substantial strain on community and municipal services. Improved building lots are available, and there are presently about 600 vacant trailer spaces available. Some moderate and low income housing is available in the form of apartments and duplexes.

Water supply and facilities are abundant for the present population. Page is allocated a water supply from Lake Powell sufficient for a population of 15,000 and present water facilities in the town have a capacity to store and distribute water for a population of 10,000. Sewage treatment facilities were designed for a population of 10,000, with additional settling pond areas necessary as population approaches this level. Hydro-electric power is supplied by the Bureau of Reclamation from water released from Lake Powell. Page receives a large enough allocation of power that they resell some of it.

Medical facilities and personnel are adequate for the population. The town has a 25-bed hospital, four doctors, two dentists, and a University of Utah clinic staffed with nurse practitioners. The hospital has a low occupancy rate of 31-32 percent. The physician population ratio is .95 per 1,000 persons, somewhat lower than the 1.53 national average, but satisfactory for a non-urban area. The dentist population ratio (.48 per 1,000) is the same as the national average.

Law enforcement is more than adequate, with about 2 law enforcement persons for each thousand persons. There are two full-time firefighters in Page, with the rest of the fire department made up of volunteers. Ambulance service is also available.

City government finances are excellent. Particularly given the unique situation in Page where virtually all vacant land is owned by the city. Page has no debts and no city property taxes.

School facilities in Page are excellent. Kindegarten through twelfth grade is housed on the same campus, which was recently constructed. Present enrollment is about 1,800, with a low student-teacher ratio of 17:1. The physical facilities have a capacity to accommodate substantial increases in student numbers.

Page's population is expected to be between 5,500 and 6,000 in 1985, and between 6,000 and 7,000 in 1990 according to the Page Comprehensive Plan. Very little would need to be done to accommodate this growth.

SOURCES FOR SECTION IV.A.4

1. Bureau of the Census, Population Estimates and Projections, Series P-25.

2. Bureau of Economic and Business Research, 1975.

3. Bureau of Land Management, 1975.

4. Lee *at al.*, 1972.

5. Nelson, 1975.

6. U.S. Department of Commerce, 1975.

7. Bureau of Economic and Business Research, University of Utah, 1978.

B. The Recreation Area

1. Existing use

The land and water surface of the recreation area is currently used as shown in DES Map 10 and DES Table 7. About 99 percent (1,087,720 acres) of the land surface of the recreation area is in the natural land-use category, where human activities have little influence on natural processes. Even though much of the recreation area is covered by mineral interests and landownership categories that allow several types of mining activities (see Sections IV.B.23. and 24.), such activities are not now taking place--either in the recreation area or on state land included within it. The predominance of the natural category reflects the fact that most of the recreation area is in an undisturbed, or very nearly undisturbed, condition. Lake Powell (163,000 acres), 395 miles of unpaved roads (2,395 acres), and utility rights-of-way (285 acres) comprise the 165,680 acres of the RRU land-use category, where motorized activities and the management of utilities are major uses.

It should be emphasized that existing land-use categories indicate only the location of current land uses, rather than intended ones.

DES Map 10 also serves to indicate the location and extent of existing developed areas (1,595 acres) and paved roads (79 miles). For comparison, acreages and percentages of existing land-use categories and proposed management zones are shown in Table 5.

2. Existing facilities

Table 6 contains a list of principal visitor-use facilities currently in use within or adjacent to the recreation area. The places may be located on DES Map 10.

3. Lake level

Glen Canyon Dam and powerplant have been planned and constructed to operate between the elevations of 3,490 and 3,700 feet above sea level. (See USGS special map in pocket of DES Volume 2.) Within this range in elevation the lake has a volume of 6,124,000 to 27,000,000 acre-feet, an area of 52,000 to 163,000 acres, and a shoreline of 990 to 1,960 miles. Figures 2 and 3 show the relation of surface elevation to lake area and shoreline, respectively. Figure 4 shows the lake elevation through December 1977. Abnormally high inflows could cause the lake to rise above its maximum design elevation (3,700 feet) to 3,711 feet, the elevation of the spillways. During the normal life of the reservoir, the water level is expected to vary between elevation 3,490 and 3,700 feet. A seasonal variation is normally about 25 feet; however, extreme seasonal variations may be as much as 60 feet or as little as 5 feet. Figure 5 gives annual probability curves based upon a model of future inflow to the reservoir and demands for water for the elevation of the reservoir over the next 25 years. Thus, for example, there is a 50 percent chance that the reservoir elevation will be at or above 3,648 feet some time during the year 2000. A maximum, long-term drawdown of 210 feet (from 3,700 to 3,490 feet) could occur in about 35 years if the worst period of recorded inflow reoccurred.

Although the vast majority of the lake's shoreline is cliff walls or steep slopes (from 15 percent to perpendicular, see DES Map 11), in some places, particularly the developed areas, the land slopes away gradually from the water's edge. Here a relatively small vertical variation in the level of the lake (on the order of 10 or 20 feet) can

produce a disproportionately large horizontal change in the distance to the water from any fixed point (on the order of hundreds of feet). Moreover, the configuration of the surface may drastically change as the water level rises or falls.

SOURCES

1. Bureau of Reclamation 1975a.
2. _____1975b.
3. _____personal communications.

Table 5. Existing Land Use and Proposed Management Zones.

ZONE	EXISTING LAND USE		PROPOSED MANAGEMENT ZONES[1]	
	Acreage	Percentage	Acreage	Percentage
Natural	1,087,720	86	668,670	54
(Wilderness)	None		(588,855)[2]	(47)
(Pot. Wild. Add.)	None		(48,955)[3]	(4)
RRU	165,660	13	557,890	45
Development	1,595	<1	19,270	<2
Cultural	25	<1	25	<1
TOTAL	1,255,000		1,245,855[4]	

[1] Management Zoning Proposal or Wilderness Recommendation, as applicable.

[2] Excludes State lands and State mineral rights.

[3] Federal oil-gas leases.

[4] Includes boundary adjustments.

Table 6. Existing facilities.

PLACE	ACREAGE	FACILITIES AND ASSOCIATED CAPACITIES
Lees Ferry	280	Historic Lees Ranch and Lees Fort complex, parking — 135 vehicles, campground — 50 sites, picnic area — 10 sites, campstore, service station, hard hull launching ramp — 2 lane, downriver launching area — small boats for rent — 4 ranger station — 3 houses and 2 trailers, concessioner quarters — 6 trailers. Peak visitation of 1,100 occurred on June 20, 1976.
Wahweap — Lone Rock	440	Lodging — 147 rooms (541 pillows), restaurant — 550 seats, tour boats — 11 (140 passnegers), boat slips — 280, mooring buoys — 100, rental houseboats — 58, rental small boats — 50, dry storage — 400 boats, recreation vehicle park — 120 spaces, marina campstore, marine store, boat repair shop, service station, parking — 500 spaces, campground — 178 sites, picnic area — 124 sites, launching ramps — 4, dirt airstrip — 3,500 feet long, visitor center, dam, switchyard, district ranger station, employee housing — 4 houses, 1 duplex apartment, 1 fourplex apartment, and 10 trailers, concessioner quarters — 80, pit toilets — 4 and random camping — 300 units. Peak visitation at Wahweap of 10,500 people on May 30, 1976, and at Lone Rock of 1,210 people on September 11, 1977.
Rainbow Marina	<1	Store, marine service station, employee housing — 3 houseboats and 1 triplex. All facilities float. Peak visitation of 3,418.
Bullfrog	520	Lodging — 58 rooms (180 pillows), restaurant — 60 seats, tour boat — 38 passengers, boat slips — 50 mooring buoys — 150, rental houseboats — 60, rental small boats — 50, dry storage — 354 boats, rv park — 16 spaces, service station, parking — 575 spaces, campground — 86 sites, picnic area — 50 sites, launching ramp, paved airstrip — 3,500 feet long, ranger station — 21 quarters, and concessioner quarters — 40. Peak visitation of 10,150 occurred on May 28, 1977.
Halls Crossing	320	Lodging — 7 units (88 pillows), restaurant — no seats, boat slips — 53, mooring buoys — 41, rental houseboats — 42, rental small boats — 39, dry storage — 300 boats, rv park — 4 spaces, marina campstore, parking — 300 spaces, campground — 65 sites, picnic area — 20 sites, launching ramp, dirt airstrip — 3,400 feet long, ranger station, employee housing — 4 trailers, and concessioner quarters — 30. Peak visitation of 1,458 occurred on May 28, 1977.
Hite	30	Boat slips — 18, mooring buoys — 25, rental houseboats — 34, rental small boats — 20, dry storage — 100 boats, parking — 150 spaces, campground — 6 sites, launching ramp, paved airstrip — 2,100 feet long, and employee housing — 4 trailers, and concessioner quarters — 10. Peak visitation of 2,844 occurred on May 28, 1977.
Hans Flat	5	Ranger station and employee housing — triplex apartment and 4 trailers.
Total	**1,595**	

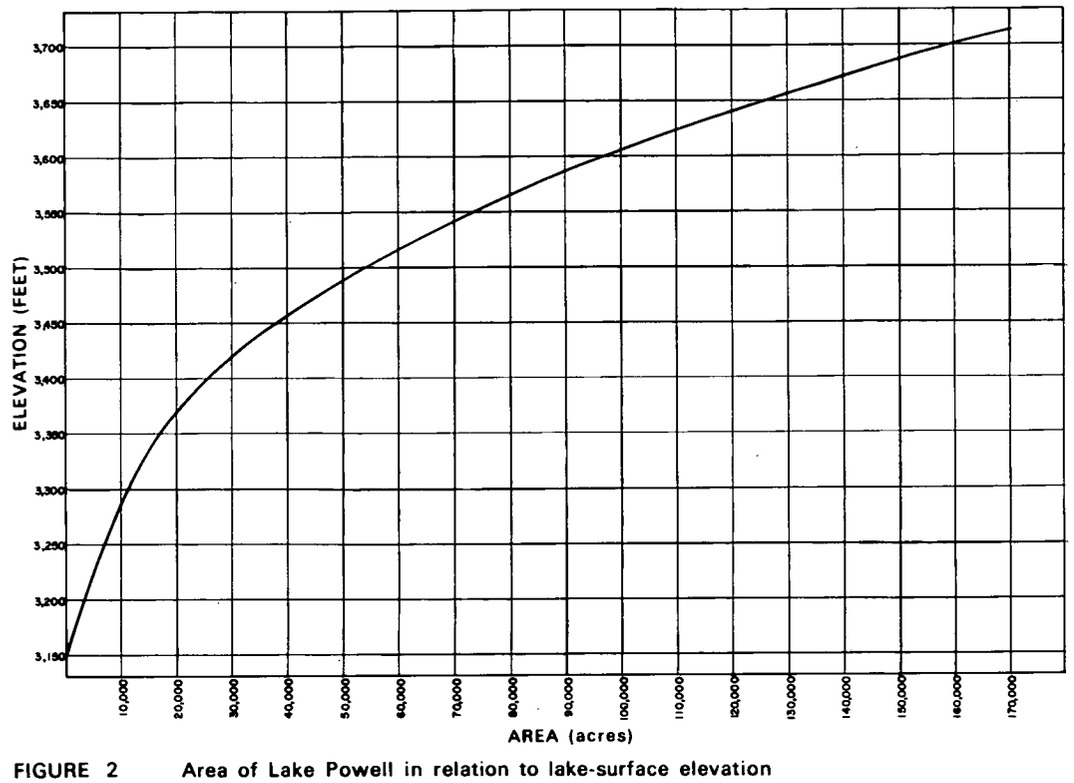

FIGURE 2 Area of Lake Powell in relation to lake-surface elevation

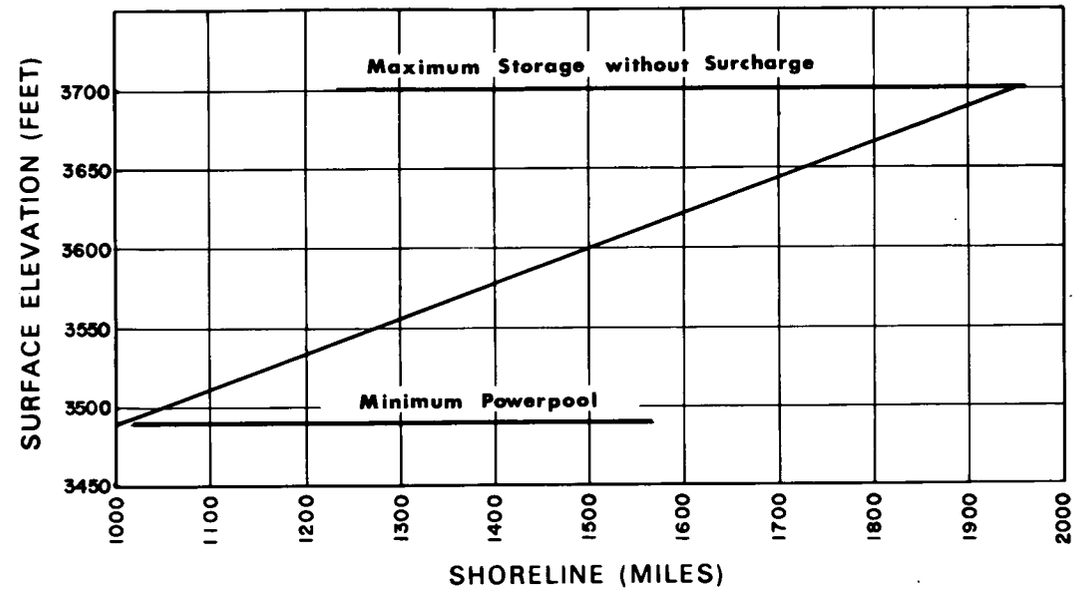

FIGURE 3 Shoreline of Lake Powell in relation to lake-surface elevation

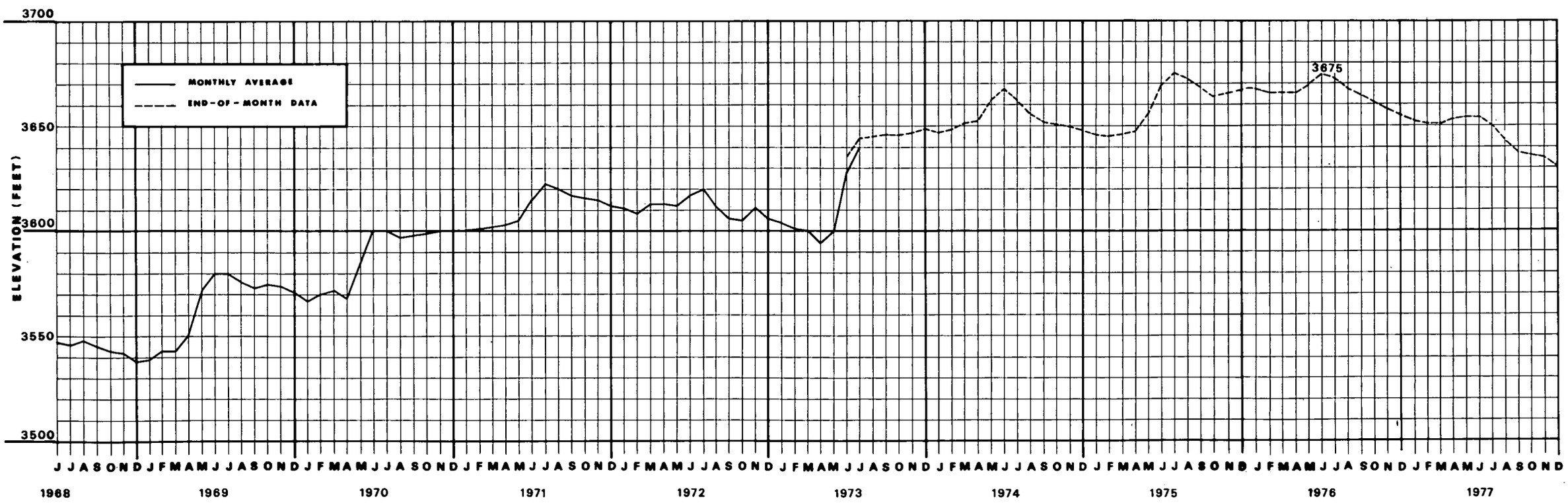

FIGURE 4 Water surface elevation, Lake Powell

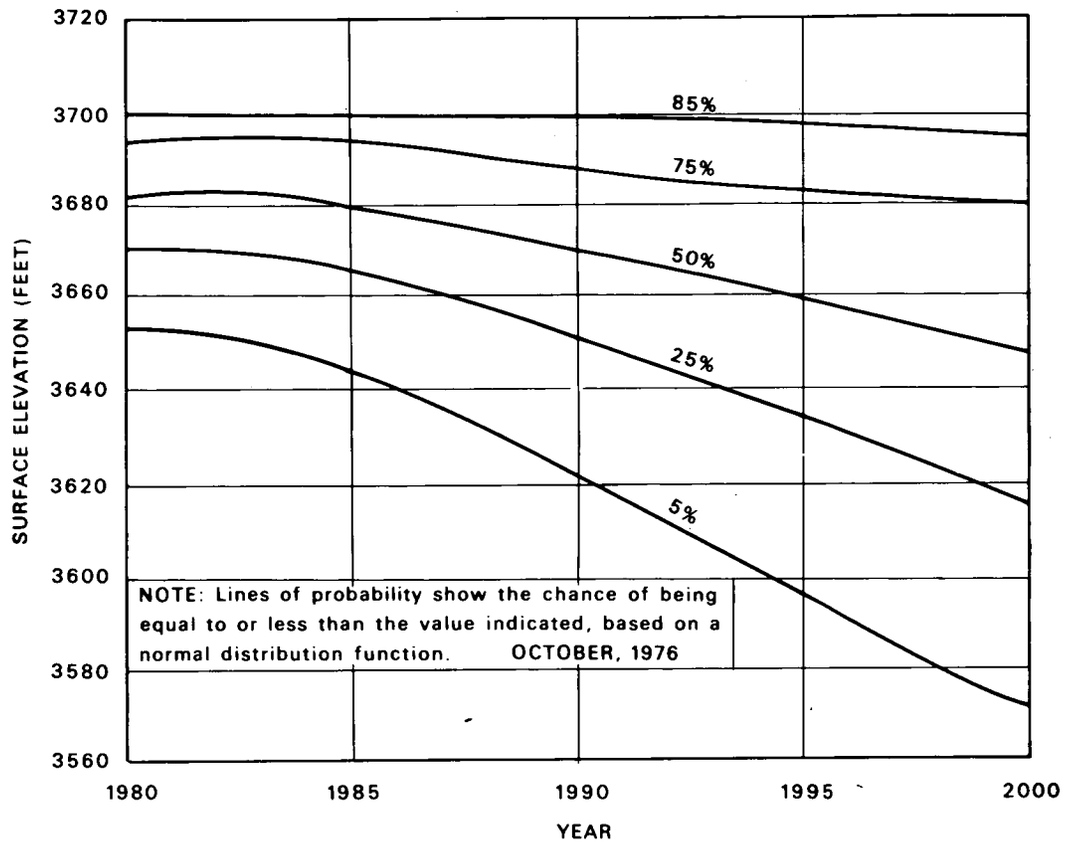

FIGURE 5 **Probability ranges of Lake Powell water surface elevation**

4. Topography in relation to development potential

DES Map 11 shows those areas along the shoreline of Lake Powell, excluding the Navajo Indian Reservation, that have relatively gentle slopes (an average of less than 15 percent) and are for the most part free of canyons, ravines, and escarpments. The map is based upon a lake level of 3,700 feet above sea level. Including the area below this elevation would decrease the number of locations with gentle topography, because more and more cliffs would be exposed as the water level were lowered. At Wahweap, Warm Creek, Bullfrog, and Farley Canyon the gentle slopes generally extend about 1/2 to 3/4 of a mile horizontally to the 3,600-foot contour before dropoff occurs. At Halls Crossing and Hite, on the main channel of the Colorado River, gentle slopes extend only about a quarter mile to the 3,600-foot contour. There is virtually no gradual descent by Dangling Rope Canyon and Llewellyn Gulch, where dropoff begins at 3,680 feet.

5. Sedimentation

Sediment has been measured for the Colorado River and its tributaries since 1925. The average annual inflow of sediment to Lake Powell is computed to be about 70,000 acre-feet for the 1926 to 1974 period. Because there has been a large decrease of sediment since the early years of measurement, it is now estimated that the 100-year accumulation of sediment into Lake Powell will be 5,000,000 acre-feet. This is 19 percent of the capacity of the reservoir. If more major reservoirs are built upstream, they would trap some sediment and decrease the sediment inflow to Lake Powell. The Hite area, just below the head of the reservoir in the area of maximum sediment accumulation, is the only one of the development sites listed in Table 3 to be affected by sedimentation in the near future (20 to 30 years). Sedimentation here is expected to be about 35,000 acre-feet per year, a rate that will silt in the site, necessitating either dredging or abandonment of the marina facilities in about 20 to 30 years. DES figure 6a shows bottom profiles from sedimentation surveys conducted in 1970 and 1973.

SOURCE

Bureau of Reclamation 1975 and 1978.

6. Geologic hazards

Sand deposits and landslides threaten the safety of visitors to the recreation area. Active and stabilized dunes and deposits of blow sand are extensively distributed throughout the recreation area and are especially abundant on stripped rock platforms eroded from thick sandstone units. The deposits generally are on the relatively high divide areas between tributary streams or on the south and southwest sides of canyons. In Glen Canyon large dunes were deposited on the lee side of promontories, on the western side of the canyon, or at the base of north-facing slopes and cliffs on either side of the Colorado River. Scattered blow-sand deposits are almost everywhere and show little relation to prevailing winds. The largest dune area on the Colorado Plateau extends south from Glen and Navajo Canyons to Moenkopi Wash. On the summit of Red Rock Plateau between Moki and San Juan Canyons another extensive dune field is present. Longitudinal dunes and blow sand are present east of the Straight Cliffs and the sand deserts flanking the Henry Mountains. All of these blow-sand and dune areas represent formidable impediments to overland travel (DES Appendix 7 contains more information on this subject).

Although landslides of several types (see DES Appendix 8 for a detailed account) are characteristic of the Canyonlands region, the waters of Lake Powell have intensified the processes that lead to these events. Along numerous segments of the shoreline the lake has created unstable areas that are outstanding hazards to lake users because they are favored camping and mooring spots. The instability is the result of water encroaching upon sandpiles, former landslides, talus slopes, and rockfalls. Sandpiles as much as 100 feet high accumulate to the leeward of vertical cliffs formed by the Navajo, Wingate, and Entrada formations. When such piles become waterlogged, the entire pile can slide into the water in a matter of seconds. Dormant landslides and talus slopes are common along Chinle outcrops. When their toes become lubricated by the rising water, large segments can become activated and slide into the deep nearshore water. Such slides can be detected beforehand by observing breakaway scars. There are no known incidences of injury or property damage from these events.

The most dangerous hazard, yet the one least predictable, is the fall of large slabs of Wingate and Navajo sandstones anywhere along the lake. The falls occur wherever the lake waters have either removed or lubricated the upper part of the supporting rocks. Large slabs can be released along near-vertical joints and topple suddenly into the water. The fall of a single slab 300 feet long and 150 feet high near the mouth of Iceberg Canyon (on the east shore just above the Rincon) in 1974 beached a large boat anchored to the shore across the canyon. Several smaller falls are known, one overhang having collapsed quite suddenly upon an underlying boat, killing one occupant and seriously injuring another. Perhaps the most dangerous aspect of such a fall is the associated large waves, which increase in height as they bore into the narrow canyons.

SOURCE

Geological Survey 1975.

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7. Fish and the Lake Powell fishery

DES Table 10 lists some of the most common or larger fish species of Lake Powell. Largemouth bass and black crappie are currently the most important game species in the lake; trout, last implanted some 4 years ago and now disappearing, are of secondary importance. Striped bass are expected to be a major game species in the future. The endangered Colorado squawfish and humpback chub are extremely rare in the lake. Channel catfish, walleye, and bluegill are other species that contribute to the sport fishery, whose quality is very good. Bass and trout in the 5- to 7-pound class are frequently taken, and crappies up to 2 pounds are not uncommon.

A recent study of the Escalante River (Holden and Irvine 1975) found ten species of fish, only four of which--the flannelmouth sucker, bluehead sucker, roundtail chub, and speckled dace--are native. The introduced red shiner, dominant in the lower part of the river, was the most abundant species.

SOURCES

1. American Fisheries Society 1960.
2. Eddy 1957.
3. Gloss 1971.
4. Holden and Irvine 1975.
6. _____1970.
7. May 1973.
8. May and Gloss 1974.
9. Minchley 1973.
10. Stone *et al*. 1968.

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8. Climate

The recreation area generally receives an average of about 6 to 7 inches of precipitation per year, although canyon bottoms and high plateaus may receive several inches less and more, respectively. The range in annual precipitation usually varies between 4 and 10 inches.

Although snow may fall during the winter months, it normally remains on the ground only a few days, except at the higher elevations (above 7,000 feet). Snow has virtually no effect on the management and use of the recreation area, except in the Orange Cliffs, where occasional heavy snows isolate the Hans Flat ranger station and render the Flint Trail (from Hans Flat to Hite, Map 1) and other roads in the vicinity impassable for periods of several days. Brief, intense thunderstorms produce practically all the moisture received during the summer. Such storms may make use of the recreation area's unpaved roads--notably, the Flint Trail, the Warm Creek/Last Chance road, and the Hole-in-the-Rock road--impossible for up to 2 or 3 days, depending on the intensity of the storm. July and August are generally the wettest months, June the driest.

The relatively mild climate of the region is conducive to a long visitor-use season--from March to October for most activities. Over most of the area, temperature maximums exceed 90 degrees on more than 100 days a year. Extremes of more than 100 degrees are common. Summer minimums average between 60 and 70 degrees during July and August. Winter maximums average in the upper 40s and 50s; minimums average well below freezing, rarely sub-zero. The average number of frost-free days is about 200 days at Glen Canyon City, 220 days at Page, and 245 days at Hite.

The summer thunderstorms that sweep through the area pose a dual threat to visitors. The intense rain that they dump on localized watersheds may cause flashfloods that come pouring down canyon bottoms, annihilating virtually everything in their paths. On the lake, severe winds, gusting to 70 miles per hour, can and have been known to capsize small craft.

SOURCE

Weather Bureau 1971-1974.

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9. Water rights

All water used by National Park Service operations in the recreation area comes from deep wells, with the exception of Lees Ferry, where it is taken directly from the Colorado River, and Rainbow Marina and Hite, where it is taken directly from the lake. Current consumption from wells is about 624 acre-feet per year; from the lake it is about 6 acre-feet per year, and from the Colorado River at Lees Ferry about 8 acre-feet per year. The 15 acre-feet taken from the lake and Colorado River is about 5 percent of the 260 acre-feet reserved for the Glen Canyon Unit by Public Law 93-493. In Utah, well-water is considered the property of the state; in Arizona, it is the property of the landowner. The Park Service holds the water rights from the state of Utah. So long as this legal arrangement persists, adequate water will be available for the management and use of the recreation area.

Other than for its own needs, the National Park Service has no control over the allocation of water from the Colorado River or Lake Powell.

10. Access and circulation

Lake Powell provides the principal access to, and circulation among, the recreation area's many recreational sites and activities. In addition, 79 miles of paved roads and 395 miles of unpaved roads provide vehicular access to the lake, all developed areas, and many remote locations away from the lake. Most of the 395 miles of unpaved roads are often impassable to two-wheel-drive vehicles because of frequent rough, steep, muddy, or sandy sections that prevent or make unsafe driving on them without four-wheel drive. These conditions may occur at any time, but are most likely during winter and summer. (Important exceptions to this condition are the Hole-in-the-Rock road and the road across Warm and Last Chance Creeks, roads that are quite readily traversible by two-wheel-drive vehicles, except when wet.)

11. Visitation, recreational use, carrying capacity

Figure 6 shows yearly visitation from 1962, when the recreation area was established, through 1977. Linear trend analysis for the 16-year period yields an average annual increase of about 25 percent per year, a rate that may be taken as a rough approximation of future growth in visitation to the area. Visitation is highly seasonal with nearly 50 percent of all visits occurring during the months of June, July, and August (Figure 7).

Figure 8 illustrates the distribution of visitation among several major categories of activities: lakeshore and backcountry camping, campground use, fishing, boating, beach use, and picnicking. The popularity of lakeshore camping reflects the recreation area's ideal environment for exploration along Lake Powell. (DES Appendix 9 contains definitions of the various activity categories.) Participation in backcountry and lakeside camping shows the most consistent and rapid growth over the 7-year period. (Except for boat days, defined as one boat on the water for 8 hours or less, all of the lines on the figure represent numbers of people. Accordingly, boat days are not directly comparable to other activities. In fact, some of the other participation estimates are derived by multiplying boat days by an estimated number of people per boat.) Some of the more popular activities for which no discrete use-data are available are: four-wheel-drive motor touring, trailbiking, backpacking, hunting, photography, water skiing, and sailboating.

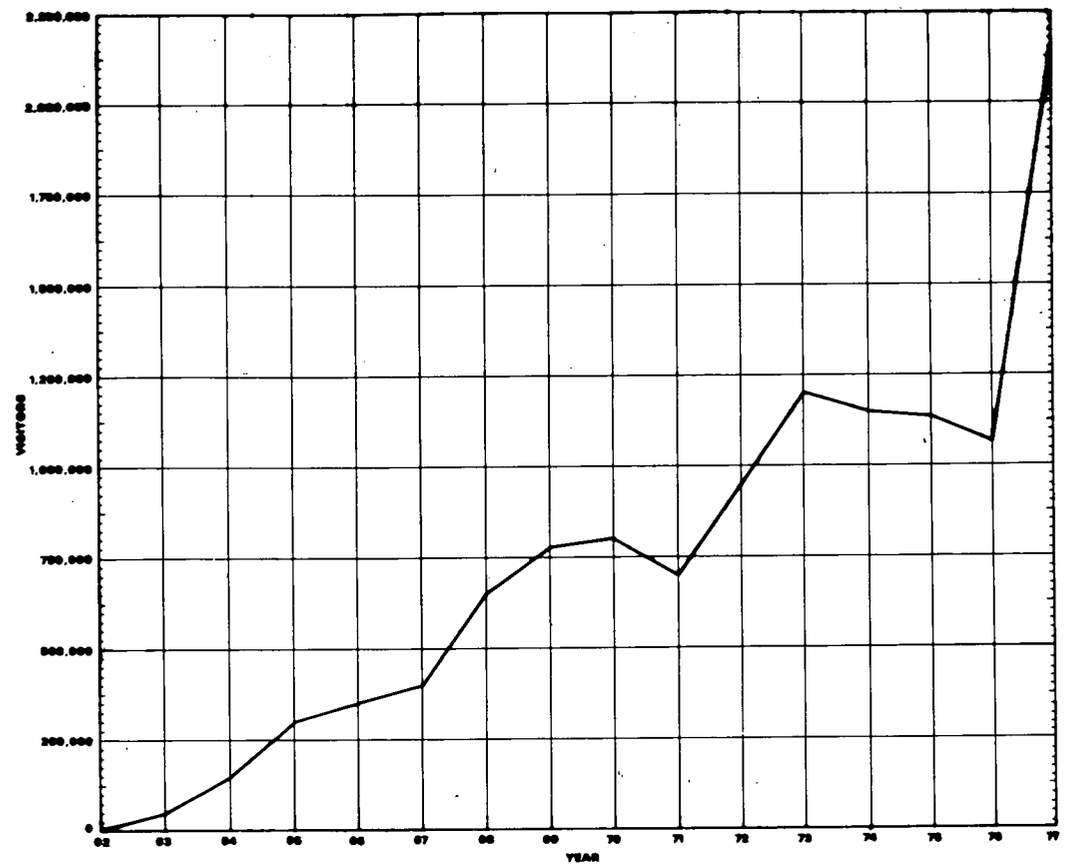

FIGURE 6 Visitation

Visitation by area is shown in Table 7. Note the overwhelmingly heavy use of the Wahweap area, which received about 83 percent (over 3/4 million visits) of the NRA's visitation during 1977. Bullfrog and Halls Crossing, midway up the lake, received 2 and 7 percent of the visitation respectively. Visitation at Hite has significantly increased since Utah 95, on which it lies, was paved. About 60 to 70 percent of the visitation to Lees Ferry consists of river runners starting their journey through the Grand Canyon.

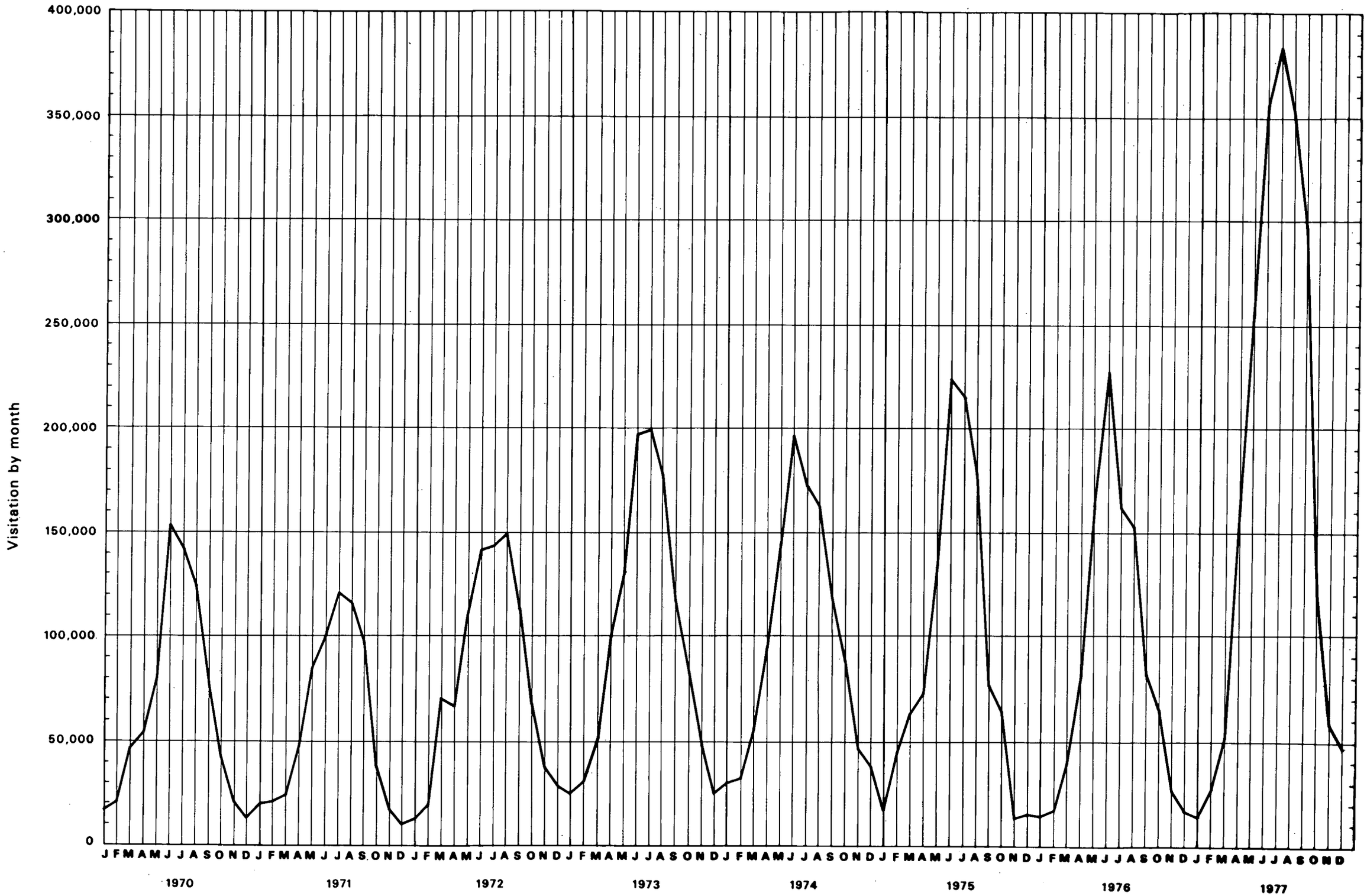

FIGURE 7 Visitation By Month

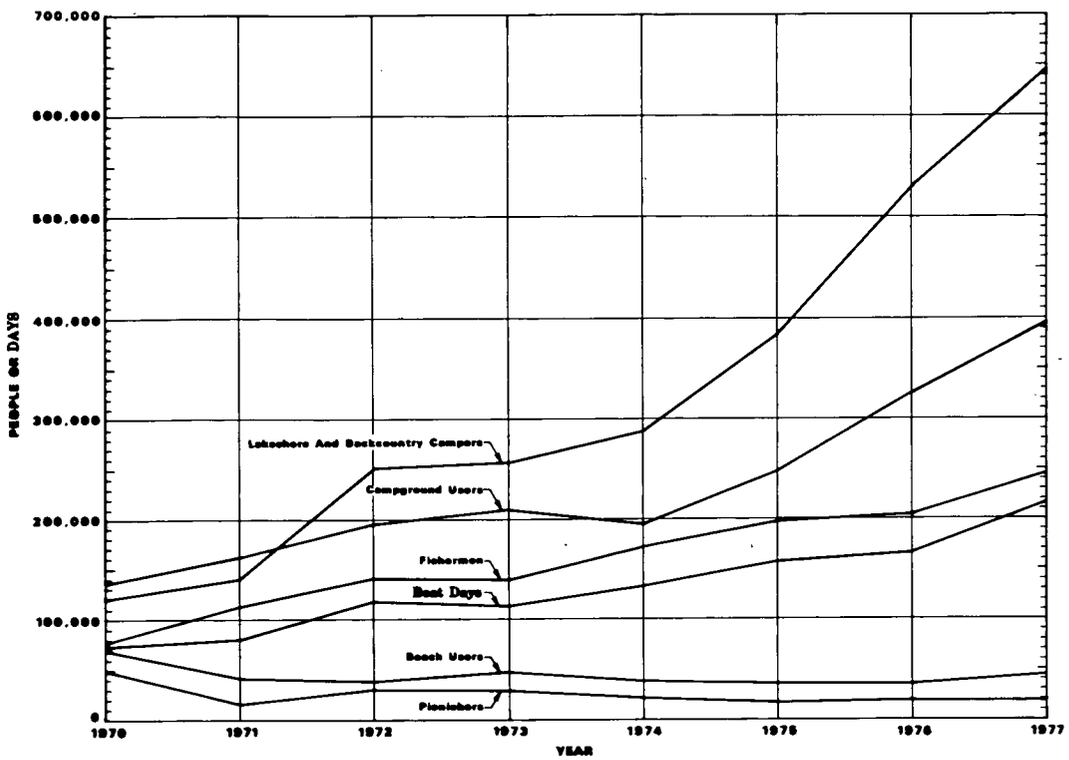

FIGURE 8 Activity Participation

Although the overall carrying capacity of the recreation area is not known, on certain occasions--or for certain periods--the carrying capacity of particular places has apparently been exceeded. (Table 6 shows peak visitation for some places.) On several summer holidays in recent years (Memorial Day, Fourth of July, Labor Day) the capacity of the launching facilities at Wahweap and Bullfrog marinas has been surpassed. During these times congestion and inordinate waits for launching and takeout contributed to a significant depreciation in the visitor experience. Disagreeable waits for fuel, one such wait of quite serious proportions, have often occurred at the Rainbow Marina, which in 1972 pumped more gasoline than any other station in the state of Utah. In Coyote Gulch, the most popular hiking area in the recreation area, the number of people has frequently either destroyed or severely weakened any feeling of solitude and remoteness, attributes quite important to the visitor experience in such areas. Sanitation problems have also accompanied the apparent overcrowding. Conflicts between cows and people in Harris Wash represent another manifestation of the carrying capacity problem. Some visitors feel the animals degrade water quality, adversely affect aesthetics (through their droppings and effects on vegetation), and detract from the wilderness experience by acting as reminders of modern man's activities.

The recreation area's overall carrying capacity (which may be defined as the number of people capable of using a given area in a given time without causing an unacceptable change in some component of the biological, physical, and psychological environment), depends upon the individual capacities of discrete geographic units, such as Wahweap Bay, Wahweap marina, Navajo Canyon, Davis Gulch, Coyote Gulch, Panorama Point, or a multitude of other such places. Table 3 contains estimates of the capacities of the developed zones. The carrying capacity of each one of these places depends upon the unique combination of biological and physical resources they possess. In addition, it is important to note that the individual facilities, such as those for boat launching, vehicle parking, food service, overnight accommodation, and supply of recreation items, themselves interact in a complex, time-dependent way to produce compound carrying capacities, which are unknown at this time.

Table 7. Visitation by area.

YEAR	WAHWEAP		LEES FERRY		HALLS CROSSING		BULLFROG		HITE		ORANGE CLIFFS		ESCALANTE		ENTIRE NRA	
		Percent-age		Percent-age		Percent-age		Percent-age		Percent-age		Percent-age		Percent-age		Percent-age
1970	628,444	79	57,544	7	20,285	3	74,016	9	8,165	1	**		**		792,499	100
1971	535,382	78	76,262	11	17,599	3	47,268	7	11,210	2	**		**		687,721	100
1972	764,111	79	84,205	9	21,500	2	73,954	8	27,152	3	**		**		970,922	100
1973	971,864	84	72,660	6	24,979	2	68,732	6	22,673	2	**		**		1,160,908	100
1974	976,515	84	57,337	5	26,943	2	61,510	5	32,494	3	2,220	*	2,364	*	1,159,383	100
1975	931,376	82	60,098	5	36,391	3	72,851	6	34,289	3	1,336	*	2,934	*	1,139,275	100
1976	701,341	66	95,731	9	66,204	6	121,303	11	72,385	7	1,339	*	3,413	*	1,061,716	100
1977	1,759,676	83	82,952	4	51,355	2	156,330	7	72,569	3	1,551	*	2,986	*	2,127,419	100

* Less than 1.

** No data.

12. Scenery

DES Map 15 shows a classification of the recreation area's natural scenic resources into four classes excluding the 163,000-acre surface of Lake Powell. Class I (outstanding) areas (116,000 acres) contain scenery superior in a number of ways: size, form, contrast, color, angularity, diversity of form and color, the rate of change of all of these attributes, and uniqueness. Class I areas, typically, are deep canyons, unique geological structures, and intricately carved landscapes. The canyons of the Escalante and Little Rockies, and the Waterpocket Fold, fall into this category. (To locate these features, place DES Overlay 4 on Map 15.) Class II (superior) areas (186,000 acres) may contain a single property of superior quality, such as immensity, or great angularity, or diversity of form and color, but the sum of all their properties is distinctly, albeit subjectively, less than the sum for Class I areas. Examples of Class II areas are the slick rock of Wilson Mesa, the canyon of the San Juan (from Grand Gulch to Mexican Hat), and the canyon of the Dirty Devil. Class III (interesting) areas (460,000 acres) have recognizably less interest than Class II areas: Their features, singly or collectively, lack the grandeur, superiority, prominence, or notability of those of Classes I and II, but they nonetheless lend considerable interest to the general scene. Examples of Class III areas are the cliffs and foreground surrounding Wahweap, Warm Creek, and Rock Creek Bays, the rolling slickrock benchlands above the Escalante canyons, and portions of the San Juan. Class IV (unremarkable) areas (330,000 acres) are relatively flat, monotonous expanses of shrub or pinyon-juniper communities where each of the landscape qualities cited above has the lowest rank. Examples of Class IV areas are the pinyon-juniper flats above the Orange Cliffs, on top of the Kaiparowits Plateau, the Purple Hills region, Antelope Island, and the mesa tops above Warm Creek, Padre, and Last Chance Bays.

DES Appendix 10 describes scenic aspects of the physiography, topogrophy, and geology of the Canyonlands section of the Colorado Plateau.

DES Appendix 11 contains a description of the scenery of selected areas within the recreation area.

The scenic value classification in the DES and illustrated on DES Map 15 precipitated many unfavorable comments, especially by conservationists. The general consensus was that all of the recreation area was of the highest value. However, a value ranking has little meaning if everything has the same rank. Granted the classification was subjective; but it was and still is the best attempt to differentiate between the scenic resources of the recreation area. The most difficult task in this entire planning process was the evaluation of known observable natural resources such as scenery with the worth of the known and postulated mineral resource occurrences. It was no more realistic or unbiased to portray the area to be equal scenically than to give equal weight to the speculative mineral resources such as oil and gas.

13. Wildlife

The rather sterile-looking aspect of the recreation area's landscape belies the wealth of animal life that it hosts. Many species and large populations of small mammals, birds, and reptiles may be found almost everywhere (Hayward, Beck, and Tanner 1958), from the deepest canyon bottoms to the tops of the highest plateaus. Bighorn sheep, beaver, mule deer, antelope, and feral horse may be found in numerous locations; predators such as bobcat, mountain lion, gray fox, badger, kit fox, and coyote also range widely, especially in winter, when conditions in the low country surrounding Lake Powell and the Escalante River are more favorable for their prey. Man's activities in the area have greatly reduced the numbers and ranges of all of these animals, which were formerly abundant throughout the entire Glen Canyon region.

The desert bighorn sheep is the area's single most important big game species. The Glen Canyon area, with tributary side canyons and adjacent plateaus and mesas, supports some of the last relict bighorn herds (probably around 100 to 200 animals), which were once abundant throughout the state. (The primary cause of the reduction in numbers of sheep in Utah is loss of habitat, over-utilization of range by domestic livestock, and illegal hunting--Irvine 1969, Wilson 1968.) In fact, the Red, White, and Gypsum Canyon regions, where the bighorn are definitely known to occur, are among the few areas in Utah where the species is currently maintaining its numbers. The animals do not appear to be migrating in any specific way, but rather occupy a range over which generalized movement occurs.

Although bighorn populations are presently confined primarily to this region, sightings in other areas indicate that much of the recreation area is suitable habitat for this species (DES Map 16).

The most critical areas for bighorn are the lambing grounds, which appear to be exclusively located in the vicinity of Red, White, and Gypsum Canyons. Other lambing grounds may exist, however, since the general distribution of bighorn occurs over a large area. A large amount of suitable bighorn sheep habitat remains within the Escalante area, although bighorn sightings have not been reported for many years. The Utah Division of Wildlife Resources has established a population in this area.

The topographic diversity and abundance of prey provide suitable habitat for numerous species of predatory birds. The red-tailed hawk, prairie and peregrine falcons, golden and northern bald eagles, and the burrowing owl have been specifically noted within the recreation area's boundaries. The peregrine falcon is classified as "endangered" by the U.S. Fish and Wildlife Service.

An estimated several hundred mule deer utilize the recreation area for winter range only during the more severe winters, greatest use at this time occurring south of the Escalante River. Limited winter use also occurs along the San Juan River and below the Orange Cliffs. Most deer summer-range is outside the recreation area. Available information indicates, however, that a limited number of deer are found throughout the year in tributary side canyons, where riparian vegetation attracts and supports the animals.

Suitable antelope habitat exists in the southern portion of the recreation area, although actual utilization is low or absent. The state of Utah did not allow an antelope hunt in or near the recreation area in 1973 or 1974. In 1970 and 1971 a total of 127 antelope were transplanted to East Clark Bench between the Paria River and the recreation area just north of the Arizona border. These animals are considered to be maintaining their numbers. Other areas considered suitable for future antelope transplants are southeast of the Escalante River (to Lake Powell) and south of the Colorado River to the San Juan.

DES Appendix 12 contains additional information on the recreation area's wildlife.

SOURCES

1. Fautin 1946.
2. Hayward et al. 1958.
3. Levine 1969.
4. Kleiner and Harper 1972.
5. Fish and Wildlife Service 1975.
6. _____1974.
7. _____1973.
8. Wilson 1968.
9. Woodbury 1959.

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14. Vegetation

The recreation area contains four principal vegetation associations, consisting of 18 recognizably distinct plant communities (DES Table 13). The Northern Desert Shrub Association (almost 903,000 acres) occupies broad valleys, slopes, mesa tops, and low hills and is typified by communities of sagebrush, shadscale, blackbrush, greasewood, saltbush, and rabbitbrush. The Pinyon-Juniper Woodland (187,000 acres), occupying higher mesas or slopes where the soil is rocky or sandy, varies from extensive and continuous forests to scattered stands interspersed with desert shrubs. The Cottonwood-Willow-Saltcedar Floodplain Association (almost 1,850 acres) characteristically borders waterways and sandy washes. Hanging Gardens (about 10 acres) occur on seep seams along steep canyon walls and support a rich variety and luxuriant growth of plants adapted to wet conditions. All but the last are extensive and common throughout the Colorado Plateau (DES Figure 10). DES Appendix 13 contains a more detailed account of the floristics and physiognomy of the several associations.

Certain aspects of the vegetation merit mention here because of their potential influence on management and use of the recreation area. Within the next several years saltcedar, an aggressive naturalizing shrub that has escaped from cultivation, will form dense bands in and just above the fluctuation zone along the banks of the reservoir wherever suitable substrate is available, especially on cyclically drowned and exposed talus and dune-sand slopes. The saltcedar is not killed by seasonal submergence; the sandy drawdown zones exposed from the previous season's inundation have a foliage cover nearly equalling that of the unflooded zone and a rapid seasonal recovery in the production of plant material. When the

water level is up, the submerged vegetation, which hampers approach by motorboats, will become enveloped by a gelatinous layer of algae, making swimming quite unpleasant. When exposed by the annual drawdown, this zone will be visually and tactually offensive and foul-smelling.

The first year's growth of saltcedar may be up to 6 feet. Wherever it is not flooded for 2 successive years, it may be 10 to 12 feet tall. The density of the stems is expected to increase yearly, probably for the first decade or so of growth. Use of, and penetration through, this zone may be virtually impossible, unless a certain degree of control, a very arduous undertaking, is practiced. (Some control may be possible through repeated burning followed by hand-grubbing, a process that requires much manpower and time. Proximity to the lake prevents the use of herbicides, which would readily injure lacustrine life.)

The Pinyon-Juniper Association contains extensive areas devoid of vascular-plant groundcover. These zones characteristically harbor a well-developed "cryptogamic earth" composed of the common black lichen and several other nonvascular plants that form a distinctive irregular, scaly, and bubbly soil surface. Cryptogamic earth requires years to form; it stabilizes the soil, provides good percolation, decreases erosion from winds and torrential summer rains, and contributes to nutrient cycling (particularly nitrogen) and the organic content of the surface soil. Disturbance, such as grazing and vehicular use, destroys the soil structure, rendering the surface vulnerable to accelerated erosion.

Approximately 570,000 acres, or 52 percent of the recreation area's land surface, is currently used for grazing, even though 891,632 acres have been allotted. Of the 570,000 acres of actual use, about 90 percent (513,000 acres) occur within the Northern Desert Shrub Association, about 9 percent (56,000 acres) in the Pinyon-Juniper Association, and less than 1 percent (1,000 acres) in the Floodplain Association. The greatest potential for forage production and capability to support grazing occur in the Floodplain Association, followed in decreasing order by the Northern Desert Shrub Association and the Pinyon-Juniper Association.

The condition of the range has been evaluated by the Bureau of Land Management on the basis of existing productivity relative to other areas of comparable soils, climate, and vegetational communities elsewhere in the region. This evaluation indicates that the condition of 190,000 acres (33 percent) are considered good, 350,000 acres (62 percent) fair, and 30,000 acres (5 percent) poor (DES Map 32). The long history of overgrazing in this area is responsible for most of the "fair" ratings and all of the "poor" ones. The Bureau estimates (in DES Map 33) that under optimal spatial and seasonal distribution of livestock, the potential productivity of the range would be good on 390,000 acres (68 percent) and fair on 180,000 acres (32 percent). Climatic and edaphic conditions (i.e., in very dry areas of rockland) are causative factors in limiting the potential productivity of areas in the Escalante and at the southern end of the Kaiparowits Plateau that are rated as "fair" on DES Map 33.

SOURCES

1. Fautin 1946.
2. Kleiner and Harper 1972.
3. Robinson 1965.
4. Smithsonian Institution 1975.
5. Welsh and Murdock 1975.
6. Woodbury 1959.

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15. Soils

No detailed soils map of the area is available. Utah and Coconino County, Arizona, have mapped the area at a scale of 1:250,000; the results of this effort appear in DES Map 17, which shows the boundaries of eight soil zones. (The discontinuity of zone boundaries along the Utah-Arizona border apparently results from discrepant descriptions in the source documents, rather than from real differences in the soils.) DES Appendix 14 contains a detailed, technical account of the soil associations.

The recreation area contains very few areas of well-developed soils. Approximately a third of the area is bare rock (400,000 acres), another third bare rock with pockets or thin cover (less than 20 inches) of windblown sand, and most of the remainder unstable, wind- or water-deposited materials subject to continual disturbance. Deeper, more mature soils do exist, however, in alluvial situations where active erosion is not now occurring (an estimated 1,850 acres). Except for these alluvial soils,

all of the recreation area's soils are highly erosion-susceptible and are readily transported by wind and water. The only impediment to their movement is the sparse mantle of vegetation that helps bind the soil particles. Any disturbance of this vegetative cover by vehicles, trampling, or grazing can readily increase the volume of material transported.

The relation between soil types (DES Map 17) and potential range conditions (DES Map 33) is variable. In general, rockland, badland, and sand have very low capability to support grazing; alluvial soils have moderate to high capability; and the remaining types have variable, but generally moderate capability, depending on local moisture conditions. Because bedrock averages less than 20 inches from the surface over the entire recreation area, except in alluvial deposits, the properties of the soil veneer have relatively little influence on most types of development, which is affected far more by the engineering properties of the bedrock itself. Although alluvial deposits have a good structural capability to support development, flood hazard and recreational values associated with their location in scenic canyons permit their use only for minor temporary recreational facilities (i.e., trails, campgrounds, or pit toilets).

16. Geology

The recreation area contains exposures of sedimentary rocks totaling more than 10,000 feet in thickness, if the rocks were placed vertically on top of one another in one location (DES Table 14). Only the Chinle formation (94,000 acres) and Tropic shale and Dakota sandstone (17,000 acres), containing high amounts of bentonitic clays, are especially vulnerable to disturbance; all other rock units within the recreation area are highly capable of supporting development. When wet, the bentonitic clays swell, slide easily, and appear to flow, causing the undermining of overlying materials. Compaction or scarring of the surface can easily result in accelerated sheet and gully erosion, aggravated all the more by the virtually complete absence of vegetation (except in unusually wet years when the Tropic shale supports a luxuriant cover of annuals, biennials, and perennials). These erosion-susceptible rock units (DES Map 18) do not occur in any of the Development Zones, except for 15 miles of an existing 50-foot-wide road corridor for Utah Highway 95 northwest of Hite (place Overlay 1 on DES Map 18). In addition, 36 miles of 50-foot-wide unpaved road corridors occur on erosion-susceptible rock units within the Orange Cliffs, and in the Smoky Mountain/Nipple Bench area. DES Appendix 15 contains a technical account of the stratigraphy within the recreation area. DES Appendixes 7 and 8, providing detailed information on eolian deposits and landslide/talus deposits, respectively, have been discussed previously under "Geologic hazards" (Section IV.B.6). These deposits are highly unsuitable for all types of development and have been avoided in the establishment of the park's 8 development sites.

SOURCES

1. Hackman and Wyant 1973.
2. Miller, James, and Richardson 1972.
3. Soil Survey Staff 1974.
4. Geological Survey 1975.
5. Wilson et al. 1975.

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17. Lake water quality

The quality of water in Lake Powell may be generally characterized as good and does not pose any restraint on the development and use of the recreation area. (Dissolved oxygen concentrations of surface water are high, and water transparency is relatively good--see DES Appendix 16 for details.) With the possible exception of mercury, water pollution does not appear to be a problem at this time. Sewage effluents, petroleum residues, and rubbish at the four major access points (Wahweap, Bullfrog, Halls Crossing, Hite) and from boats on the lake are entering the aquatic environment in negligible quantities compared to the total volume of water in the lake. Support for this conclusion may be found in a recent EPA study on the effects of marine engine use on lacustrine environments. The study found no detectable effects on aquatic ecosystems from intensities of use (1 liter of fuel burned per day/million liters of water) far in excess of levels that have occurred on Lake Powell. (DES Appendix 17 details the

conclusions of this study). The lack of blooms of blue-green algae, a widely recognized indicator of cultural eutrophication from sewage, livestock wastes, and culturally induced sedimentation, further indicates that pollution and eutrophication are not currently important problems. Phytoplankton blooms, dominated by green algae and diatoms, are not spread over extensive areas of the lake at any one time, but occur sporadically in areas of quiet water whenever conditions of temperature and nutrient availability are suitable. Although the enormous sediment input (about 50,000 acre-feet per year) contributes to the development of oxygen-free conditions in the deepest areas of the lake, as discussed in DES Appendix 16, the dissolved oxygen concentration is consistently high in both surface and subsurface waters, a fact supported by the existence of the trout fishery.

The presence of mercury in Lake Powell is probably due to the effects of weathering and chemical processes on the mercury-bearing sedimentary rocks of the area and unidentified sources that drain into the lake. Mercury concentrations in the water are about 0.1 or less parts per billion (ppb), a value that is normal for most waters but is increasing due to sedimentation. Mercury is about 3,000 times more concentrated in the sediment than in the water and is continuing to accumulate. The mercury in the sediment is released to the biota through biotic and abiotic processes and becomes even more concentrated in organisms up the food chain such as fish. Mercury concentrations in fish vary with species and size, but large predatory gamefish such as bass, walleyes, trout, and panfish contain between 100 and 700 ppb. The higher concentrations in these fish exceed the currently accepted safe standard for human consumption of 500 ppb for two meals per week and, therefore, are of concern to anglers that utilize the resource.

The mercury pollution problem in the future may be aggravated by the electric power generating stations that are being established in the vicinity of Lake Powell. These coal-fired generating stations will release into the atmosphere large quantities of mercury vapor and fly ash containing mercury. An estimated 40 percent of the mercury will enter the waters of Lake Powell and ultimately increase mercury concentrations in gamefish to levels above those that currently exist.

SOURCES

1. Anderson 1972.
2. Gloss and May 1971.
3. Reynolds and Johnson 1974.
4. Standiford, Potter, and Kidd 1973.
5. Bureau of Reclamation 1975.
6. Environmental Protection Agency undated.

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18. Groundwater

The geologic setting of much of the recreation area is an ideal environment for the perched aquifers that support the flow of many springs issuing from valley sides and cliff faces. Throughout the recreation area, perched aquifers and unsaturated permeable zones occur within the geologic strata down to the levels of either the perennial streams or Lake Powell (DES Map 19). Presumably, at levels below either the perennial streams or Lake Powell, all permeable zones are saturated, and the stream or reservoir surfaces approximate the regional water table. Following the formation of Lake Powell, the regional water table began adjusting to a new and higher base level. Rock strata previously unsaturated have, or will eventually, become saturated as the regional hydrologic system adjusts to the fluctuating base level, which is that of Lake Powell. In areas underlain by permeable, fractured sandstone adjacent to and below the operating level of Lake Powell, substantial aquifers have been created where no, or only thin, perched aquifers existed previously.

The recreation area withdraws groundwater at all of its developed areas except Lees Ferry, where it is taken directly from the Colorado River, and Rainbow Marina and Hite, where it is taken directly from the lake. There is no problem with the quality or quantity of this water for domestic consumption.

The chemical quality of water from the various aquifers in the recreation area ranges from excellent--suitable for drinking with no treatment--to poor--too saline for drinking and most other uses. Accordingly, backcountry users may encounter water from springs and seeps that is potable, at least in small

quantities, from a bacteriological and chemical standpoint but highly unpalatable due to elevated concentrations of dissolved salts. DES Appendixes 18 and 19 contain technical information and data relating to the hydrologic characteristics of the recreation area's groundwater resources. Except as mentioned above, these characteristics have no effect on use and development of the recreation area.

19. Surface water

The principal streams of the recreation area--the Colorado, Dirty Devil, Escalante, San Juan, and Paria--carry a relatively high concentration of dissolved solids (DES Table 15), averaging between 300 parts per million (ppm) in the Escalante to just under 2,000 ppm in the Dirty Devil. This is a characteristic of rivers where precipitation is generally sparse and poorly distributed in time (Chow 1964). Many of the smaller streams are intermittent and carry water only after infrequent thunderstorms, most of which are brief and cover only small areas. Others contain permanent water from seeps and springs. There are no significant sources of bacteriologic or organic pollutants either within the recreation area or immediately upstream of it. (Note that the nitrate concentration, DES Table 15, of all streams is quite low). DES Appendix 20 contains additional information describing the relationship between flow volume and water type for the recreation area's streams.

SOURCES

1. Chow 1964.
2. Iorns, Hembree, and Oakland 1965.
3. Geological Survey 1975.

20. Air quality, including noise

Walther and others (1974) studied the region's air quality prior to the startup of the Navajo Generating Station in June 1974 and concluded that the air was "clean and quiet." (These authors consider noise a constituent of air quality. DES Appendix 21 contains a summary of their findings.) Dames and Moore (1975) studied the air quality in the vicinity of the Navajo Power Plant for the years 1970-1974. Although they did not characterize the quality of the air in a single phrase or statement, their data showed the air to be very clean. A summary of their 1974 results, along with ambient air quality standards, is reproduced in DES Appendix 22. At least in the Page/Wahweap area, this conclusion is probably not accurate today, a result of the Navajo plant's emitting an average of 7.25 tons of particulates, 210 tons of sulfur dioxide, and 204 tons of nitrogen oxides per day. The average visibility, described in the 1974 report as "excellent" (about 125 miles), is now noticeably less due to a conspicuous brown haze that lies over the area during the predominantly calm weather conditions.

Subsequent investigation by the authors has confirmed that air quality has noticeably deteriorated in the Page area during the course of their investigations.

Recent findings by the original investigators, now in press, confirm the deteriorating air quality in the Lake Powell region. This appears in Lake Powell Research Project Bulletin No. 52, entitled The Excellent But Deteriorating Air Quality In The Lake Powell Region by E.G. Walther, et al.

SOURCES

1. Cowherd and Axetell 1974.
2. Dames and Moore 1975.
3. Walther et al. 1974.
4. Walther et al. 1977

21. Archeological resources

The recreation area contains evidence of seven periods of aboriginal use: Desert Archaic; Basketmaker II and III; and Pueblo I, II, III, and IV. Occupancy was not continuous nor equally heavy throughout the area. The canyonlands cannot certainly be shown to have been used much by man prior to the Christian era. This may be due more to gaps in the data than to lack of early occupation. No evidence of big game hunters, usually dated at approximately 5000 to 8000 B.C., has been discovered. At Sand Dune Cave on Cedar Mesa, Desert Archaic deposits dated at perhaps 3000 B.C. are reported. This simple but specialized culture, with a technology adapted to constant wandering over a yearly route from one seasonal vegetable food source to another, is characterized by skill and ingenuity in exploiting a spectrum of plants not recognized by moderns as edible or otherwise useful to humans.

In lower Glen Canyon, there are fairly well documented manifestations of a lithic stage thought to have existed prior to the Basketmaker II era. Dating of these remains is difficult.

Several areas--notably Moki Canyon and a few sites on the main stem and on the plateaus--show Basketmaker II occupancy (A.D. 1-400). The sites are characterized by a lack of pottery, above- and below-ground slab-lined cists, sandals, and cradleboard burials. It seems the people lived in the open, for the most part, and stored their food in slab cists, cooking it over large upright slab hearths or over large fires. This occupancy was not only scanty but short, so that the canyonlands were apparently again relatively empty of permanent inhabitants until the era of so-called Pueblo expansion. Basketmaker III sites (A.D. 400-700) are not represented in any canyon except Navajo, where they are reported from a tributary. Numerous Basketmaker sites are rumored to exist on Cedar Mesa, but this has not been verified.

Pueblo 1 sites (A.D. 700-900) are claimed for Navajo Canyon in lower Glen Canyon. These were usually one or two rooms, but some larger sites have been found.

It was only in Pueblo II (A.D. 900-1100) and Pueblo III (A.D. 1100-1300) times that heavy settlement of the lowland canyon system is reported; this was a more general and complete occupation and is the best documented period of prehistoric habitation. The diagnostic traits for the two periods differ in ceramics alone. Sites in the region included quite small dwellings, one to seven rooms, some of which were perhaps used primarily for storage. There were some kivas. All these dwellings were primarily masonry, although some jacal has been found.

After these years, Glen Canyon and the vast lands around it seem to have been empty of human life for a time. There is some evidence of Pueblo IV use, but this may only be campsites for hunting and gathering expeditions.

The general abandonment of the region coincides with that of the northern Anasazi regions in the late 1200s, the decrease in occupation in the canyonlands beginning slightly earlier than it did in areas farther south. Environmental change was the probable reason for abandonment. There is evidence of proto-historic use of the area by Navajo and other Indian groups, but this phase has not been adequately studied.

Of the many tributaries, Moki, Navajo, and Lake Canyons show the longest, as well as the heaviest, use in the canyonlands. In the Escalante River/Boulder Creek system, there are numerous aboriginal sites in the areas of broad alluvial flats and perennial or seasonal streams. Boulder Creek Valley evidences heavy occupancy. There was dense settlement of the Kaiparowits Plateau, and the Paiute and Cummings mesas and Rainbow Plateau were also desirable areas. Other parts of the canyonlands region, though not as heavily occupied, demonstrate frequent use for quarrying, hunting, and other subsistence activities. DES Appendix 24 contains a discussion of factors that influenced the prehistoric use of the area. DES Map 20 indicates certain particularly well-known archeological resources and general zones of known concentrations of these resources--as reported in the literature. The Davis Gulch pictographs are on the National Register of Historic Places; the Defiance House ruin has been nominated to the National Register. Many other of the recreation area's archeological resources, such as those identified in DES Map 20, may also qualify for nomination. Certain zones of resource concentrations, particularly Lake and Moki Canyons, may qualify as historic districts.

The gaps in our knowledge of the area's prehistory are perhaps even more significant than what is known about the area. The monumental salvage survey

conducted by the University of Utah and the Museum of Northern Arizona prior to the flooding of Glen Canyon was directed almost exclusively to areas to be flooded. Consequently, relatively little information on the upland sites is available. (DES Appendix 25 contains a history of archeological investigations within the recreation area.)

SOURCES

1. Adams 1960.
2. Adams, Lindsay, and Turner 1960.
3. Brown 1974.
4. Dibble 1960.
5. _____1959.
6. Fowler and Aikens.
7. Gunnerson 1969,
8. _____1959.
9. Jennings 1966a.
10. _____1966b.
11. Kay 1974.
12. Lipe 1960.
13. Lister 1959.
14. _____1958.
15. Long 1966.
16. Sharrock, Kent, and Dibble 1963.
17. Sharrock et al. 1961.
18. Turner 1963.
19. Willey 1966.

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22. Historic resources

The recreation area contains two locations of historic importance: the Lees Ferry area and Hole-in-the-Rock. In 1872 John D. Lee, a Mormon pioneer who was later hanged for his involvement in the 1857 Mountain Meadows Massacre, established a ferry service and ranching operation a short distance from the confluence of the Colorado and Paria Rivers. Several buildings stand at the ferry site. The Lees Ferry Fort is the most important historically. Built in 1874 to serve both as a trading post with the Navajo Indians and a defensive redoubt against them, it is a two-room stone structure with a log roof sealed by twigs, earth, and stones. An addition built in 1911 stands in ruins. Another building, to the west of Lees Fort and of similar construction, was presumably built after 1913 and has less historical significance. A root cellar behind Lees Fort is caved in; another, smaller rock structure some 75 feet to the north of the fort was apparently used as a chicken coop. Lees Ferry and Lees Ferry Fort and Ranch have been nominated to the National Register of Historic Places.

The Lee Ranch contains several buildings and associated remains. Probably the first buildings Lee constructed for his farm in late 1871 were semi-dugout log structures, now nonexistent, located in the bank of the hill near the present structures. Two surviving log structures that served the Lee household date from 1873. One is of hewn timbers and reputedly used two large logs originally built into one of the early ferryboats. The other structure, also of hewn timbers with a dirt floor, was apparently Lee's blacksmith shop. Close by and across from the access road is a stock pen; 100 yards to the north is another small wood barn and stock pen. Near this structure is a cemetery with grave markings dating from 1879 to 1928. Foundation remains of two houses that stood from 1874 to 1920, when they burned down, occupy a site near the Lee home.

The Lees Ferry area was also the campsite of the Dominguez-Escalante expedition of 1776. The exact spot is unknown and can probably never be determined. Even if it were, it is doubtful that any remains would exist today.

Hole-in-the-Rock is a natural crevice in the west rim of Glen Canyon down which a band of Mormon settlers in 1879 lowered their wagons to cross the Colorado en route to the Four Corners area. The site is a natural memorial to the dogged perseverance of these pioneers. Nearby Dance Hall Rock housed evening festivities held during the wait for final preparations prior to departure. The unpaved road on Wilson Mesa represents the Mormon's path away from the Colorado River toward Blanding.

TEST WELL
DRY WELL OR SHOW OF OIL ONLY, ALL ABANDONED

OIL FIELD

COAL

TAR SAND TRIANGLE

CIRCLE CLIFFS TAR SANDS

BITUMINOUS LIMESTONE

BIG FLAT

CANYONLANDS NATIONAL PARK

GREEN RIVER

HANKSVILLE

ORANGE CLIFFS

DIRTY DEVIL RIVER

HANS FLAT

COLORADO RIVER

CATARACT CANYON

GYPSUM CANYON

BEEF BASIN

HITE

DARK CANYON

WHITE CANYON

CAPITOL REEF NATIONAL PARK

WATERPOCKET FOLD

BURR TRAIL

Bullfrog Creek

LITTLE ROCKIES

ESCALANTE RIVER

ESCALANTE

UPPER VALLEY

KAIPAROWITS PLATEAU

HOLE-IN-THE-ROCK ROAD

STEVENS ARCH

BULLFROG

HALLS CROSSING

MOKI CANYON

MANCOS MESA

RED CANYON

NATURAL BRIDGES NATIONAL MONUMENT

GRAND GULCH

SAN JUAN RIVER

MEXICAN HAT

Last Chance Creek

Rock Creek

Warm Creek

SMOKY MOUNTAIN

NIPPLE BENCH

Wahweap Creek

WILSON MESA

GLEN CANYON CITY

RAINBOW BRIDGE NATIONAL MONUMENT

NAVAJO INDIAN RESERVATION

UTAH

ARIZONA

WAHWEAP

PARIA RIVER

PAGE

LEES FERRY

COLORADO RIVER

GRAND CANYON NATIONAL PARK

95 276 12 89 98 261 163

N

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

5 MILES = 8.045 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 4

FOSSIL FUEL RESOURCES

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

608	40,117
APRIL 78	DSC

Hole-in-the-Rock has been nominated to the National Register of Historic Places. DES Appendix 26 contains a more detailed account of the history of the Glen Canyon area.

SOURCES

1. Brown 1970.
2. Crampton 1959.
3. Crampton and Rusho 1965.

---

23. Mineral resources

The mineral resources of Glen Canyon are defined according to terminology officially adopted by the Department of the Interior. Certain of these definitions appear below and in Appendix 6. The principal source for the conclusions reached in this section is an unpublished report by the U.S. Geological Survey (1975).

a. Oil impregnated rocks

Within the recreation area a number of rock units have been identified that contain deposits of semi-solid petroleum residuals. This petroleum, in its natural state, cannot be recovered by petroleum recovery methods normally effective in the recovery of petrolelum that is liquid in situ. These deposits, often referred to as "tar sands," are thought to be the residues of petroleum that at one time were fluid, but have become nonfluid due to a loss of the volatile constituents. The resulting bitumens are characterized by low specific gravity.

This country's single largest deposit of tar sands occurs in an area approximately 12 by 18 miles in extent known as the Tar Sand Triangle (Map 4). Ritzma (1973) estimates the deposit contains between 12.5 and 16.0 billion barrels of oil. The thickness of the bitumen-saturated White Rim sandstone ranges between 5 and 300 feet and extends from surface exposure on the east, principally in the Elaterite Basin, to depths greater than 2,000 feet on the west. About 45 percent of the areal extent of the deposit lies within the recreation area (Campbell 1975).

Outcrops of bitumen-impregnated limestone and sandy limestone occur along the San Juan River at the eastern tip of the recreation area (Map 4). (The Utah Geological and Mineralogical Survey estimates the deposit, an "indicated, identified subeconomic" resource, to contain 200,000-250,000 barrels of oil in place within the recreation area--Appendix 6.) No method has been devised to date to make an economic recovery from these deposits.

The subsurface extent of the bitumen-impregnated sandstone and siltstone in the Circle Cliffs tar sand deposit (Map 4) is not completely known, and bitumen-impregnated rocks may occur along the Circle Cliffs upward and southeast of the mapped deposits. Most of the bitumen-bearing rocks in the area are covered by more than 1,000 feet of overburden.

The very high viscosity of the bitumen material prevents its being removed by ordinary pumping methods. Because no proven methods exist for economic recovery, the deposit is defined as an "identified sub-economic resource," i.e., a "known deposit not now mineable economically" (Appendix 6). A pilot attempt to recover some of the oil from the Tar Sand Triangle deposit is described in Section I.B. of the final environmental statement.

b. Oil and gas

In the views of some oil and gas specialists, the recreation area is considered to contain undiscovered (speculative) oil and gas resources (see definition in Appendix 6). The U.S. Geological Survey (1975) has estimated these speculative resources to consist of between 51 and 155 million barrels of potentially recoverable oil (no estimate is available for gas).

To date, however, there is no evidence indicating the existence of commercially recoverable oil and gas resources within the recreation area.

The facts pertaining to the recreation area's speculative oil and gas resources are these:

Seven dry test wells for oil have been drilled in the recreation area, about 41 in its general vicinity (Map 4). The largest concentration of

wells is just beyond the San Juan arm; other concentrations occur near the Orange Cliffs where 5 of the 7 wells within the recreation area are located, at the southern end of the Escalante area where the remaining 2 occur, and in the vicinity of the Escalante extension. None of these areas, including the recreation area, contain a producing well. Of the 7 wells within the recreation area, one bailed 26 barrels of crude oil before being abandoned; another produced 24 barrels per day for several days before it was abandoned. Only about one-third of the wells in the general vicinity of the recreation area reported oil shows or oil-stained cores; the balance were either blanks (dry holes) or had no record. All were plugged and abandoned.

The recreation area contains structural features favorable to the migration, charge, and entrapment of hydrocarbons. The Geological Survey hypothesizes that most of the speculative reserves occur in stratigraphic accumulations. The large anticlinal structures that have been drilled to date have yielded few hydrocarbons, probably because they post-date the major periods of oil and gas migration. Appendix 7 describes the technical basis of these conclusions. Geologic uplift and subsequent erosion, however, have either allowed the leakage or flushing by water of the postulated ancient reservoirs.

It is reported that the erosional and geomorphological history of the Colorado Plateau has disrupted the expected relationships of gas, oil, and water in potential petroleum reservoirs, heightening the uncertainty over oil and gas resources. Some specialists feel that insufficient testing in the area has aggravated this uncertainty. Howard Ritzma of the Utah Geological and Mineralogical Survey comments on this situation in Appendix 8.

Several small seeps have been recorded in Slickhorn Canyon (DES Map 24). Other seeps, now drowned by Lake Powell, were previously found along Oil Seep Bar.

Three fields some distance outside the boundary of the recreation area produce from formations that underlie the recreation area: The Upper Valley field, 16 miles west of the Escalante arm (Map 4), produced 16,897,825 barrels of oil from the Permian Kaibab formation from 1964 through December 1977; the Big Flat field, some 12 miles west and 2 miles north of the extreme northern tip of the recreation area, produced 82,600 barrels of oil and 20,152 MCF of gas from the Mississippian Redwall limestone before being shut in during 1968. The Mexican Hat field, just beyond the end of the San Juan arm, produced 20,152 barrels of oil and 316 MCF of gas from the Pennsylvanian Hermosa group from 1948 thru the end of 1977.

c. Coal

Coal-bearing strata within the recreation area (Map 4) are the southernmost fringes of the Kaiparowits Plateau coalfield, the largest in southeastern Utah. Although the coal beds are 4 feet or more thick and, thus, are considered of commercial value, they are in rugged terrain with cliffs and steep slopes. Many of them have been burned at the surface and a short distance underground. The burning not only reduces the amount of coal remaining but also produces unstable conditions underground, making it hazardous to mine the coal near these areas. For all practical purposes the coal cannot be removed by stripping methods and, hence, must be mined underground.

The coal is either bituminous or sub-bituminous in rank with the following typical analysis:

Moisture	5.4	percent
Volatile matter	38.1	percent
Fixed carbon	51.0	percent
Ash	5.5	percent
Sulfur	0.6	percent
Energy yield	10,610	Btu/lb of coal

About 9.75 million tons of coal occur within the recreation area in three places: Wahweap Creek area (contains a bed averaging 4.5 feet in thickness under 339 acres; about 2.75 million tons within the recreation area); Last Chance Creek area, northern part (contains at least two coal beds 4 feet or more thick; one 10-foot bed

under 209 acres; about 3.76 million tons within the recreation area); Last Chance Creek area, southern part (contains at least one coal seam more than 4 feet thick; one 6-foot bed under 300 acres; about 3.24 million tons within the recreation area).

Minor amounts of coal also occur in the easternmost part of the Kaiparowits Plateau under Spencer and Navajo Points. The coal bed is less than 4 feet thick and thus not considered of commercial significance. The isolation and ruggedness of the terrain would seriously impede development in this area.

d. Uranium

The identified uranium resources (Map 5) occur in several uranium-containing areas that produced during the 1950s and 1960s (nominal amounts only). The recreation area contains (USGS estimate) an estimated 750,000 pounds of U3O8 (DES Map 27) . These estimated resources are of both the identified and hypothetical category. The quality in each category is unknown. Most of the uranium districts' mines have ceased production, but a few in the south Henry Mountains and White Canyon area (outside of the recreation area) still produce on an intermittent basis. The Utah portion of the Monument Valley district ceased production in 1966. The White Canyon district (principally outside the recreation area), at one time containing about ten mines producing 10,000 to 40,000 tons of ore each, has many known subeconomic occurrences of uranium on groups of unpatented mining claims. Both the Purple Hills area and that along the San Juan have known deposits on blocks of unpatented mining claims.

The uranium deposits have been subeconomic since the early sixties but may become economic in the future. (During 1977 interest in recovery of these resources increased markedly. Areas adjacent to the recreation area, such as Mancos Mesa, heretofore unexplored, were under active exploration. Helicopter reconnaissance of active zones of interest within the recreation area has recently been conducted.) The deposits generally range in width from tens to hundreds of feet, in length from hundreds to thousands of feet, in thickness from less than a foot to ten feet, and in depth from zero to several thousand feet. All of the hypothetical resources within the recreation area are inferred to be in the Chinle formation, which has accounted for 91 percent of production and 99 percent of inferred reserves in the surrounding mining districts. Because most outcrops of potential Chinle host rocks were well explored during the uranium "boom" of the 1950s and 1960s, much of the remaining favorable ground is buried, some as deeply as 7,000 feet.

e. Vanadium

Deposits of vanadium and uranium are generally intimately associated within the recreation area (in a ratio varying between 600 parts vanadium to one part uranium and one part uranium to two parts vanadium); accordingly, ore-bodies of vanadium are inferred to have size and distribution characteristics similar to those of uranium (Map 5). The inferred vanadium resource potential of the recreation area is calculated from the uranium-to-vanadium production ratios of the region as a whole. These ratios yield about 10 million pounds of hypothetical and identified, recoverable, and subeconomic quantities of V2O5 within the recreation area. The quantities in each of these four categories are not known.

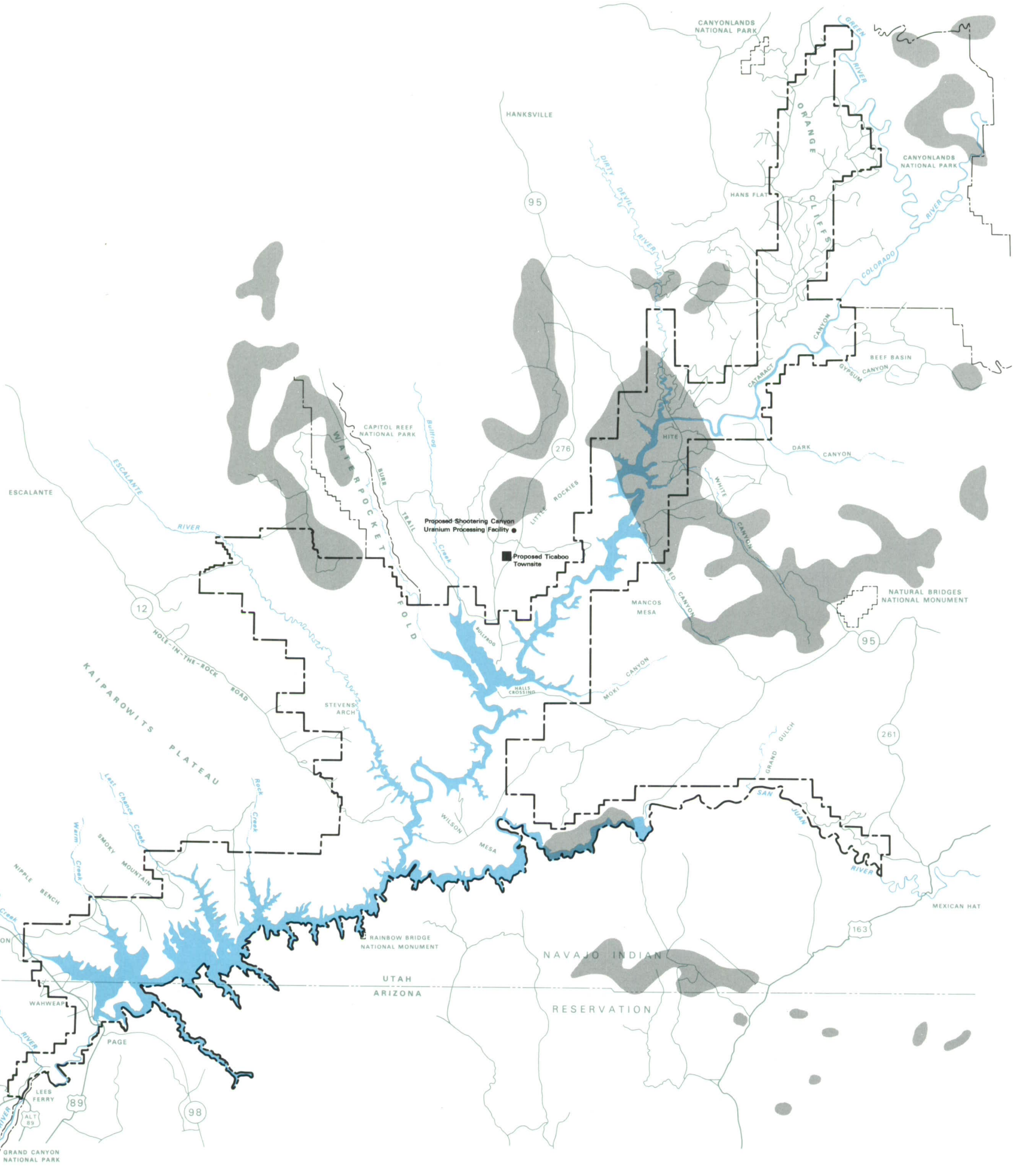
f. Copper, manganese, gold

Speculative resources of 25,000 tons of copper (DES Map 27) are estimated by the U.S. Geological Survey to exist within the recreation area. Very minor amounts of copper have been recovered as a milling byproduct of uranium in the White Canyon area. No large deposits are inferred to exist within the recreation area; most are less than 10,000 tons of ore (0.5 percent copper). All are inferred to occur in conjunction with uranium deposits and could be economically extracted only as a milling byproduct.

Manganese and gold do not occur in economically significant quantities within the recreation area. Small gold placer operations in sediments of the San Juan and Colorado Rivers were intermittently active around the turn of the century; none were economic.

g. Construction materials

Gravel for construction and maintenance of roads is not abundant in the general vicinity of the recreation area. Deposits do occur along the Colorado River and its tributaries and adjacent to the river as terrace and pediment gravels. The deposits along Wahweap Creek (above Lake Powell) continue upstream 8 miles



N

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

5 MILES = 8.045 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 5

URANIUM–VANADIUM RESOURCES

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

608	40,090A
APRIL 78	DSC

northwest of the recreation area boundary and are in more or less continual use by both Utah and Arizona for construction projects. A considerable quantity of terrace and pediment gravels occur both within and north of the recreation area above Bullfrog. Additional deposits of various kinds occur at Halls Crossing, Farley Canyon, and Hite (DES Figure 13, Volume 3).

h. Halite and gypsum

Although the halite resources in the Orange Cliffs section of the recreation area are quite large, they are too far from markets to have any economic value in the foreseeable future. Should a need for halite develop in this region, there are many other more favorably located resources that could meet the demand.

Between Gypsum Canyon and Spanish Bottom are several localities where gypsum deposits are exposed in the canyon walls. At Gypsum Canyon the gypsum-bearing interval is about 250 feet thick; some of the deposits at Gypsum Canyon and other localities are probably of adequate thickness and quality for industrial use. The economic value of any gypsum deposit, however, is dependent on its location relative to market and the availability of inexpensive transportation. The remote location of the deposits along the Colorado River makes it highly improbable that they would be of economic value in the foreseeable future.

SOURCES (FOR SECTION IV.B.23.)

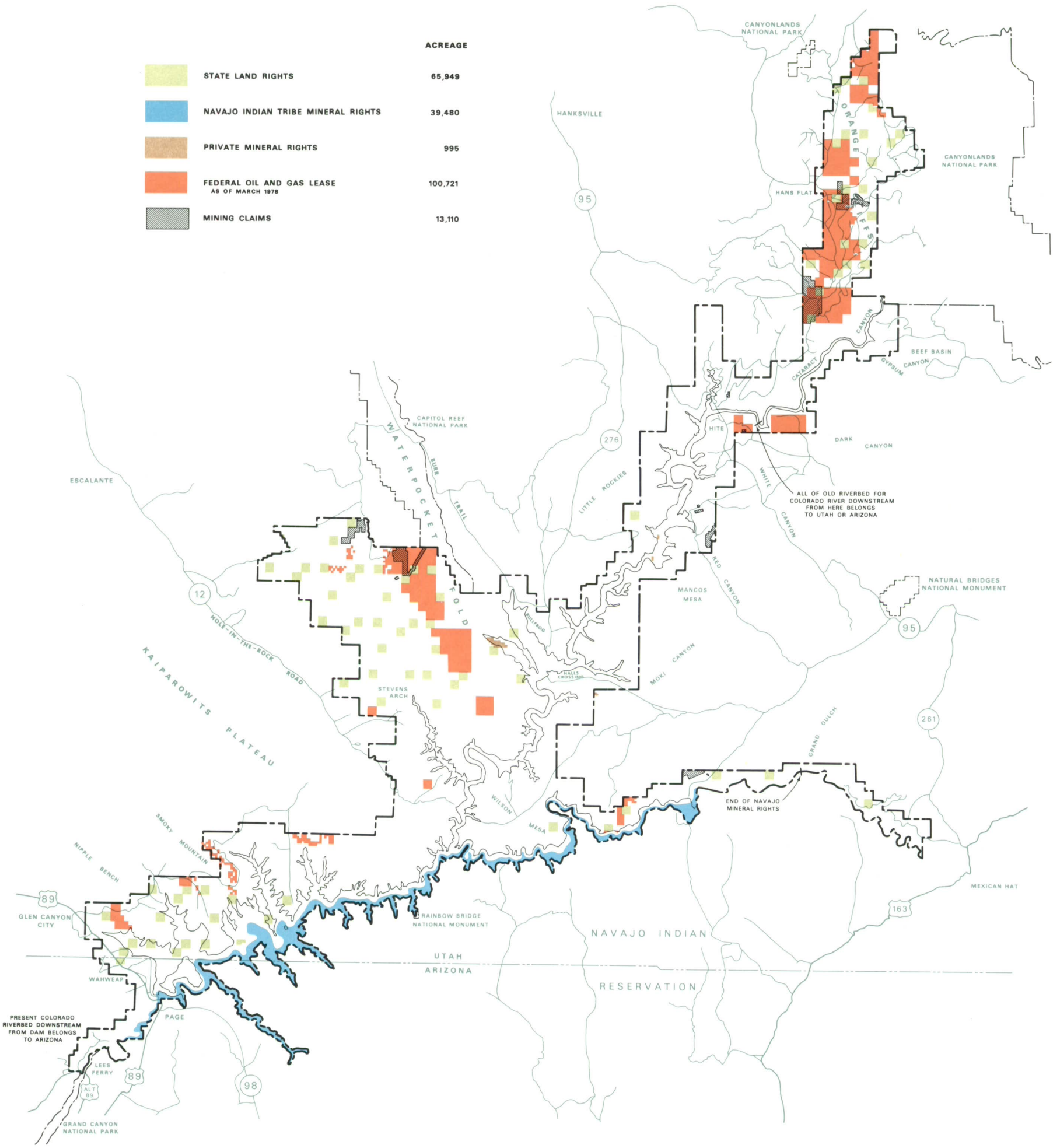
1. Brobst and Pratt 1973.
2. Campbell 1975.
3. Doelling 1969.
4. _____1967.
5. _____and Graham 1972.
6. Johnson 1972.
7. Hackman and Wyant 1973.
8. Hintze, Rigby, and Sharp 1967.
9. Pratt and Brobst 1974.
10. Ritzma 1974.
11. _____ and Doelling 1969.
12. Singer 1975.
13. Shepardson 1973.
14. Geological Survey 1975.
15. Walsh 1974.

24. Landownership and mineral interests

Map 6 shows mineral interests and ownerships within the recreation area. The enabling legislation for the recreation area calls for the administration of mineral leases by the Bureau of Land Management (Table 1, Item VI). In addition to 100,721 acres of federal oil and gas leases, 65,949 acres of state land rights, 39,480 acres of Navajo mineral rights, and 995 acres of private mineral rights (almost all submerged), the recreation area contains 667 unpatented mining claims (lode and placer) with an estimated acreage of 13,000 acres--Map 6. These claims are being extinguished thru a validity determination process; and it is estimated that all but 30-40 will be declared invalid.

25. Grazing

The recreation area contains all or part of 38 grazing allotments operated by approximately 75 licensees consisting of 891,632 acres, 20,444 animal unit months (AUMs) of allowable use for cattle and 6,018 AUMs of allowable use for sheep (Map 7 and Appendix 9). The 1970-1974 5-year average actual use was 13,512 cattle AUMs and 859 sheep AUMs. Only 8 percent of the recreation area (105,000 acres) is grazed all year (DES Map 31), 32 percent (405,000 acres) is grazed during the fall, winter, and spring (October to May), 3 percent (41,000 acres) during the fall and winter (November to March), 1 percent (14,000 acres) during the winter and spring (December to June), and less than 1 percent (5,000 acres) during the summer only (June to October). Because it either lies below elevation 3,711 feet (the elevation of the dam spillways), has inadequate water or forage, or possesses prohibitively rugged topography, approximately 18 percent (195,400 acres) of the land area of the recreation area is unalloted (DES Map 30) and another 30 percent (326,600 acres) allotted but unused (compare the seasonal use of allotments, shown on DES Map 31, with the allotment boundaries shown on DES Map 30),



UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

MAP 6

MINERAL INTERESTS AND OWNERSHIP

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

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APRIL 78 | DSC

ROAD WITHIN N.R.A. TO BE CLOSED

ROAD OUTSIDE N.R.A. BLOCKED BY CLOSURE OF ROAD WITHIN N.R.A.

UNAFFECTED ROAD

CURRENT STATUS

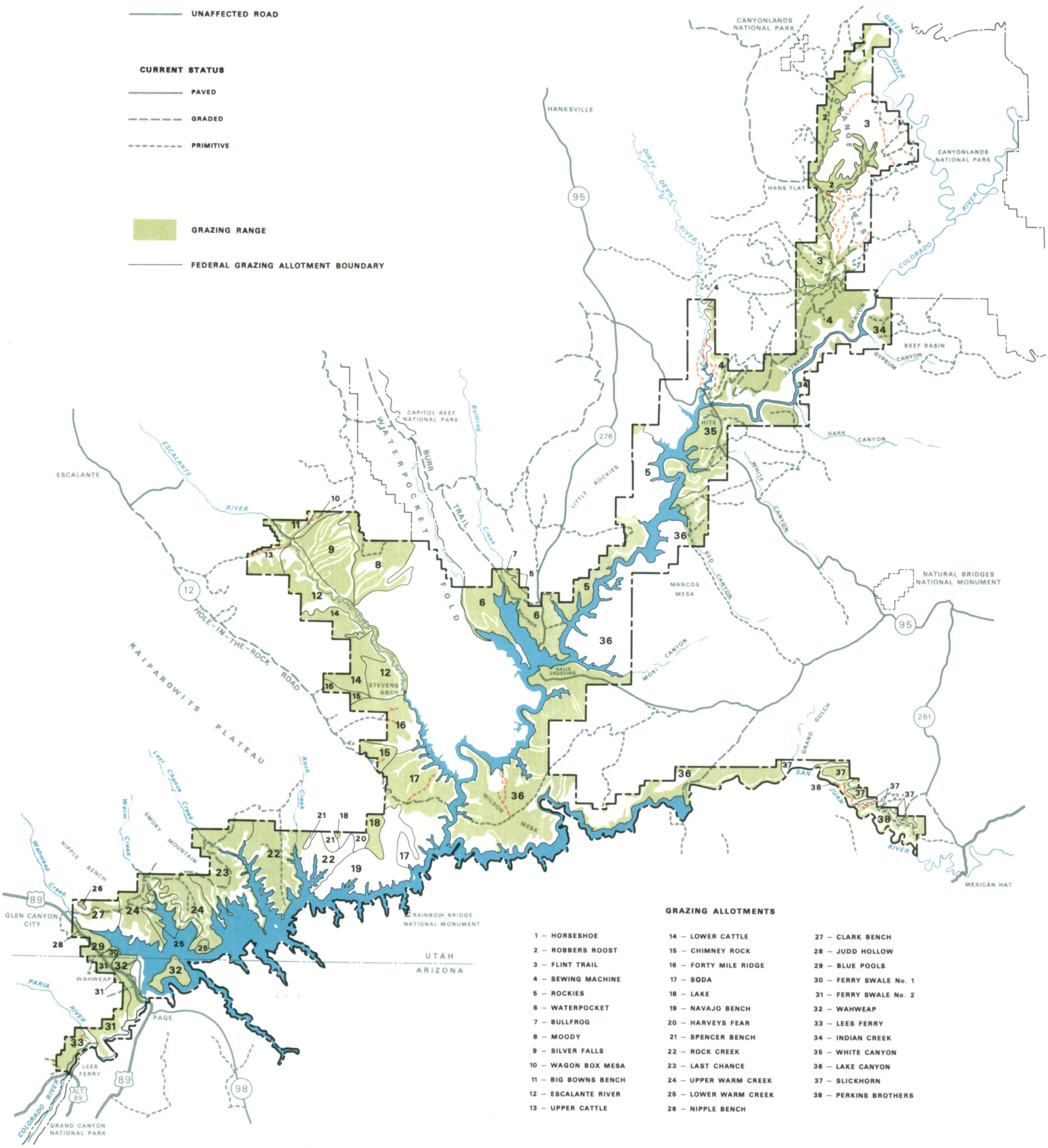
PAVED

GRADED

PRIMITIVE

GRAZING RANGE

FEDERAL GRAZING ALLOTMENT BOUNDARY



GRAZING ALLOTMENTS

1 – HORSESHOE
2 – ROBBERS ROOST
3 – FLINT TRAIL
4 – SEWING MACHINE
5 – ROCKIES
6 – WATERPOCKET
7 – BULLFROG
8 – MOODY
9 – SILVER FALLS
10 – WAGON BOX MESA
11 – BIG BOWNS BENCH
12 – ESCALANTE RIVER
13 – UPPER CATTLE
14 – LOWER CATTLE
15 – CHIMNEY ROCK
16 – FORTY MILE RIDGE
17 – SODA
18 – LAKE
19 – NAVAJO BENCH
20 – HARVEYS FEAR
21 – SPENCER BENCH
22 – ROCK CREEK
23 – LAST CHANCE
24 – UPPER WARM CREEK
25 – LOWER WARM CREEK
26 – NIPPLE BENCH
27 – CLARK BENCH
28 – JUDD HOLLOW
29 – BLUE POOLS
30 – FERRY SWALE No. 1
31 – FERRY SWALE No. 2
32 – WAHWEAP
33 – LEES FERRY
34 – INDIAN CREEK
35 – WHITE CANYON
36 – LAKE CANYON
37 – SLICKHORN
38 – PERKINS BROTHERS

N

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

5 MILES = 8.045 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 7

GRAZING USE AND ALLOTMENTS

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

608 | 40,097A
APRIL 78 | DSC

leaving 52 percent (570,000 acres) of the land area of the recreation area allotted and used for grazing.

Grazing is administered by the Bureau of Land Management under the authority of Section 6 of the enabling legislation (P.L. 92-593): "The same policies followed by the Bureau of Land Management in issuing and administering...grazing leases on other lands under its jurisdiction shall be followed in regard to the lands within the boundaries of the recreation area..." According to a Memorandum of Understanding effective September 25, 1973, the National Park Service and the Bureau of Land Management agree to coordinate and promote the effective management of livestock grazing with the management of other resources within the recreation area.

The Bureau of Land Management has estimated income effects in 1974 in a programmatic environmental impact statement for its livestock grazing management program. Income effects were classified by biome, as well as livestock region (Table III-4, Final Environmental Statement on Livestock Grazing Management on National Resource Lands, December 31, 1974). That impact statement used personal income for measurement of direct impacts on the human environment (i.e., impacts on people). The average personal income per AUM was estimated to be $4.56 (1977 dollars).

The livestock industry is one of the basic sources of revenue for the local economy, comprising almost 18 percent of the export employment of the four-county area. Grazing within the recreation area over the last 5 years averages almost 14,400 AUMs annually. Based on the "dollar" figure per AUM those within the recreation area account for slightly more than $65,532 in personal income ($4.56/AUM x 14,371 AUMs) and $208,392 in gross livestock sales (sales/income ratio of $3.18 x $65,532). Additionally, using an income multiplier of 1.93, the AUMs within the recreation area also account for indirect income effects of $126,477 (i.e., additional income generated).

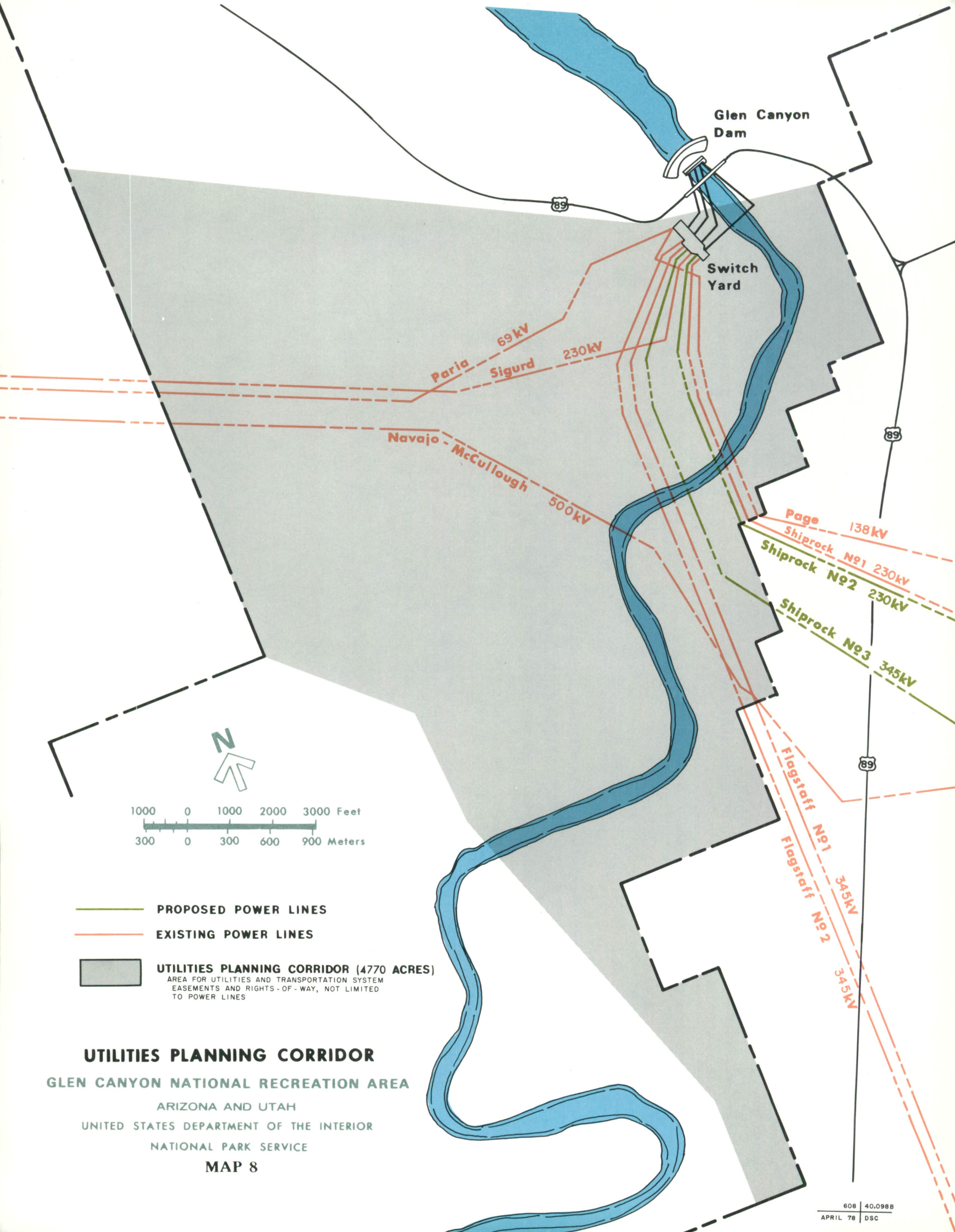
SOURCE

Personal communications with the Bureau of Land Management.

26. Utility and transportation system easements and rights-of-way

Although the enabling legislation provides for the establishment of these systems under certain conditions (Table 1), the recreation area nonetheless constitutes a rather extensive impediment to the east-west crossing of them. Perhaps partly because of this fact, all known high (more than 500 kV) and low (less than 500 kV) voltage transmitting facilities existing or proposed in the foreseeable future occur in one place: the designated "utilities planning corridor" just below the dam, where nine lines are already located (Map 8 and Table 8). The use of higher voltages or switching stations (Appendix 10) would enable a large increase in present capacities. The corridor of 4,770 acres has an area sufficient for carrying current power loads and those projected in the foreseeable future and other facilities, such as pipelines conveyor devices, etc., although plans for such structures do not now exist.

Utility and transportation systems are examples of permitted nonrecreational activities within all RRU zoned areas (Table 2). The "utilities planning corridor" is adequate now for all known facilities. However, in the future more such corridors may be required. This is one reason why such a large percentage of the recreation area is in the RRU Zone.



UTILITIES PLANNING CORRIDOR

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 8

Table 8. Existing[1] high voltage transmission lines.

Line Terminals	Status	Voltage (kV)	Capacity (mW)	Ownership	Principal Area Served
Navajo-McCullough	Existing	500	1,000	Navajo Participants[2]	Las Vegas, Nevada Los Angeles, California
Flagstaff No. 1	Existing	345	500	U.S. Bureau of Reclamation	Phoenix/Tucson
Flagstaff No. 2	Existing	345	500	U.S. Bureau of Reclamation	Phoenix/Tucson
Shiprock No. 1	Existing	230	250[3]	U.S. Bureau of Reclamation	New Mexico, Arizona, Colorado
Shiprock No. 2	Proposed	230	Undecided	U.S. Bureau of Reclamation	New Mexico, Arizona, Colorado
Shiprock No. 3	Proposed	345	Undecided	U.S. Bureau of Reclamation	New Mexico, Arizona, Colorado
Paria	Existing	69	14	Garkane Power Association	Southern Utah, Northern Arizona
Sigurd	Existing	230	250[3]	Arizona Public Service and Utah Power and Light	Salt Lake area, western Utah
Page	Existing	138/69	12-20	U.S. Bureau of Reclamation	Page
		TOTAL	2,550 approx.		

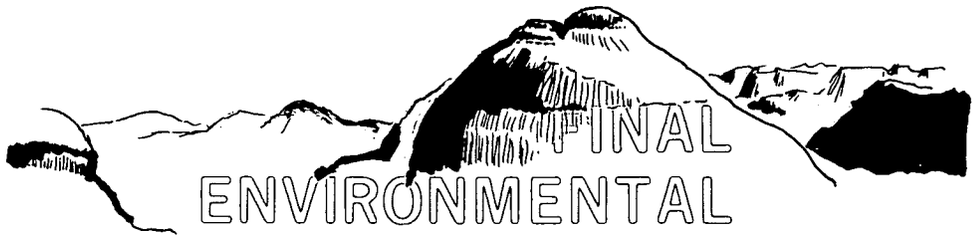
[1] At this time no new transmission lines, 500 kV and above, have been definately proposed through this area. However, the utilities planning corridor should be maintained.

[2] Department of Water and Power, Los Angeles; Nevada Power Company; Arizona Public Service Company; Tucson Gas & Electric Company; U.S. Bureau of Reclamation; Salt River Project Agricultural and Power District.

[3] Flow in either direction.

27. The Navajo Tribe

The Navajo Indian Reservation abuts the entire southern boundary of the recreation area (DES Map 9), except for a small portion around Page. The Tribe retains mineral rights of 39,480 acres (Map 6) on all federally owned lands between the drowned channel of the Colorado and San Juan Rivers and the 3,720-foot contour on their reservation, 8.5 miles of the east side of the Colorado River between the river and the recreation area boundary, and 12 miles along the San Juan River from the river to the 3,720-foot contour. (These lands are known as "Parcel B" lands.) According to the Exchange Act of September 2, 1958 (72 Stat. 1686), by which these lands were transferred to the federal government, the lands "shall not be utilized for public recreational facilities without the approval of the Navajo Tribal Council." For a distance of about 10 miles below the dam, the recreation area boundary includes the Colorado River, its east bank, the adjoining cliffs, and a variable portion of the cliff tops (partly shown in Map 8). South of Waterholes Canyon the boundary runs along the east shore of the river, excluding the adjoining lands. A Memorandum of Agreement based upon the Exchange Act specifies that Tribal concession facilities may not be established without the approval of the National Park Service. Over the last decade the Tribe has recommended the study or development of six such facilities (Map 1). At this writing, each of these sites appears to have equal viability; the Tribe is currently studying the matter further.



FINAL ENVIRONMENTAL STATEMENT

SUMMARY
( ) DRAFT (X) FINAL ENVIRONMENTAL STATEMENT

Department of the Interior, National Park Service, Rocky Mountain Region

1. Type of action: (X) Administrative (X) Legislative
2. Brief description of action: A General Management Plan and Wilderness Recommendation for the Glen Canyon National Recreation Area. The general management plan consists of a management zoning proposal dividing the recreation area into four management zones: Natural (54 percent), Recreation and Resource Utilization (45 percent), Cultural (less than 0.1 percent), and Development (almost 2 percent). Supplementary proposals cover development, boundary adjustments, land exchange, staffing, utilities, and subsequent planning. The Wilderness recommendation calls for adding 588,855 acres (47 percent of the recreation area) to the National Wilderness System; an additional 48,955 acres (4 percent) are proposed for potential Wilderness additions.
3. Summary of environmental impacts and adverse environmental effects: Impaired access to backcountry areas, grazing allotments, and mineral leases and claims; increased recreational opportunities; elimination of management problems at Rainbow Marina; restriction on management flexibility; protection of outstanding scenic resources, wildlife habitat, plant communities, and archeological resources; hindrance to research on and management of archeological resources; impairment of information acquisition on mineral resources; potentially reduced availability of mineral resources; potential increase in grazing management costs, costs of managing backcountry resources, and reduction of grazing within the recreation area; increased vulnerability of the Southwest power net to accidental or strategic disruption; stimulation of the local economy.
4. Alternatives considered:
   a. No action
   b. Management zoning alternatives: (1) Alternative A: preservation emphasis; (2) Alternative B: consumptive utilization emphasis
   c. Wilderness: (1) 82 percent of the recreation area; (2) 13 percent of the recreation area; (3) 0 percent of the recreation area (no action)
   d. Four road construction alternatives plus no construction alternative
5. Comments have been requested from the following: (see following)
6. Date draft statement made available to CEQ and the public: Aug. 26, 1977
7. Date final statement made available to EPA and the public:

5. (Continued) Comments have been received about the DES from the following:
(An asterisk (*) indicates the DES was sent for review but no comments were received)

Federal

Advisory Council on Historic Preservation
Department of Agriculture
*Forest Service

Soil Conservation Service
State Conservationist, Phoenix, Arizona
State Conservationist, Salt Lake City, Utah

Department of the Army
Corps of Engineers, Sacramento District

*Department of Commerce

Department of Energy
Acting Regional Administrator, Lakewood, Colorado

Department of Housing and Urban Development, Assistant Regional Administrator, Denver, Colorado

Department of the Interior

Bureau of Indian Affairs
Navajo Area Office, Window Rock, Arizona
Bureau of Land Management
* Arizona State Director
Utah State Director
Bureau of Mines
Director, Washington, D.C.
Bureau of Outdoor Recreation
Assistant Regional Director, Denver, Colorado
Bureau of Reclamation
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Fish and Wildlife Service
Acting Area Manager, Colorado-Utah, Salt Lake City, Utah
Geological Survey
Acting Director, Reston, Virginia

Department of Transportation
Federal Highway Administration
Regional Federal Highway Administrator, Denver, Colorado

* Environmental Protection Agency

* Federal Energy Administration

Federal Power Commission
Advisor on Environmental Quality, Washington, D.C.

* Energy Resources Development Administration

State

State of Arizona
Arizona State Clearinghouse
The Northern Arizona Council of Governments, Flagstaff, Arizona

* State Historic Preservation Officer
State of New Mexico
* Central Clearinghouse
State of Utah
Governor Matheson, Salt Lake City, Utah
Utah State Clearinghouse
* State Historic Preservation Officer
Utah Travel Council
Director, Salt Lake City, Utah

I. DESCRIPTION OF THE PROPOSAL

An orientation to the recreation area and a description of the proposals of the general management plan and Wilderness recommendation appear in Sections I, II, and III of the preceding plan.

Following is a discussion of projects that are interrelated with the preceding plan.

A. Transportation Study for Canyonlands, Arches, and Capitol Reef National Parks (DES Map 6)

A transportation study completed in 1973 in response to sections in Public Laws 92-154, 92-155, and 92-207 contained proposals by the Utah Department of Highways and the National Park Service for improvement of the regional transportation system. The study described roads deemed appropriate and necessary for the "full utilization" of areas managed by the agencies involved. These findings will be submitted to Congress for legislative action after the completion of (1) a similar study required by the Glen Canyon enabling act (P.L. 92-593) and addressed in this final environmental statement, and (2) the general management plans and Wilderness studies for all four National Park Service units.

1. Proposals by the Utah State Department of Highways (DES Map 6)

- Construction of the 127-mile authorized road from Glen Canyon City to Bullfrog Basin. (See Section VIII.)

- Paving of 56 miles of graded road from Escalante to Hole-in-the-Rock.

The second proposal contributed to the decision to zone as Development the 8-mile portion of this roadway lying within the recreation area. The paving of this portion would complement the state's proposal for paving the 48 miles outside the recreation area. However, this portion would be paved only after the state paved its 48 mile segment.

- Paving of 66 miles of graded road from Utah Highway 24 to Bullfrog Basin along the east edge of Capitol Reef National Park.

Seventeen miles of this proposal are in Capitol Reef National Park; 6 miles are in the recreation area. The Capitol Reef segment is also an NPS proposal. The effects of this project are similar to those of the above proposal. However, the 6 mile portion in the recreation area would be paved only after the state paved its portions.

- Completion of the paving of Utah Highway 95 outside the recreation area between Hite and Blanding.

The two unpaved segments were paved by the Utah Department of Highways after publication of the transportation study. This proposal has now been fully implemented.

- Construction of a new 102-mile paved highway from Hite to Moab through the Orange Cliffs area of the recreation area.

The proposal directly conflicts with the proposed zoning of this area as Natural and RRU. The paving of roads within RRU lands and construction of any roads within natural lands are prohibited. The resolution of this conflict will depend upon congressional action following the completion of the legislatively mandated roads study and Wilderness study, as cited in the introductory paragraph of this section.

- Paving of 47 miles of graded road down Cottonwood Canyon between State Highway 12 and U.S. Highway 89.

The proposal, which would facilitate road travel between Wahweap, Hole-in-the-Rock, and Bullfrog Basin, contributed to the decision to zone as Development road corridors within the recreation area in the vicinity of these locations.

- Paving of 32 miles of graded road from Boulder via the Burr Trail to the east side of Capitol Reef National Park.

The proposal would facilitate travel from Bullfrog Basin to Hole-in-the-Rock, and to Wahweap via the proposed road down Cottonwood Canyon. It would complement

proposals for paved road access to development at Llewellyn Gulch and Bullfrog Basin.

- Paving of existing 34 miles of graded road between Torrey and Boulder.

The proposal has been nearly fully implemented since publication of the transportation study. Full implementation is imminent.

- Construction of 38 miles of road between Fremont Junction and Utah Highway 24.

The proposal, in conjunction with paving of the 66 miles along the east side of Capitol Reef National Park, would reduce the distance from Salt Lake City to Bullfrog Basin over existing paved roads by 61 miles (from 342 to 281). This 38-mile segment did not contribute significantly to the proposed zoning.

- Paving of 47 miles of the graded Kigalia Scenic Way.

The proposal is unrelated to the proposed zoning.

- Paving of 43 miles of Utah Highway 128 between Cisco and Moab.

This segment has been paved since publication of the transportation study.

2. Proposals by the National Park Service (DES Map 6)

- Paving of the 17-mile segment within the east portion of Capitol Reef National Park of the graded road from Utah Highway 24 to Bullfrog Basin.

The proposal complements that of Utah to pave all 66 miles of this road, as described previously. It contributed to the decision to zone as Development the portion of the roadway within the recreation area.

- Construction of a 10-mile new road inside Capitol Reef National Park to South Desert.

This project has no relation to the proposed zoning.

- Paving of 56 miles of graded road from State Highway 24 near Hanksville to the Flint Trail.

The 13-mile portion between Hans Flat and the Flint Trail at the top of the Orange Cliffs coincides with Utah's proposal described previously.

The proposal conflicts with the proposed zoning as RRU that portion of the road lying within the recreation area. (The RRU Zone does not permit paving.) This proposal also conflicts with the current general management planning effort for Canyonlands National Park, scheduled for completion in FY 1978 which proposes that vehicular travel to and in its western portion be by unpaved roads.

- Paving of 16 miles of primitive road between Hans Flat and Horseshoe Canyon.

The 12-mile portion within the recreation area coincides with Utah's proposal described previously.

The proposal conflicts with the proposed zoning as RRU the portion of the road lying within the recreation area. It conflicts with the current general management planning effort for Canyonlands National Park for the same reason given for the 13-mile portion between Hans Flat and the Flint Trail.

- Paving of 23 miles of graded road from Utah Highway 313 to Island in the Sky in Canyonlands National Park.

The first 4-1/2 miles are outside the park. The proposal has no relation to the proposed zoning.

- Construction of the last 5 miles of Confluence Road in Canyonlands National Park.

The proposal has no relation to the proposed zoning.

B. Pilot Fireflood Project

The Oil Development Company of Utah has proposed an attempt to recover commercial quantities of oil from the oil-impregnated White Rim sandstone of the Tar Sand Triangle (Section III.A.12.a. of the final environmental statement). A test well drilled at the project site penetrated about 200 feet of the White Rim sandstone below a depth of 1,450 feet in the well bore. The project calls for the drilling of four additional wells on a 2-acre site in the Orange Cliffs section of the recreation area (DES Map 7). The plateau above these cliffs is shown in gray on DES Map 7. Compressed air (or the alternate of natural gas or a combustible liquid) would be injected down the central well and then ignited. The resulting heat and pressure would lower the viscosity of the highly viscous oil and force it up and out of the four surrounding well bores. If successful, the project would be expanded to commercial fireflood operations, and the 16,636 acres of federal and state oil and gas leases within the proposed Gordon Flats Fireflood Unit would be subject to development. Thirty-five percent (5,758 acres) of the unit lies within the recreation area. The project's impacts on the recreation area would be discussed in a separate environmental impact statement to be issued by the U.S. Geological Survey.

On October 15, 1975, the Department of the Interior's Solicitor opined that tar sand deposits cannot be fireflooded under an oil and gas lease. Further, it appears that the Oil and Gas Act of 1920 will have to be amended by the Congress to specify the type(s) of lease under which oil can be produced from tar sands. Once this issue is resolved, the appropriate type of lease can be issued and the draft environmental statement on the project completed. There is no indication when resolution will take place.

1. Effect of the project on the proposal

The project has contributed to the decision to zone the tops of the Orange Cliffs RRU (Map 1).

2. Effect of the proposal on the project

The proposal will allow both the execution of the pilot fireflood project and, if successful, the development of that portion of the Gordon Flats Unit Agreement that lies within the recreation area.

C. Projects Associated With Adjacent Areas

1. Preliminary Wilderness proposals for Canyonlands and Capitol Reef National Parks

Public hearings were held in August 1974 on preliminary Wilderness proposals for Canyonlands and Capitol Reef National Parks (Map 9 and DES Map 9). President Carter recommended to Congress in May 1977 that suitable areas within these parks be added to the National Wilderness Preservation system.

a. Effect of the projects on the proposal

These projects have contributed to the decision to zone as Natural or Wilderness most of the recreation area's lands adjacent to them (place Overlay 1 on Map 9).

b. Effect of the proposal on the projects

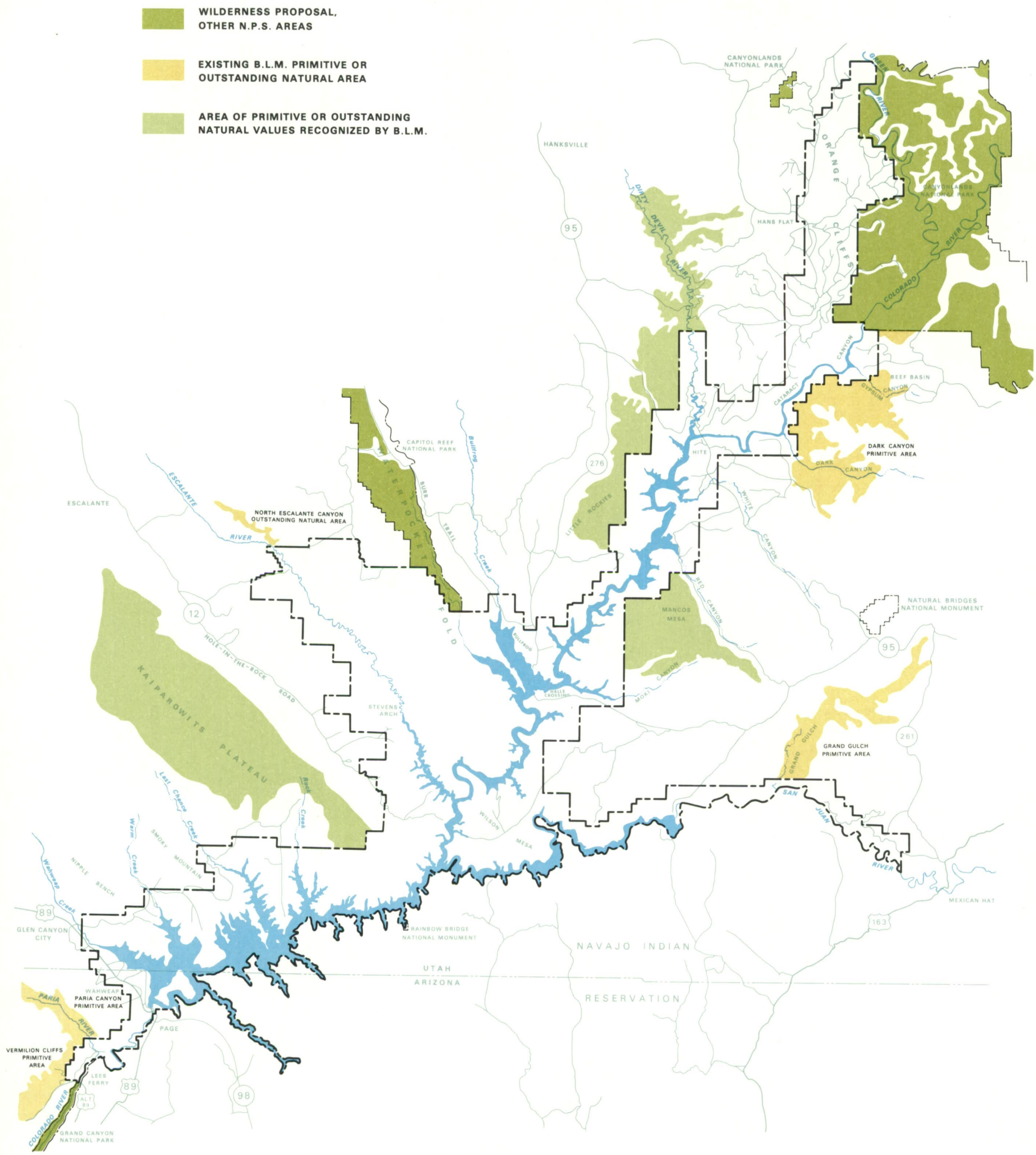
The proposal will complement the management policies of the proposed adjacent Wilderness areas.

2. Preliminary Wilderness proposal for Grand Canyon National Park

Public hearings were held in May 1971 on a preliminary Wilderness proposal for Grand Canyon National Park (DES Map 9). Subsequently, Congress enlarged the park to include what was Marble Canyon National Monument (the colored strip on the west side of the Colorado River in Grand Canyon National Park, DES Map 8) and 3-1/2 miles of the Colorado River in Glen Canyon National Recreation Area (to the confluence with the Paria River). At the same time the Congress also called for a Wilderness study, now underway. Wilderness is being proposed for that section of the Colorado River in Grand Canyon National Park from the Navajo Bridge (Alternate U.S. Highway 89) to Separation Canyon.

a. Effect of the project on the proposal

Land in Glen Canyon adjacent to and west of the Colorado River, downstream from the Paria River, will be zoned RRU, an action that will compliment Grand Canyon's proposal that the adjacent surface of the Colorado River be open to both motor and motorless craft.



UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

MAP 9

CONTIGUOUS AREAS OF WILDERNESS, PRIMITIVE, OR NATURAL CHARACTER

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

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b. Effect of the proposal on the project

The proposal will complement the proposed management policies of the two areas.

3. Primitive or outstanding natural areas

The Secretary of the Interior has designated five primitive or outstanding natural areas containing a total of 170,000 acres that adjoin the recreation area (Map 9). These are the Vermilion Cliffs (50,135 acres), Paria Canyon (27,635 acres), North Escalante Canyon (5,800 acres), Grand Gulch (26,729 acres), and Dark Canyon (57,248 acres). Prior to the establishment of Glen Canyon, the areas occupied land now included within its boundaries.

a. Effect of the projects on the proposal

The areas have contributed to the decision to zone contiguous lands within the recreation area as Natural (place Overlay 1 on Map 9). The management policies for these lands are fully complementary, both calling for protecting and preserving the natural environment.

b. Effect of the proposal on the projects

The proposed zoning will enable the integration of management practices and recreational uses on these contiguous areas, reducing the possibility of juxtaposing conflicting and incompatible land uses.

4. Areas of primitive or outstanding natural values recognized by the Bureau of Land Management

The Bureau of Land Management conducts management policies identical to those of Section 3 above on approximately 332,000 acres in three areas adjoining the recreation area (Map 9--Kaiparowits Plateau, 187,000 acres; and Little Rockies--Dirty Devil, 99,000 acres). These areas do not bear official secretarial designation.

a. Effect of the project on the proposal

The areas have contributed to the decision to zone contiguous lands within the recreation area as Natural (place Overlay 1 on Map 9). The management policies for these lands are fully complementary, both calling for protecting and preserving the natural environment.

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The proposed zoning will enable the integration of management practices and recreational uses on these contiguous areas, reducing the possibility of juxtaposing conflicting and incompatible land uses.

D. Wild and Scenic Rivers Act of 1968

On September 11, 1970, the Secretaries of the Interior and Agriculture identified the Escalante River, from its source to Lake Powell, as a potential addition to the National Wild and Scenic Rivers System.

1. Effect of the project on the proposal

The project has contributed to the decision to zone as Natural the portion of the Escalante River and its side canyons that lies within the recreation area.

2. Effect of the proposal on the project

The proposal will complement and enhance the possibility of this river's being designated a part of the National Wild and Scenic Rivers System. Management policies for the potentially coincident designations would be entirely compatible.

E. Proposed Service Communities

The Utah Governor's Advisory Council on Glen Canyon (Section IX of the FES) has proposed the establishment of three privately owned service communities adjacent to the recreation area near Bullfrog, Halls Crossing, and Wahweap. The council has also recommended that lands for these communities be deleted from the recreation area to allow the proposed private development (DES Map 38, and Section VIII.B.2.).

1. Effect of the project on the proposal

The proposed projects contributed to the decision to zone the Wahweap area as Development. Elsewhere, the projects have not influenced the proposal.

They have, however, contributed to one of the alternatives--Section VIII.B.2.

2. Effect of the proposal on the project

Since the general management plan makes no provision for deleting lands from the recreation area to facilitate establishment of service communities adjacent to Bullfrog and Halls Crossing, these communities would have to be constructed on less desirable sites farther from the lake.

F. State of Utah Comprehensive Outdoor Recreation Plan

The proposed NPS plan is fully compatible with, and complementary to, the broad goals stated on pages 2.01-2.09 of the state's comprehensive outdoor recreation plan, which sets forth the state's intention to ensure the greatest possible diversity of safe, resource-compatible recreational activities and long-term preservation of the state's outstanding natural, scenic, and cultural resources.

G. Reservoir Management

The Glen Canyon establishing legislation specifies that "nothing...shall affect or interfere with the authority of the Secretary...to operate Glen Canyon dam and reservoir...for river regulation, irrigation, flood control, and generation of hydroelectric power." Because of this constraint, the current proposals, including the Wilderness recommendation, have been specifically formulated to avoid affecting, adversely or otherwise, reclamation withdrawals, the management of the reservoir, or existing hydroelectric facilities, or pumped storage sites under study.

DES Map 13 shows those facilities within the recreation area administered by the Bureau of Reclamation. Note that although Reclamation does not manage the surface of the reservoir, the agency has the right to use the surface and adjoining lands and to fluctuate the level of the reservoir as required in carrying out the purposes of the Colorado River Storage Project Act (P.L. 84-485). For these purposes, the Bureau has withdrawn approximately 1,111,400 acres (DES Map 14); approval of a proposed partial revocation of this withdrawal (also on DES Map 14) is pending.

During the summer of 1976, the Bureau of Reclamation identified ten sites under study for the installation of pumped storage hydroelectric facilities (DES Map 14). The proposed zoning makes no provision for the installation of these facilities because of insufficient information about them at this time. Within such sites, dams, powerhouses, and pipelines would be zoned as Development; impoundment and utility lines would be RRU. In August 1978 the Bureau notified the NPS that the nine Utah sites had been abandoned. One, not previously shown, on Nipple Bench outside the NRA, would require a corridor (inside the NRA) for a pipeline and pumping station. Peaking power proposals below Glen Canyon Dam remained viable. These and the one on Nipple Bench would not be precluded or interferred with by the final management zoning proposal or Wilderness recommendation.

Management and use of the recreation area, including supporting recreational development, will be entirely responsive to the requirements for operating the dam and reservoir, particularly the fluctuation of the lake for purposes quoted in the above excerpt from the establishing act.

H. Shootering Canyon Uranium Project

Plateau Resources Limited, released an environmental report in May 1978 about this project which proposes to process uranium ore in the vicinity of Shootering Canyon, Garfield County, in southeastern Utah (Map 5). The facilities will be located approximately 14 miles north of Bullfrog Marina. Also, Plateau is mining and purchasing uranium ore from other mines in the region and proposes to process those ores at the Shootering Canyon facilities.

Plateau is a wholly owned subsidiary of Consumers Power Company, Jackson, Michigan. The proposed facility will produce uranium concentrate (yellowcake), which Plateau plans to ship to a uranium hexafluoride conversion plant as the next step in the process of manufacturing fuel for Consumers Power Company's nuclear power plants. The proposed processing facility is designed to operate at the rate of 750 tons per day.

Due to the remote location of these facilities in southeastern Utah, Plateau has become involved in the development of a community in the area called Ticaboo. Ticaboo Development, Incorporated and Plateau Resources

b. Effect of the proposal on the project

The proposal will complement the proposed management policies of the two areas.

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Due to the remote location of these facilities in southeastern Utah, Plateau has become involved in the development of a community in the area called Ticaboo. Ticaboo Development, Incorporated and Plateau Resources

Limited plan to enter into a joint venture partnership under which Ticaboo will be engineered, constructed and operated.

Ticaboo Development Incorporated has prepared plans for the subdivision to be built about 3.5 miles south of the facility site. It will provide a mix of permanent structures and mobile unit lots in a school section (section 16, T36S, R11E). The closest settlement, Hanksville, is about 60 miles from the plant site; since this is beyond a comfortable commuting range, most of the operations work force is expected to desire local housing. Based upon the population and employment estimates, the total number of housing units needed will range between 195 and 230 units (Utah State University Foundation, 1977). In addition 170 to 205 housing units are planned for recreation related use.

The development of this town will benefit Plateau in that it will provide a pleasant place for its employees at the mine and mill to live with their families. As it is now, Plateau operates a camp at the mine site consisting of mobile home units, small laundry and a "cook shack". The anticipated commercial facilities at Ticaboo will include a coin laundry, grocery store, restaurant, sporting goods, beauty shop and hopefully, a national fast food, service station vendor and motel. It would also benefit personnel employed by tourist related businesses and visitors to the NRA.

Of prime interest is a school at Ticaboo. Plans now include a K-12 arrangement on the site to possibly accomodate children from Kane and San Juan Counties as well as Garfield.

Road and utility construction is expected to begin about the first of December 1978 for Ticaboo. The motel is planned to be completed and ready to house the construction workers (working on the construction of the mill) by March 1, 1979. At the completion of the construction of the mill, the motel will be renovated and turned to commercial operation.

A draft environmental statement for this project is being prepared by the Nuclear Regulatory Commission. This will be followed by a final environmental statement after which this agency will either approve or disapprove Plateau's request. If approval is granted, construction would begin soon thereafter. The company anticipates this could happen in late February or early March 1979.

If construction of the processing facility is approved, impacts will be generated upon the NRA. These should be discussed in the environmental statements previously mentioned that will be issued by the Nuclear Regulatory Commission.

The NPS is very interested in this project and has and will continue to work with Plateau as planning proceeds by both organizations.

There would appear to be a close relationship between tourist related facilities including housing for employees, at Bullfrog Marina inside the NRA with many facilities planned for the Ticaboo townsite nearby but outside the NRA. This relationship would be discussed in detail in a subsequent amended development concept plan for the Bullfrog area.

II. DESCRIPTION OF THE ENVIRONMENT

The description of the environment may be found in Section IV of the preceding document, the Plan.

Without the proposal, the following trends will continue to affect the future environment of the recreation area:

A. Trends in the Region

The area within approximately 100 miles of the recreation area boundary will continue to be used predominantly for grazing and recreation. The construction of new roads and the upgrading of existing ones will improve access and circulation within the region, thereby enhancing recreational opportunities and increasing public demand for recreational facilities. The probable expansion of the National Wild and Scenic River System and the Wilderness System, likely to result from the recent legislative mandate to prepare Wilderness suitability studies on the 15.3 million acres managed by the Bureau of Land Management in the region (Public Law 94-579), will probably occur. Accordingly, increased preservation of natural and cultural resources and decreased opportunities for consumptively utilizing these resources will result. In addition, opportunities for primitive recreational activities, such as backpacking, tent camping, hiking, rafting, and canoeing will increase.

Future economic development and diversification in the region may be expected to be connected with energy and recreation-related activities as the state of Utah and the private sector direct more and more attention to the area. Currently, the acreage in farmland, as well as year-round ranch and farm occupancy, are decreasing, and this trend will probably continue. The tourist industry has a high potential for growth and is expected to expand significantly in the near future (Table 9).

As the region continues to grow and diversify economically, population will increase and become more heterogeneous, in terms of backgrounds, interests, and pursuits. Increase in the acreage of developed land will accompany industrial growth and expansion of residential communities and service facilities. Housing quality, social services, access to public media, transportation, and the availability of material goods will improve. The limited availability of water in the region and the associated intense competition for this resource will be a controlling factor in determining the rate of growth. The disposal of the waste products of industrial, commercial, and domestic activities will continue to be constraining influences. Of particular importance is the decline in regional air quality associated with the operation of coal-fired power generating plants. This trend, if continued, may impair the scenic quality of the region's many outstanding natural resources. Establishment of limits to allowable air quality deterioration, in accordance with EPA regulation, is now in progress and could prevent continuation of this trend.

Table 9. Number of Tourists and Tourist Expenditures in Four Utah Counties.*

County	Number of Tourists		Tourist Expenditures	
	1971	1985**	1971	1985**
Garfield	1,038,000	2,796,400	$3,120,800	$16,944,017
Kane	1,297,500	3,495,300	3,900,700	21,178,396
San Juan	411,500	1,108,600	1,237,200	6,717,233
Wayne	53,500	144,100	160,800	873,044

*Brown and Vlachos (1975).

**Based upon linear extensions of past increases in tourism. The projections, which assume conditions affecting tourism will vary in the future exactly as they have in the past, provide a general benchmark for observed changes in tourism and expenditures over time.

Readjustment of the regional hydrologic system to the fluctuating base level of Lake Powell will take place. Groundwater will continue to become available, either permanently or intermittently, in locations where such resources are not now present. Litigation over the rights to the use of this newly available resource will continue as a result of uncertainty over the source of the water--natural groundwater versus the Colorado River System. The outcome of this litigation will determine the availability of water in the region and, therefore, will have a profound influence on the region's growth rate.

B. Trends Within the Recreation Area

1. Cultural resources

The recreation area's rich lode of archeological resources will continue to be subject to the adverse influences of natural forces (mechanical weathering and erosion) and human activities, notably vandalism and theft. Historical resources, substantially fewer in number, will be subjected to the same influences and will undergo progressive deterioration.

2. Natural resources

Sedimentation in Lake Powell will continue to occur at an estimated annual rate of about 50,000 acre-feet per year. The eventual long-term result of this trend will be the filling of the reservoir with sediment in several hundred years. During the next few decades, the rate of sedimentation will create progressively shallower water conditions in the upper portion of the reservoir. The Hite development site, located just below the head of the reservoir in the area of maximum sediment accumulation, is the only development site in the recreation area to be affected during this period. In this area, a sedimentation rate of about 35,000 acre-feet per year is likely to require either dredging or abandonment of the Hite marina facilities.

Geologic hazards will continue to affect the safety of recreationists, particularly on and near the shores of the lake. The slumping of sand piles, talus slopes, and rockfall debris into the lake will continue to pose particular hazards to users on or near the lakeshore. In addition, large slabs of sandstone will continue to fall into the lake in places where the lake waters have either lubricated the rocks or removed the cementing material supporting them. The fluctuating water level of the lake will continue to contribute to maintaining the likelihood of these events due to the effects of alternating periods of saturation and exposure.

Since reproduction of stocked trout is poor in the lake and since trout are no longer being stocked, the Lake Powell fishery will be progressively more dominated by striped bass as the trout disappear.

Readjustment of plant and animal communities along the lakeshore will continue to occur in response to disruption of former habitat and the creation of new habitat associated with the creation of the lake. The impoundment of Lake Powell diminished the habitats of certain forms of terrestrial wildlife, while expanding those for fish. Animals such as the kangaroo rat, antelope ground squirrel, pack rat, deer mouse, bat, ring-tailed cat, weasel, and various snakes, lizards, and birds have been displaced from their flooded habitats along the former shoreline. Amphibians have also virtually disappeared from this zone because of lack of protective cover. However, as the shoreline becomes more stable, a plant community of saltcedar, willows, and cottonwoods, Russian olive, cockleburr, and various grasses will establish itself, providing cover for a large variety of animal life: bullfrog, various lizards, gopher snake, milk snake, rock squirrel, chipmunk, various mice, cottontail rabbit, beaver, coyote, fox, ring-tailed cat, weasel, badger, striped skunk, spotted skunk, bobcat, and a great variety of birds, including such predatory species as the sparrow hawk and redtailed hawk. In general, the stabilizing water/land interface, because of plentiful cover, large variety of available food, and the proximity to water, will continue to provide additional habitat for a relatively great variety of wildlife within the recreation area.

Expansion of communities dominated by the exotic naturalizing shrub, saltcedar, will continue in and just above the fluctuation zone of the reservoir. This progressive expansion of these dense thickets will impair access to the shoreline from the lake by boat and render nearshore areas less desirable for water-oriented recreation. This condition is discussed in more detail in Section IV.B.14. of the Plan.

Increases in the concentration of mercury in the lake's ecological food webs, posing a potential hazard in human consumption of large predatory game fish, will continue, apparently due to natural weathering of mercury-bearing sedimentary rocks and effluents from coal-fired power generating plants. Further discussion of this condition may be found in Section IV.B.17. of the Plan.

III. DESCRIPTION OF ENVIRONMENTAL IMPACTS

A. General Management Plan

1. Impacts on recreational use

By providing for an expansion in the size and increase in the number of developed areas, the proposed zoning will increase the capacity of many of the recreation area's places (Table 3).

The establishment of a major development at Hite, the principal take-out point for river-runners in Cataract Canyon will facilitate a presently undetermined increase in opportunities for this activity.

Establishment of administrative facilities in an Escalante Operations Center and improvement of administrative facilities at Hans Flat will enhance the safety of backcountry recreationists in the Escalante Canyons and the Orange Cliffs area, respectively, by improving the ability of the Park Service to regulate and monitor backcountry use and provide essential and emergency services to backcountry users.

The establishment of new recreational facilities at Lone Rock will provide increased opportunities for recreational use of Lake Powell in this presently undeveloped area, thereby diverting use pressure from Wahweap, Bullfrog, and Halls Crossing (total capacity of the new development will be between 3,200 and 4,200 visitors per day).

The expansion of existing facilities at Wahweap, Bullfrog, Halls Crossing, and Hite will greatly increase the level of recreational use and the variety of recreational opportunities available at these major developed areas. Each of these developments will provide increased opportunities for camping, lodging (in motel facilities), picnicking, and participating in educational and interpretive programs. Each of the developments will serve as a major focus of recreational activities on Lake Powell. These major developments will, when fully operational, provide diverse opportunities for full utilization of Lake Powell and adjacent lands. The combined capacity of the four developments will increase from 9,700-12,600 to 21,600-28,100 visitors a day.

Farley Canyon and Llewellyn Gulch are proposed as potential development sites to be developed in accordance with future demand for recreation on the lake and, in the case of Farley Canyon, as a potential replacement for the Hite development should sedimentation render this site unusable. Their impacts on recreational opportunities would be similar to those stated for the recreation area's other major developments.

The increased capacity for launching, storing, and servicing boats, supplying equipment and accommodations, and of recreational facilities such as campgrounds and parking lots will mean a concomitant increase in the number of people capable of visiting and enjoying the recreation area at one time. Because the precise magnitude of increases in use has not been determined at this time, the possibility of future overuse in certain areas, particularly near the developed zones, exists. (Although Lake Powell is certainly large enough to "handle" thousands of recreationists, the "clumping" of people in time and space could create conditions whereby some component of the environment--most probably, on the lake, psychological--would be unacceptably degraded.)

By making use of the lake safer, the replacement of the Rainbow Marina with a land-based facility at Dangling Rope (Map 1) will improve circulation upon Lake Powell. Insufficient fuel-storage capacity at the Rainbow Marina has occasionally stranded large numbers of boaters overnight when fuel supplies ran out, creating unsafe and unsanitary conditions until the next day's delivery. The floating marina is not equipped to accommodate such use. Inclement weather has also forced such layovers. A land-based marina (at Dangling Rope) will allow the safe storage of sufficient supplies of fuel and provide adequate emergency shelter for boaters.

Hampered patrol activities (due to restrictions on the use of motor vehicles) below the Orange Cliffs may decrease the safety of visitors in this area.

Although hunting will still be possible on lands zoned as Natural (Table 2), lack of vehicular access will hamper such activity in this management zone (place Overlay 1 on Map 2). The magnitude of the effect (i.e., numbers of hunters or hunting days) is unknown.

Paving of the Hole-in-the-Rock road will facilitate access to the canyons of the Escalante (where use levels will be set by the backcountry-use plan) and to Hole-in-the-Rock, improving the experience for visitors interested in reaching these destinations. The boundary additions and facilities proposed for this road, including the Escalante Operations Center, will also contribute positively to the experience by allowing improved management and supervision of use in this area.

Opportunities for backcountry recreation--notably backpacking, hiking, canoeing, floating, photography, among others--would be fostered by the zoning of 54 percent of the recreation area as Natural. New facilities will improve the Park Service's ability to conserve the outstanding natural resources which provide the context for these diverse backcountry activities, thereby ensuring the long-term availability of an atmosphere of solitude that ensures high quality recreational experiences. In particular, note that 506 of the 618 miles of the recreation area's canyons--a major backcountry resource--will fall into the Natural Zone (Table 10).

In summary, the plan will substantially enhance both the quality and diversity of recreational experiences for park visitors throughout the recreation area. No major new recreational activities will be established, but those presently allowed will be enhanced.

2. Impacts on management of the recreation area

The zoning and associated proposals will require an increase in the number of personnel needed for

managing the recreation area. Establishment of trailheads and an operations center along the Escalante, expansion of facilities at Lone Rock, Halls Crossing, Hite, and (potentially) Llewellyn Bench and Farley Canyon, and placement of professional archeologists on the park staff will all necessitate additional personnel. Additional staff may also be required for policing mining activities in the RRU Zone. The various proposals will collectively require a staff increase of 10 to 20 people.

Below the Orange Cliffs the proposed closing of 47.5 miles of roads (Map 2) will prevent patrol activities involving the use of motorized vehicles, which will be prohibited in this area. Routine patrols for surveillance of resource conditions and visitor activities will have to be conducted on horseback or on foot, thereby increasing the time and staff required to maintain the present level of management activities. Outside the Orange Cliffs area, such activities will be little affected by the closing of roads, because almost all backcountry patrol in these locations is currently nonmotorized.

Table 10. Miles of canyon in the existing land use categories and proposed management zones.*

MANAGEMENT ZONES	EXISTING	PROPOSED
Natural	601	506
RRU	14	100
Development	3	12
Cultural	**	**
TOTALS	618	618

* Above 3700-foot elevation upstream from Glen Canyon dam; any elevation downstream from dam.

** Less than 0.1 mile.

The move of Rainbow Marina to Dangling Rope will improve management of this section of the recreation area. The present isolated, floating facility in Forbidding Canyon has a number of significant problems associated with its management and use: inadequate shelter for boats and boaters from storms; unavailability of a suitable aircraft landing site for emergency medical evacuation (the Rainbow Marina is accessible by boat only); the inadequate capacity, hazardous nature, and serious pollution potential of floating tanks used for storing marine fuel; and impairment of the mental well-being of NPS and concessioner employees due to severe isolation and confinement on a small floating platform hemmed in by sheer sandstone walls on all sides. The land-based facility at Dangling Rope will virtually eliminate these problems, because the availability of land will facilitate adequate sewage treatment and will provide a land refuge base from storms on the lake, access for aircraft in medical emergencies, land-based fuel storage tanks of safe construction and adequate capacity, and healthful living space for employees. For these reasons, the new facility will result in more efficient and effective management of public use of the lake.

Establishment of an Escalante Operations Center somewhere along the Hole-in-the-Rock road will improve management of this section of the recreation area by allowing for closer and more frequent supervision and inspection of activities and resources. Currently, the remoteness of a base for ranger operations (shared with BLM in the town of Escalante) hampers adequate regulation and management of resources and public use of the Escalante area because ranger personnel must now travel overland for almost half a day to reach southern end of the area.

Overall, the plan will increase management efficiency and effectiveness through the establishment of more suitably located facilities and adjustment of the recreation area boundaries.

3. Impacts on scenery

Since all of Class I (outstanding) and most of Class II (superior) areas (116,000 acres and 175,705 acres respectively; Table 11) are included within the Natural Zone (place Overlay 1 on DES Map 15), the proposed zoning will ensure the protection of the recreation area's most significant scenic resources: the canyons of the Escalante River, the Waterpocket Fold, the area to the west

Table 11. Acreage* of the scenic classes in existing land use categories and proposed management zones.

EXISTING LAND USE CATEGORY OR MANAGEMENT ZONE	EXISTING LAND USE					PROPOSED MANAGEMENT ZONES				
	Class I (Outstanding)	Class II (Superior)	Class III (Interesting)	Class IV (Unremarkable)	Total	Class I (Outstanding)	Class II (Superior)	Class III (Interesting)	Class IV (Unremarkable)	Total
Natural	115,950	185,855	458,052	327,863	1,087,720	116,000	175,705	293,645	79,300	664,650
RRU	50	145	1,303	1,162	2,660**		8,820	160,715	238,525	408,060**
Development			620	975	1,595		1,475	5,615	12,175	19,265
Cultural			25		25			25		25
TOTAL	116,000	186,000	460,000	330,000	1,092,000	116,000	186,000	460,000	330,000	1,092,000

*Excludes boundary adjustments.

**Excludes Lake Powell (163,000 acres).

of the Little Rockies, the slopes of the Kaiparowits Plateau, part of Wilson Mesa, the canyon of the Dirty Devil River, Cataract Canyon, the Orange Cliffs, and the canyons of the San Juan and Colorado Rivers (below the dam). As indicated in DES Appendix 11, these areas contain outstanding canyon, cliff, and slickrock scenery embodying the recreation area's most impressive displays of color, immensity, starkness, angularity, and interest. Eight thousand eight hundred and twenty acres of Class II scenery (in the Orange Cliffs, along the cliffs of the Colorado River below the dam, and portions of Nakai Dome) are zoned as RRU, and hence, potentially subject to degrading influences from mining, vehicular use, and utility rights-of-way. Careful consideration of these resources in planning the use of areas in which they occur can probably eliminate this adverse impact.

To the extent that 293,645 and 79,300 acres of the scenic resources of Classes III (interesting) and IV (unremarkable), respectively, fall within the Natural Zone, their scenic properties will also be protected. A certain amount of degradation of the natural scenery in Classes III and IV is inevitable as the result of development, mining, or motorized uses in the Development and RRU Zones (refer again to Overlay 1 on DES Map 15). The Development Zone includes 5,615 acres of Class III, and 12,175 acres of Class IV scenic resources; the RRU Zone includes 160,715 acres of Class III and 238,525 acres of Class IV scenic resources.

Erosional scarring as a result of mining activities and vehicular use would be particularly severe in areas of erosion-susceptible rocks. The accumulation of sediment in natural drainages as a result of these activities will also have adverse scenic effects. In particular, the proposed deletion of the Purple Hills area (9,265 acres) from the recreation area will make erosion-susceptible rocks vulnerable to uranium mining. This activity could result in severe erosion, and the sediments that might accumulate in the drainage feeding the Escalante River could seriously impair the scenic quality of these Class I (outstanding) areas.

The overall effect of the proposed management zoning on the recreation area's scenic resources is to assure long-term protection of outstanding scenic resources which are now potentially subject to the deleterious influences of mining, development, use of motorized vehicles, and intensive recreational use. These uses, although not now occurring in outstanding scenic areas, are allowable in accordance with existing legislative and administrative controls, which will be amended when the proposed zoning is established. The less-than-outstanding scenic resources outside the proposed Natural Zone (Wilderness) will receive the same level of protection that they now enjoy.

4. Impacts on wildlife and the fishery

The recreation area's 100-200 desert bighorn sheep will likely be adversely affected by the proposed zoning. The Red and White Canyon areas, two of the few known bighorn lambing grounds in southeastern Utah, are in the RRU Zone, where mining and motorized vehicles and equipment may be permitted. Only the Gypsum Canyon lambing grounds are in the Natural Zone. The extent and specific locations where mining and motorized vehicle and equipment activities will be allowed will be specified in the mineral resources component of the resources management plan, scheduled to be completed within Fiscal Year 1979. Such activities, vehicles, and equipment will interfere with the bighorn's feeding, watering, and grazing behavior in these areas, creating conditions under which a decline in the animals' population could occur. To the extent that physical interruption of the animals' activities (e.g., poaching and habitat destruction) is facilitated by this zoning, the potential for a population decline is even greater. In other areas, such as in the Escalante and Little Rockies, where suitable bighorn habitat occurs, the animals, if they are present, would be largely free of such disturbing influences (place Overlay 1 on DES Map 16 and note the coincidence of the Natural Zone with bighorn habitat). Competition for water and forage with domestic livestock (Section IV.B.25. of the Plan) will likely adversely affect the bighorn throughout the recreation area.

The recreation area's estimated several hundred mule deer may benefit from the proposed zoning. The Natural Zone includes a portion of their winter range comprising an estimated 200,000 acres within the recreation area south of the Escalante River, along the San Juan River, and east of the Orange Cliffs. These habitat areas will be permanently protected from the disruptive influences of exploration and extraction of minerals, vehicular use, and development; when using these areas, the deer themselves will be effectively separated from these adverse influences. Antelope habitat in the recreation area is not so well

protected, since it falls within the RRU Zone southwest of the Wahweap Development Zone. Here, negative effects on the antelope population of 100 to 150 animals could result from the use of motorized equipment, particularly in the construction and maintenance of utility lines.

The proposed management zoning will have no significant effect on the fishery of Lake Powell and its tributary streams, which support populations of two endangered fish species, the Colorado squawfish and the humpback chub. Small, but presently undetermined, volumes of pollutants from park developments and visitor activities on the lake and in the canyons will be diluted to such a degree that no adverse effects will occur. The amount of sedimentation due to grazing, mining, and development within the recreation area will be inconsequential relative to the tremendous volume of sediment continuously transported by Lake Powell's tributary streams (DES Table 15), a condition to which the region's aquatic life has long been adapted.

Overall, the proposed zoning, because of the prevalence of land zoned as Natural, will contribute toward the maintenance of existing conditions supporting present wildlife populations. The important potential exception to this generalization is the bighorn sheep, because activities in the RRU Zone capable of disrupting some of their habitat--notably mining vehicular use and construction of utility corridors--are potentially allowable.

5. Impacts on vegetation

a. Northern Desert Shrub Association (893,737 acres)

The implementation of the proposed zoning will affect each of the recreation area's vegetational associations (Table 12). About 62 percent (550,115 acres) of the land area supporting the Northern Desert Shrub Association is in the Natural Zone. On this acreage a probable reduction in grazing use (Section III.A.13. of the FES) may lead to increases in the abundance and cover of certain grasses, such as blue grama, Indian ricegrass, galleta, and needle and thread, and certain shrubs, such as four-wing saltbush and green Mormon tea, species that are favored by cattle. Snakeweed, globe mallow, Russian thistle, sand dropseed, cheatgrass brome, and common sixweeks grass--species less favored by cattle--will likely decline in abundance and cover. A gradual increase in the extent of cryptogamic earth, readily disturbed by the trampling of cattle, will also likely occur. In general, it is expected that the abundance and cover of grasses will increase at the expense of shrubs. These effects would be intensified were grazing (within the Natural Zone) to terminate completely (Section III.A.13. of the FES). Activities capable of directly disrupting the vegetation--notably, exploration for and extraction of mineral resources, use of vehicles, and development--will be prohibited within these 550,115 acres allowing either the maintenance of existing conditions or the onset of the changes in community composition noted above.

The level and seasonality of grazing operations on particular allotments will be established by the grazing resources component of the proposed resources management plan, to be completed within 6 years. The effects of grazing on particular allotments will be evaluated in preparing this plan.

About 36 percent of the recreation area's Northern Desert Shrub Association will be included in the RRU Zone, in which mining, utility corridors, and motorized uses may be permitted, subject to determinations in the mineral resources component of the proposed resources management plan. Wherever these uses occur they will severely disturb or eliminate the vegetative cover. Although the total level of such disturbance is unknown at this time, it is unlikely that it will ever exceed 1 percent of the total acreage of the association in the RRU Zone (i.e., about 3,200 acres). Natural revegetation of cleared areas in this association will require 20 to 50 years. Annuals, such as halogeton, smotherweed, Russian thistle, and cheatgrass will be the first to occupy such sites. Perennials, such as winterfat, squirreltail, and shadscale, succeeded by black sage, big sage, and Indian ricegrass, will follow the annuals in ensuing years, eventually reestablishing a mature plant community.

Grazing, which will likely continue at or near current levels because of the absence of restrictions on motorized uses in support of grazing management, will continue to maintain the present condition of the vegetation by suppressing the growth of grasses and shrubs, such as blue grama, Indian ricegrass, galleta, needle and thread, four-wing saltbush, and Mormon tea, and impeding the development of cryptogamic earth.

Table 12. Acreage* of the vegetation associations in existing land use categories and proposed management zones.

EXISTING LAND USE CATEGORY OR MANAGEMENT ZONE	EXISTING LAND USE					PROPOSED MANAGEMENT ZONES				
	Associations					Associations				
	Northern Desert Shrub	Pinyon-Juniper Woodland	Cottonwood-Willow-Saltcedar Floodplain	Hanging Gardens	Total	Northern Desert Shrub	Pinyon-Juniper Woodland	Cottonwood-Willow-Saltcedar Floodplain	Hanging Gardens	Total
Natural	898,860	187,018	1,832	10	1,087,720	550,115	117,405	1,140	10	668,670
RRU	2,417	242	1		2,660**	324,610	69,625	655		394,890**
Development	1,580	5	10		1,595	18,987	235	48		19,270
Cultural	25				25	25				25
TOTAL	**902,882**	**187,265**	**1,843**	**10**	**1,092,000**	**893,737**	**187,265**	**1,843**	**10**	**1,082,855**

* Includes boundary changes in the proposal.

** Excludes Lake Powell (163,000 acres).

The remaining 2 percent (18,987 acres) of the Northern Desert Shrub Association is in the Development Zone, where the causes of disturbance are similar to those in the RRU Zone, but more extensive and permanent in their effects on vegetation. The facilities established in this zone, such as campgrounds, parking lots, paved roads, and buildings, and the activities associated with them, have an indeterminate life span, tending to represent permanent resource commitments. Those in the RRU Zone typically have a finite life span. The acreage of disturbance in the Development Zone, although unknown at this time, will be relatively greater than in the RRU Zone, perhaps eventually comprising as much as 5 percent of the zone (or about 1,000 acres).

b. Pinyon-Juniper Association (187,265 acres)

About 63 percent (117,405 acres) of the land area supporting the Pinyon-Juniper Association is in the Natural Zone, where grazing will be the only potentially adverse influence on plant communities.

The level and seasonality of grazing operations on particular allotments within the Pinyon-Juniper Association will be determined by the grazing resources component of the proposed resources management plan, to be completed within the next 6 years. The effects of grazing on particular allotments will be evaluated in preparing this plan. At this time very little is known about the specific effects of grazing on this community. In general, however, they are similar to those within the Northern Desert Shrub Association: suppression of grasses and certain shrubs favored by cattle (as cited above) and damage to the cryptogamic soil crust. To the extent that grazing use will be reduced (or even eliminated) within the 117,405 acres of the Pinyon-Juniper Association falling within the Natural Zone (Section III.A.13. of the FES), these species and life forms will increase in cover and abundance. Aside from grazing, the communities in the Pinyon-Juniper Association located in the Natural Zone will be permanently protected from adverse human influences, notably mining, vehicular use, and development.

About 37 percent (69,625 acres) of the land area supporting the Pinyon-Juniper Association is in the RRU Zone, in which mining and motorized uses may be permitted. Wherever these uses occur, they will disturb or destroy the vegetative cover (level of disturbance is presently unknown, but it is unlikely that it will ever exceed 1 percent of the potentially affected area).

The remaining 0.2 percent (235 acres) of the Pinyon-Juniper Association is in the Development Zone. The causes of disturbance are the same as described for the Northern Desert Shrub Association, and their effects are similar to those described for the RRU Zone above. The acreage of disturbance in this zone, although presently undetermined, will be small, probably less than 10 acres, but will be permanent or of very long duration.

c. Cottonwood-Willow-Saltcedar Floodplain Association (1,843 acres)

About 62 percent (1,140 acres) of the land area supporting the Floodplain Association will be permanently protected in the Natural Zone from all potentially adverse influences except grazing. Because of the greater availability of water, this association has high productivity and range potential. For this reason, it is grazed more intensively than the other associations, but, because of increased productivity, its carrying capacity is greater.

About 36 percent (655 acres) of the land area supporting the Floodplain Association is in the RRU Zone, where mining , utility corridors, and motorized uses are allowable. Clearing or disturbance of this association for these uses will involve small acreages, if it occurs at all. Succession following disturbance is rapid, with mature community structure normally restored in 15 to 20 years. In addition, seasonal scouring of the canyon bottoms will naturally negate most culturally induced adverse effects in this association. The effects of grazing in this association are similar to those described above for the Natural Zone.

The remaining 2 percent (48 acres) of the Floodplain Association lands are in the Development Zone. Because of flood hazard, major recreational developments will not be constructed in these areas, so the disturbance of vegetation due to clearing for this use will either not occur or will be limited to local clearing of small areas (less than an acre) for temporary facilities, such as picnic areas. For the most part, communities of the

Floodplain Association will be protected in Development Zones and will contribute to the scenic quality of these zones.

d. Hanging Gardens (10 acres)

The unique assemblages of shade-loving ferns and flowering plants characteristic of seepage zones in shaded canyon walls, collectively termed Hanging Gardens, are entirely within the proposed Natural Zone. They will therefore receive permanent and complete protection from adverse influences. Since these communities are in very inaccessible locations, grazing will not constitute an important potentially adverse influence, as in other portions of the Natural Zone.

e. Threatened and endangered species

The proposed management zoning will have no known adverse effect on the six endangered or threatened plant species known to occur in the recreation area (i.e., endangered--*Astragalus malacoides*, *Phacelia mammilariensis*, *Viguiera soliceps*; threatened-- *Astragalus striatiflorus*, *Astragalus desperatus* var. *conspectus*, *Ptereia thompsonae*). There is also no evidence to suggest that marginal and endemic species will be adversely affected. The 17 species in the above categories (DES Table 20) have been reported only from slopes of the Kaiparowits Plateau, which is included within the proposed Natural Zone. This area will receive permanent protection from the effects of human activities, except for grazing. Because these species are located in inaccessible areas of steep topography with little or no available water for most of the year, the grazing of cattle in this portion of the recreation area will probably have no effect whatever on their habitats.

6. Impacts on erosional processes

Within the recreation area, grazing is the most widespread activity traditionally contributing to the acceleration of natural erosional processes. About 570,000 acres within the recreation area (or 52 percent of its total land surface) are presently grazed for part or all of the year; annual animal unit months (AUMs) averaged 13,512 for cattle and 859 for sheep during the period from 1970 through 1974 (Map 7, Table 13, Appendix 9). The existing condition of the range in this area ranges from good (190,000 acres or 33 percent of the grazed area), to fair (350,000 acres or 62 percent of the grazed area), to poor (30,000 acres or 5 percent of the grazed area), according to evaluations provided by the Bureau of Land Management. A long history of overgrazing and absence of sound management practices are considered to be primarily responsible for the condition of most areas presently considered to be in "poor" or "fair" condition. The Bureau of Land Management estimates that, with continued improvement in management practices (fencing to facilitate containment of grazing stock to suitable ranges, improved distribution of cattle to ensure that the range is not overgrazed, and new facilities such as salt licks and stock tanks to extend grazing to suitable areas within present allotments which are now unsuitable because such facilities are lacking), the potential range condition could be good over 390,000 acres (68 percent of the grazed area) and fair over 180,000 acres (32 percent of the grazed area). All forage production of the soils in the recreation area are generally limited to natural factors, such as soil productivity and climatic conditions.

Typically "fair" range occurs in areas of bare rock with scattered pockets of mineralized soil; "good" range occurs in areas with deeper and more widely distributed soils (compare DES Map 17 with DES Map 33). In certain areas, for example on Wilson Mesa, between Red and White Canyons, and on the slopes of the Little Rockies, areas of predominantly bare rock are shown to have good range potential, an apparent inconsistency that will require further study.

Overgrazing and lack of environmentally sound grazing management are abuses of the past which still contribute to accelerated erosion of grazed areas in fair or poor condition (e.g., the Orange Cliffs area, Lees Ferry area, part of the area west of the Escalante River, between the Dirty Devil and Cataract Canyon, and at the east end of

Table 13. Livestock grazing in existing land use categories and proposed management zones.

LAND USE CATEGORY OR MANAGEMENT ZONE	EXISTING Acreage[a]	EXISTING Allotments Involved	EXISTING 5-Year[d] Average Actual Use AUM's	PROPOSED Acreage[a]	PROPOSED Allotments Involved	PROPOSED 5-Year[d] Average Actual Use AUM's
Natural (within grazing allotments)	1,087,720 891,632	38	14,265	668,980 (529,724)	28	8,110
RRU[b]	2,660	30	97	403,730	32	5,826
Development[c]	1,595	7	9	19,265	13	435
Cultural	25	4	e	25	4	e
Total	**1,092,000**		**14,371[f]**	**1,092,000**		**14,371[f]**

[a]Excludes boundary adjustments.

[b]Excludes Lake Powell.

[c]Additional details in Table 16.

[d]1970-1974.

[e]Less than 0.1 AUM (animal unit month).

[f]Average annual *actual* grazing use in the recreation area.

the San Juan arm). Accelerated erosion will decline as range conditions are improved.

The Bureau of Land Management indicates that even though only about half of the allotted AUMs are currently being utilized by regional ranchers (the reasons for this situation are unclear), the grazing of the recreation area could be increased to the full presently allotted AUMs, given optimal seasonal and spatial distribution of livestock on the available range, without affecting significantly the trend toward decelerating erosion of grazed areas. As the condition of the range improves, the allowable grazing use will increase. Whether increases in actual use will accompany the increases in allowable use is unknown. However, once again, any increase in actual use up to the allowable limit, under optimal management conditions, normally should not result in acceleration of erosion of the range.

Quantitative information on present erosion rates within the recreation area and the relative importance of natural and cultural factors as causative agents is not available. A plan for research to gather the necessary information will be included in the grazing resources component of the proposed resources management plan, to be completed within the next 6 years.

Reduced stocking rates and the potential voluntary termination of grazing within the 671,205 acres of the Natural Zone (Section III.A.13. of the DES) will result in decreased erosion rates, principally as a result of the reestablishment of the cryptogamic soil crust and to a lesser but still significant degree by the increase in abundance and cover of grasses and shrubs (Section III.A.5. of the FES). Scattered (but common) occurrences of cryptogamic earth may be found throughout the recreation area. Within the Natural Zone the diminution (or ultimate cessation) of livestock use, capable of readily destroying the slow-forming algal crust, will allow the development of this soil condition, which helps bind the substrate and prevent wind- and water-induced erosion (Kleimer and Harper 1972). However, on top of the Orange Cliffs (zoned RRU), where an extensive area of cryptogamic earth may be found (principally within Soil Zone 4a 1/5, DES Map 17) within parts of three allotments containing about 500 AUMs, continued grazing will maintain the damage to the soil crust and prevent its reestablishment, perpetuating current rates of erosion.

Construction activities in the RRU and Development Zones, and exploration and mining activity in the RRU Zone, will cause severe disruption of the generally thin mantle of dry, poorly stabilized mineral soils of the recreation area. Local increases in wind erosion, with resultant blowing dust, will occur and will be most severe during the summer and autumn when drought conditions often prevail. Wherever such activities disturb either soils or erosion-susceptible subsurface materials (place Overlay 1 on DES Map 18 to discover potential locations for such activities--actual locations are unknown at this time), accelerated sheet and gully erosion will likely occur. The RRU Zone contains 34,000 acres of erosion-susceptible rocks. Correspondingly, almost 77,000 acres of erosion-susceptible rocks within the Natural Zone will be protected from disturbance resulting from these activities (DES Table 21).

Accelerated erosion may be especially likely on 9,265 acres of erosion-susceptible rocks in the Purple Hills area, the deletion of which from the recreation area would facilitate mining activity there. Because the surface is composed almost entirely of erosion-susceptible materials (DES Map 18 and Section IV.B.15. of the Plan), the potential for accelerated erosion caused by potential mining activities is especially high. The resulting sediment could degrade the scenic qualities of the drainages that carry it through the recreation area into the Escalante River.

The possible impairment of grazing management, due to the proposed prohibition on the use of motorized equipment and vehicles in the Natural Zone, might result in local increases in erosion of grazed areas. Increased erosion could result from short-term overgrazing of local areas if the conversion from motorized to non-motorized methods in transporting cattle and supplies, as well as in maintaining fences, stock tanks, and other facilities, impaired management efficiency. Precisely where this effect might occur is not known, since the extent of each operator's curtailment is also not known (see also Section III.A.13. of the FES). The extent of such operational curtailments will be specified within the grazing resources component of the proposed resources management plan, to be completed within the next 6 years.

The effects of proposed visitor activities on erosion rates will be insignificant on all soil types in most areas. Concentrated visitor use along about 20 miles of canyons of the Escalante and Little Rockies could contribute to localized, temporary increases in erosion rates on alluvial soils supporting well-beaten trails. The periodic scouring action of water in the canyon bottoms should obliterate the evidence of such localized increases in erosion. The proposed closure of 86.3 miles of unpaved roads in the Natural Zone (Map 2), primarily in the highly erodible Orange Cliffs area, will reduce erosion presently associated with the use of motor vehicles on these roads.

7. Impacts on lake water quality

The quality of water in Lake Powell is good and poses no significant constraint on development and use of the recreation area (Section IV.B.17. of the Plan). However, by increasing the level of development to support water-oriented recreational activities, the plan will result in increased use of the lake and associated increases in pollution, principally from motorboats, but also from sewage effluents, petroleum residues, and solid waste. However, an Environmental Protection Agency study (undated) found no significant adverse effects on aquatic ecosystems from intensities of use (one liter of fuel burned per day per million liters of water) far in excess of levels to be expected on Lake Powell. (DES Appendix 17 contains a reproduction of the conclusions of this study.) To be sure, sewage effluents, petroleum residues, and rubbish, as indicated previously, will continue to enter the aquatic environment in presently undetermined quantities at existing development sites (Wahweap, Bullfrog, Halls Crossing, and Hite). Except around the developed areas themselves, where transient accumulations of these substances may occasionally become offensive during holiday periods of peak recreational use (i.e., Memorial Day, July 4, and Labor Day weekends), the immense volume of the lake (about 24-27 million acre-feet, depending on the lake surface elevation), annual turnover, and active and continual (although long-term) flushing lake circulation will render this effect entirely negligible overall. In general, the proposals of the plan will not contribute to a significant deterioration of the water quality of Lake Powell.

The level of mercury in the fish in Lake Powell is at the maximum level safe for human ingestion. An increase in visitation will result in more people fishing, and consequently eating fish caught in the lake--with a resultant increase in the number of people ingesting mercury.

8. Impacts on groundwater and surface water quality

The chemical quality of surface and ground water in the recreation area is determined by natural processes and, to a lesser degree, by land use practices outside the recreation area (Sections IV.B.18. and IV.B.19. of the Plan). Elevated salinity is the principal factor contributing to lowered water quality and is the result of natural conditions.

The overall quality of the recreation area's ground and surface waters will be little affected by the management zoning and its accompanying proposals. A principal effect will be a maintenance of the status quo, since most activities capable of adversely affecting water quality, notably mining, development, and vehicular use, are prohibited in the Natural Zone. Concentrated backpacking use in this zone could create transient, localized degradation of surface water quality along watercourses, particularly in the Escalante drainage. The natural cleansing properties of swift-moving, shallow streams will significantly reduce the magnitude of this effect by restoring natural conditions from one season to the next. Surface water pollution resulting from soil disturbance by backpackers--potentially intense in the Escalante Canyon--should be negligible compared to the effects on water quality of natural erosional processes. A major, though short-term, source of pollution could result from the death of a steer in or very near one of the recreation area's waterways; the rotting carcass can create (and has occasionally created) potentially dangerous conditions for water users a short distance downstream.

The greatest potential for degrading both ground and surface water quality occurs in the RRU Zone, where mining, utility corridors, and motorized activities are, or may be, permitted. Petroleum byproducts, sediment, and leachates from mines and mine tailings could find their way into the recreation area's watercourses, causing unsightly or unhealthful conditions. Warm Creek, Last Chance Creek, Moody Creek, Red Canyon, and White Canyon, and their tributary streams, are the most probable locations for these effects to occur. It is possible that drilling activities in these areas, by penetrating groundwater in perched aquifers or at the level of the regional water table, could introduce foreign substances, such as bituminous materials, into the water. It is highly unlikely that such substances would find their way to producing wells or discharge sites, contaminating surface waters.

Local impairment of surface water quality in the Development Zone may result from the construction and operation of recreational and management facilities, primarily from siltation during construction and runoff contaminants (petroleum byproducts, trash, etc.) during operation. Groundwater impairment in the Development Zone will not occur because there is no way for contaminating materials resulting from construction and operation of facilities in these areas to enter the relative deep subterranean aquifers.

9. Impacts on air quality, including noise

The air quality of the southern part of the recreation area is seriously impaired by stack emissions from the Navajo Power Plant, located at Page, which emits an average of 7.25 tons of particulates, 210 tons of sulfur dioxide, and 204 tons of nitrogen oxides per day. The brown haze characteristic of the Page/Wahweap area normally becomes significantly less noticeable north of the Kaiparowits Plateau. The air quality in the central and northern parts of the recreation area remains generally good to excellent.

The recreation area is now classified as Class II under Environmental Protection Agency (EPA) standards, which require that the total increase in suspended particulate concentration may not exceed the existing (presently unknown) level of more than an annual geometric mean of 10 ug/m^3 or a 24-hour maximum concentration increase of 30 ug/m^3 and that sulfur dioxide concentration may not exceed the existing level by more than an annual geometric mean of 15 ug/m^3. Reclassification to a more restrictive classification category for the recreation area and a less restrictive one for the surrounding area has been proposed by the state of Utah. Action by EPA is pending.

The principal sources of air pollutants within the recreation area are automobiles and motorboats. By providing for increased visitation, the proposed zoning will indirectly lead to increases in the atmospheric concentrations of particulates and gases from these sources. Increased pollution due to exhaust emissions from boats and

automobiles will be significant in the vicinity of the recreation area's four major developments (i.e., Wahweap, Bullfrog, Halls Crossing, and Hite) where the capacity for public use will be increased from about 11,000 visitors per day to about 25,000 visitors per day. This increase will be associated with an approximate doubling in the use of, and emissions from, automobiles and boats. Fumes, noise, and dust from these vehicles are already noticeable, at times even irritating, during periods of peak use in the late spring and summer. The current quantities of pollutants are unknown. The proposed increase in vehicular use will increase the frequency, severity, and duration of significant localized air pollution events.

Noise could be a transient problem in narrow channels and canyons, where the confinement of sound between sheer rock walls could create unhealthful conditions. Outboard engines at full throttle produce between 75 and 80 decibels (A scale) at a distance of 50 feet. An unmuted ringing telephone produces 75 decibels(A) at 9 feet, an alarm clock 78 decibels (A) at 2 feet, a busy city street 85 decibels (A), and inside an underground tram 88 decibels (A). Similarly, the production of large quantities of dust (probably on the order of 10-50 lbs./vehicle-mile--DES Appendix 23 contains a discussion of this topic) may produce annoying conditions or irritate sensitive respiratory tract membranes along some sections of the recreation area's 395 miles of unpaved roads, such as the road across Warm and Last Chance Creeks and in the Orange Cliffs. Paving 8 miles of the Hole-in-the-Rock road will greatly reduce the amount of dust being generated by the current use of this unpaved road (probably on the order of several tens of thousand pounds per day). At the same time, the action may also encourage greater use of the corridor, resulting in increased concentrations of hydrocarbons and nitrogen oxides along its length. It is not expected that the volume of traffic and atmospheric conditions would ever create a situation in which these compounds could adversely affect vegetation or wildlife near the road.

In the Natural Zone the absence of motorized uses, which are both intrinsic sources and direct causes of air pollution, will allow the maintenance of existing air quality in this zone. The closing of 91.3 miles of unpaved roads in the proposed Natural Zone will reduce the local dispersion of dust (50 to 100 tons per year) and eliminate introduction of exhaust pollutants into the atmosphere. Wherever mining activities in the RRU Zone occur, local degradation of air quality is likely; similarly, construction activities in the Development Zone will cause local degradation of air quality for the duration of the construction activities. Specific effects of such mining and development will be addressed in the environmental documents accompanying future site-specific mining and development proposals.

In conclusion, implementation of the proposed plan will result in a small improvement of air quality in the Natural Zone, temporary, localized degradation of air quality associated with increased vehicular use in the developed areas, and potentially significant--but presently undeterminable--deterioration of air quality in the RRU Zone at such time as mining or mineral leasing operations are authorized in this zone.

10. Impacts on archeological resources

The recreation area contains a rich diversity of widely distributed archeological resources representing artifacts from a period of about 5,000 years of discontinuous human occupation (Section IV.B.21. of the Plan).

The general management plan will not result in the transfer, sale, demolition, or substantial alteration of any of these resources listed on or qualified for the National Register. The implementation of a cultural resources management plan and the recruitment of a staff archeologist and assistant will contribute significantly toward the preservation of archeological resources. Aided by the plan, the archeologist will be able to ascertain the effects of programs and site-specific actions on archeological resources and arrange either to avoid or mitigate anticipated or potential adverse effects. Until the formulation and implementation of the cultural component of the resources management plan (to include a comprehensive inventory of the recreation area's archeological resources--see DES Appendix 3), only those sites identified in Map 1 (sites that have been professionally studied) are zoned as Cultural, a designation that will help insure their preservation. When other significant sites are identified, they, too, may be zoned as Cultural, regardless of the zoning category they may occupy at that time. (The designation of Wilderness will not preclude such action, since the Cultural and Wilderness Zones are entirely

compatible--see Table 2. The former is a management designation, the latter a congressional one.)

Archeological resources in the Natural Zone will be subject to fewer and less severe adverse effects than in either the RRU or Development Zones, because of the exclusion of motorized equipment. Lack of motorized access could decrease visitor use, lessening the likelihood of wear and vandalism. In addition, people are less likely to remove heavy objects that they have to carry on their backs. At the same time, however, the restriction on motorized vehicles and equipment will hinder inventory, research, and protective activities, potentially resulting in long-term adverse effects on archeological resources.

Backcountry use, however, may have an adverse effect on archeological resources, especially where there is no direct supervision by park personnel. The use of camping areas and trails directly affects archeological resources on them. Remains adjacent to or easily accessible from use areas are vulnerable to wear and vandalism. This is particularly true in the Escalante, a relatively heavy-use area that contains a high concentration of archeological resources (DES Map 20).

Grazing, too, can have adverse effects on archeological resources through the damage or destruction that livestock inflict upon surface remains. Alterations in the plant cover will change erosion patterns, causing buried remains to be washed away or exposed.

In the RRU Zone, where the exploitation of mineral resources and the construction of utility rights-of-way may be permitted at some time in the future (but are not expressly authorized by this plan), archeological resources will be particularly subject to potential adverse effects. Ground disturbance and the operation of heavy machinery can readily destroy or hasten the deterioration of fragile remains. In the Orange Cliffs many sites consist of lithic debris, which could be scattered and broken by four-wheel-drive use or mineral activities. On the lake, recreational activities in frequently used areas can adversely affect archeological resources at or near water level through the action of water-caused deterioration of pool-level remains (such as the Davis Gulch Pictographs).

In the Development Zone, archeological resources could be subject to more severe adverse effects than in any of the other zones. The construction of support facilities could destroy any resources existing at the sites selected, unless, under the supervision of a professional archeologist, the resources were first physically removed. Intense public use in surrounding areas could also seriously threaten nearby remains, such as those in Moki and Lake Canyons, which are particularly vulnerable to this kind of disturbance.

In conclusion, the proposed management zoning will result in the long-term preservation of archeological resources in the Natural Zone, but the prohibition of vehicular use and motorized equipment in this zone will impair the conduct of archeological research, and will limit access of managers to archeological sites, thereby making their preservation more difficult. In the RRU Zone, mining, vehicular use, and the construction and maintenance of utility corridors may result in disturbance or destruction of these resources. No such activities are presently proposed, and the establishment of the RRU Zone will have no immediate effect on existing resources. In the Development Zone, construction of recreational and management facilities may result in disturbance or destruction of archeological resources.

11. Impacts on historic resources

Zoning the historic resources (Lee's Ranch and Fort at Lees Ferry (Map 1) and Dance Hall Rock (DES Map 3) along the Hole-in-the-Rock road) as Cultural will help insure their preservation. Under the zone's management strategies of preservation or restoration where deemed appropriate by professional analysis, these resources should be protected from disturbing influences.

Paving of the Hole-in-the-Rock road will not directly affect historic resources, because the road is only symbolic of the route the Mormons took and likely does not represent the actual trail that they followed. Further, the route has been heavily used by modern traffic for many years, a use that has long since obliterated any physical evidence of the historic route where it and the present roadway might coincide. Although paving the Hole-in-the-Rock road will facilitate access to Hole-in-the-Rock, potentially increasing its visitation, it is not likely that such an increase--probably less than three times present visitation--would result in degradation of the potential

National Register resource, a structure of virtually solid rock.

Potential National Register properties at Lees Ferry will not be adversely affected by this plan.

12. Impacts on development of mineral resources

a. Tar sands

Except for 235 acres at Hans Flat, the proposed zoning may allow the extraction of oil from the tar sands (a residual bituminous deposit) in the area west of the Orange Cliffs (place Overlay 1 on Map 4), subject to the regulations of a mineral resources management plan. The depth of the occurrence is too great to allow strip mining (DES Map 22). The tar sands are identified as a subeconomic resource in the submarginal category requiring new technology before economic recovery is feasible. In-situ methods of recovery may be the only practical means for the foreseeable future. It is not known what fraction of the estimated 12.5- to 16-billion barrel deposit lies west of the Orange Cliffs. Access through the RRU Zone to future tar-sand development sites west of the recreation area may be allowed by the proposed zoning, because vehicular use in some cases may be permitted in this zone. A final determination for particular cases will be made in the mineral resources management plan.

Since the portion of tar sand deposit east of the Orange Cliffs is in the proposed Natural Zone, leasing of the deposit and extraction of oil in this area will be prohibited, except where prior valid mineral rights exist. As the aerial extent and volume of this deposit are based mainly on projection and inference, it is not known how much of this resource lies within the recreation area or the proposed Natural Zone. It is estimated, however, that about 18 percent of the deposit, as now projected and mapped in source data, lies in the proposed Natural Zone. In-situ combustion techniques cannot be used because the overburden is of insufficient thickness. A minimum of 400 feet of overburden is normally required to use this technique, and about 80 percent of the deposit east of the Cliffs has an overburden less than 400 feet (DES Map 22). The deposit is believed to be of very low present interest and is unlikely to be developed in the foreseeable future even if restrictions were not present.

b. Oil and gas

The proposed zoning will foreclose opportunities for the discovery and extraction of the speculative oil and gas resources lying within the Natural Zone. It is not known, nor can it presently be estimated, what portion of the Geological Survey's raw estimates lie in the Natural Zone. Opportunities for the extraction of these speculative oil and gas resources may be permitted within the RRU management zone subject to the regulations of a subsequent mineral resources management plan. In the Natural Zone neither the exploration for and identification of oil and gas "reserves" nor the conclusive determination that none are present will be allowed ("reserves" are "that portion of the identified resources from which a usable mineral or energy commodity can be economically and legally extracted at the time of determination" --Appendix 6). Thus, no new data will be acquired and our knowledge of oil and gas resources in the Natural Zone will remain "speculative" indefinitely. Exploration for and development of any oil and gas resources that may be in this zone will be precluded.

The U.S. Geological Survey's estimates of the recreation area's total speculative petroleum resources (51-155 million barrels) constitute between 0.014 and 0.042 percent of the total U.S. estimated reserves, enough to supply this country's needs for 3 to 10 days (see DES Appendix 30 for calculation), depending on the estimates used for the calculation (National Academy of Sciences' Committee on Mineral Resources and the Environment--113 billion barrels; U.S. Geological Survey--390 to 610 billion barrels; American Association of Petroleum Geologists--485 billion barrels. An average of 360 billion barrels was used to derive percent). In Geological Survey Circular 725, published in 1975, it was estimated that the recoverable undiscovered oil resources of the Western Rocky Mountains Region (Idaho, Nevada, Arizona, Utah, western Colorado, and western New Mexico) were between 2 and 8 billion barrels of oil. The undiscovered petroleum resources within the recreation area may then represent between 2 and 8 percent of the potential of this region. It should be emphasized that the likelihood of any impact on the availability of oil resources must be viewed in light of the definition of "speculative resources": undiscovered materials that may occur either in known types of deposits in a favorable geologic setting where no discoveries have been made, or in as yet unknown types of deposits that remain to be recognized.

c. Coal

The proposed zoning will not directly affect the mining of coal within the recreation area, except in the vicinity of Spencer and Navajo Points, where the coal is not considered of commercial value, as noted previously (place Overlay 1 on Map 4). The removal of the recreation area's coal may be permitted, subject to the regulations of a subsequent mineral resources management plan.

d. Uranium

About 30 percent of the areal extent of all of the favorable uranium zones (identified and hypothetical resources) occurs within the Natural Zone. The proposed zoning will prevent the mining of identified uranium resources in the part of the favorable uranium zones lying within the Natural Zone in the Hite area and Purple Hills region (place Overlay 1 on Map 5). Estimates of the amount of U308 in these specific locations are not available. Identified uranium resources outside of the Natural Zone are left open to development, subject to the regulations of a subsequent mineral resources management plan. The proposed zoning will prevent the exploration for, and mining of, the recreation area's hypothetical uranium resources wherever the Natural Zone coincides with them. These deposits are typically small.

Based upon the U.S. Geological Survey's estimate of both identified and hypothetical uranium resources within the recreation area (14.5 million pounds), less than 1.45 percent of total estimated domestic recoverable hypothetical resources of 500,000 tons of uranium occurs there.

e. Vanadium

Because vanadium is recovered only as a byproduct of uranium mining within the recreation area, the impacts on its production from this area are the same as those for uranium.

f. Copper

Since copper occurrences within the recreation area are generally associated with uranium, impacts on its production will be the same as those for uranium and vanadium.

g. Construction materials

The proposed zoning will prevent the excavation of known deposits of construction materials (DES Figure 13) from that portion of the Wahweap deposit that lies in the recreation area, where development zoning will prohibit exploitation. This will also be the case at Hite and Farley Canyon. The majority of these deposits are below lake level most of the time. Other known deposits will remain available for regulated exploitation. The magnitude of these deposits is not known.

h. State lands and mineral interests

The proposed zoning assumes the eventual acquisition of all state lands and state mineral interests (state land rights-place Overlay 1 on Map 6) within the recreation area, as called for by the proposal. The total quantity of mineral resources on these lands is unknown. When these lands and interests are acquired the zoning categories of Map 1 will be applied. Once acquired, 4,320 acres of oil and gas leases now on state land in the Natural Zone in the Orange Cliffs, Escalante (3,000 acres), and San Juan area (360 acres) will be allowed to expire. Similarly, 6,400 acres of mineral leases now on state land within the Natural Zone in the Escalante area will be allowed to expire. In the RRU Zone 8,157 acres of oil-gas leases and 1,911 acres of mineral leases now on state land will be examined for renewal during the preparation of the mineral resources management plan.

Access to 28,239 acres of state land rights (oil-gas leases--8,157 acres, mineral leases--1,911 acres, and subsurface rights--8,830 acres) within the RRU and Development Zones (place Overlay 1 on Map 6) will not be affected by this plan. Motorized activities within these zones may be permitted. Although existing legal right of access to state lands will not be negated by the plan, the proposed zoning may nonetheless affect the form of access to state lands (27,620 acres) and state mineral interests (1,260 acres) on federal lands fully or partially surrounded by the Natural Zone. This situation will restrict development and minerals activities on these lands.

(Although access on foot or by helicopter or pack animal will still be possible, extraction of minerals using these methods would, in the vast majority of cases, be economically infeasible.) The result of this prohibition may be to restrict use by the state of Utah of almost 29,000 acres of its land for development or minerals extraction, although these lands will still be available for exchange with the federal government.

i. Claims and federal oil-gas leases

Although the proposed zoning will not be implemented on federal oil-gas leases until these leases terminate, it may nonetheless create conflicts with federal mining laws, which prevent barring access to valid federal oil-gas leases and claims. At the same time, the proposed zoning will restrict motorized access to about 50,000 acres of federal leases and about 200 claims (4,100 acres) surrounded by lands zoned as Natural. (Place Overlay 1 on Map 6).

This conflict will probably have to be resolved in the courts. However, if mineral extraction is not initiated before the leases' expiration dates, or a suspension of lease terms is granted to the lessee because of a prohibition on access; the leases will terminate on a schedule indicated in DES Map 29. Mining claims do not terminate, however, and in the Natural Zone, these will have to be extinguished, or, if valid, purchased. In the long term, the management policy for the Natural Zone calls for the elimination of all claims and mineral leasing categories within it. The impacts of this policy on the minerals development are discussed above.

j. Availability of mineral resources (summary)

The impacts of establishing the proposed Natural (Wilderness) Zone on the availability for exploitation of mineral resources is impossible to determine with any certainty at this time. This is directly due to the uncertain nature of most of the available evidence of the existence of such resources. The effect on national mineral needs of prohibiting access to hypothetical resources can only be as certain, or uncertain, as the measure of facts versus hypothetical possibility allows.

The size, extent, and commercial recoverability of the variously reported resource estimates of tar sand, oil and gas, coal, uranium, vanadium, copper, and construction materials within the recreation area in general and the proposed Natural Zone in particular are known only very poorly. Source data openly base resource estimates on extrapolations and projections over vast areas. In some cases considerable emphasis is placed on the possibility of large quantities being present in favorable formations solely because no previous exploration has been completed and indicated otherwise.

The tar sand and coal deposits and uranium occurrences (though only partially identified) are the most fully supported mineral resource estimates in the area. The great uncertainty over the magnitude of the tar sand deposit within the recreation area and, equally significantly, the virtually complete ignorance regarding its recoverability, makes it impossible to estimate the proposal's effect on regional or national oil resources.

Uranium deposits, some in the identified reserves and most in the hypothetical-resource categories, have been reported for the recreation area. The U3O8 content of those deposits "in place" (source data indicate no allowance made for either mining or beneficiation losses) is estimated at 14,520,000 pounds. Source data also leave unknown the proportion of the deposits too small and/or too deep to be economically exploited in the foreseeable future. Assuming some unknown portion of this mainly hypothetical 14,520,000 pounds of U3O8 does become economically recoverable in the foreseeable future, the exploitation of an undetermined fraction of the portion occurring in the proposed Natural Zone would be prohibited. Accordingly, it is impossible to predict the effect of this prohibition on national reserves, except to note as before that the recreation area's total recoverable uranium constitutes less than 0.5 percent of projected domestic annual uranium requirements for the years 1972 to 2010.

13. Impacts on grazing management

The prohibition on the use of motorized equipment in the Natural Zone will adversely affect the transport of animals and supplies and the installation of management facilities, such as fences and watering systems,

in 28 grazing allotments containing 8,110 AUMs and 529,724 acres (Appendix 11 and place Overlay 1 on Map 7). Specifically, 91.3 miles of roads within eight allotments will be closed, as shown on Map 7; allotment-by-allotment closures are given in Table 14. An additional 1.5 miles of road near Lees Ferry outside the recreation area within one allotment, will be blocked from use because the only motorized access is from a closed road within the recreation area.

The closing of roads is not in itself likely to have a major adverse effect on livestock management. Except for a few specific cases, as, for example, in the Perkins Brothers allotment where road closure will extend from 1 day to 3 or 4 days, the time required to drive the cattle by horseback to and from the range, most of the allotments' roads (probably between 50 and 75 percent) are impassable to vehicles of a size adequate for hauling livestock or large amounts of supplies, such as water, salt, and feed. Some of these are even difficult for small, four-wheel-drive vehicles to negotiate. In these cases access by horseback has been traditionally the only economical means available for such transport.

The Cedar City District of the Bureau of Land Management feels that the closing of 17 miles of roads within 5 allotments in the Escalante region of the recreation area (allotments 10, 13, 15, 16, and 17 on Map 7; see Table 14 for mileages per allotment) will have little effect on grazing management.

Of major impact, however, will be the proposed restriction within the Natural Zone on the use of motorized equipment in the development of livestock watering facilities. For 15 of the 28 allotments falling wholly or partly within the Natural Zone, the Cedar City District of the Bureau of Land Management has estimated the actual effects of this prohibition on motorized equipment in terms of reduced levels of allowable use (Table 15). These estimated reductions, were they to occur, would be due principally to restrictions on the development of stock watering facilities--water is presently lacking on most of these allotments, particularly in the Wahweap area--and would total 5,926 AUMs, or a reduction of about 55 percent of the present allowable use. Based on an average value of $4.56 in personal income from each AUM (Section IV.B.25. of the Plan), this reduction of 5,926 AUMs would mean a loss of $27,023 in personal income to the operators in those 15

Table 14. Road closures, by grazing allotments for management zoning proposal.

GRAZING ALLOTMENT	MILES OF ROADS		
	Allotment Total	Closed (within NRA)	Blocked (outside NRA)
Lees Ferry	16	2.2	1.5
Lower Warm Creek	8		
Upper Warm Creek	57		
Rock Creek	20		
Soda	34	5.7	
Fortymile Ridge	24	2.9	
Chimney Rock	48	1.0	
Upper Cattle	5	5.0	
Moody	10		
Wagon Box Mesa	28	2.5	
Perkings Brothers	95	8.0	
Lake Canyon	206	7.5	
White Canyon	93		
Indian Creek	94		
Waterpocket	56		
Rockies	98		
Sewing Machine	116	9.0	
Flint Trail	162	38.5	
Robbers Roost	168		
Horseshoe Canyon	98		
Unallotted*	21	4.0	
TOTAL	1,457	86.3	1.5

*West of Dirty Devil River.

allotments. (Note, however, that present actual use--based on the mean of 1970-74--averages about 63 percent of present allowable use. Accordingly, the loss of 5,926 AUMs is only a potential, rather than actual loss, because the operators are not now utilizing their allotments to the fullest.) The actual required reduction or permitted increase for each affected allotment is shown on Table 15 and totals a decrease of 2,007 AUMs and a loss in personal income of $9,152.

For the remaining 13 of the 28 allotments affected by the Natural Zone, similar information is not available. Those portions of these allotments in the Natural Zone (Appendix 11) contain 1,885 AUMs of actual use and, accordingly, the maximum loss in personal income to the respective operators could be $8,596 per year.

Grazing will be prohibited within the developed areas of the Development Zones, resulting in the eventual elimination of 435 AUMs. Table 16 gives the AUM losses by allotment for each Development Zone. Note that these figures represent maximal losses, occurring only when all Development Zones become fully utilized, probably not for several decades.

Ultimately all livestock use in the Natural Zone, even though authorized throughout the recreation area by the enabling legislation, may terminate due to increased operating costs associated with the prohibition on vehicular use. The price/cost squeeze would affect smaller, marginally efficient operators first. While the hypothetical termination of grazing would probably be gradual, the impact of losing 8,110 AUMs in the Natural Zone covering 28 allotments (Table 13), and the eventual elimination of 435 AUMs in the Development Zone (Table 16), using the 1977 earnings/AUM figure of $4.56, could amount to a loss of $38,965 annually in operator personal income. This figure, capitalized into perpetuity using current Water Resource Council discount rates, would exceed $596,203 in direct personal income effects. Total direct and indirect effects, using an income multiplier of 1.93, would be about $75,202 annually. Capitalized loss in perpetuity would total $1,150,699.

The potential loss of 8,545 AUMs to livestock permittees could put present users out of business. The loss to the livestock industry in the four-county region (Garfield, Kane, Wayne, and San Juan) and the

Table 15. Estimated effect of the Proposal on livestock grazing in selected[1] allotments within the Natural zone

Allotment	Map Number[2]	Estimated Annual Reduction in Allowable Use (AUM's)	Reduction (–) or Increase (+) in Actual Use (AUM's)[3]
Moody	8	450	–338
Silver Falls	9	500	+260
Wagon Box Mesa	10	0	+13
Big Bowns Bench	11	100	+4
Escalante River	12	630	–277
Upper Cattle	13	300	–122
Lower Cattle	14	860	–443
Chimney Rock	15	240	–161
Forty Mile Ridge	16	440	–138
Soda	17	650	–210
Lake	18	130	–48
Navajo Bench	19	828	–240
Harveys Fear	20	264	
Spencer Bench	21		
Rock Creek	22	530	–307
TOTALS		**5,926**	**–2,007**
		(7,835)[4]	**(-2,533)[4]**

[1]On the basis of availability of information (i.e., similar data are not available for other allotments within the Natural zone).

[2]Map 7.

[3]Amount operators would be either required to reduce or permitted to increase their present actual use.

[4]Estimated totals for all 28 allotments affected by the Natural zone (see Appendix 11 for calculation).

Table 16. Livestock grazing in existing development areas and proposed management zones.

DEVELOPMENT	GRAZING ALLOTMENT IN DEVELOPMENT ZONE	EXISTING DEVELOPMENT AREA			PROPOSED DEVELOPMENT ZONE		
		Percentage[a]	Acreage[b]	AUM'S[c]	Percentage[a]	Acreage[b]	AUM'S[c]
Lees Ferry	Lees Ferry	1	280	6	3	810	15
Wahweap-Lone Rock	Judd Hollow	e	8	d	3	350	8
	Blue Pools	e	16	d	32	2,770	79
	Ferry Swale 1				100	1,216	44
	Ferry Swale 2	e	13	d	3	984	32
	Wahweap	3	403	d	17	4,790	132
Dangling Rope	Navajo Bench				9	1,350	d
Llewellyn Gulch	Soda				0.3	190	3
Escalante Operations Center	Undetermined					5	
Bullfrog	Waterpocket	e	520	1	2	1,635	43
Hails Crossing	Lake Canyon	e	320	2	0.2	1,355	10
Farley Canyon	White Canyon				1	2,420	44
Hite	White Canyon	e	30	e	0.5	1,160	21
Hans Flat	Robbers Roost	e	5	e	0.1	235	4
Mexican Hat	Perkins Brothers				e	5	e
TOTAL			1,595	9		19,275	435

[a]Percentage of allotment in development area or zone.

[b]Acres of allotment in development area or zone.

[c]AUM'S (animal unit months) computed by multiplying the percentage of allotment in development area or zone by 5 year (1970-74) average actual use of total allotment.

[d]Grazing not permitted now.

[e]Less than 0.1 percent or 0.1 AUM.

state would represent about 1 percent of regional production (gross sales receipts) values, and less than 1 percent of the value of state livestock production.

Grazing on 32 allotments containing 5,826 AUMs and 403,730 acres within the RRU Zone will be unaffected by this plan (Table 13). The subsequent grazing resources management plan, to be developed and executed jointly with the Bureau of Land Management and completed within the next 6 years, will specify details about practices, facilities, and intensities of grazing on these lands.

The deletion of 3,730 acres in the Imperial/Bull Valley just west of Beef Basin (Map 1) will facilitate the management of grazing by the Bureau of Land Management. The area is part of a continuous tableland accessible only from outside the recreation area; placing it directly under BLM supervision will allow the agency to integrate its management policy for the entire grazing allotment and to exercise more direct control over grazing activities.

In conclusion, the establishment of the proposed Natural and Development Zones will seriously impair grazing management activities presently requiring recreation development and the use of motorized equipment and vehicles, potentially resulting in an ultimate loss of 8,545 AUMs, representing a current earnings value of $38,965 per year. The establishment of development zones will preclude a small amount of grazing (435 AUMs included in the 8,545 total) from the recreation area's development sites. The establishment of RRU Zones will have no significant effect on grazing or its management.

14. Impacts on the Navajo Tribe

The zoning and associated proposals will have no effect on the Navajo Tribe or, in particular, its plans to develop its shoreline. Developments in any of the sites shown on Map 1 would complement those proposed in this plan by providing additional opportunities for recreation on Lake Powell. Of course, the possibility exists that such facilities would allow too many people or boats on the lake at any one time and place, thereby degrading the visitor experience for some people (see Section III.A.1. of the FES).

15. Impacts on the socioeconomic environment

The effects of the general management plan on the economy of the four-county area derive almost entirely from the plan's direct effects on mining, grazing, and visitation, discussed previously in their respective sections. Assuming continued expansion in recreation demand, increases in visitation will very likely lead to "moderate" increases, on the order of 20-30 percent, in export employment in the retail trade and personal services sectors of the area's economy (DES Table 26). (Export employment is an indicator of the number of people employed in the production of goods and services that exceed the needs of the county.) The absolute magnitude of the changes in export employment is unknown. Similarly, impediments to grazing (Section III.A.13. of the FES) may cause a "slight" decrease (10-20 percent) in export employment in the agricultural sector. In the mining sector restrictions on exploration for uranium may also cause a slight decrease in export employment (because the favorable uranium zones are left open to exploitation); prohibitions on exploration for oil and gas may cause a "moderate" decrease in export employment (assuming production would never occur, because of the absence of "economic" oil and gas resources). The proposed development will result in a slight increase in export employment in the construction sector.

Overall, these changes in export employment will stimulate the local economy, principally due to the expansion in the retail trade and personal services sectors (a result of increased visitation to the area). In Garfield, San Juan, and Wayne Counties, where these sectors presently do not constitute major fractions of total export employment, the effect will tend to diversify the counties' economies, enhancing their stability and immunity to disturbing influences. In Kane County, however, where the economy is already relatively highly dependent upon the retail trade and personal services sectors, the expansion will tend to narrow the economic base, rendering the county's economy more vulnerable to perturbations.

The general management plan will indirectly affect Page and Coconino Counties, Arizona. Increases in visitation to Wahweap and an expansion of the visitor service facilities in the concession operation will result in increased sales tax revenue accruing to the State. Should Lake Powell continue to be a destination vacation site, the second home, long-term occupancy, and retirement housing needs will be met by business expansion in Page. Recreation service facilities (boat sales, storage, repair, camper supply, motel accommodations) are also expected to be in increasing demand. These influences will help to stabilize the fluctuations in the local economy which have resulted from intensive construction programs related to energy development.

16 Impacts on utility and transportation system easements and rights-of-way

By providing for the required and anticipated power line crossings of the recreation area, the proposed utilities planning corridor (Map 8--4,770 acres) will allow the establishment of utility and transportation system easements and rights-of-way for high-voltage transmission lines and other facilities, such as pipelines, conveyor devices, etc., although plans for such structures do not now exist. Required lines into the developed areas will also not be affected since these will be located along road corridors (within the recreation area) or in the Development Zone proper. (The proposed zoning will also have no effect on the routing of a proposed transmission line either through or north of Capitol Reef National Park.)

Although it would be incorrect to conclude that the utilities planning corridor will be solely responsible for the confinement of utilities and transportation system crossings, it will nonetheless contribute to constraining the crossings to a narrow band below the dam. Consequently, the zoning will be at least partly responsible for increasing the accidental and strategic vulnerability of the Southwest's power net. The relatively high concentration of lines (Table 8) will render the entire net highly vulnerable to severe interruption from a variety of causes. (Factors affecting transmission-line integrity are discussed in Appendix 10).

B. Impacts of Wilderness Designation

The management zoning system used in this study equates legislatively designated Wilderness (Appendix 12) with those lands administratively zoned as Natural (place Overlay 1 on Map 3). Because, by definition, the management and use policies for both Wilderness and Natural Zones coincide, the impacts attributable to each are also the same, with the exceptions noted below.

Wilderness designation will add permanence and stability to the Natural Zone classification, because an act of Congress will be required to change it. The designation will help preclude actions--notably mining, use of vehicles and motorized equipment, intensive development, establishment of utility corridors--that could be inconsistent with the preservationist goals of the Natural Zone and the purpose of the recreation area: the preservation of "scenic, scientific, and historic features contributing to public enjoyment of the area."

In the Wilderness, extensive development necessary "to provide for public outdoor recreation use and enjoyment" (Table 1) could be constructed only with the approval of Congress. This requirement could hamper the ability of the manager to deal with short- and medium-term management needs, such as roads and visitor-use structures not normally permitted in the Natural and Wilderness Zones. Thus, it is conceivable, though not likely, that by losing this flexibility, the manager might be hindered in providing for non-wilderness uses of the recreation area. This plan, by attempting to anticipate the recreation area's long-term management needs, makes this eventuality highly unlikely.

By restricting access and preventing certain kinds of use, Wilderness designation will influence state land rights (Map 6) in a way similar to that of the proposed zoning (Section III.A.12.h. of the FES). (Of course, the language of a designating act could identify specific ways or conditions under which access to and motorized activities on non-wilderness enclaves would be permitted.) However, the 27,640 acres of state lands and 1,260 acres of state sunbsurface mineral rights (suitable for wilderness) entirely omitted from any type of Wilderness classification (compare Maps 3 and 6) will not initially be subject to congressional prohibition on motorized activities (because of the absence of Wilderness designation). These state land rights in the Natural Zone, once acquired will be subject to administrative prohibitions on motorized uses. An additional, subsequent act of Congress will be required to designate these areas as Wilderness, if congressional action on Wilderness within the recreation area had already been taken. The need for such action could result, at least temporarily, in a Wilderness peppered with 640-acre holes whose boundaries, on the ground, would be virtually unidentifiable.

Wilderness designation could draw to the recreation area larger numbers of visitors than might otherwise come. (However, this phenomenon has not occurred in the seventeen National Park Service areas where legislated Wilderness exists as of August 1978). The official designation "Wilderness" on maps and in other publications could act as a magnet, drawing the attention of people to an area they otherwise might not notice.

IV. MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

A. Proposals for Subsequent Planning

The preparation and implementation of the cultural resources, natural resources, mineral resources, and grazing resources components of the resources management plan and a backcountry-use plan (Table 4) are intended to mitigate some of the potential adverse effects of the general management plan's proposals (Table 17). Descriptions of these plans appear in Section II.D. of the Plan. Area-specific studies of environmental conditions and visitor perceptions will accompany the preparation of development plans so that overdevelopment and resultant degradation of the natural environment or visitor experience may be avoided.

B. Measures Dealing with Archeological and Historic Resources

All proposed actions will comply with the procedures of the Advisory Council on Historic Preservation (36 CFR Part 800), National Park Service Activity Standards, and National Park Service Historic Preservation policies and procedures.

During the preparation of the cultural resources management plan, the State Historic Preservation Officer will be asked to provide data regarding historical or archeological resources within the area, or on lands to be acquired or transferred. Should any cultural resources be located, they will be evaluated in terms of the National Register criteria by professionals and if they meet, or may meet, the criteria, a recommendation that the Regional Director nominate them to the National Register and place them on the National Park Service List of Classified Structures will be made. Where additional significant cultural resources are identified within an area already on the National Register, the National Register forms will be revised to reflect such additional resources.

Table 17. Relation of mitigating measures to adverse impacts.

Actual or Potential Adverse Impact	Mitigating Measure	Potential Extent of Mitigation		Starting Date of Mitigating Measure
		Complete	Partial	
Disturbance of bighorn sheep habitat	Preparation and implementation of natural resources component of Resources Management Plan	X		Immed. after approval of GMP
Increased erosion rates	Preparation and implementation of mineral resources component of Resources Management Plan		X	Immed. after approval of GMP
Local deterioration of lake water quality from sewage effluents, petroleum residues, and rubbish	Visitor education, close supervision of use around the developed areas, frequent shoreline cleanup		X	Ongoing
Impediments to grazing management; loss of AUM's in developed areas	Preparation and implementation of grazing resources component of Resources Management Plan; delay in implementing proposed action			Immed. after approval of GMP
Restriction on access to state lands and mineral rights	Establishment and execution of a program for trading state lands and mineral rights out of the NRA	X		Immed. after approval of GMP
Restriction on access to federal oil-gas leases and claims	Delay in implementing proposed action; acquisition of valid claims	X		Immed. after approval of GMP
Destruction of archeological and historic resources	Compliance with Advisory Council procedures and NPS activity standards, policies, and procedures; consultation with State Historic Preservation Officer; preparation and implementation of cultural resources component of the Resources Management Plan; addition of an archeologist and assistant to the NRA staff	X		Compliance ongoing; development of cultural resources management plan to begin immed. after approval of GMP
Degradation of backcountry resources and visitor experience	Preparation and implementation of Backcountry Use Plan	X		Immed. after approval of GMP

In complying with the provisions of the Advisory Council procedures (36 CFR Part 800), the State Historic Preservation Officer will be consulted concerning the eligibility for the National Register of any discovered historical or archeological resources. During this consultation, the actual or potential adverse effects of NPS proposals will also be discussed.

C. Consultation Provisions of the Endangered Species Act

All subsequent planning efforts shall, as appropriate, comply with the section 7 "Consultation" provisions of the Endangered Species Act.

All activities or developments proposed as a consequence of this plan will be in accord with established National Park Service historic preservation policies, delineated in the Management Policies, and in National Park Service activity standards. The demolition of any structures, whether historic or not, will be made in accordance with the procedures outlined in the Director's memo of January 26, 1973. All project areas will be physically surveyed for archeological and historical remains by appropriate professionals, in accordance with Executive Order 11593. Prior to construction the required survey and evaluation will be completed and the results discussed in the environmental assessment or statement for each proposal. If deemed necessary by the Regional Director, a professional archeologist will be on site during construction to prevent damage to known cultural resources and to assist in the recognition of any new resources that may be uncovered. The contracting officer and/or the archeologist will have the responsibility and authority to halt any construction activities should historical, archeological, or paleontological resources be exposed. Construction activities endangering the resources will remain halted pending the investigation and evaluation of the remains, as well as the completion of the steps required by the procedures of the Advisory Council on Historic Preservation. All contracts will reflect these provisions.

As in the past, surveys will be conducted in areas to be affected by construction, public use, or other activities. After formulation of the cultural resources management plan, decisions regarding treatment of the resources will be integrated into the overall goals of the plan. Until that time, decisions regarding mitigating measures for specific projects or problems will be made on an individual basis, according to National Park Service historic preservation policies and procedures.

Those site-specific, project-oriented studies that involve relatively small geographic areas will be performed by the recreation area staff archeologists. Larger studies, such as road corridors, may require additional personnel from other offices or outside institutions. The staff archeologists will be available during any ground disturbance to provide professional expertise in case cultural remains are encountered.

In order to facilitate the identification, evaluation, and preservation of the area's archeological resources, a professional archeologist and an archeological assistant will be employed on the recreation area's staff following approval of this plan.

DES Appendix 3 contains detailed instructions for developing and implementing the cultural resources component of the resources management plan.

V. UNAVOIDABLE ADVERSE IMPACTS

The following impacts, discussed in Section III of the final environmental statement, cannot be avoided entirely in implementing the general management plan and Wilderness proposal even after the mitigating measures outlined in Section IV are applied.

A. Impacts on Recreational Use

--Impairment of access to hunting lands and reduction of opportunities for motor touring, due to closure of 86.3 miles of unpaved roads in the proposed Natural Zone.

B. Impacts on Management of the Recreation Area

--Impairment of patrol activities presently involving use of motorized vehicles due to closure of 86.3 miles of roads in the proposed Natural Zone. This impact will be particularly significant in the Orange Cliffs area, where 47.5 miles of roads will be closed.

C. Impacts on Scenery

--Potential degradation of the recreation area's Class III (interesting) and Class IV (unremarkable) scenery due to mining, vehicular use, and utility and transportation systems in the RRU Zone and recreational development in the Development Zone.

D. Impacts on Wildlife and the Fishery

Consideration of wildlife habitat values in future planning for recreational development, and management of cultural, natural, grazing, and mineral resources is expected to make possible the avoidance of any potential impacts on the recreation area's populations of terrestrial and aquatic wildlife.

E. Impacts on Vegetation

--Disturbance of less than 3,700 acres of the Northern Desert Shrub Association in the RRU Zone due to mining, vehicular use, and establishment of utility corridors; and less than 1,000 acres of this association in the Development Zone due to establishment of recreational developments.

--Disturbance of less than 700 acres of the Pinyon-Juniper Association in the RRU Zone due to mining, vehicular use, and establishment of utility corridors; and less than 10 acres of this association in the Development Zone due to recreational development.

F. Impacts on Erosional Processes

--Accelerated erosion associated with grazing in areas containing cryptogamic soils, principally in a 25,000-acre area on the top of the Orange Cliffs.

--Disruption and subsequent erosion of dry, poorly stabilized mineral soils in the RRU Zone associated with potential mining, vehicular use, and construction/maintenance utility corridors; and in the Development Zone associated with construction of recreational developments and support facilities.

G. Impacts on Air Quality, Including Noise

--Increased air pollution and noise from boats and automobiles in the vicinity of the recreation area's four major developments (i.e., Wahweap, Bullfrog, Halls Crossing, and Hite) due to an approximate doubling of the combined visitor-use capacity of these developments.

--Deterioration of air quality in the RRU Zone in the event mining operations are ever authorized.

H. Impacts on Archeological Resources

--Impairment in management and research activities related to archeological resources due to closure of 86.3 miles of unpaved roads in the proposed Natural Zone.

I. Impacts on the Availability of Mineral Resources

This proposal will preclude discovery and further exploration and development of some mineral resources. It is believed, based on the size of these deposits, that this is of minor significance.

J. Impacts on Grazing Management

--Unavoidable reduction on allowable use limits within all or parts of 28 grazing allotments. Reductions in actual use are unknown for the entire recreation area but probably total between 6,225 and 8,110 AUMs. Estimates of reductions in total allowable use, totaling 5,926 AUMs, have been made for 15 of the 28 allotments; estimated reductions in total allowable use for the remaining 13 allotments are not available. A maximum total reduction would equal 8,110 AUMs representing $36,982 of annual income to operators on 28 allotments due to probition of motorized equipment in the proposed Natural Zone.

--Small adverse economic effects on holders of 15 allotments totalling 19,275 acres and 435 AUMs representing $1,984 of annual income to these operators due to preclusion of grazing in the proposed Development Zone.

K. Impacts on Utility and Transportation System Easements and Rights-of-Way

Concentrating the area's high-density power lines into one utility corridor will increase the vulnerability of the Southwest's power net to accidental and strategic disruption.

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Potential mining activities in some lambing areas of desert bighorn sheep may cause fluctuation in the recreation area's desert bighorn populations. Domestic livestock grazing of the desert bighorn range may have a long-term adverse influence on these populations, primarily through competition for water and forage. Potential mining activities in the RRU Zone may cause permanent degradation of scenic resources through surface disturbance and soil erosion.

The preclusion of mining over almost 55 percent (all zones except RRU) of the recreation area and the prohibition on use of motorized equipment in over 53 percent (Natural Zone) will facilitate long-term conservation of natural communities and features (wildlife, vegetation, soils, geology, aquatic communities, scenery), as well as preservation of cultural resources. At the same time, these restrictions will permanently prevent acquisition of additional knowledge on the locations and extent of mineral resources, and will also eliminate the economic and societal benefits that would accrue from their extraction.

Construction of new facilities and structures in the proposed development zones will greatly enhance recreational opportunities, visitor enjoyment, and safety, although long-term ecological productivity will be reduced in these areas as a result of construction and public use.

VII. IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

A. Irreversible Commitments

The establishment of permanent visitor-use facilities on some fraction (to be determined during the subsequent preparation of the individual site plans) of the 19,270 acres of the proposed Development Zone will irreversibly commit the land to these uses. Although the landscape would be restorable on a geologic time scale, the

arid to semiarid environment would prevent complete restoration within a historic time frame (relative to human life spans). The evidence of less permanent development, such as campgrounds, picnic areas, and parking lots, may be erasable and the landscape restorable within a historic time frame.

Similarly, the fact that uranium mining will be authorized and may be undertaken on an unknown fraction of the 557,890 acres of the RRU Zone will irreversibly commit some acreage to these uses. The effect should be small (probably on the order of a few hundreds of acres) because the scattered uranium occurrences are very limited in extent. The scars left by excavation activities and the formation of piles of tailings, even if carefully regulated, may persist considerably longer than a period measurable in human life spans. (The exploitation of the tar sands would take place underground and would not entail surface disruption, except for the temporary emplacement of extraction, storage, and transport facilities.)

B. Irreversible Losses

Extraction of mineral resources, although not proposed, may be allowed within the RRU Zone. Once exhausted these resources would be irreversibly lost for future use.

C. Irretrievable Commitments

None.

D. Irretrievable Losses

During the existence of the visitor-use facilities and structures on some fraction of the 19,270 acres of the Development Zone, opportunities for other uses of the land will be irretrievably lost. Similarly, the zoning of 668,670 acres as Natural will result in the irretrievable loss of opportunities for the exploration and extraction of minerals for the duration of the prohibition.

VIII. DESCRIPTION OF THE ALTERNATIVES

A. No Action

The administrative decision to manage the recreation area without a general management plan, coupled with a congressional rejection of Wilderness, would leave managers without guidance for the long-term management and use of the recreation area. The absence of such guidance could peril the recreation area's resources, because no consistent, enduring standard or basis for evaluating the desirability and acceptability of recreational and nonrecreational activities or developments would exist. In addition, because virtually all of the recreation area would be open to many diverse activities, the task of determining the acceptability of a particular activity (such as minerals development, vehicular use, grazing, construction of utilities) would be much more difficult than if various areas were, from the outset, automatically eliminated from consideration. Although the review accompanying such determination of acceptability would make it unlikely that significant resources would be jeopardized or even degraded because of a given activity, the need to make repetitive *de novo* determinations without a comprehensive framework for overall evaluation would increase the likelihood of mistakes, i.e., of irreparably injuring the area's outstanding (Class I) and superior (Class II) scenery, wildlife and fisheries, vegetation, water quality, groundwater and surface water quality, erodible soils, and the quality of the recreation experience. The nature, location, extent, and significance of these impacts cannot be predicted with certainty at this time, although some general conclusions can be made.

Under the no action alternative, the location, acreage, capacity, and scope of existing recreational developments (first four columns of Table 3) would remain unchanged. The ability of the recreation area to accommodate visitor use would remain at the present level, resulting in potential impairment of the visitor's experience as visitation continues to increase. This impairment would be due largely to the increasing frequency and severity in the crowding of people, vehicles, and boats, particularly in and near major development sites at Wahweap, Halls Crossing, Bullfrog, and Hite.

The recreation area's diverse scenic resources would be subject to the possibility of serious adverse

impacts from mining, development, and construction of utility and transportation systems.

The no action alternative would impair the full consideration of recreational values in developing a strategy for optimizing use of the available range. A grazing resources management plan would most likely be prepared in the near future, but this plan would focus on range capacities and other natural environmental limitations, rather than recreational values. This condition could diminish the quality of the visitor's experience, particularly in backcountry areas, if the presence of livestock caused obvious deterioration of scenery, the atmosphere of backcountry solitude, the quality of surface waters, or the condition of backcountry trails.

In effect, deciding to do without either a plan or Wilderness would leave most of the recreation area open to minerals exploration and development, even though prohibitions on such activities could still be imposed on a case-by-case basis. This situation would make it possible to obtain additional information about the recreation area's oil and gas and uranium resources, and to extract the identified economic fraction of these resources, resulting in presently unquantifiable economic benefit to the local economy and unquantifiable increase in the ability of these resources to meet national needs. Section IV of the Plan contains estimates of the quantities of mineral resources involved.

Deciding to take no action would also (1) jeopardize cultural resources (because of the absence of a cultural resources management plan and staff archeologists), (2) decrease possibilities for maximizing recreational and economic opportunities for visitors and the regional economy, respectively (because no basis for the development of recreational facilities would exist), (3) hamper management and enforcement activities (because no boundary adjustments in the Escalante and the San Juan arm would occur), and (4) allow the recreation area manager considerable flexibility in dealing with short- and medium-term management needs.

(Possible actions relevant to Wilderness designation--along with a historical perspective--are briefly discussed in DES Appendix 38.)

B. Management Zoning Alternatives

The principal components of the proposal and the below-described management zoning alternatives are summarized in Tables 18 and 19.

1. Management Zoning Alternative A: Preservation Emphasis

a. Description

Management Zoning Alternative A (Map 10) would place 84 percent of the recreation area (1,059,440 acres) in the Natural Zone. This includes much of the state lands (40,620 acres), state mineral interests (5,910 acres), and federal oil-gas leases (100,721 acres).

The land in the RRU Zone (24,465 acres) constitutes 2 percent of the area in this alternative. Lake Powell (163,000 acres) is also zoned as RRU. The Development Zone contains 15,150 acres, or 1 percent of the NRA, the Cultural Zone 25 acres, or less than 0.1 percent. Table 18 summarizes, for comparison, these data and those of the proposal.

In this alternative, the Natural Zone includes almost all of the recreation area's land area, excluding only the Development and Cultural Zones, 10,680 acres across Highway 89 from the Wahweap Development Zone, 31 miles of road across Warm and Last Chance Creeks, the last 8 miles of the Hole-in-the-Rock road, the last 5 miles of the road to Clay Hills Crossing, 6,720 acres adjacent to the Bullfrog Development Zone, 1,370 acres south of Highway 95 above Hite, and 45 miles of the Flint Trail from Hans Flat to Hite.

Like the proposal, the Development Zones center around the existing developed areas; they differ in that they include no currently undeveloped areas. The Cultural Zone is similar to that of the proposal.

The alternative also calls for adding 7,080 acres to the recreation area as trailheads to the canyons of the Escalante (4,410 acres), and unlike the proposal, extension of the San Juan arm to Mexican Hat (2,670 acres). These additions are generally shown on Map 10; details appear on DES Map 39.

Table 18. Existing land uses; Proposed, and Alternative Management Zones.

MANAGEMENT ZONE	EXISTING		PROPOSED[1]		ALTERNATIVE A[2]		ALTERNATIVE B[3]	
	Acreage	Percentage	Acreage	Percentage	Acreage	Percentage	Acreage	Percentage
Natural	1,087,720	86	668,670	54	1,059,440	84	182,755	15
(Wilderness)	NA		(588,855)[4]	(47)	(1,030,830)	(82)	(164,165)[4]	(13)
(Pot. Wild. Add.)	NA		(48,955)[5]	(4)	(0)	(0)	(8,590)[5]	(1)
RRU	165,660	13	557,890	45	187,465	14	1,026,813	83
Development	1,595	<1	19,270	<2	15,150	1	22,552	2
Cultural	25	<1	25	<1	25	<1	25	<1
TOTAL	1,255,000		1,245,855[6]		1,262,080[6]		1,232,145[6]	

[1] Management Zoning Proposal or Wilderness Recommendation, as applicable.

[2] Management Zoning Alternative A or Wilderness Alternative A, as applicable.

[3] Management Zoning Alternative B or Wilderness Alternative B, as applicable.

[4] Excludes State lands and State mineral rights.

[5] Federal oil-gas leases.

[6] Includes boundary adjustments.

Table 19. Comparative summary of components of the proposal and alternatives A and B.

ENVIRONMENTAL FACTOR	PROPOSAL	ALTERNATIVE A*	ALTERNATIVE B*
Access and Circulation	Increased safety for boaters on Lake Powell.	Maintenance of present conditions on Lake Powell.	Increased safety for boaters on Lake Powell.
	Closure of 86.3 miles of roads within NRA, blockage of 1.5 miles of road outside NRA.	Closure of 285.3 miles of roads within NRA, blockage of 178.3 miles of roads outside NRA.	No roads closed, no roads blocked.
Daily Capacity	Increase of 251-327% possible.	Increase of 211-274% possible.	Increase of 439-571% possible.
Backcountry Recreation	82% of canyon mileage in Natural zone.	99.5% of canyon mileage in Natural zone.	37% of canyon mileage in Natural zone.
Management of the recreation area	10-20 additional personnel required.	20-30 additional personnel required.	10-20 additional personnel required.
	Moderate restriction on patrol activities.	Severe restriction on patrol activities.	Patrol activities facilitated.
	Elimination of management problems at Rainbow marina.	Perpetuation of management problems at Rainbow marina.	Elimination of management problems at Rainbow marina.
Scenery	100% Class I, 95% Class II, 64% Class III, 24% Class IV scenic resources in Natural zone.	100% Class I, 99.99% Class II, 97% Class III, 92% Class IV scenic resources in Natural zone.	75% Class I, 17% Class II, 14%, Class III, 0% Class IV scenic resources in Natural zone.
Wildlife	Some bighorn lambing areas vulnerable to disturbance.	Protection of all bighorn lambing areas.	Many bighorn lambing areas and most of actual and potential habitat vulnerable to disturbance.
	General: protection for much wildlife habitat.	General: protection for almost all wildlife habitat.	General: protection for some wildlife habitat.
Vegetation	62% Northern Desert Shrub, 63% Pinyon-Juniper Woodland, 62% Cottonwood-Willow-Salt-cedar floodplain, 100% Hanging Gardens in Natural zone.	96% Northern Desert Shrub, 99.8% Pinyon-Juniper Woodland, 94% Cottonwood-Willow-Salt-cedar floodplain, 100% Hanging Gardens in Natural zone.	19% Northern Desert Shrub, 8% Pinyon-Juniper Woodland, 38% Cottonwood-Willow-Salt-cedar floodplain, 90% Hanging Gardens in Natural zone.
	Protection of marginal, endemic, threatened or endangered plants.	Protection of marginal, endemic, threatened or endangered plants.	Marginal, endemic, threatened, or endangered plants on slopes of Kaiparowits Plateau vulnerable to disturbance.
Erosional processes	69% of erosion-susceptible rocks in Natural zone.	99.8% of erosion-susceptible rocks in Natural zone.	6% of erosion-susceptible rocks in Natural zone.
Ground- and surface-water quality	Maintenance of status quo in most areas (at least 54% of the NRA)	Maintenance of status quo in almost all areas (at least 84% of the NRA)	Maintenance of status quo in some areas (at least 15% of the NRA)
Archeological Resources	Widespread protection (54% of the NRA) from disturbance by mechanized and motorized equipment.	Very widespread (84% of the NRA) protection from disturbance by mechanized and motorized equipment.	Limited protection (15% of the NRA) from disturbance by mechanized and motorized equipment.
	Widespread hindrance to research and management.	Very widespread hindrance to research and management.	Limited hindrance to research and management.

Minerals development	Virtually no effect on the extraction of oil from the tar sands.	Prohibition on the extration of oil from the tar sands.	No effect on the extraction of oil from the tar sands.
	Major prohibition (54% of the NRA) on the discovery and extraction of speculative oil and gas resources.	Complete prohibition (84% of the NRA) on discovery and extraction of speculative oil and gas resources.	Very little prohibition (15% of the NRA) on the discovery and extraction of speculative oil and gas resources.
	Virtually no effect on the mining of coal within the recreation area.	Prohibition on the mining of coal within the recreation area.	No effect on the mining of coal within the recreation area.
	Limited effect on the mining of identified uranium resources.	Prohibition on the mining of identified uranium resources.	No effect on the mining of identified uranium resources.
	Extensive prohibition on the discovery and mining of hypothetical uranium resources.	Complete prohibition on the discovery and mining of hypothetical uranium resources.	Virtually no prohibition on the discovery and mining of hypothetical uranium resources.
State lands and mineral interests	Once acquired, termination of 1,260 acres of oil-gas leases and mineral leases now on state land within the Natural zone.	Once acquired, termination of 5,910 acres of oil-gas leases and mineral leases now on state land within the Natural zone.	Once acquired, termination of 630 acres of oil-gas leases and mineral leases now on state land within the Natural zone.
	Motorized access to 28,900 acres prohibited.	Motorized access to 46,530 acres prohibited.	Motorized access to 10,250 acres prohibited.
Federal oil-gas leases and claims	Motorized access to 50,000 acres of leases, and about 200 claims restricted.	Motorized access to all leases (100,721 acres) and all claims (667) restricted.	Motorized access to 8,340 acres of leases, relatively few claims restricted.
Grazing	Motorized activities within 28 allotments containing 8,110 AUM's and 529,724 acres prohibited.	Motorized activities within 35 allotments containing 13,303 AUM's and 867,575 acres prohibited.	Motorized activities within 9 allotments containing 955 AUM's and 79,515 acres of prohibited.
	Eventual elimination of 435 AUM's in the Development zone. and 2,533 AUM's in the Natural zone.	Eventual elimination of 387 AUM's in the Development zone and 2,546 AUM's in the Natural zone.	Eventual elimintation of 481 AUM's in the Development zone and the addition of 32 AUM's in the Natural zone.
Local economy	Moderate stimulation, principally in the retail trade and personal services sectors.	Slight stimulation, principally in the retail trade and personal services sectors.	Large stimulation in many sectors.
Establishment of high voltage power lines	Crossings constrained to narrow band below the dam.	Crossings constrained to narrower band below the dam.	Crossings not constrained to narrow band below the dam.

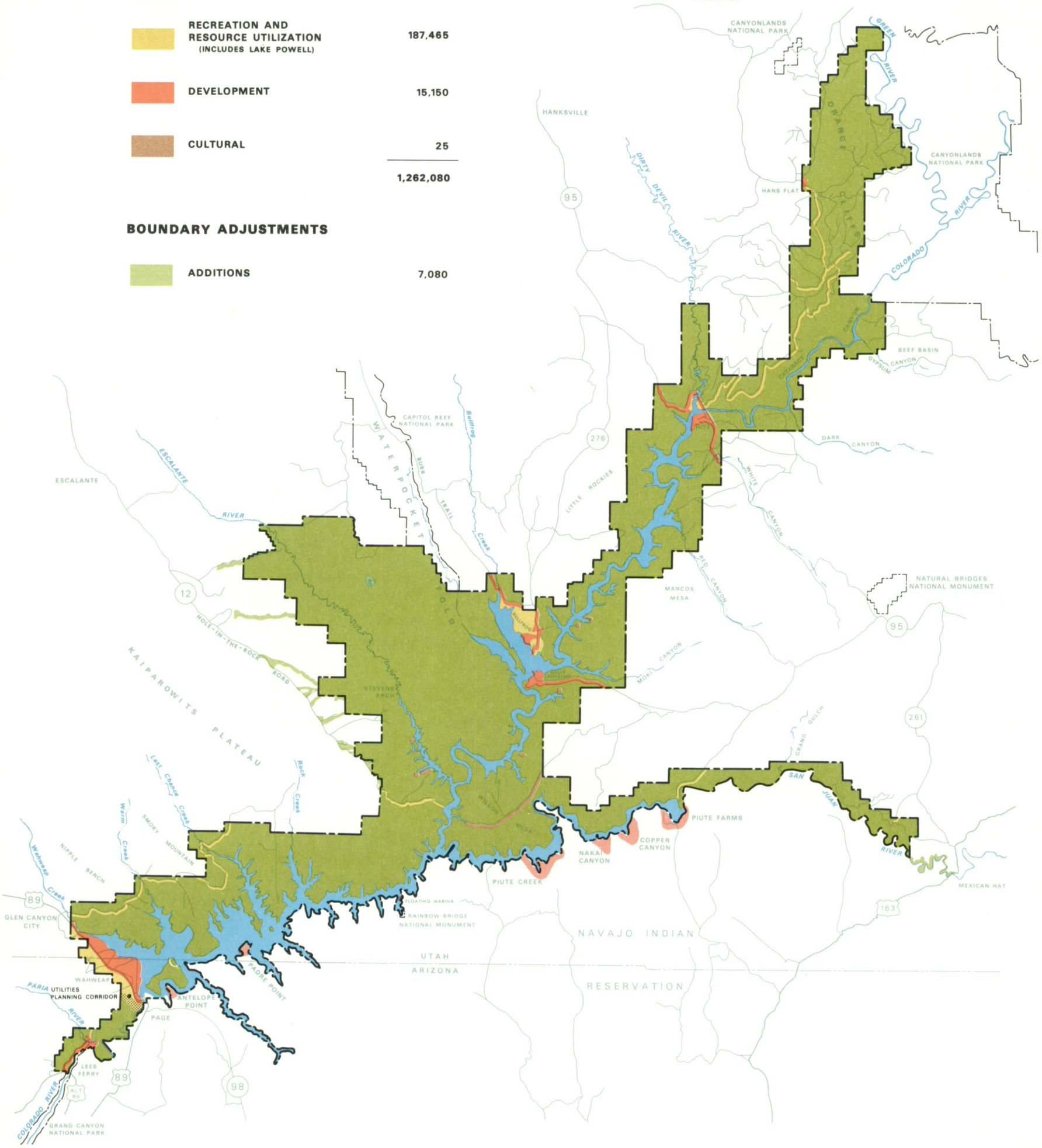
*Includes associated supplementary proposals.

MANAGEMENT ZONES	ACREAGE
NATURAL	1,059,440
RECREATION AND RESOURCE UTILIZATION (INCLUDES LAKE POWELL)	187,465
DEVELOPMENT	15,150
CULTURAL	25
	1,262,080

BOUNDARY ADJUSTMENTS	
ADDITIONS	7,080

NAVAJO RESERVATION SHORELINE

POTENTIAL DEVELOPMENT SITES



N

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

5 MILES = 8.045 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 10

MANAGEMENT ZONING ALTERNATIVE A

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

608 | 40.100B
APRIL 78 | DSC

The alternative's Development Zones occur only at Lees Ferry, Wahweap, Bullfrog, Halls Crossing, Hite, and Hans Flat (compare Development Zones with those of the proposal by placing DES Overlay 2 on Map 1). Estimated capacity ranges for these areas, generally 8 to 12 percent less than those of the proposal, are given in Table 20. DES Map 40 shows road closure and blockages associated with this alternative. Within the recreation area 285.3 miles of roads would be closed; 178.3 miles outside of the recreation area would be blocked (by closure of roads within the recreation area); 5 miles of roads within proposed boundary adjustments would be closed.

b. Impacts

Section II of the final environmental statement (Section IV of the Plan) contains a complete discussion of factors affecting impacts. The impacts below, which emphasize differences between the alternative and the proposal, relate directly to corresponding topics of Section III of the FES, where additional details may be found.

(1) Impacts on recreational use

Compared to the proposal, 8 to 12 percent fewer people would be able to use and enjoy the recreation area. The difference, which is due to the absence of developed zones at Llewellyn Gulch, Farley Canyon, and Dangling Rope (place DES Overlay 2 on Map 1 and compare Development Zones) will be manifested principally in the long term, because Farley Canyon and Llewellyn Gulch are not likely to be developed for 15 or 20 years.

Compared to the proposal, opportunities for nonmotorized backcountry recreation would be greater. The alternative includes 30 percent more of the recreation area in the Natural Zone (84 vs. 54 percent) and 109 more miles of canyons--a major backcountry resource--in the Natural Zone (615 vs. 506 miles, Table 21).

Because of the restriction on vehicular access, hunting would be hampered. Only 24,480 acres, or 2.2 percent of the recreation area's land surface would be open to vehicular use in support of hunting.

(2) Impacts on management of the recreation area

The prohibition on motor vehicles over 84 percent of the recreation area would hamper patrol activities and probably require more personnel than for the proposal (20-30 vs. 10-20). Because the Dangling Rope facility would not be built, problems of sewage treatment at Rainbow Marina, odors from garbage disposal, noise from power generation, lack of capability for emergency medical evacuations by air, peril to the mental health of staff personnel, and inadequate control of visitation to Rainbow Bridge National Monument would persist. Like the proposal, establishment of the Escalante operations center would improve management of this section of the recreation area.

This alternative would not affect the management of the reservoir.

(3) Impacts on scenery

In general, the alternative would provide more extensive protection for the recreation area's scenic resources. The alternative's Natural Zone would protect, as in the proposal, all Class I (outstanding) scenic resources (116,000 acres, Table 22); 10,288 more acres of Class II (superior) resources (185,993 vs. 175,705 acres, Table 22); 154,408 more acres of Class III (interesting) resources (448,053 vs. 293,645 acres) and 223,029 more acres of Class IV (unremarkable) resources (302,329 vs. 79,300 acres). Only 187,465 acres would be in RRU (compared to 558,020 acres for the proposal), where they would be subject to disturbances caused by motorized activities. Alternative A includes no Class I scenic resources in RRU, and only 7 acres of Class II resources in RRU (compared to 8,820 acres for the proposal).

(4) Impacts on wildlife and the fishery

All bighorn sheep lambing areas would be protected from disturbances caused by motorized activities. (Place DES Overlay 2 on DES Map 16 and note coincidence of Natural Zone with bighorn habitat.) In general, because of the predominance of the Natural Zone almost all wildlife habitat would be protected from disturbing influences.

Table 20. Existing, proposed, and alternative development.

DEVELOPMENT OR ZONE	EXISTING			PROPOSED		
	ACREAGE	ESTIMATED CAPACITY (VISITORS/DAY)	SCOPE OF DEVELOPMENT	ACREAGE	ESTIMATED CAPACITY[d] (VISITORS/DAY)	SCOPE OF DEVELOPMENT
Lees Ferry	280	800- 1,000	Low-key development; primary emphasis on area history and access to Colorado River	810	1,700- 2,200	Same as existing
Wahweap	420[a]	6,800- 8,800[a]	The major tourist resort; emphasis on overnight use; administrative functions; dam; visitor center	10,010	7,800-10,100	Same as existing with enlargement of facilities, and paved road to Page landfill
Lone Rock	20	900- 1,300	Random camping; boat launching	100	3,200- 4,200	Extensive day-use facilities (such as bathing, ski beaches, boat launching ramps, parking areas and access roads); campground; dock, fueld and camping supplies
Warm Creek			Nonexistent			
Dangling Rope			Nonexistent	1,350	2,400- 3,100	Marina facilities accessible only by boat, STOL aircraft (for emergency and administrative use), and emergency anchorage, to replace Rainbow Marina
Rainbow Marina	<1	2,000- 2,500[b]	Floating marina; primary refueling stop for boaters; store; employee housing			Relocation to Dangling Rope
LLewellyn Gulch			Nonexistent	190	(no overnight accommodations)	Potential marina if needed
Escalante Operations Center			Nonexistent	5	(no overnight accommodations)	Administrative use and facilities (ranger station, employee housing, equipment storage, stock corrals)
Bullfrog	520	1,500- 2,000	Major visitor resort (marina, dry-boat storage, ferry facilities; launching ramps, lodging, campgrounds, employee housing, trailer village, picnic area, administrative offices, airstrip)	1,635	7,900-10,300	Same as existing with enlargement of facilities and addition of paving portion of Burr Trail, improvement of existing airstrip, and a village center
Halls Crossing	320	600- 800	Major visitor resort (marina, dry-boat storage, ferry facilities, lodging, campground, employee housing, service station, airstrip)	1,355	3,400- 4,400	Same as existing with enlargement of facilities, relocation of airstrip and addition of a village center
Farley Canyon		100- 200	Undeveloped; informal use only	2,420	5,000- 6,500	Potential development site (marina, lodging, campground, etc.)
Hite	30	800- 1,000	Development oriented to tourists on Utah Highway 95, river runners in Cataract Canyon, and backcountry hikers and motorists in the Orange Cliffs (marina; dry-and-wet boat storage; boat rental; campground; employee housing)	1,160	2,500- 3,300	Same as existing with enlargement of facilities and addition of motel/restaurant and recreation vehicle park
Hans Flat	5		Wilderness outpost (visitor contact station, employee housing, maintenance and utility facilities,[b] airstrip at Gordon Flats)	235	(no overnight accommodations)	Same as existing with expanded facilities
Mexican Hat			Nonexistent			
Hans Flat-Horseshoe Canyon Road			Primitive road, 12 miles			Same as existing
Hans Flat-Hite Road via the Flint Trail			Graded road, 46 miles			Same as existing
Glen Canyon City-Bullfrog Basin Road						Construction of paved road, 67 miles, if funded by Congress
	1,595	13,500-17,600[c]		19,270	33,900-44,100	

[a]Includes Carl Hayden Visitor Center and Glen Canyon Dam

[b]No overnight accommodations; visitors stopping here are included in capacities for other developments

[c]Excludes Rainbow Marina

[d]For areas with overnight accommodations only

ALTERNATIVE A			ALTERNATIVE B		
ACREAGE	ESTIMATED CAPACITY[d] (VISITORS/DAY)	SCOPE OF DEVELOPMENT	ACREAGE	ESTIMATED CAPACITY (VISITORS/DAY)	SCOPE OF DEVELOPMENT
810	1,700- 2,200	Same as proposal	810	2,600- 3,300	Tourist resort with maximum visitor services
10,000	7,800-10,100	Same as proposal	10,000	11,700-15,200	Tourist resort with maximum visitor services
100	3,200- 4,200	Same as proposal	100	6,200- 8,000	Tourist resort with maximum visitor services
		Natural zone; no development or motorized use	2,720	6,100- 7,900	Tourist resort with maximum visitor services
		Natural zone; no development or motorized use	1,350	600- 800	Marina facilities with maximum visitor services; accessible by boat and aircraft only
<1	2,000- 2,500[b]	Same as existing			Relocation to Dangling Rope
		Natural zone; no development or motorized use	190	1,500- 2,000	Maximum visitor services
5	(no overnight accommodations)	Same as proposal			
1,635	7,900-10,300	Same as proposal	1,630	11,900-15,500	Tourist resort with maximum visitor services; plus development of resort community on land deleted from recreation area
1,200	3,400- 4,400	Same as proposal, but no relocation of airstrip	1,175	5,100- 6,600	Tourist resort with maximum visitor services; plus development of resort community, airstrip capable of serving commercial jet aircraft on land deleted from recreation area
		Natural zone; no development or motorized use	2,420	7,500- 9,800	Tourist resort with maximum visitor services
1,160	2,500- 3,300	Same as proposal	1,160	3,800- 5,000	Tourist resort with maximum visitor services
235	(no overnight accommodations)	Same as proposal	235	1,200- 1,600	Tourist resort with maximum visitor services
5	(no overnight accommodations)	Small administrative facility	5	1,100- 1,400	Tourist resort with maximum visitor services
		Obliteration of road	73		Construction of paved road, 12 miles
		Same as existing	278		Construction of paved road, 46 miles
		No construction	406		Construction of paved road, 67 miles
15,152	**28,500-37,000**		**22,552**	**59,300-77,100**	

Table 21. Miles of canyon in existing land use categories* and proposed management zones* and Alternatives A & B.

LAND USE CATEGORY OR MANAGEMENT ZONE	EXISTING	PROPOSED	ALTERNATIVE A	ALTERNATIVE B
Natural	601	506	615	227
RRU	14	100	**	380
Development	3	12	3	11
Cultural	**	**	**	**
TOTAL	618	618	618	618

* Above 3700-foot elevation upstream from Glen Canyon dam; any elevation downstream from dam.

** Less than 0.1 mile.

(5) Impacts on vegetation

Compared to the proposal, the alternative provides greater protection for the recreation area's plant communities. The alternative's Natural Zone includes 320,706 more acres of the Northern Desert Shrub Association (870,821 vs. 550,115 acres, Table 23), 69,480 more acres of the Pinyon-Juniper Association (186,885 vs. 117,405 acres), and 594 more acres of the Cottonwood-Willow-Saltcedar Floodplain Association (1,734 vs. 1,140 acres). Correspondingly, far fewer acres of these communities are included in the RRU Zone, where disturbing influences from mining, motorized activities, and construction of utility corridors may disturb or destroy vegetation in local areas.

(6) Impacts on erosional processes

Compared to the proposal, the alternative would place 44 percent more acres of erosion-susceptible rock units (110,830 vs. 76,985 acres, DES Table 34) in the Natural Zone, protecting them from non-natural disturbing influences, notably more development and use of vehicles (place DES Overlay 2 on DES Map 18). Only 15 acres of erosion-susceptible rocks (15 miles of a 50-foot-wide corridor for Utah Highway 95) would be subject to possible disturbance within the RRU Zone (compared to 34,000 acres for the proposal).

(7) Impacts on lake water quality

The alternative's effect on the quality of water in Lake Powell would be essentially similar to that of the proposal. The absence of developed areas at Llewellyn Gulch and Farley Canyon would prevent potential deterioration of water quality in the immediate vicinity of these locations.

(8) Impacts on groundwater and surface water quality

The absence of mining activities would prevent the potential degradation of the quality of the recreation area's ground and surface water. Other effects would be similar to those of the proposal.

(9) Impacts on air quality, including noise

The absence of mining activities would prevent the local degradation of air quality. Large quantities of dust would continue to be generated by use of the Hole-in-the-Rock road, which would remain unpaved within the recreation area.

(10) Impacts on archeological resources

The predominance of the Natural Zone would offer more of the recreation area's archeological resources protection than the proposal. (Place DES Overlay 2 on DES Map 20.) Archeological resources in known zones, not included in the proposal's Natural Zone, above the Orange Cliffs, surrounding Lake Canyon, on the south side of Moki Canyon, and above the San Juan at the extreme eastern end of the San Juan arm would be protected by inclusion in the Natural Zone. Lack of motorized access in this zone would decrease visitor use, lessening the likelihood of wear and vandalism. In addition, people would be less likely to remove heavy objects that they have to carry on their backs. At the same time, however, the restriction on motorized vehicles and equipment would hinder inventory, research, and protective activities, potentially resulting in long-term adverse effects on archeological resources.

In particular, the absence of mining activities would safeguard the recreation area's archeological resources from ground disturbance and the effects of the operation of heavy machinery associated with mining activities and the construction of utility and transportation systems.

(11) Impacts on historic resources

Effects would be similar to those of the proposal.

(12) Impacts on development of mineral resources

(a) Tar sands

The alternative would foreclose opportunities for the extraction of any of the oil from the tar sands lying within the recreation area. About 45 percent of the aerial extent of the 12.5- to 16-billion-barrel deposit lies within the recreation area. In addition, the alternative would prevent the conduct of the pilot fireflood project (Section I.B. of the FES).

The alternative would also block access to some of the tar sand deposit lying west of the recreation area (compare DES Map 40 and Map 4 and note the pattern of road closures and blockages within the Tar Sand Triangle). West of the recreation area, 66 miles of roads within the Tar Sand Triangle would be blocked by closure of roads within the recreation area. (Of these, 48 miles are still accessible from the west by crossing the Dirty Devil River. This route is frequently impassable due to high water.) Seven miles of roads west of the recreation area in the Tar Sand Triangle would remain open.

(b) Oil and gas

The alternative would foreclose opportunities for the discovery and extraction of virtually all of the recreation area's speculative oil and gas resources (between 51 and 155 million barrels of oil).

Table 22. Acreage* of the scenic classes in existing land use categories and in management zones for the proposal and for Alternatives A and B.

LAND USE CATEGORY OR MANAGEMENT ZONE	EXISTING LAND USE					PROPOSED ZONING				
	Class I (Outstanding)	Class II (Superior)	Class III (Interesting)	Class IV (Unremarkable)	Total	Class I (Outstanding)	Class II (Superior)	Class III (Interesting)	Class IV (Unremarkable)	Total
Natural	115,950	185,855	458,052	327,863	1,087,720	116,000	175,705	293,645	79,300	664,650
RRU	50	145	1,303	1,162	2,660**		8,820	160,715	238,525	408,060**
Development			620	975	1,595		1,475	5,615	12,175	19,265
Cultural			25		25			25		25
TOTAL	116,000	186,000	460,000	330,000	1,092,000	116,000	186,000	460,000	330,000	1,092,000

* Excludes boundary adjustments.

** Excludes Lake Powell (163,000 acres).

Table 23. Acreage* of the vegetation associations in existing land use categories and in management zones for the proposal and for Alternatives A & B.

LAND USE CATEGORY OR MANAGEMENT ZONE	EXISTING LAND USE ASSOCIATIONS					PROPOSED ZONING ASSOCIATIONS				
	Northern Desert Shrub	Pinyon-Juniper Woodland	Cottonwood-Willow-Saltcedar Floodplain	Hanging Gardens	Total	Northern Desert Shrub	Pinyon-Juniper Woodland	Cottonwood-Willow-Saltcedar Floodplain	Hanging Gardens	Total
Natural	898,860	187,018	1,832	10	1,087,720	550,115	117,405	1,140	10	671,205
RRU	2,417	242	1		2,660**	324,610	69,625	655		395,020**
Development	1,580	5	10		1,595	18,987	235	48		19,275
Cultural	25				25	25				25
TOTAL	902,882	187,265	1,843	10	1,092,000	893,737	187,265	1,843	10	1,082,855

LAND USE CATEGORY OR MANAGEMENT ZONE	ALTERNATIVE A					ALTERNATIVE B				
	Class I (Outstanding)	Class II (Superior)	Class III (Interesting)	Class IV (Unremarkable)	Total	Class I (Outstanding)	Class II (Superior)	Class III (Interesting)	Class IV (Unremarkable)	Total
Natural	116,000	185,993	448,053	302,329	1,052,375	86,652	31,590	64,513		182,755
RRU		7	8,797	15,656	24,460**	29,330	152,929	386,755	317,659	886,673**
Development			3,125	12,015	15,140	18	1,481	8,707	12,341	22,547
Cultural			25		25			25		25
TOTAL	**116,000**	**186,000**	**460,000**	**330,000**	**1,092,000**	**116,000**	**186,000**	**460,000**	**330,000**	**1,092,000**

LAND USE CATEGORY OR MANAGEMENT ZONE	ALTERNATIVE A ASSOCIATIONS					ALTERNATIVE B ASSOCIATIONS				
	Northern Desert Shrub	Pinyon-Juniper Woodland	Cottonwood-Willow-Saltcedar Floodplain	Hanging Gardens	Total	Northern Desert Shrub	Pinyon-Juniper Woodland	Cottonwood-Willow-Saltcedar Floodplain	Hanging Gardens	Total
Natural	870,821	186,885	1,734	10	1,059,440	166,263	15,780	703	9	182,755
RRU	24,259	145	61		24,465**	691,519	171,250	1,043	1	863,813**
Development	14,867	235	48		15,150	22,220	235	97		22,552
Cultural	25				25	25				25
TOTAL	**909,962**	**187,265**	**1,843**	**10**	**1,099,080**	**880,027**	**187,265**	**1,843**	**10**	**1,069,145**

* Includes applicable boundary adjustments.
**Excludes Lake Powell (163,000 acres).

(c) Coal

The alternative would prevent the extraction of the recreation area's coal (about 9.75 million tons). Access to adjacent coal fields, outside of the recreation area, would be unaffected.

(d) Uranium

The alternative would prevent the mining of the recreation area's identified and hypothetical uranium resources (about 14.6 million pounds of U3O8).

(e) Vanadium

The alternative would prevent the mining of the recreation area's identified and hypothetical vanadium resources (about 1 million pounds of V2O5).

(f) Copper

The alternative would prevent the mining of the recreation area's speculative copper resources (about 5 million pounds Cu).

(g) Construction materials

The alternative would prevent the excavation of known deposits of construction materials (DES Figure 13) throughout the recreation area, except for those that lie in the RRU Zone adjacent to the Bullfrog Development Zone. The magnitude of this particular deposit is unknown.

(h) State lands and mineral interests

Like the proposal, the alternative calls for the acquisition of all state lands (55,859 acres) and state subsurface mineral interests (10,090 acres) within the recreation area. The RRU Zone contains no oil-gas leases or mineral leases on state land.

Access to 19,419 acres of state lands and state mineral interests (oil-gas leases, mineral leases, and subsurface rights--most of which are under water) within the RRU and Development Zones (place DES Overlay 2 on DES Map 28) would not be affected by the alternative. Motorized activities within these zones may be permitted. However, the alternative's zoning would hamper access to state lands (40,620 acres) and state mineral interests (5,910 acres) on federal lands fully or partially surrounded by the Natural Zone.

(i) Claims and federal oil-gas leases

Although the zoning of Alternative A would not be implemented on federal oil-gas leases until the leases had terminated, it could nonetheless create conflicts with federal mining laws, which prevent barring access to valid federal oil-gas leases and claims. (Of course, procedures based upon the National Environmental Policy Act nonetheless would require environmental assessments to be made before access permits could be granted.) At the same time, the alternative's zoning would restrict motorized access to 100,721 acres of federal leases and all 667 claims (13,110 acres) fully or partially surrounded by lands zoned as Natural. This conflict would probably have to be resolved in the courts. However, if minerals extraction were not initiated before the leases' expiration dates (and prohibition on access is not the

cause), the leases would terminate on a schedule indicated in DES Map 29. Claims do not terminate, however, and in the Natural Zone, these would have to be extinguished, or, if valid, purchased.

(13) Impacts on grazing management

The prohibition on the use of motorized equipment in the Natural Zone will adversely affect the transport of animals and supplies and the installation of management facilities, such as fences and watering systems, in 35 grazing allotments containing 13,383 AUMs and 867,575 acres (Table 24 and place DES Overlay 2 on Map 7). Specifically, 285.3 miles of roads within 20 allotments would be closed, as shown on DES Map 40; allotment-by-allotment closures are given in Table 25. An additional 178.3 miles of roads outside the recreation area within eight allotments, although not closed, would be blocked from use because the only motorized access is from closed roads within the recreation area.

For 20 of the 35 allotments falling wholly or partly within the Natural Zone, the Cedar City District of the Bureau of Land Management has estimated reductions in levels of allowable use that could occur, were the alternative implemented. These reductions would total 6,772 AUMs (Table 26). Based on an average value of $4.56 in personal income from each AUM (Section IV.B.25. of the Plan), this reduction of 6,772 AUMs would mean a loss of $30,880 in personal income to the operators in these 20 allotments. (Just as for the proposal, however, the loss of this quantity of AUMs is only a potential, rather than actual, loss, because the operators are not now utilizing their allotments to the fullest.) The actual required reduction or permitted increase for each affected allotment is shown on Table 26 and totals a decrease of 2,426 AUMs and a loss in personal income of $11,063.

For the remaining 15 of the 35 allotments affected by the Natural Zone, similar information is not available. These allotments contain 12,866 AUMs, and accordingly, the maximum loss in personal income to the respective operators would be $58,669 per year.

Grazing on 14 allotments containing 601 AUMs and 17,395 acres within the RRU Zone would be unaffected by the alternative (Table 24). The subsequent grazing resources management plan, to be developed and executed jointly with the Bureau of Land Management, would specify details about practices, facilities, and intensities of grazing on these lands.

Grazing would be prohibited within the developed areas of the Development Zones, resulting in the eventual elimination of 277 AUMs, representing $1,765 in personal income. Table 27 gives the AUM losses by allotment for each Development Zone. Note that these figures represent maximal losses, occurring only when all Development Zones became fully utilized.

(14) Impacts on the Navajo Tribe

Compared to the proposal, the alternative would add greater utility to the potential developments suggested by the Navajo Tribe for their shoreline (Map 1). The absence of major NPS developments between Wahweap and Bullfrog Basin/Halls Crossing would increase economic benefits to the Tribe because the Tribe's developments, particularly at Padre Point or Piute Creek, would be the sole suppliers of facilities, services, and supplies (excluding gasoline and snacks available at Rainbow Marina) for this vast section of the lake.

(15) Impacts on the socioeconomic environment

Prohibitions on mining and minerals exploration, less construction activity than for the proposal, widespread impediments to grazing management, and slightly lower future visitation (a result of smaller capacity) might produce large decreases in the mining sector, a moderate decrease in the agriculture sector, and slight increases in the retail trade, personal services, and construction sectors of the local economy. Overall, the alternative would be less likely than the proposal to stimulate the local economy. Compared to the proposal, the narrowing of Kane County's economic base would likely be more pronounced because of the reduced contribution of diversifying influences.

(16) Impacts on utility and transportation system easements and rights-of-way

Effects on these would be more restrictive than those of the proposal because of the

Table 24. Livestock grazing in existing land use categories and in management zones for the proposal and for Alternatives A and B.

LAND USE CATEGORY OR MANAGEMENT ZONE	Existing Land Use			Proposed Zoning			Alternative A			Alternative B		
	Acreage[a]	Allotments Involved	5-Year[d] Average Actual Use AUM's	Acreage[a]	Allotments Involved	5-Year[d] Average Actual Use AUM's	Acreage[a]	Allotments Involved	5-Year[d] Average Actual Use AUM's	Acreage[a]	Allotments Involved	5-Year[d] Average Actual Use AUM's
Natural (within grazing allotments)	1,087,720 (891,632)	38	14,265	668,980 (529,724)	28	8,110	1,059,440 (867,575)	35	13,383	182,755 (79,515)	9	955
RRU[b]	2,660	30	97	403,730	32	5,826	17,395	14	601	886,673	34	12,935
Development[c]	1,595	7	9	19,265	13	435	15,140	11	387	22,547	24	481
Cultural	25	4	e	25	4	d	25	4	e	25	4	e
TOTAL	1,092,000		14,371[f]	1,092,000		14,371[f]	1,092,000		14,371[f]	1,092,000		14,371[f]

[a]Excludes boundary adjustments.

[b]Excludes Lake Powell.

[c]Additional details in Table 27.

[d]1970 1974.

[e]Less than 0.1 AUM (animal unit month).

[f]Average annual *actual* grazing use in the recreation area.

Table 25. Road closures, by grazing allotments for management zoning proposal and alternative A.

GRAZING ALLOTMENT	MILES OF ROADS				
	Allotment Total	Closed (within NRA)		Blocked (outside NRA)	
		Proposal	Alternative A	Proposal	Alternative A
Lees Ferry	16	2.2	2.2	1.5	1.5
Lower Warm Creek	8		4.0		
Upper Warm Creek	57		9.5		
Rock Creek	20		10.5		
Soda	34	5.7	5.7		
Fortymile Ridge	24	2.9	2.9		
Chimney Rock	48	1.0	1.0		
Upper Cattle	5	5.0	5.0		
Moody	10		9.5		
Wagon Box Mesa	28	2.5	2.5		
Perkings Brothers	95	8.0	15.0		6.5
Lake Canyon	206	7.5	32.1		10.0
White Canyon	93		14.0		30.0[a]
Indian Creek	94		6.0		
Waterpocket	56		2.0		
Rockies	98		4.0		
Sewing Machine	116	9.0	30.4		50.0[b]
Flint Trail	162	38.5	77.9		62.1[c]
Robbers Roost	168		38.9		17.2
Horseshoe Canyon	98		8.2		1.0
Unallotted[d]	21	4.0	4.0		
TOTAL	1,457	86.3	285.3	1.5	178.3

[a]Blocked only during floods at Duckett Crossing.

[b]37 of these 50 miles are blocked from the west during high water on the Dirty Devil River.

[c]26 of these 62 miles are in Canyonlands National Park and have been recommended for continued use in that park's Wilderness Recommendation. The remaining 36 miles are blocked from the west during high water on the Dirty Devil River.

[d]West of Dirty Devil River.

smaller size of the utilities planning corridor (place Overlay 1 on Map 10).

2. Management Zoning Alternative B: Consumptive Utilization Emphasis

a. Description

Management Zoning Alternative B (Map 11) would place 15 percent (182,755 acres) of the recreation area in the Natural Zone, 83 percent (1,026,813 acres) in the RRU Zone (including Lake Powell's 163,000 acres, which are also zoned RRU), 2 percent (22,552 acres) in the Development Zone, and 25 acres in the Cultural Zone. Table 18 summarizes for comparison these data and those of the proposal and Alternative A.

In this alternative, the Natural Zone includes only the canyons of the Escalante, Iron Top Mesa, about 40 percent of Wilson Mesa, and the canyons of the Little Rockies. The rest of the recreation area, except for the Development and Cultural Zones, are included within RRU.

Boundary adjustments (Maps 11 and DES Map 39) include 21,230 acres of additions (6,240 acres in the Escalante, 12,320 acres south of the Glen Canyon City-to-Bullfrog road corridor, and 2,670 acres extending the recreation area boundary to Mexican Hat) and 44,085 acres of deletions (7,140 acres north of the Harris Wash road, 25,465 acres north of the Glen Canyon City-to-Bullfrog road corridor, 12,505 acres adjacent to the Bullfrog Basin and Halls Crossing Development Zones, and 560 acres southwest of Highway 89 adjacent to the Wahweap Development Zone).

In addition to the Development Zones called for in the proposal, (place DES Overlay 3 on Map 1) the alternative includes a zone at Warm Creek; development corridors for the roads from Glen Canyon City-to-Bullfrog Basin, Hans Flat to Horseshoe Canyon, and Hans Flat to Hite via the Flint Trail; and Mexican Hat (DES Map 39). The total estimated capacity of these developed areas, detailed in Table 20, is approximately 30,000 visitor/days more than that of the proposal.

The alternative calls for closing none of the recreation area's roads. In addition, no roads outside of the recreation area would be blocked. Access and circulation would continue over existing roads (shown as

Table 26. Estimated effect of the Proposal and Alternatives A and B on livestock grazing in selected[1] allotments within the Natural zone.

Allotment	Map Number[2]	PROPOSED: Estimated Annual Reduction in Allowable Use (AUM's)	PROPOSED: Reduction (–) or Increase (+) in Actual Use (AUM's)[3]	ALTERNATIVE A: Estimated Annual Reduction in Allowable Use (AUM's)	ALTERNATIVE A: Reduction (–) or Increase (+) in Actual Use (AUM's)[3]	ALTERNATIVE B: Estimated Annual Reduction in Allowable Use (AUM's)	ALTERNATIVE B: Reduction (–) or Increase (+) in Actual Use (AUM's)[3]
Moody	8	450	–338	450	–266	0	+32
Silver Falls	9	500	+260	500	+260	200	+179
Wagon Box Mesa	10	0	+13	0	+13		
Big Bowns Bench	11	100	+4	100	+4		
Escalante River	12	630	–277	630	–277	400	–268
Upper Cattle	13	300	–122	300	–122		
Lower Cattle	14	860	–443	860	–443	0	+28
Chimney Rock	15	240	–161	240	–161	0	+17
Forty Mile Ridge	16	440	–138	440	–138	0	+19
Soda	17	650	–210	650	–209	0	+4
Lake	18	130	–48	130	–48		
Navajo Bench	19	828	–240	832	–240		
Harveys Fear	20	264		264	0		
Spencer Bench	21						
Rock Creek	22	530	–307	530	–79		
Last Chance	23			157	–135		
Upper Warm Creek	24			400	–400		
Lower Warm Creek	25			225	–158		
Nipple Bench	26			0	+7		
Clark Bench	27			64	–34		
TOTALS		**5,926**	**–2,007**	**6,772**	**–2,426**	**600**	**+11**
		(7,835)[4]	**(-2,533)[4]**	**(14,031)[4]**	**(–2,546)[4]**	**(987)[4]**	**(+ 32)[4]**

1 On the basis of availability of information (i.e., similar data are not available for other allotments within the Natural zone).

2 Map 7.

3 Amount operators would be either required to reduce or permitted to increase their present actual use.

4 Estimated totals for all allotments affected by the Natural zone (see Appendix 11, and DES Appendixes 32B and 'C for calculations).

MANAGEMENT ZONES	ACREAGE
NATURAL	182,755
RECREATION AND RESOURCE UTILIZATION (INCLUDES LAKE POWELL)	1,026,813
DEVELOPMENT	22,552
CULTURAL	25
	1,232,415

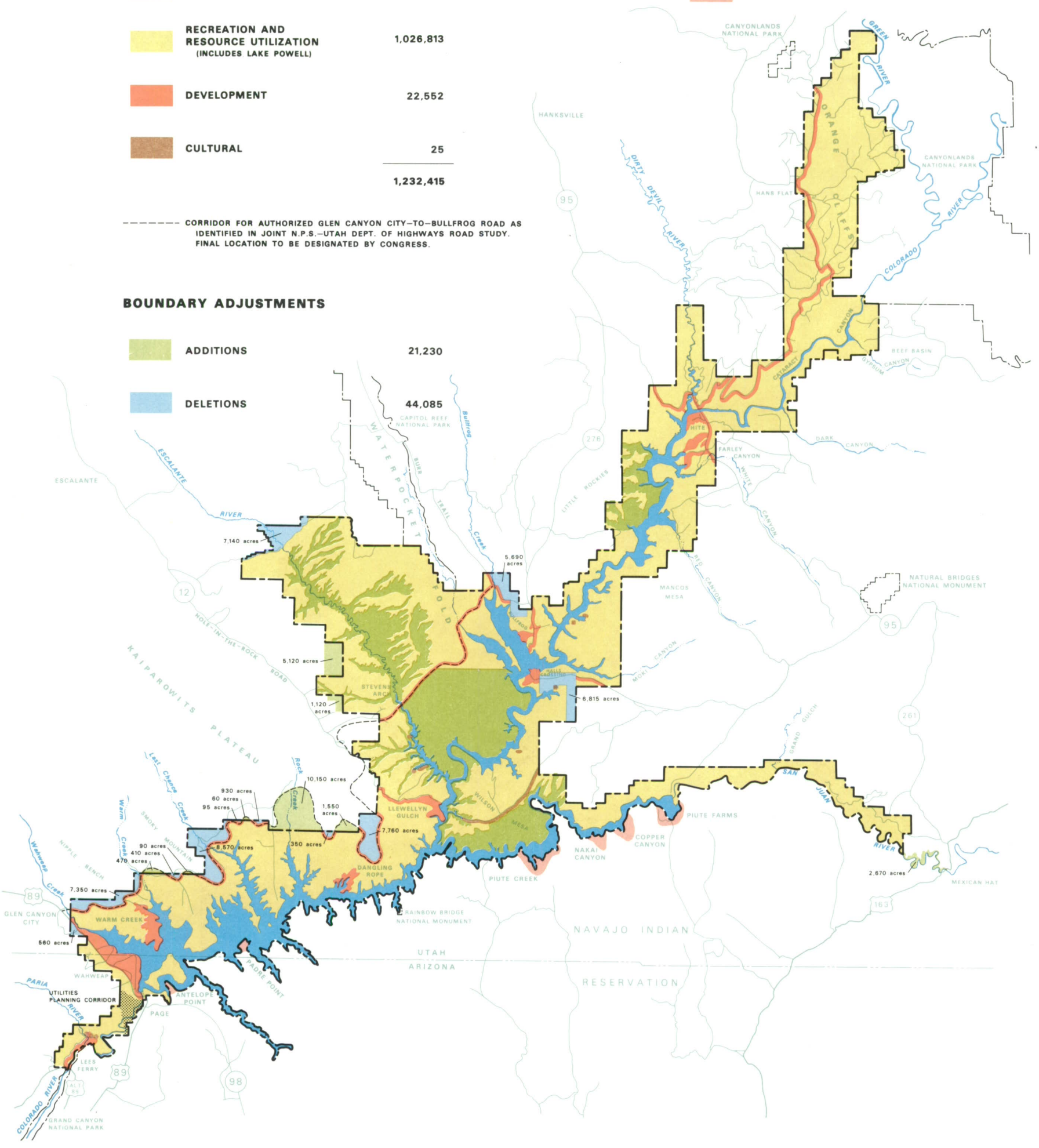
NAVAJO RESERVATION SHORELINE

POTENTIAL DEVELOPMENT SITES

-------- CORRIDOR FOR AUTHORIZED GLEN CANYON CITY–TO–BULLFROG ROAD AS IDENTIFIED IN JOINT N.P.S.–UTAH DEPT. OF HIGHWAYS ROAD STUDY. FINAL LOCATION TO BE DESIGNATED BY CONGRESS.

BOUNDARY ADJUSTMENTS

ADDITIONS	21,230
DELETIONS	44,085



N

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

5 MILES = 8.045 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 11

MANAGEMENT ZONING ALTERNATIVE B

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

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Table 27. Livestock grazing in existing development areas, proposed development zones and Alternatives A & B.

DEVELOPMENT ZONE	GRAZING ALLOTMENT IN DEVELOPMENT ZONE	EXISTING			PROPOSED			ALTERNATIVE A			ALTERNATIVE B		
		Percentage[a]	Acreage[b]	AUM's[c]	Percentage[a]	Acreage[b]	AUM's[c]	Percentage[a]	Acreage[b]	AUM's[c]	Percentage[a]	Acreage[b]	AUM's[c]
Lees Ferry	Lees Ferry	1	280	6	3	810	15	3	810	15	3	810	15
Wahweap-Lone Rock	Judd Hollow	e	8	d	3	350	8	3	350	8	3	350	8
	Blue Pools	e	16	d	32	2,770	79	32	2,770	79	32	2,770	79
	Ferry Swale 1				100	1,216	44	100	1,216	44	100	1,216	44
	Ferry Swale 2	e	13	d	3	984	32	3	984	32	3	984	32
	Wahweap	3	403	d	17	4,790	132	17	4,780	132	17	4,780	132
Warm Creek	Lower Warm Creek										25	2,720	40
Dangling Rope	Navajo Bench				9	1,350	d				9	1,350	d
Llewellyn Gulch	Soda				0.3	190	3				0.3	190	3
Escalante Operations Center	Undetermined					5			5				
Bullfrog	Waterpocket	e	520	1	2	1,635	43	2	1,635	43	2	1,630	43
Halls Crossing	Lake Canyon	e	320	2	0.2	1,355	10	0.2	1,200	9	0.2	1,175	9
Farley Canyon	White Canyon				1	2,420	44				1	2,420	44
Hite	White Canyon	e	30	e	0.5	1,160	21	0.5	1,160	21	0.5	1,160	21
Hans Flat	Robbers Roost	e	5	e	0.1	235	4	0.1	235	4	0.1	235	4
Mexican Hat	Perkins Brothers							e	5	e	e	5	e
Bullfrog-Glen Canyon City Road	(Nine allotments) 67 miles										e	406	6[f]
Hite-Hans Flat Road	(Three allotments) 46 miles										e	278	e,f
Hans Flat-Horseshoe Canyon Road	(Robbers Roost) 12 miles										e	73	1[f]
TOTAL			1,595	9		19,270	435		15,150	387		22,552	481

[a]Percentage of allotment in development area or zone

[b]Acres of allotment in development area or zone

[c]AUM's (animal unit months) computed by multiplying the percentage of allotment in development area or zone by 5-year (1970-74) average actual use of total allotment

[d]Grazing not permitted now

[e]Less than 0.1 percent or 0.1 AUM

[f]Based on an average 50-foot-wide right-of-way

white on DES Map 10), with the important exceptions of the addition of the Glen Canyon City-to-Bullfrog Basin road, the paving of the last 8 miles of the Hole-in-the-Rock road, the paving of the road from Hans Flat to Hite via the Flint Trail, and the paving of the road to Horseshoe Canyon. The impacts of constructing the Glen Canyon City-to-Bullfrog Basin road and of paving the Hole-in-the-Rock road are discussed in Section VIII.F.4. of the FES. Paving of the roads to Hite and Horseshoe Canyon from Hans Flat would obviously facilitate all-weather, all-season travel between these places. The action could be complemented by Utah's paving of the road from Highway 24 to Hans Flat (DES Map 6 and Section VIII.F.2. of the FES).

Table 19 summarizes, for convenient comparison, the components of the proposal and the alternatives.

b. Impacts

Section II of the final environmental statement (Section IV of the Plan) contains a complete discussion of factors affecting impacts. The impacts below, which emphasize differences between the alternative and the proposal, relate directly to corresponding topics of Section III of the final environmental statement, where additional details may be found.

(1) Impacts on recreational use

Compared to the proposal, 55 percent more people (about 30,000) would be able to use and enjoy the recreation area (Table 20). The difference is due to an extensive, highly developed zone at Warm Creek, and greater capacities for each of the other Development Zones.

Very probably, the most significant effect on visitation would result from the 5,690-acre, 6,815-acre, and 560-acre deletions adjacent to the Bullfrog Basin, Halls Crossing, and Wahweap Development Zones respectively (Map 11). These deletions would allow the establishment of privately owned service communities with populations (at least next to Bullfrog and Halls Crossing) as high as 20,000. Such communities would promote significant increases in recreational use of the recreation area and would provide a source of constant use-pressure on the services and facilities of the Development Zones to which they were adjacent.

Compared to the proposal, opportunities for nonmotorized backcountry recreation would be fewer. The alternative includes 39 percent less of the recreation area in the Natural Zone (15 vs. 54 percent, Table 17) and 279 fewer miles of canyons--a major backcountry resource--in the Natural Zone (227 vs. 506 miles, Table 21). For these same reasons, opportunities for motorized backcountry recreation would be greater, subject to the regulations of a backcountry-use plan.

Like the proposal, the replacement of the Rainbow Marina with a land-based facility at Dangling Rope (Map 11) would improve circulation upon Lake Powell.

(2) Impacts on management of the recreation area

Because all of the recreation area's roads would remain open to vehicular use, surveillance and patrol would be facilitated by the alternative. However, this positive effect on management efficiency would be counterbalanced by the additional manpower needed to manage and maintain the services and facilities of the more intensively utilized Development Zones. Altogether, the alternative would make it necessary to add between 10 and 20 personnel to the recreation area's staff.

Designating the western 76 miles of the Glen Canyon City-to-Bullfrog Basin road as the boundary of the recreation area would facilitate management of the lands along its route, since the respective areas of NPS and BLM responsibility would be clearly discernible. Deletion of 7,140 acres north of Harris Wash and Silver Falls Creek would have the same effect.

Like the proposal, the alternative would eliminate the management problems at Rainbow Marina (Section III.A.2. of the FES).

(3) Impacts on scenery

In general, the alternative would offer limited protection for the recreation area's scenic resources. The alternative's Natural Zone would protect 75 percent (86,652 acres) of the recreation area's Class I (outstanding) scenery (compared to 100 percent--116,000

acres-- for the proposal, Table 22), 17 percent (31,590 acres) of the area's Class II (superior) scenery (compared to 95 percent--175,705 acres-- for the proposal), 14 percent (64,513 acres) of Class III (interesting) scenery (compared to 64 percent--293,645 acres--for the proposal), and 0 percent of Class IV (unremarkable) scenery (compared to 24 percent--79,300 acres--for the proposal). Except for 18 acres of Class I scenery (the Glen Canyon City-to-Bullfrog Basin road corridor over the Waterpocket Fold--place DES Overlay 3 on DES Map 15), 1,481 acres of Class II scenery (scattered locations), 8,707 acres of Class III scenery, and 12,341 acres of Class IV scenery in the Development Zone, and 25 acres of Class III scenery in the Cultural Zone, the remainder of the recreation area's scenic resources occur in the RRU Zone. Scenic resources in the RRU Zone would be potentially subject to degradation from mining, construction of utility and transportation systems, and vehicular use.

Significantly, the 1,120-acre addition at the heads of Coyote and Hurricane Canyons in the Escalante (Map 11) would add Coyote Arch, a Class I scenic resource now just outside the recreation area boundary, to the recreation area.

(4) Impacts on wildlife and the fishery

Potential bighorn sheep habitat in the Escalante, Little Rockies, and on Wilson Mesa would be afforded the protection of Natural Zone designation (place DES Overlay 3 on DES Map 16). Known bighorn lambing areas in and around the White, Red, and Gypsum Canyon areas would be subject to disturbance from motorized activities.

(5) Impacts on vegetation

Compared to the proposal, the alternative provides less protection for the recreation area's plant communities. The alternative's Natural Zone would protect 19 percent (166,263 acres) of the recreation area's Northern Desert Shrub Association (compared to 62 percent--552,650 acres--for the proposal, Table 23), 8 percent (15,780 acres) of the area's Pinyon-Juniper Woodland Association (compared to 63 percent--117,405 acres--for the proposal), 38 percent (703 acres) of the area's Cottonwood-Willow-Saltcedar Floodplain Association (compared to 62 percent--1,140 acres--for the proposal), and 90 percent of the Hanging Gardens Association (compared to 100 percent for the proposal). Correspondingly, many more acres of these communities are included in the RRU Zones (Table 23) where disturbing influences from mining, motorized activities, and construction of utility and transportation systems might be permitted.

(6) Impacts on erosional processes

The alternative would protect from disturbance 6 percent of the recreation area's erosion-susceptible rocks in the Natural Zone, compared to 69 percent for the proposal (DES Table 34). Fifty acres of erosion-susceptible rocks would occur in the Development Zone for the Glen Canyon City-to-Bullfrog Basin road (place DES Overlay 3 over Map 11). The rest of the area's erosion-susceptible rocks would occur in the RRU Zone, where they would be subject to disturbance from motorized activities. These provisions would result in an unquantified but potentially substantial increase in erosion resulting from the above causes.

(7) Impacts on lake water quality

Compared to the proposal, a greater use of Lake Powell (as a result of the additional development site at Warm Creek and larger capacity for all development sites) would increase the likelihood of localized deterioration of water quality in the vicinity of the developed areas. Otherwise, in the long term and throughout the lake, the effects on lake water quality would be similar to those of the proposal.

(8) Impacts on groundwater and surface water quality

The predominance of the RRU Zone (83 percent of the recreation area would make it more likely, compared to the proposal, that mining, motorized activities, and their accompanying surface disturbances would degrade the quality of the recreation area's ground and surface waters. The effects would be similar to those mentioned for the proposal, but much more widespread.

(9) Impacts on air quality, including noise

Effects on air quality would be similar to those of the proposal, except more widespread

(due to the greater extent of the RRU Zone) and, perhaps, more intense (due to increased use of motorboats on the lake and vehicles on the land). In particular, the use of the paved roads from Glen Canyon City to Bullfrog Basin, Hans Flat to Hite, and Hans Flat to Horseshoe Canyon, and mining and motorized recreational activities in the RRU and Development Zones would be the prime producers of this intensified effect.

(10) Impacts on archeological resources

The predominance of the RRU Zone would make most of the recreation area's archeological resources vulnerable to disturbance from mining and motorized recreational activities. In particular, only the known resources of the Escalante (place DES Overlay 3 on DES Map 20) and the suspected resources of the Little Rockies and Wilson Mesa would be protected from these potentially destructive influences. In addition, the widespread accessibility of the area to motorized vehicles would facilitate the plundering of archeological sites and the removal of artifacts by novelty seekers. At the same time, however, increased accessibility would make it easier to conduct the extensive archeological research that the recreation area requires, and to apprehend plunderers.

(11) Impacts on historic resources

Effects on historic resources would be similar to those of the proposal.

(12) Impacts on development of mineral resources

(a) Tar sands

The alternative would not affect the extraction of oil from the recreation area's tar sands, subject to the regulations of a subsequent mineral resources management plan. About 45 percent of the aerial extent of the 12.5- to 16-billion-barrel deposit lies within the recreation area. In addition, the alternative would not prevent the conduct of the pilot fireflood project (Section I.B. of the FES).

(b) Oil and gas

The alternative would allow opportunities for the discovery and extraction of the speculative oil and gas resources under almost all of the recreation area subject to the regulations of a subsequent mineral resources management plan. Exploration for these resources would be prohibited only in the Natural Zone (the canyons of the Escalante, the Little Rockies, part of Wilson Mesa, the southern slickrock country of the Escalante), and the Development and Cultural Zones, altogether about 17 percent of the recreation area.

(c) Coal

The alternative would not affect the extraction of the recreation area's coal (about 9.75 million tons), subject to the regulations of a mineral resources management plan. Access to adjacent coal fields, outside the recreation area, would be unaffected.

(d) Uranium

The alternative would leave almost all of the recreation area's favorable uranium zones open for exploration and extraction of this resource. Only small areas covering an estimated 5,000 acres (place DES Overlay 3 on Map 5 and note the coincidence of the green with the uranium--vanadium resources) within these zones would be closed to minerals activities. The discovery and mining of the recreation area's hypothetical uranium resources would be unaffected, subject to the regulations of a mineral resources management plan.

(e) Vanadium

The vanadium resources would be affected in a way similar to that of uranium.

(f) Copper

Copper resources would be affected in a way similar to that of uranium.

(g) Construction materials

Subject to the regulations of a mineral resources management plan, the alternative would allow the extraction of the recreation area's construction materials (DES Figure 13) except for that

portion of the extensive deposit lying within the northwest end of the Wahweap Development Zone and deposits at Hite and within Farley Canyon. The vast majority of these latter deposits are underwater most of the time.

(h) State lands and mineral interests

Like the proposal, the alternative calls for the acquisition of all state lands (55,859 acres) and state subsurface mineral interests (10,090 acres) within the recreation area. When these lands and interests are acquired (by donation or exchange only), the zoning categories of Map 11 would be applied. Once acquired 355 acres of oil and gas leases now on state land in the Natural Zone throughout the recreation area would be allowed to expire. Similarly, 4,370 acres of mineral leases now on state land within the Natural Zone would be allowed to expire. In the RRU Zone 15,482 acres of oil-gas leases and 3,941 acres of mineral leases now on state land would be examined for renewal during the preparation of the mineral resources management plan.

Access to 55,699 acres of state lands and state mineral interests (oil-gas leases, mineral leases, and subsurface rights) within the RRU and Development Zones (place DES Overlay 2 on DES Map 28) would not be affected by the alternative. Motorized activities within these zones may be permitted. However, the alternative's zoning would hamper access to state lands (9,620 acres) and state mineral interests (630 acres) on federal lands surrounded or partially surrounded by the Natural Zone.

(i) Claims and federal oil-gas leases

Although the zoning of Alternative B would not be implemented on federal oil-gas leases until these leases terminate, it could nonetheless create conflicts with federal mining laws, which prevent barring access to valid claims and federal oil-gas leases. (Of course, procedures based upon the National Environmental Policy Act nonetheless would require environmental assessments to be made before access permits could be granted.) At the same time, the alternative's zoning would restrict motorized access to about 8,340 acres of federal leases and about 50 claims--1,000 acres--(see Section III.A.12.i. of the FES) surrounded or partially surrounded by lands zoned as Natural. This conflict would probably have to be resolved in the courts. However, if minerals extraction were not initiated before the leases' expiration dates (and prohibition on access is not the cause), the leases would terminate on a schedule indicated in DES Map 29.

(13) Impacts on grazing management

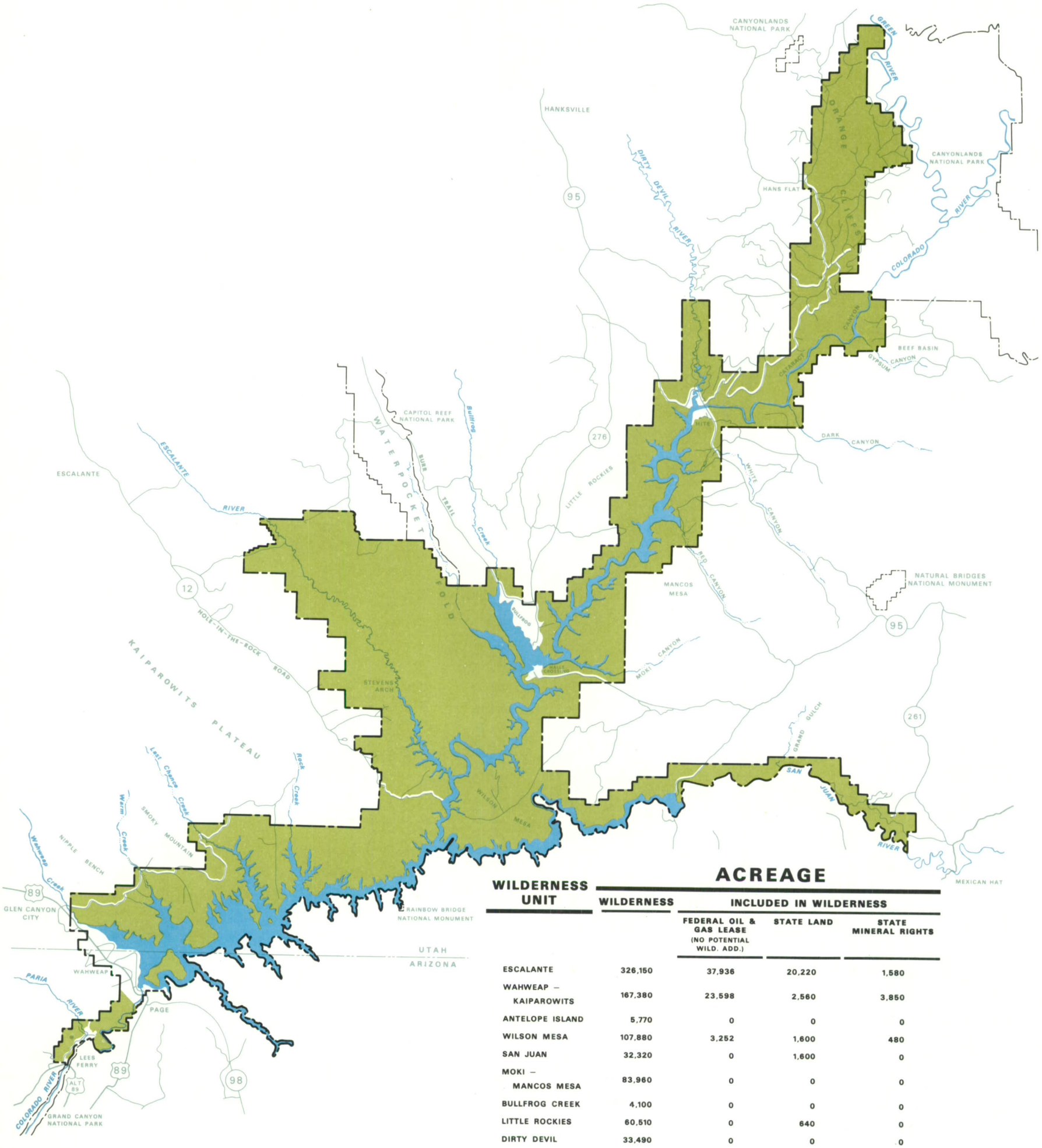
The prohibition on the use of motorized equipment in the Natural Zone would adversely affect grazing management in 9 allotments containing 955 AUMs and 79,515 acres (Table 24 and place DES Overlay 3 on Map 7). The transport of animals and supplies and the installation of management facilities, such as fences and water systems, would be hindered, requiring operators to adjust their grazing practices. However, no existing roads would be closed.

The Cedar City District of the Bureau of Land Management has estimated that the implementation of the alternative would reduce allowable use limits by 600 AUMs (400 in the Escalante River allotment and 200 on the Silver Falls allotment, Table 26), representing a current annual income of $2,736 (@ $4.56 per AUM). Estimated reductions on the other seven allotments are not available. Maximal reductions, resulting from the eventual termination of grazing in all nine allotments falling wholly or partially within the Natural Zone, would equal 955 AUMs and represent $4,355 of lost annual income.

Grazing on 34 allotments containing 12,935 AUMs and 886,673 acres within the RRU Zone would be unaffected by the alternative (Table 24). The subsequent grazing resources management plan, to be developed and executed jointly with the Bureau of Land Management, would specify details about practices, facilities, and intensities of grazing on these lands.

Grazing would be prohibited within the developed areas of the Development Zones, resulting in the eventual elimination of 481 AUMs representing a current annual income of $2,193. Table 27 gives the AUM losses by allotment for each Development Zone. Note that these figures represent maximal losses, occurring only when all Development Zones became fully utilized.

WILDERNESS



ACREAGE

WILDERNESS UNIT	WILDERNESS	INCLUDED IN WILDERNESS		
		FEDERAL OIL & GAS LEASE (NO POTENTIAL WILD. ADD.)	STATE LAND	STATE MINERAL RIGHTS
ESCALANTE	326,150	37,936	20,220	1,580
WAHWEAP – KAIPAROWITS	167,380	23,598	2,560	3,850
ANTELOPE ISLAND	5,770	0	0	0
WILSON MESA	107,880	3,252	1,600	480
SAN JUAN	32,320	0	1,600	0
MOKI – MANCOS MESA	83,960	0	0	0
BULLFROG CREEK	4,100	0	0	0
LITTLE ROCKIES	60,510	0	640	0
DIRTY DEVIL	33,490	0	0	0
ORANGE CLIFFS	161,950	52,245	14,000	0
DARK CANYON	32,820	7,016	0	0
PARIA	14,500	0	0	0
TOTALS	**1,030,830** (82%)	**124,047**	**40,620**	**5,910**

TOTAL APPROXIMATE N.R.A. ACREAGE = 1,250,000

WILDERNESS ALTERNATIVE A

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

MAP 12

608 | 40,104A
APRIL 78 | DSC

(14) Impacts on the Navajo Tribe

Compared to the proposal, the alternative would lessen the utility of the potential developments suggested by the Navajo Tribe for their shoreline (compare Map 1 with Map 11). The presence of major NPS developments between Wahweap and Bullfrog Basin/Halls Crossing would compete with the Navajo developments, particularly at Antelope Point, Padre Point, and Piute Creek, along this vast section of the lake.

(15) Impacts on the socioeconomic environment

Fewer prohibitions on mining and minerals exploration, more construction activity than for the proposal, fewer impediments to grazing management, and considerably higher future visitation (a result of greater capacity) could produce large increases in the mining sector, a moderate increase in the agriculture sector, and large increases in the retail trade, personal services, and construction sectors of the local economy. Overall, the alternative would be more likely than the proposal to stimulate the local economy. Kane County's economic base would likely widen because of the increased contribution of diversifying influences.

(16) Impacts on utility and transportation system easements and rights-of-way

Effects on utility and transportation systems would be much less restrictive than those of the proposal. Although the lake itself would still constitute a formidable impediment to east-west crossings, much more of the recreation area, compared to the proposal, would be potentially open to the installation of such facilities.

C. Wilderness Alternatives

1. Wilderness Alternative A

a. Description

Wilderness Alternative A (Map 12) includes as Wilderness all those lands zoned as Natural in Management Zoning Alternative A (1,059,440 acres, or 84 percent of the recreation area). Only those lands described in Section VIII.B.1.a. of the FES are excluded from Wilderness.

Note that unlike the Wilderness recommendation (and Wilderness Alternative B), Wilderness Alternative A includes state lands, state mineral rights, and federal oil-gas leases; it contains no potential Wilderness additions.

b. Impacts

The impacts of Wilderness designation would be the same as those of the Wilderness recommendation (Section III.B. of the FES), with the exception of the effects on state lands, state mineral interests, and federal oil-gas leases (Section IV.B.24. of the Plan). Unlike the Wilderness recommendation, which excludes all suitable state lands and state mineral rights, and includes federal oil-gas leases and pumped storage study sites as potential Wilderness additions, Wilderness Alternative A provides no exclusion for these categories. Accordingly, neither a subsequent, additional act of Congress--to place state lands (40,620 acres) and mineral rights (5,910 acres) in Wilderness--nor secretarial approval--to place federal oil-gas leases in Wilderness--would be required, since these lands would already have been voted into Wilderness by the initial designating act. As indicated in Section VIII.B.1.a. of the FES, the lands and rights would be acquired later.

2. Wilderness Alternative B

a. Description

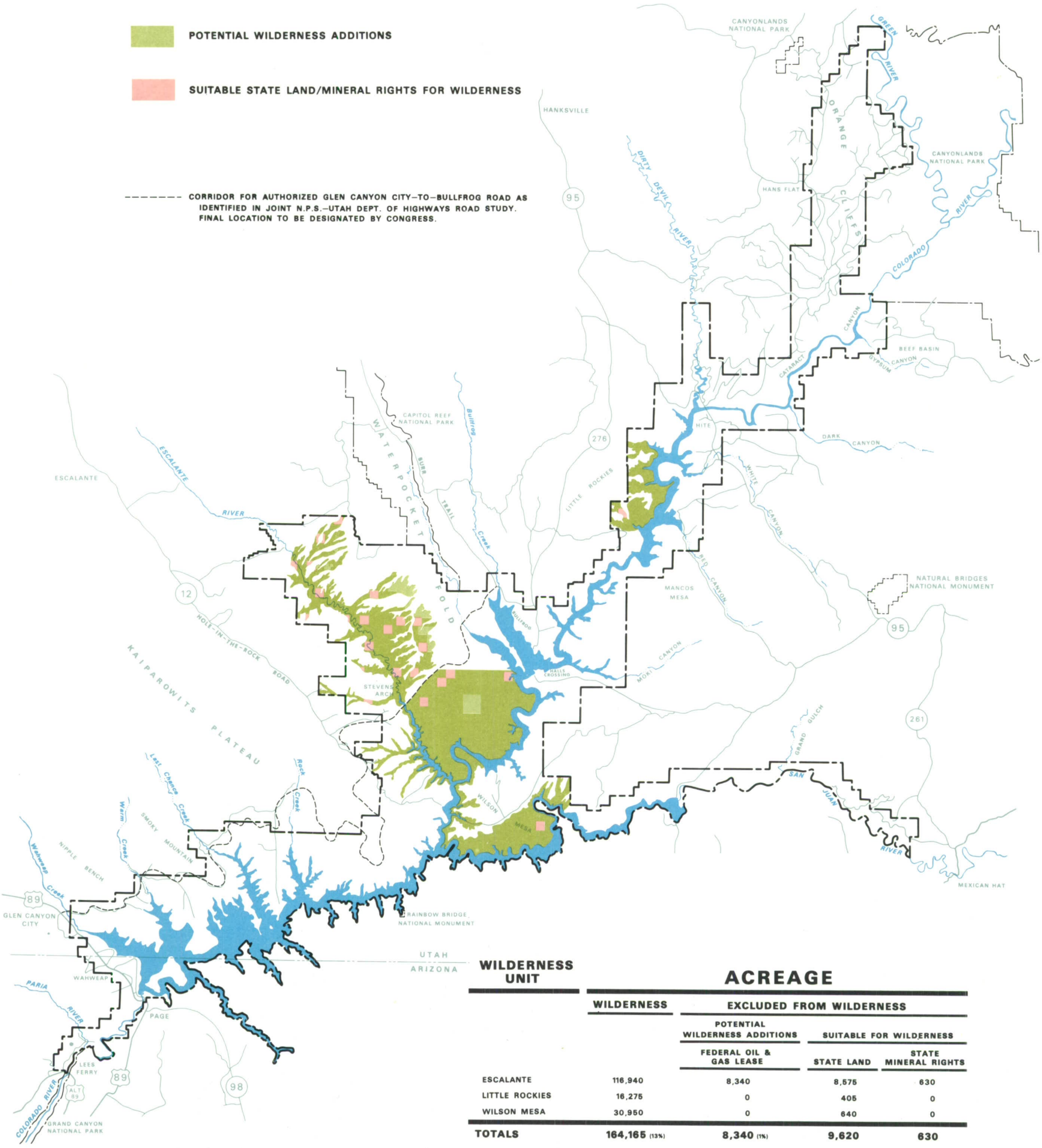
Wilderness Alternative B (Map 13) includes as Wilderness 90 percent of those lands zoned as Natural in Management Zoning Alternative B (164,165 acres, or 13 percent of the recreation area--Table 18). Federal oil-gas leases (8,340 acres) are designated as potential Wilderness additions and may be added to Wilderness by the Secretary of the Interior after the mineral leases have expired. Suitable state lands and state subsurface mineral rights (9,620 acres and 630 acres, respectively) would be excluded from Wilderness or potential Wilderness additions.

WILDERNESS

POTENTIAL WILDERNESS ADDITIONS

SUITABLE STATE LAND/MINERAL RIGHTS FOR WILDERNESS

CORRIDOR FOR AUTHORIZED GLEN CANYON CITY–TO–BULLFROG ROAD AS IDENTIFIED IN JOINT N.P.S.–UTAH DEPT. OF HIGHWAYS ROAD STUDY. FINAL LOCATION TO BE DESIGNATED BY CONGRESS.



ACREAGE

WILDERNESS UNIT	WILDERNESS	EXCLUDED FROM WILDERNESS		
		POTENTIAL WILDERNESS ADDITIONS	SUITABLE FOR WILDERNESS	
		FEDERAL OIL & GAS LEASE	STATE LAND	STATE MINERAL RIGHTS
ESCALANTE	116,940	8,340	8,575	630
LITTLE ROCKIES	16,275	0	405	0
WILSON MESA	30,950	0	640	0
TOTALS	**164,165** (13%)	**8,340** (1%)	**9,620**	**630**

TOTAL AREA IN WILDERNESS, POTENTIAL WILDERNESS ADDITIONS AND SUITABLE STATE = 14%

TOTAL APPROXIMATE N.R.A. ACREAGE = 1,250,000

N

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

5 MILES = 8.045 KILOMETERS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

MAP 13

WILDERNESS ALTERNATIVE B

GLEN CANYON NATIONAL RECREATION AREA

ARIZONA AND UTAH

608 | 40,105A
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b. Impacts

The impacts of Wilderness designation would be the same as those of the Wilderness recommendation (Section III.B. of the FES), except that of course the acreages would correspond to those of the Natural Zone of Alternative B (minus the state lands, state mineral interests, and federal oil-gas leases), rather than those of the final proposal.

D. Boundary Alternative: Deletion of Part of the San Juan Arm

1. Description

This DES alternative called for the deletion of 29,300 acres of the San Juan arm of the recreation area, from its extreme eastern boundary below Mexican Hat to Clay Hill's Crossing (Figure 9). The deleted land would be managed by the Bureau of Land Management.

2. Impacts

The alternative would facilitate management of river-floaters by the Bureau of Land Management. These recreationists currently put in from BLM land upstream of the recreation area, leaving BLM jurisdiction and entering NPS jurisdiction 12 miles below Mexican Hat. They typically take out at Clay Hills Crossing (within the recreation area) 40 miles further downstream. Implementation of the alternative would eliminate the dual jurisdictions involved and promote greater efficiency and effectiveness in managing and regulating this use.

In a similar way, management of the many archeological resources in Grand Gulch (Map 1) and grazing in four grazing allotments (Map 7) would be facilitated by being placed under the sole jurisdiction of the BLM, rather than by remaining split between that agency and the National Park Service. This division of jurisdiction hampers the BLM from integrating and efficiently implementing its management policies in these two areas.

3. Decision

As a result of public comments and management considerations, this alternative has been rejected.

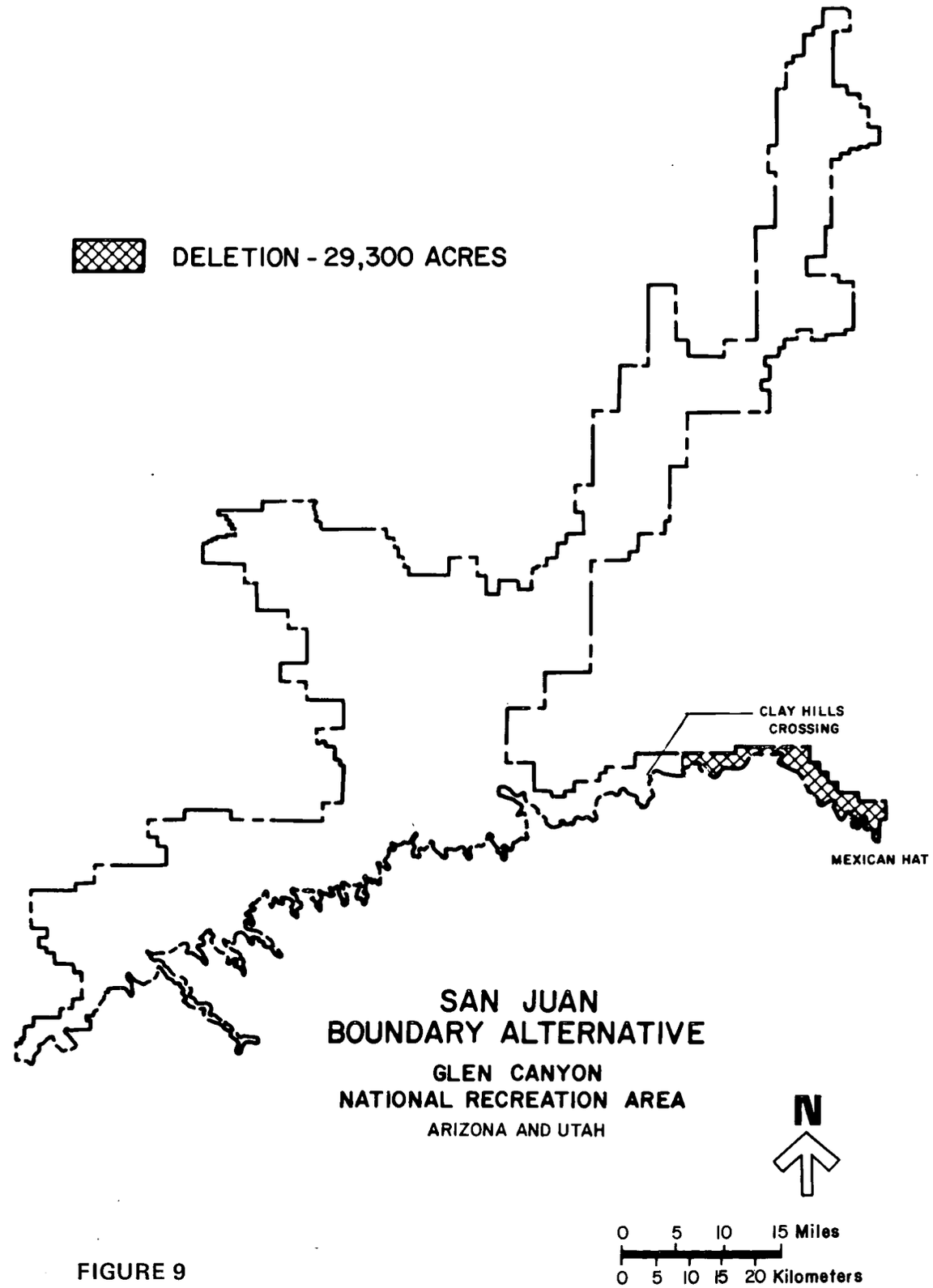
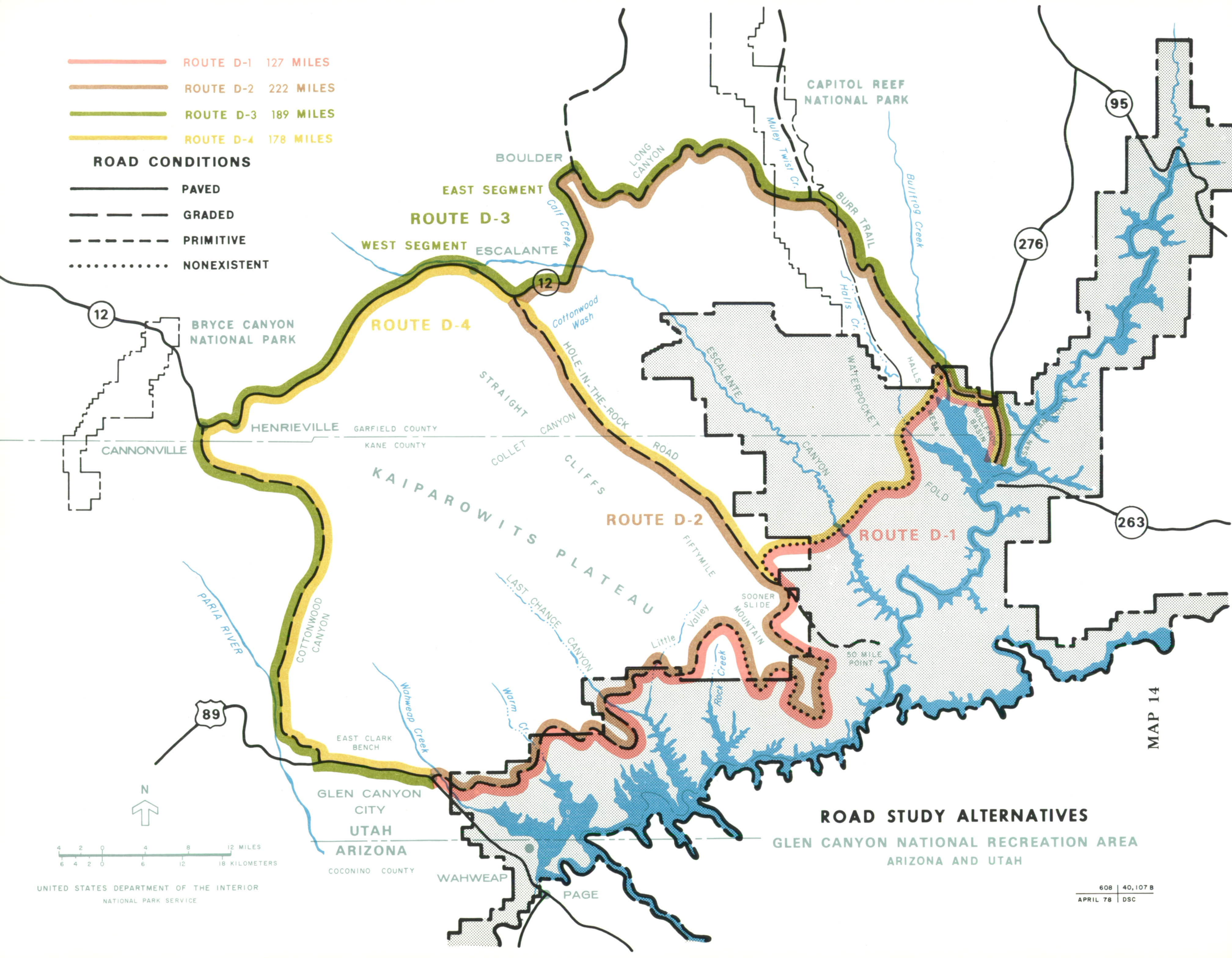


FIGURE 9


ROUTE D-1 127 MILES
ROUTE D-2 222 MILES
ROUTE D-3 189 MILES
ROUTE D-4 178 MILES
ROAD CONDITIONS
PAVED
GRADED
PRIMITIVE
NONEXISTENT
CAPITOL REEF NATIONAL PARK
BOULDER
EAST SEGMENT
ROUTE D-3
WEST SEGMENT
ESCALANTE
LONG CANYON
Muley Twist Cr.
BURR TRAIL
Bullfrog Creek
Calf Creek
Halls Cr.
HALLS
12
95
276
263
89
BRYCE CANYON NATIONAL PARK
ROUTE D-4
Cottonwood Wash
HOLE-IN-THE-ROCK ROAD
STRAIGHT CANYON
HENRIEVILLE
GARFIELD COUNTY
KANE COUNTY
CANNONVILLE
COLLET CLIFFS
KAIPAROWITS PLATEAU
ROUTE D-2
ROUTE D-1
ESCALANTE CANYON
WATERPOCKET FOLD
FIFTYMILE
LAST CHANCE CANYON
SOONER SLIDE
MOUNTAIN
Little Valley
Rock Creek
50 MILE POINT
PARIA RIVER
COTTONWOOD CANYON
Wahweap Creek
Warm Cr.
EAST CLARK BENCH
GLEN CANYON CITY
UTAH
ARIZONA
COCONINO COUNTY
WAHWEAP
PAGE
N
4 2 0 4 8 12 MILES
6 4 2 0 6 12 18 KILOMETERS
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
ROAD STUDY ALTERNATIVES
GLEN CANYON NATIONAL RECREATION AREA
ARIZONA AND UTAH
608 | 40,107 B
APRIL 78 | DSC
MAP 14

2. Relationship between the Glen Canyon road study and the Arches/Canyonlands/Capitol Reef transportation study

The Arches/Canyonlands/Capitol Reef transportation study and its relationship to the Glen Canyon general management plan have been described under Interrelated Projects in Section I of the FES and shown on DES Map 6. Significant overlap or conflict between the transportation study and the Glen Canyon road study occurs in Capitol Reef National Park. Here, segments of the 65 miles of graded road between Boulder and Utah Highway 276 pass through both Capitol Reef and Glen Canyon. Paving all 65 miles is a portion of Alternative D-3 in the Glen Canyon road study; paving 3 miles of it is included as an NPS proposal in the transportation study. In addition, the paving of the Cannonville-to-Cottonwood Canyon and the Hole-in-the-Rock roads is proposed in both studies.

3. Description

The four alternatives (Map 14) are labeled as in the road study. Table 29 contains mileage data for them.

a. Route D-1

The route starts from U.S. Highway 89 at Glen Canyon City, extends northeasterly for 127 miles along the northwest side of Lake Powell, and terminates at Bullfrog Basin. The first 38 miles follow a graded road which generally is usable, except when wet, by automobiles.

Passing over fairly gentle, open terrain, the route crosses Wahweap Creek, Warren Creek, and Last Chance Canyon, then continues on to Little Valley. From here the corridor follows a primitive road for 12 miles to Rock Creek. This portion has steep, narrow grades passable only by four-wheel-drive vehicles.

The next 27 miles, to Fiftymile Point, lie on the bench around Fiftymile Mountain, where no road now exists. The terrain is fairly flat to gently rolling.

From Fiftymile Point the corridor follows a primitive road for 10 miles to its intersection with the Hole-in-the-Rock road. Along almost 6 miles, this route drops 1,700 feet down Sooner Slide via several steep switchbacks.

The road would cross the Escalante Canyon on a 1,270-foot-long bridge and proceed over the Waterpocket Fold through 28 miles of roadless slickrock interspersed with waterpockets. The terrain is gently rolling, except coming down the steep east face of the Waterpocket Fold and up from Halls Creek to the top of Halls Mesa. This corridor ends at its intersection with the graded road between Utah Highway 276 and Boulder.

The next 6 miles of the corridor follow the graded road between Utah Highway 276 and Boulder. The segment has flat to gently rolling grades where only the application of a base course and paving would be required.

The final 6 miles of paved road to the terminus of the alternative at the marina in Bullfrog Basin follows Utah Highway 276. Construction would cost $60,800,000.00.

b. Route D-2

The corridor follows Route D-1 from its origin at Glen Canyon City to its intersection with the Hole-in-the-Rock road, 87 miles to the northeast. Its total length to Bullfrog Basin is 222 miles and would cost $64,600,000.00.

From the intersection of the primitive road down Sooner Slide and the Hole-in-the-Rock road, the route runs northwesterly 42 miles to its intersection with Utah Highway 12. This maintained, graded road is usable, except when wet, by two-wheel-drive vehicles, and goes through gently sloping, open terrain. Paralleling the Straight Cliffs to the west, the segment crosses several drainages including Collet Canyon and Cottonwood Wash.

Following paved Utah Highway 12 for 22 miles, the next portion ends at Boulder, having crossed the Escalante River and Calf Creek. Over half of the existing alignment is substandard and would require improvements.

The next 65 miles follow a maintained, graded road southeasterly between Boulder and Utah Highway 276. The route crosses Long Canyon, Muley Twist Creek, the switchbacks of the Burr Trail in Capitol Reef National Park,

The extension of the NRA boundary to Mexican Hat with facilitated management of river-floaters by the National Park Service also has been rejected. Instead, a joint management plan for the San Juan River will be developed by the NPS and BLM based on the current management jurisdiction and administrative boundaries.

E. Lakeside Boundary Alternatives for the Natural Management Zone (Including Wilderness, if Designated)

1. Description

a. Boundary coincident with the level of Lake Powell

This DES alternative would align the lakeside boundary of the Natural Zone (including Wilderness, if designated) with the level of Lake Powell, wherever that happened to be.

b. Boundary coincident with the highest attained level of Lake Powell

This DES alternative would align the lakeside boundary of the Natural Zone (including Wilderness, if designated) with the highest attained level of Lake Powell, wherever that happened to be. For example, if the lake were to rise to elevation 3,700 feet and then remain permanently below that level, the boundary of the Natural Zone would be that elevation, irrespective of the fluctuation of the reservoir (below this level).

c. Boundary coincident with the maximum pool elevation of Lake Powell (3,711 feet)

This DES alternative would align the lakeside boundary of the Natural Zone (including Wilderness, if designated) with the maximum pool elevation of the lake--the elevation of the spillways (3,711 feet).

d. Boundary coincident with the withdrawal proposed by the Bureau of Reclamation

This DES alternative would align the lakeside boundary of the Natural Zone (including Wilderness, if designated) with the boundary of the withdrawal proposed by the Bureau of Reclamation (DES Map 14).

2. Impacts

The lakeside boundary alternatives influence to varying degrees (1) the identifiableness of the Natural Zone boundary, (2) the ease of enforcing regulations in the Natural Zone, (3) the protection from disturbance of areas unflooded but subject to inundation (below 3,700 feet), (4) the protection from disturbance of areas in the Natural Zone, and (5) the authority of the Bureau of Reclamation to install pumped storage hydroelectric facilities on the shore of Lake Powell. These relationships are portrayed in Table 28. For each of the three zoning possibilities (the final proposal and Alternatives A and B), the boundary alternatives produce the same impacts; only the degree or intensity of the effect changes due to the length of the shoreline abutting the Natural Zone (most intense for Alternative A, least intense for Alternative B).

3. Decision

As previously described in Section II.A. and III. of the Plan the lakeside boundary of the Natural Zone and the Wilderness recommendation both are coincident with the fluctuating surface of Lake Powell. Ease in identification, both for management who must preserve the resource and for the visitor who would use it, was the overriding factor in making this decision.

F. The Road Study Alternatives

1. Background

Section 8 of the Glen Canyon enabling act (Item VII, Table 1) directs the Secretary of the Interior to conduct a study of proposed road alignments within and adjacent to the recreation area.

The Glen Canyon road study (Utah State Road Commission and National Park Service, undated) issued in October 1974 and conducted in response to this legislative requirement identified four feasible alternative corridors between Glen Canyon City and Bullfrog Basin. These alternatives, plus a no action alternative, are the subjects of this section.

Table 28. Impacts of alternatives for the lakeside boundary of the Natural management zone.

BOUNDARY ALTERNATIVE	ITEM AFFECTED				
	BOUNDARY	ENFORCEMENT	EXPOSED AREAS SUBJECT TO INUNDATION (below 3711')	ADJACENT AREAS IN NATURAL ZONE (above 3711')	WITHDRAWAL PROPOSED BY THE BUREAU OF RECLAMATION (Map 14)
Boundary coincident with the level of Lake Powell*	Readily identifiable	Greatly facilitated	Maximal protection from disturbance	Maximal protection from disturbance	Maximal conflict: Prohibition on the installation of pumped storage facilities
Boundary coincident with the highest attained level of Lake Powell	Generally identifiable: conspicuous "bathtub ring" left by high water on cliff faces and rock surfaces, remains clearly visible for tens of years; less noticeable on flat beaches, talus slopes, and sand piles	Generally facilitated	Not protected from disturbance	Subject to potential disturbance from activities on adjacent unprotected areas	Maximal conflict: prohibition on the installation of pumped storage facilities
Boundary coincident with the maximum pool elevation of Lake Powell	Entirely obscure (unless water were to reach this elevation extremely unlikely)	Hampered	Not protected from disturbance	Subject to potential disturbance from activities on adjacent unprotected areas	Some conflict
Boundary coincident with the withdrawal proposed by the Bureau of Reclamation	Entirely obscure	Hampered	Not protected from disturbance	Subject to potential disturbance from activities on adjacent unprotected areas	No conflict

* Because of the fluctuating water level and its effects on vegetation and geology, "the imprint of man's work" in some of the lands included in the Natural management zone (and Wilderness) would not be "substantially unnoitceable," one of several criteria for inclusion in legislated Wilderness (Appendix 12). However, wherever such lands will have been free from inundation for long periods (perhaps 15 or more years), an aspect of naturalness will prevail.

Table 29. Mileages[a] of road study alternatives.

ROUTE	ROAD CONDITION														
	PAVED			GRADED			PRIMITIVE			NONEXISTENT			COMBINED[b]		
	In NRA	Out NRA	Total	In NRA	Out NRA	Total	In NRA	Out NRA	Total	In NRA	Out NRA	Total	In NRA	Out NRA	Total
D – 1	5	0	5	38	7	45	4	17	21	45	11	56	92	35	127
D – 2	5	22	27	38	108	146	4	17	21	18	10	28	65	157	222
D – 3	5	71	76	6	107	113	0	0	0	0	0	0	11	178	189
D – 4	5	49	54	6	90	96	0	0	0	28	0	28	39	139	178
No-Road-Construction															
Northern Portion	6	354	360	0	0	0	0	0	0	0	0	0	6	354	360
Southern Portion	36	250	286	0	2	2	0	0	0	0	0	0	36	252	288

[a] Rounded off to nearest mile.

[b] Combined totals of paved, graded, primitive and nonexistent mileages for each alternative.

and Bullfrog Creek. This entire section is passable to two-wheel-drive vehicles except when wet. The last 6 miles correspond to the next-to-last segment of Route D-1. Major construction would be required coming down the steep Burr Trail, where a 1,100-foot drop occurs within 1-1/2 miles. Cuts and fills exceeding 200 feet would be required. Except for this segment, most of the graded road follows flat to gently rolling terrain. The last 6 miles of D-2 on Utah Highway 276 are the same as the last 6 miles of D-1.

c. Route D-3

As before, the corridor begins on U.S. Highway 89 at Glen Canyon City, but swings in a wide loop for 189 miles to Bullfrog Basin. Its construction would cost $34,300,000.00.

The first 10 miles follow U.S. Highway 89 westerly to this paved highway's intersection with the Cottonwood Canyon-to-Cannonville road, passing East Clark Bench over flat terrain.

The next 47 miles straddle the maintained, graded Cottonwood Canyon-to-Cannonville road, passable to two-wheel-drive vehicles except when wet. The terrain is generally gentle and smooth in slope.

Beginning in the small town of Cannonville is a 39-mile segment which extends northeasterly along paved Utah Highway 12 to its intersection with the Hole-in-the-Rock road. This route passes through the small towns of Henrieville and Escalante.

The remaining 93 miles to Bullfrog Basin are the same as the last 93 miles of alternative D-2. This consists of 22 miles of paved Utah Highway 12 to Boulder, 65 miles of graded road to Utah Highway 276, and 6 miles of Utah Highway 276 to the marina in Bullfrog Basin.

d. Route D-4

This corridor begins on U.S. Highway 89 at Glen Canyon City and proceeds in a roundabout way 178 miles to Bullfrog Basin. Its entire length is made up of various segments from the other three alternatives. This consists of 10 miles along U.S. Highway 87; 47 miles of graded road by Cottonwood Canyon; 39 miles along Utah Highway 12; 42 miles down the graded Hole-in-the-Rock road; the 28-mile corridor across the Escalante Canyon and Waterpocket Fold where no road exists; 6 miles along the graded road to Utah Highway 276; and finally the 6 miles down that highway to the marina at Bullfrog Basin. Its construction would cost $45,400,000.00.

e. No road construction alternative

The alternative consists of two routes which utilize existing paved roads that provide the shortest mileage between Glen Canyon City and Bullfrog Basin. None of the unpaved segments of the first four alternatives are included.

The northern route begins on U.S. Highway 89 at Glen Canyon City (DES Maps 6 and 46) and proceeds in a wide semicircle for 360 miles to Bullfrog Basin. The alternative utilizes 157 miles of U.S. Highway 89 (passing through Kanab and Panguitch), 45 miles of Utah Highway 62, 92 miles of Utah Highway 24 (through Torrey to Hanksville), 26 miles of Utah Highway 95, and 40 miles of Utah Highway 276 to the Bullfrog Basin marina.

The southern route also begins on U.S. Highway 89 at Glen Canyon City (DES Maps 6, 48, and 49) and continues in a wide semicircle for 288 miles to Bullfrog Basin. The route consists of 16 miles of U.S. Highway 89 to Page, 63 miles of Arizona Highway 98, 32 miles of U.S. Highway 160, 50 miles of U.S. Highway 163, 25 miles of Utah Highway 261 (all of which is paved except 2 miles), 62 miles of Utah Highway 95, and 40 miles of Utah Highway 276 to the Bullfrog Basin marina. This last segment coincides with the final 40 miles of the northern route.

4. Impacts

a. Impacts on the natural environment

The following account is based upon a mile-by-mile reconnaissance (Welsh and Murdock 1975) of the natural environment traversed by the four road construction alternatives. It is merely a survey of the significant features of the natural environment that would be affected by the alternative corridors; it is not intended as an exhaustive, quantitative treatment of the subject. Such an analysis would be contingent upon additional funding. Within the available time and budget, the survey pointed up

those aspects of the natural environment that would require more intensive investigation at a later date.

The discussion contains two sections: (a) a mile-by-mile description of both the natural environment and the various impacts upon it for each of the alternative corridors and (b) a general statement on the magnitude and importance of the various impacts. A summary of adverse impacts and mitigating measures appears on DES Maps 45a-d.

Section 1: Mile-by-mile description of the natural environment and the impacts upon it

ROUTE D-1

From mile 0.0 at Glen Canyon City to 0.7 the route drops off a plateau covered by windblown sandy alluvium and dominated by mixed shrub vegetation of blackbrush, ephedra (Mormon tea), and Indian ricegrass. The margin of the plateau exposes portions of the Entrada and Dakota formations. Locally, portions of the Morrison and Carmel formations are exposed along the west slope of Wahweap Creek, which the road crosses at mile 0.71. Soils along the right-of-way are stable, except locally, where shifting sandy pockets would cause minor problems. Impacts to the natural environment in this section would be minimal.

The route leaves Wahweap Creek at mile 0.71 and passes from an alluvial bottom dominated by the weedy shrub tamarix (saltcedar) and salt grass onto the saline clays of the Tropic shale. The Tropic shale overlies the sandy Salt Wash member formation. In some places the Salt Wash member is missing entirely and the Dakota lies directly on the Escalante member of the Entrada formation. None of these formations, all of which are present between mile 0.74 and 7.00, are densely vegetated. Vegetation of a perennial or woody type is widely spaced and in some places appears to be lacking altogether. Vegetation on the Tropic shale is sparse or lacking, and, hence, soil stability is very poor. The barren appearance of this shale is deceiving, however, because in years when precipitation is plentiful, the Tropic shale supports a luxuriant vegetation of annuals, biennials, and perennials that can tolerate the saline clay soils. Stable roadbed conditions in this section are to be found only on the surface of the Dakota and the formations below it. The Tropic shale is exceedingly fragile and subject to accelerated sheet and gully erosion. The clay soils derived from it take up water only slowly, causing almost all the water from summer storms to run off. Boulders up to several feet in diameter have been moved by sheet action along the surface of the Tropic shale as a result of the head of water developed in the space of a few hundred feet from the base of the adjacent plateaus. Placing the alignment along the south edge of the Tropic shale, on the Dakota, would allow crossings of the drainages by bridging and would lessen the possibility of the road being buried by alluvium where drainages were shallow. There are sections of the Tropic shale clothed by a mantle of pediment materials of varying thicknesses; these sections could be crossed by roads if cuts did not expose the Tropic shale beneath.

From mile 7.0 to 12.8, where the route drops down into Warm Creek, the alignment follows the same type of soils and vegetation as described above. Vegetation on the Tropic shale is dominated by the mat saltbush community where any woody vegetation exists at all, and where a pediment of Straight Cliffs materials covers the shale, by shadscale and budsage.

At mile 13.2, the route crosses Warm Creek where it is entrenched into the Entrada formation. The streamside vegetation is similar to that at Wahweap Creek.

From mile 13.2 to the crossing of the Little Valley tributary of Last Chance Canyon (mile 37.8), the alignment is over Mancos shale, Dakota, and Morrison formations. Vegetation, soil stability, and problems of erosion are similar to those noted above. Two endemic plant species are known to occur on the Tropic shale in this segment of the proposed route: a little sunflower, and the Nipple-bench phacelia. Major drainages in this portion support streamside vegetation dominated by tamarix and salt grass.

The route on the east side of Little Valley passes over the surface of a gentle anticline. The stratum exposed on the surface is mostly the resistant Salt Wash member of the Morrison formation, with some scattered remnants of the Dakota. The surface is relatively stable with regard to erosion potential. Vegetation, dominated by shrubs, is generally sparse. Blackbrush and pinyon-juniper/blackbrush communities dominate from mile 37.8 over the anticline that forms the northern end of Grand Bench. A

narrow neck of land separates the head of Little Valley from the head of Rock Creek. Alignment would have to follow this elevated structure, and in some places the entire width of the neck would be occupied by the roadway. The neck is situated between miles 45 and 48. Substrate consists of the Salt Wash member of the Morrison and Escalante member of the Entrada.

The Salt Wash member of the Morrison exposed atop Grand Bench contains substantial fossilized wood, mainly gymnospermous trees. Some of these fossils are of large size, and some are in near vertical position. Road alignment would avoid the most pronounced of the exposed fossil beds.

The neck of land widens at about mile 48.0 where it joins the main mass of land of the Kaiparowits Plateau proper. Between mile 49.0 and 51.5, the road passes upward in the geological section, traversing the shaly and sandy members of the Dakota and onto the Tropic shale. From about mile 50.0 to 51.5 the road climbs steeply up the slope of the shale and onto a benchland of colluvial Straight Cliffs detrital materials that clothe and obscure the underlying Tropic shale at all places except where drainages are entrenched through. The alignment from mile 50.0 to 51.5 is through a very critical site with regard to stability. The roadway would pass from the relatively stable formations preceding mile 50.0 onto the poorly consolidated Tropic shale. Wherever cuts have been made into steep slopes of this or similar shales, as at Mesa Verde National Park, slumpage of the roadbed has occurred. Plant communities from mile 48.0 to mile 51.5 reflect the variation in substrate. The Salt Wash member is vegetated like that on Grand Bench, but where the Tropic shale crops out, the vegetation is dominated by mat-atriplex.

From mile 51.5 to mile 52.4 the roadway is over relatively flat benchland through large boulders of Straight Cliffs colluvium. The region is stable and is not subject to the kind of erosion encountered on the Tropic shale. Vegetation is pinyon and juniper with an understory of blackbrush. Between mile 52.4 and 52.9, the route crosses two large drainages, entrenched into the Tropic shale. These drainages and other similarly entrenched stream channels would be bridged rather than filled. Slumpage of the Tropic shale is the main problem here.

There are many other such entrenched drainages between mile 52.9 and mile 77.0 in the vicinity of Fiftymile Point, where the route passes onto an even more stable benchland along the east side of Fiftymile Mountain.

The entire route between mile 52.9 and 77.0 is in a pinyon-juniper community with understory of blackbrush or open patches of big sagebrush. Sightings and well-beaten trails indicate that deer congregate along this benchland in winter. Evidently, the deer travel from the dry bench areas downward into the sandstone basins along the margin of the canyons draining into Lake Powell, possibly in search of water, but perhaps also for additional browse. Impacts to the deer herd would result from roadkills and increased accessibility for hunters. These same factors could also occasionally remove individuals from the populations of cougar, bobcat, coyote, fox, and badger that utilize the area.

The region from mile 52.9 to 77.0 is known to support the narrow endemic plant, the Kaiparowits milkvetch, first collected here in 1934. The rare plant is known from the Kaiparowits Plateau only and is restricted to the plateau summit and its benchlands. The route along the south flank would reduce the range of this plant slightly, but would probably not form a serious threat to its existence.

From mile 77.0 to 81.0 the route is over a broad benchland of colluvial soils derived from the Straight Cliffs formation. The bench is dominated by mixed communities of juniper, pinyon, and big sagebrush, and by large parklike expanses of big sagebrush. The alignment is over stable substrate, with few or no major incised drainages to cross. Impact would be kept at a minimum by use of water-spreading techniques and by construction and grading of minimum width right-of-way. This same practice (i.e., water-spreading) would alleviate road maintenance problems in the preceding section of road also, and rights-of-way would be constructed or graded no wider than is absolutely necessary for building of the roads.

At mile 81.0 the route begins its descent down Sooner Slide, a more or less stable deposit of colluvial materials which cover over the Dakota, Entrada, and portions of the Carmel formations down to the Carmel-Navajo platform, which controls topographic features along the east side of Fiftymile Mountain. The slide itself is

dissected by entrenched stream drainages and is occupied by the switchbacks of an existing road. The juniper-pinyon woodland forms a boundary with blackbrush and other desert shrubs. These latter continue downwards to the junction of Route D-1 with the Hole-in-the-Rock Road at mile 86.1.

Grazing by domestic livestock does not take place throughout the whole year, and some portions are set aside for fall, winter, and spring grazing and others for summer grazing. The top of Fiftymile Mountain is grazed in summer only, while the low elevation stretches are grazed in the fall, winter, and spring months. Unless the rights-of-way are fenced, there should be little change in quantity of feed available or in the animals' access to it. However, the possibility of highway losses would increase substantially.

From mile 86.1 to mile 91.7, where the route crosses the Escalante Canyon, the vegetation is mainly mixed desert shrubs dominated by blackbrush, ephedra, and Indian ricegrass. Scattered juniper and pinyon with understory of blackbrush dominate wide expanses in the region. Where the Navajo sandstone is capped by remnants of the Carmel formation, the shrub blackbrush dominates. Construction in this vicinity would be through stable substrate, except where local areas of sand could blow out.

From about mile 92.0 the road climbs to the summit of the Waterpocket Fold at about mile 101.0. The route is over Navajo sandstone, except locally near the summit, where it might pass onto portions of the Kayenta platform exposed in some of the drainages. Vegetation is dominated by blackbrush, and by scattered juniper and pinyon communities. Dense patches of blackbrush occur on some isolated remnants of the Carmel formation.

From mile 101.0 the route drops down the east flank of the Waterpocket Fold on Navajo sandstone to about mile 104.0 or 105.0 where it follows along the contact between the Navajo sandstone and the Carmel formation. The Navajo sandstone is lightly clothed with pinyon-juniper/blackbrush, while the Carmel is densely clothed, mainly by blackbrush. In this segment of the route, there are numerous crossings of drainages entrenched into the sandstone. These contain permanent ponds of water and some of them have flowing water. Vegetation in them is typical of streamsides in the region, but only a few regions in the Southwest have so many communities of this type in such a small space. Most of these would be bridged with little or no damage to the communities in them.

Beginning at about mile 105.0 the route passes onto the Carmel formation. This is a sandy siltstone, apparently resistant to erosion. The route follows along this formation dominated by blackbrush to about mile 109 where it encounters the alluvial terraces of the streamside supporting trees of Fremont poplar and numerous shrubs and grasses.

After crossing Halls Creek at about mile 109.5, the route passes over the alluvial terraces on the east side of Halls Creek valley, passing through a cut to the summit of Halls Mesa at mile 109.8. The Carmel, Entrada, Summerville, and Morrison formations would be traversed by the cut. These formations from the east wall of Halls Creek valley are very lightly vegetated. The summit of Halls Mesa is capped by the Brushy Basin member of the Morrison formation and is clothed by widely spaced shrubs of blackbrush.

From mile 114.2, the intersection with the graded road to Utah Highway 276, Route D-1 continues along this road and the highway to its terminus at the Bullfrog Basin marina at mileage 127. No new road alignments would be required.

ROUTE D-3

The first 10 miles are along U.S. Highway 89 where no construction would be required. The analysis as described and shown on DES Map 45c begins at the intersection of this highway and the Cottonwood Canyon to Cannonville graded road.

From mile 0.0 to 1.0, the route passes through a grassland on alluvium overlying the Entrada sandstone. The grasses are mainly Indian ricegrass, sand dropseed, and galleta. This substrate is stable, and with care not to disturb the grassland too badly by construction, there would be little problem with erosion. The soil, however, is subject to severe sheet and gully erosion, as indicated by the experience of the past 3 years along the East Clark Bench portion of U.S. Highway 89. High intensity storms, exceeding the capacity of culverts along the highway several times and at several different places in that

period, have buried the road with up to a foot of sandy alluvium for as much as a half mile at a stretch.

The region from mile 0.0 north to mile 27.0 is grazing land for antelope. These animals graze the entire region from the Paria River east to Wahweap and beyond. The section is also utilized for the grazing of livestock.

At about mile 1.0 the route passes over the gently dipping beds of the Escalante member of the Entrada sandstone, Salt Wash member of the Morrison formation, and the Dakota formation. The caprock of the Dakota forms a gently sloping plain over which the present road runs until it is forced by entrenched drainages to cross the line of contact of the Tropic shale, which it follows to about mile 5.6, where the road drops down onto a river terrace and alluvial fan complex. The Dakota is stable and occupied by a shadscale-budsage vegetative type. The Tropic shale is unstable and clothed with mat-atriplex, where any woody vegetation is present at all.

From mile 5.6 to 6.4 the route crosses a small segment of the Tropic shale and passes over the alluvial fan-terrace complex associated with drainages from the adjacent Tropic shale and the terrace materials from the Paria River, which the route now parallels. This section is quite stable, except for the Tropic shale portion. Vegetation is composed mainly of greasewood and seepweed.

From mile 6.4 to about mile 12.0 the route is in conflict with steep slopes of Tropic shale and Straight Cliffs colluvium on the east side and the stream channel of the Paria River on the west side. The existing roadway has lost the struggle in practically every major storm. The road is frequently buried by boulders, covered by materials from minor drainages, or simply washed away by the Paria River. Substrate is unstable; vegetation on dry slopes is very sparse, and that in the stream channel is dominated by tamarix, with Fremont poplar occupying the most stable terraces.

The route from mile 12.0 to mile 27.0 passes along the strike valleys on the east side of the plunging Navajo sandstone formation. The resistant silts, muds, clays, or shales form one of the most striking geological displays in southern Utah. Choices of sites for alignment of Route D-3 are limited to the strike valley between the Navajo and Entrada formations, or to the valley between the Dakota and the Straight Cliffs. Cottonwood Creek, restricted to the valley between the Navajo and the Entrada, is entrenched through most of its length in the alluvial valley fill, which shows at least two major cycles of downcutting and base leveling. The route along this valley would have to compete with the stream course for room, requiring realignment of the stream course and special care in consolidation of that course to prevent destruction of the road during flood periods. The possible alignment through the other main strike valley would be along the contact between the Dakota caprock and the base of the Tropic shale. Problems with that alignment involve the unstable nature of the Tropic shale and attendant problems of silting over of the alignment during high intensity storms.

Near mile 24.0 the road leaves the route of Cottonwood Creek proper. The stream course in that section is entrenched into a narrow defile in the Navajo sandstone. Where it enters the sandstone, near the head of Cottonwood Canyon proper, there exists a remarkably beautiful area of colorful, grotesquely eroded knolls, spires, and pedestalled rocks. This area would be avoided by building a bypass in the Tropic shale strike valley that lies to the east of the head of Cottonwood. Beyond the head of Cottonwood Canyon, the road passes in a northwesterly direction to Cannonville at mile 46.7. There are no major problems in this section, either with stability or natural communities.

At mile 46.7 the route joins with the existing State Highway 12, which it follows to Escalante. Between Cannonville and Escalante, with minor exceptions, the road is on alluvial terraces or fan materials from adjacent canyons; vegetation is mostly big sagebrush and greasewood. No major impacts are anticipated. Since livestock operations are fenced where property is privately owned, livestock losses due to roadkills would be unlikely. Deer would suffer in direct proportion to the increase in traffic, unless fences were constructed. Such fences, however, could result in a greater ultimate loss because of restriction in migration pathways.

At Escalante stability of substrate and other features of the road eastward to Boulder is good. Vegetation is mixed pinyon-juniper woodland, shrubland, and grassland. Main concern involves impacts due to realignment

of the road from the crossing of the Escalante River northward along Calf Creek. This section is one of great beauty, and every effort would be made to keep from modifying this scenic section.

At Boulder, mile 107.9, the route leaves the existing state highway and follows east along a secondary road to the head of Burr Trail at about mile 140. Main areas of concern from an environmental standpoint involve the portion of the route through Long Canyon (from about mile 117.4 to 124.6). Here the route is through a very narrow canyon. The alignment would have to compete for room with the drainage and talus slopes of Wingate colluvium. Near the upper end of the canyon, the route is over the Chinle formation. That formation has properties similar to the Tropic shale. It is very unstable, melting when wet, eroding by tunneling, and swelling. In addition, the formation is practically impossible to revegetate.

From the head of Long Canyon to the top of the Burr Trail, no major impacts would be anticipated. However, this part of the route is poorly known botanically. Since the principal formation in the vicinity is the Moenkopi, which harbors a large number of endemic plants, the section would be studied very carefully to avoid destruction of such local endemics.

Construction of the Burr Trail route would entail additional scarring of this section of the Waterpocket Fold. Extensive cuts and fills and a bridge-conduit carrying Muley Twist Creek over the road would exaggerate the span of the existing roadway.

From the base of Burr Trail at about mile 142.6 to this route's terminus at Bullfrog Basin, the road is over topography of moderate relief. Impacts on the environment would be greatly relieved in this section by developing the right-of-way on the sandstone formations, keeping away from the Tropic shale and the basal member of the Morrison formation. Vegetation in all of this section is dominated by shrubs or occasionally by grasses. The last few miles are on alluvium over Entrada sandstone.

PART OF ROUTES D-2 and D-4 (Hole-in-the-Rock road)

These two alternatives are modifications of D-1 and D-3 described above (Map 14). The only remaining segment is the 42 miles along the Hole-in-the-Rock road south of Utah Highway 12 (DES Map 45d).

From mile 0.0 to 3.7 the route is through scattered pinyon-juniper woodland over the Carmel formation. It is in this section of the route that the narrow endemic plant, the Barneby milkvetch, is encountered. The vicinity also supports two other milkvetches that reach the limits of their distribution here.

From mile 3.7 to 7.1 where the road crosses Cottonwood Wash, the route passes through a grassy parkland dominated by grama and galleta grasses in the openings and pinyon and juniper or alluvial flatlands. Where the route breaks from the benchland just north of Cottonwood Wash, juniper and pinyon become more important.

The stream bottom of Cottonwood Wash is occupied by a cottonwood-tamarix community. The route crosses Cottonwood Wash at an oblique angle, passing through the streamside plant community for about 0.2 mile.

The south side of Cottonwood Wash is also clothed with pinyon and juniper woodland. This vegetative type is important along the entire route only where drainages are entrenched into the Carmel or the Entrada formations.

Grama and galleta grasslands with scattered junipers dominate the route from mile 7.8 to about mile 15.0 where the road crosses Colletts Wash. Junipers occur with occasional pinyons in the breaks along both sides of this wash.

From mile 15.0 to near mile 18.0 the alignment passes through communities of blackbrush, blackbrush-Mormon tea-Indian ricegrass, and pinyon-juniper. Where alluvium over Carmel is quite thick, the grassland type dominates; grama and galleta grass form the main dominants between mile 18.0 and 20.0. From mile 20.0 to mile 30.0 the sandy ricegrass, blackbrush, and grama-galleta grasslands dominate. Between mile 30.0 and 42.0 the blackbrush community is the most important; however, Mormon tea, other shrubs, and many grasses are locally very important.

Section II: Discussion of the magnitude and importance of the impacts

a. Impacts on the natural environment

The plant communities located along the proposed route alternatives represent three of the most extensive vegetation types in the state of Utah. The pinyon/juniper woodlands occupy the uplands, benches, and mesa tops of high elevations, and the salt or cold desert shrub types occur on the saline bajadas and valley bottoms. The rather widespread southern Utah blackbrush type occupies a position intermediate between the warm desert, or Mohave desert, of northern Arizona and the cold desert shrub type of Utah. These major vegetation types along with rather limited sandy and usually saline streamsides constitute the twelve principal communities encountered in this region (DES Table 42). Marginal, endemic, threatened, or endangered species of plants are listed in DES Table 20.

The region included within the boundaries of the alternative highway routes is not known for an abundance of wildlife. The density of animals is generally quite low, although populations fluctuate both seasonally and cyclically.

There are at least 46 species of mammals indigenous to the region encompassed by the road study alternatives. In addition, the pronghorn antelope has been stocked as a game animal, and the usual domestic animals that accompany agricultural pursuits of men, including cattle, sheep, horses, dogs, cats, and burros, are present also.

Only a small number of mammals in the region can be thought of as either rare or endangered. Included within this category is the desert bighorn, known in the area from skulls found on the Kaiparowits Plateau and expected in the Waterpocket Fold. This animal is known to be declining in numbers. The river otter was probably never abundant, and Lake Powell may have eradicated its only suitable habitat. The ringtailed cat is a shy, elusive, nocturnal animal that occurs throughout the region. The propensity of this rare animal to live in areas occupied by man is well documented, and it would seem that road construction, use, and maintenance would have little effect on it.

Possibly of more concern than the rare or endangered animals are those classified as game animals and predators. The mule deer is the most important of the game animals. Most of the region encompassed by the road alternatives is included in portions of three game management units designated by the Utah Division of Wildlife Resources as units 51b, 52, and 60b. The units consist of more or less natural populations of deer and although there is some migration from one unit to the others, most of the members move about within their respective population boundary. Deer are not abundant in this region, except along the portion of the highway already in existence from Cannonville east to Boulder. Elsewhere, as in the pinyon/juniper community in the Waterpocket Fold and along the flanks of the Kaiparowits Plateau, the deer are concentrated in autumn and winter. Deer will migrate across roadways easily, even those provided with low fences. It seems probable that the greatest impacts on deer due to the highway would be those due to roadkills and to increased access to the region by hunters. The loss of deer by collision with automobiles will be more important in populations where numbers are low, assuming that the same number of animals were killed by collison in each of the management units. However, there is a tendency for roadkills to be proportionate to the population, and the effect is balanced to some degree.

Predators include the cougar or mountain lion, coyote, red fox, gray fox, badger, and bobcat. Except for the mountain lion, which is considered to be a game animal and protected under law, and the bobcat whose population is unknown but believed to be declining in Utah, none is considered either rare or endangered. Impacts due to highway construction and utilization would be of the same type and nature as those for deer. The same is considered to be the case for the smaller predators such as the ringtailed cat, long-tailed weasel, striped skunk, and spotted skunk.

Both jackrabbits and cottontails are present in the region, their numbers varying seasonally and cyclically. There is also local variation in the population sizes. Roadkills would have little effect on these populations because of the propensity of the animals to increase in numbers very rapidly. Although some of the rodents, like the long-tailed pocket mouse and the intermediate pocket mouse, are at or near the margins of their ranges, none are known to be truly rare, and most are widespread in the region generally.

Species of reptiles in the region are widespread, although a few are abundant only in restricted areas. The western chuckwalla approaches the limits of its distribution in the vicinity. The plateau night snake is rare, and its distribution is only poorly known. The region is a meeting ground for several subspecies of rattlesnake, but these have been so poorly sampled that their distribution is not well understood. Rattlesnakes are not common in the region, and it seems likely that these animals would suffer a greater adverse effect than most of the reptiles. The impact would be due to increased contact with humans (snakes, especially rattlesnakes, are killed by people when other animals are left alone) and roadkills.

Amphibians are represented by only a few species. These are confined to sites where water is available for breeding and for production of young, although individuals of several species may be found long distances from open water at night. The animals burrow into moist soil during the day, escaping the dessicating heat. The road routes encounter few amphibian habitats; reduction of habitat as a consequence of road construction would be very minor. The canyon tree frog is near the margin of its distribution in the vicinity, but highway construction should not affect its population size or its distribution.

Because the birds of the area belong to species with broad distribution, the roads would cause very little if any change in their populations. None of the species of birds that have shown declines in recent years are known to nest near any of the road corridors. The peregrine falcon, bald eagle, and golden eagle are winter residents or transients. Although many hawks and owls use the region for nesting, road construction would have little effect on their populations.

SOURCE

Welsh and Murdock 1975.

b. Impacts on access and circulation

(1) Road construction alternatives

Data in the following discussion are summarized in DES Table 43.

(a) Routes from Wahweap to Bullfrog Basin

Route D-1 would obviously facilitate travel between these two places (Map 14). (Access to Hole-in-the-Rock from both of these places would also be facilitated.) Over paved roads in Utah (route labeled "via existing paved roads," DES Map 46), the distance between these two points is 374 miles, over paved roads in Arizona and Utah 278 miles (not labeled but also present on DES Map 46). Use of Route D-1 would very substantially reduce this distance (to about 141 miles); via Route D-3 the distance would be 203 miles. Over Route D-2 the distance would be 236 miles, by Route D-4 192 miles. Although travel between Wahweap and Halls Crossing, utilizing the existing Halls Crossing auto-ferry, would be similarly facilitated, the ferry would not be able to meet the demands of steady traffic, because it has a one-car capacity and operates only under conditions of absolute calm. The distance over paved roads between Halls Crossing and Bullfrog Basin is 139 miles (Highways 263, 95, and 176, DES Map 48).

(b) Routes from St. George

Visitors arriving from the west through St. George, Utah, travel 147 miles (over paved roads) to reach Wahweap, 349 miles to Bullfrog Basin (DES Map 46). Use of Route D-1 would reduce the distance to Bullfrog Basin to 260 miles, shortening it by 89 miles. Route D-2 would make the distance 6 miles longer than over existing paved roads. Route D-3 would be 42 miles shorter, and Route D-4 58 miles shorter. (If the 65 miles of graded road between Boulder and Utah Highway 276--a portion of Alternative D-3, DES Map 46--were paved, the distance via paved roads between St. George and Bullfrog Basin would be reduced to 264 miles--via Highways 15, 89, unlabeled connector, and 12, DES Map 46. This would shorten the drive over existing paved roads by 85 miles and would be only 4 miles longer than via Route D-2).

(c) Routes from Salt Lake City to Wahweap

Travelers now drive 368 miles over paved roads between these two places (DES Map 47). Use of any of the four alternatives would lengthen the trip by 89 to 184 miles. However, use of part of Route D-3 (the 47 miles through Cottonwood Canyon) would reduce the distance to 336 miles, a difference of 32 miles. Paving of the 34 miles of graded road between Torrey and Boulder (now under construction, DES Map 6) and the 47-mile Cottonwood Canyon portion would make the trip 371 miles (compared to 368 miles via Highway 89).

(d) Routes from Salt Lake City to Bullfrog Basin

Salt Lake City visitors make a 342-mile trip over existing paved roads (DES Map 47). Use of any of the four alternatives would lengthen the trip from 139 to 234 miles. Construction of the 34-mile stretch between Torrey and Boulder (DES Map 6) and the 65-mile portion of Route D-3 between Boulder and Utah Highway 276 (Map 14) would decrease this distance by some 32 miles to 310. Construction of a new 38-mile road between Fremont Junction and Utah Highway 24 and paving of the 66 miles of graded road, both along the east side of Capitol Reef National Park (DES Map 6), would cut the distance from Salt Lake City to Bullfrog Basin to 28 miles, 6 miles shorter than now possible over existing paved roads.

(e) Routes from Flagstaff to Wahweap

The distance between these areas is 138 miles (DES Map 48). Use of other routes (existing or proposed) would be highly impractical.

(f) Routes from Flagstaff to Bullfrog Basin

This distance is 325 miles over paved roads (DES Map 48). By way of Highways 89, 62, 24, 95, and 276, it is 508 miles. Using the Halls Crossing ferry, it is 276 miles. Over Route D-1 the mileage would be 275, over D-2 370, D-3 337, and D-4 326 miles.

(g) Routes from Grand Junction to Wahweap

Over roads in Utah and Arizona the distance between these areas is 380 miles. By way of Highways 70, 24, 62, and 89 the distance is 474 miles. Use of Route D-1 would decrease the distance to 361 miles, a saving of 19 miles over the shortest existing paved route. Use of the other alternatives would lengthen the distance by 32 to 76 miles.

(h) Routes from Grand Junction to Bullfrog Basin

The shortest distance between these places (over paved roads) is 232 miles (DES Map 49). Via Highways 128 (on Map 6), 163, 261, 95, and 276, the distance is 314 miles. Use of any of the four alternatives would not improve travel between these locations; in fact it would greatly increase.

(2) No road construction alternative

Travelers between Wahweap and Bullfrog Basin would continue to make either the 278-mile drive through Arizona and Utah (over Highways 160/163, 261, 95, and 276, DES Map 46) or the 374-mile drive over Highways 89, 62, 24, 95, and 276 (labeled "via existing paved roads," DES Map 46). From St. George, visitors to Wahweap would travel 147 miles; to Bullfrog Basin the distance would be 349 miles over Highways 89, 62, 24, 95, and 276, or 421 miles over Highways 160/163, 261, 95, and 276. From Salt Lake City, the distance to Wahweap would be 368 miles over Highway 89 (DES Map 47), 342 miles to Bullfrog Basin over Highways 24, 95, and 276. From Flagstaff, visitors would travel 138 miles to Wahweap (DES Map 48), 325 miles to Bullfrog Basin (labeled "via existing paved roads," DES Map 48). From Grand Junction, the drive to Wahweap would be 380 miles (labeled "via existing paved roads," DES Map 49), and 232 miles to Bullfrog Basin.

c. Impacts on the recreational experience

Most water-oriented recreationists visiting Lake Powell spend their vacation or long weekend at one of the major developed areas, either utilizing overnight facilities and making day excursions on the lake, or leaving

their cars and trailers behind and camping on the lakeshore. Days, if not weeks, can be spent exploring or fishing within average boat range of a particular developed area without covering the same shoreline twice. Since the lake provides the water-oriented visitor with an excellent highway for moving between the Wahweap and Bullfrog developed areas, there would appear to be few advantages of facilitating movement between these two sites--over any of the alternative routes. However, the Bullfrog area, by virtue of its central location on Lake Powell, probably offers greater opportunities than Wahweap for diverse lake experiences (boaters can go north or south in search of things to see and do). In addition, the Wahweap area, lying on a through-route and receiving both large numbers of visitors from southern California and weekend use from the city of Page, suffers from more frequent and more intense congestion than the lake's other areas. For those visitors who wished to utilize the Bullfrog rather than the Wahweap area, to which they might presently be restricted because of too great overland distances, a direct overland link between these two locations, particularly Route D-1, would be a boon. There is no apparent reason why a water-oriented recreationist out of Bullfrog would want to transfer to Wahweap, since Bullfrog's land-based recreational opportunities and amenities are, or soon will be, essentially the same as those of Wahweap.

For the hiker, hunter, and backpacker, Route D-1 would facilitate access to some currently very isolated areas: the benches and top of the Kaiparowits Plateau (an arduous hike to its summit would still be necessary), the upper Rock Creek drainage, and the southern Waterpocket Fold. The potential for increased opportunities for motorized forms of recreation, such as four-wheel-drive touring and trailbiking, would be created, although such activities would probably be prohibited in these areas. All of these recreational experiences would remain unchanged by the other road alternatives, where roads already exist.

Routes D-1 and D-4 would have a significant adverse effect on the experience of the hiker and backpacker down in the Escalante canyons. This is primitive country (see DES Appendix 11), requiring some considerable effort to experience; isolation and remoteness from the sights and sounds of civilization are two of its primary attributes. The sight, sound, or mere knowledge of a highway passing through the heart of the area would seriously degrade the experience of the recreationist down in the canyons, an experience providing a place "safe" from the extensions of the behavioral roles and relationships of urban society. An essential ingredient of the experience is that formal avenues of entrance into the area not be present, for access to the area is access to the person in the area. To experience the unlacing of urban roles and relationships requires detachment and inaccessibility. Even paths and trails, much less roads, serve, in fact, to tie the Wilderness user to that which should terminate at the Wilderness boundary.

For the windshield tourist, Routes D-1 and D-2 would offer spectacular views of Lake Powell, Navajo Mountain, the Escalante drainage, Waterpocket Fold, and the Henry Mountains beyond. In fact, the view from Spencer and Navajo Points is probably as striking as any other in the conterminous United States. The scenery from Routes D-3 and D-4 would not be as outstanding, although Cottonwood Wash and the crossing of the Escalante River would certainly make for impressive viewing.

To the extent that the four road construction alternatives would facilitate travel between various destinations (as discussed in section b above), they would augment the number of tour-route options in south-central Utah, enriching the experience of visitors touring and vacationing in this part of the state. The alternatives would decrease backtracking and roundabout detours in reaching various recreational objectives. A glance at a state highway map would reveal these opportunities, too diverse to enumerate here.

d. Impacts on resource management

By making accessible areas that are now highly inaccessible, Route D-1 could potentially increase resource management costs for the National Park Service and the Bureau of Land Management. Additional personnel and equipment would be needed to patrol and maintain areas that now are very infrequently visited. In particular, the archeological resources of the Kaiparowits Plateau and Escalante drainage (see Section III.A.10. of the FES) and the management of livestock, which could use the road to roam quite widely, would require greater attention than they now receive. No estimates of the additional costs are available at this time.

e. Impacts on archeological and historic resources

Route D-1, passing through two known zones of high concentrations of archeological resources (see Section III.A.10. of the FES), could threaten the integrity of these resources by rendering them far more accessible and vulnerable to looting and vandalism than at present. Routes D-2, D-3, and D-4 would subject archeological resources along their paths only to increased threat of disturbance, since existing roads already bring people into their proximity. Nine known archeological sites occur along Route D-1, 66 along D-2, 11 along D-3, and 51 along D-4. (The precise locations of the sites are not given for reasons of security.) Although some may qualify, none of the sites are on, or have been nominated to, the National Register of Historic Places. Because the area of the road corridors has been very incompletely surveyed (the Glen Canyon Archeological Survey was restricted primarily to the proposed floodpool areas), the lack of known sites in any given corridor reflects the pattern of the original survey rather than the distribution of the archeological remains. Accordingly, it is not safe to assume that no sites are present in a given area just because none have been reported. In fact, the general areas of the alternatives are rich in archeological remains.

It is not likely that paving the Hole-in-the-Rock road will adversely affect the Davis Gulch pictograph panels, a National Register property. The panels, some 3.5 miles from the road, are accessible from it only by an arduous hike. Construction itself will destroy or disturb any archeological remains in the corridors themselves and in areas disturbed by associated activities. Alterations in erosion patterns in the vicinity of the roads may contribute to the deterioration of sites. Those remains visible or accessible from the roads will be susceptible to visitor use, and concomitant wear and vandalism. Noise, vibrations, and exhaust fumes, out of character with the sites, may hasten their destruction.

Any of the roads, particularly Route D-1, would facilitate access for research and preservation activities.

Of the four road construction alternatives, Route D-3 would have the smallest adverse effect on cultural resources, Route D-1 the largest.

SOURCES

1. Dibble 1959a.
2. _____1959b.
3. _____1959c.
4. Kay 1973.

f. Impacts on the socioeconomic environment

Tables 30 and 31 summarize the socioeconomic impacts resulting from the construction and use of each of the road study alternatives.

Like the impacts on the natural environment, the conclusions represent only a survey of significant socioeconomic effects expected in the communities situated along the various routes. Of course, through the association of localities and counties, countywide effects may also be identified from the two tables. As before, the findings are not intended as an exhaustive, quantitative treatment of the subject; such an analysis would be contingent upon additional funding.

Erratic population changes would occur as construction got under way and work crews were recruited and took up temporary residence. In this sparsely settled area with periodically high unemployment (Figure 1), commuter times of 1 to 2 hours might readily be tolerated by the labor force, potentially decreasing the magnitude of these changes by diffusing the local impacts of hiring throughout a wider region. Labor force participation rates in 1970 were significantly below the state rate for the four Utah counties. Increased job opportunities could result in more entrants to the local labor force; thus, a larger supply of potential workers. The mix of imported to local labor cannot be predicted. The extent to which "outside" labor forces would be recruited would depend on the economy of the local area and the time of year that recruitment began (because local unemployment is highly seasonal). Nearby urban population clusters are not adequate indicators of available labor pools because of the high percentage of rural non-farming residents.

Table 30. Expected changes in number and expenditures of tourists* resulting from the use of one or another of the four road-construction alternatives. Expectations are for the year 1985.

COUNTY	ROAD-CONSTRUCTION ALTERNATIVES							
	D–1		D–2		D–3		D–4	
	Change In Number of Tourists**	Change In Tourist Expenditures** ($)	Change In Number of Tourists**	Change In Tourist Expenditures** ($)	Change In Number of Tourists**	Change In Tourist Expenditures** ($)	Change In Number of Tourists**	Change In Tourist Expenditures** ($)
GARFIELD	49,600	300,600	55,500	336,300	55,100	383,900	25,000	151,500
KANE	30,300	183,600	34,500	209,100	34,300	207,900	16,400	99,400
SAN JUAN	1,500	9,100	–3,700	–22,400	–1,800	–10,900	2,500	15,200
WAYNE	8,600	52,100	3,800	23,000	2,400	14,500	3,900	23,000

* Source: Brown and Vlachos 1975.
** Over 1985 projections (Table 9) without the road-construction alternatives.

Effects on the local economy are complicated by uncertainty about the expenditures in the region for construction material and other goods and services. Intermittent private and federal expenditures have had cumulative and significant effects on the local area, especially Page (DES 75-43, Bureau of Land Management 1975, Vol. II., pp. 368ff). The future pace of federal and private activity in the area cannot be predicted.

The lack of facilities and population centers would require field campsites to be established at intervals, probably between 30 and 40 miles. There would be considerable variation in construction crew life-styles and methods of coping with the hardships that would accompany construction in this area. Few families would come to the area, because of its general underdevelopment and limited educational and health care services. Some workers would have their own trailers and would live near the site, moving as the job advanced. Others would attempt to commute to settlements where they could get housing. Many would elect to work long periods, commuting to larger nearby cities (mainly in Arizona) for relaxation during extended periods off the job.

Labor turnover would vary according to the availability of alternative, perhaps more permanent, employment in fixed site construction. All of these factors complicate the prediction of where and how severely the effects of highway construction would change the existing social and economic conditions. Labor camps would undoubtedly be located in a variety of places, the locations depending on access to water, sewage treatment facilities, and entertainment opportunities (in approximately that order).

Once tourist traffic developed, any existing out-migration would decrease as tourist-related service industries drew upon local labor. Some new in-migration and settlement, both temporary and permanent, would also occur. The net effect would increase population over current estimates.

Urbanization would occur as additional building activity and population growth concentrated in areas already settled. Larger communities would tend to grow faster than smaller communities due to the tendency for people to seek out the benefits of more highly developed social and economic resources. It should be kept in mind,

Table 31. Summary of socioeconomic impacts of the road-construction alternatives, by locality. (See notes following.)

Locality	Alternative	Phase[1]	Net Temporary Increase in Population	Decrease in Out-migration	Increase in In-migration	Decrease in Unemployment	Increase in Construction-related Expenditures	Increase in Land Speculation	Increase in Development, Urbanization	Increase in Noise and Congestion	Decrease in Quality of Municipal Services	Decrease in Community Cohesiveness	Increase in Tax Revenues	Decrease in Availability of Housing
Glen Canyon City[2]	D-1	A	X		X	X	X	X		X	X			X
		B	X		X	X			X	X	X		X	X
	D-2	A	X		X	X	X			X	X			X
		B	X		X	X			X	X	X		X	X
	D-3	A												
		B	X		X	X			X	X	X		X	X
	D-4	A												
		B	X		X	X			X	X	X		X	X
Page[2]	D-1	A	X		X	X	X	X		X	X			X
		B	X		X	X			X	X	X		X	X
	D-2	A	X		X	X	X			X	X			X
		B	X		X	X			X	X	X		X	X
	D-3	A												
		B	X		X	X			X	X	X		X	X
	D-4	A												
		B	X		X	X			X	X	X		X	X
Cannonville	D-1	A												
		B												
	D-2	A												
		B												
	D-3	A	X*	X	X*	X	X*	X		X	X	X		X
		B	X*	X	X*	X			X*	X*	X*	X	X*	X*
	D-4	A	X	X	X	X	X	X		X	X	X		X
		B	X	X	X	X			X	X	X	X	X	X
Henrieville	D-1	A												
		B												
	D-2	A												
		B												
	D-3	A	X*	X	X*	X	X*	X		X	X	X		X
		B	X*	X	X*	X			X*	X*	X*	X	X*	X*
	D-4	A	X	X	X	X	X	X		X	X	X		X
		B	X	X	X	X			X	X	X	X	X	X
Escalante	D-1	A												
		B												
	D-2	A	X	X	X	X	X	X		X	X	X		X
		B	X	X	X	X			X	X	X	X	X	X
	D-3	A	X	X	X	X	X	X	X	X	X	X	X	X
		B	X	X	X	X			X	X	X	X	X	X
	D-4	A	X	X	X	X	X	X		X	X	X		X
		B	X*	X	X*	X			X*	X*	X*	X	X*	X*
Boulder	D-1	A												
		B												
	D-2	A	X	X	X	X	X	X		X	X	X		X
		B	X	X	X	X			X	X	X	X	X	X
	D-3	A	X*	X	X*	X	X*	X		X	X	X		X
		B	X	X	X	X			X	X	X	X	X	X
	D-4	A												
		B												

[1]A = impacts resulting from *construction* of alternative; B = impacts resulting from *use* of alternative.

[2]Impacts would occur in either Glen Canyon City or Page, not both (see notes below).

* Relatively more diffuse, less concentrated effect.

however, that urbanization is a process, and the existing conditions would be quite different from urban conditions in the usual sense. Expanded markets for larger traffic in consumables (gasoline and food) would be created as byproducts of both construction and tourist activity. Initially, inventories would be enlarged; subsequently, some secondary construction and expansion of facilities would take place with resulting improvements in opportunities for clerical, construction, and related unskilled labor. Business sectors that would be stimulated include eating and drinking places, food stores, automotive services, and rental housing. In several instances the highway would serve to introduce more efficient distant marketing, new commodities could be economically delivered to the affected areas, and residents' opportunities for mobility would be improved.

The net effect of highway development would be the creation of a vigorous economic climate and the dampening of current seasonal variations. Because of the seasonality of tourism, however, economic activity would continue to be seasonal.

Land speculation and development near any of the four highway corridors would alter current land values and uses. Some currently undisturbed land would be developed for housing, business establishments, utility avenues, and roadways. Because private landownership amounts to a very small percentage of the land area in the counties studied, demand for such land and, consequently, land values could become inflated (assuming that land was not made available by federal or state government). Private land available for development in each county ranges from approximately 100,000 to 400,000 acres, representing significant variation in the availability of land for new or different uses. However, the availability of land could be sufficient to satisfy demands resulting from highway development, and the anticipated rise in property values should not be overestimated. Land in and near settled areas connected by a highway would increase somewhat in value, but the potential market value for such land might be limited if alternative locations were available and controlled by competing sellers. Unlike commercial property, residential property might be devalued by the proximity of a highway or pattern of highway use. Especially in cases where such devaluation affected families that have resided in "homestead" locations for one or more generations, the potential for inconvenience and dissatisfaction would be high.

Sales and property tax revenues generated as a result of highway construction would not, in the short run, be sufficient to provide the full range of municipal services needed by resident and transient populations. Revenues to local government would lag behind social service demands of immigrants and current residents, whose access to services would be improved because of the highway. The net result would likely be a deterioration or withdrawal of some social services. The greatest demand would be for increases in public safety and sewage treatment services.

Many new residents, particularly those who did not intend to remain in the area, would not share the traditional values of the older population. These residents could introduce divisive pressures on the political system. Potential conflicts over values could develop if immigrants failed to successfully transfer loyalties to the local community or if they maintained values and standards of behavior that competed with those of the residents. Any change in the basis of sociopolitical control could diminish the prevailing climate of social welfare. Concensus is not perfect, however, because some present area residents view highway development as an opportunity to stem the outflow of young people seeking employment, while others see it as a challenge to a traditional and unique pattern of living in southern Utah.

The specific impacts of DES Tables 44 and 45 result from the complex interaction of corridor, locality, and proximity to construction and tourist use.

Specific socioeconomic impacts of Route D-1:

Construction labor would reside primarily in remote camps. Assuming construction began in the south, the nearest access points with available water would be Glen Canyon City and Page. Glen Canyon City would likely become a staging area for early construction activity and would be exposed to the presence of construction crews and the support burden discussed previously.

Construction labor would be recruited from the local area, unless it were imported. Because unemployment is periodic and the availability of local labor uncertain, recruitment from outside the area would be possible. The net population change (laborers and their families) resulting from this road construction alternative is a temporary increase of 450 persons (Brown and Vlachos 1975, pp. 77-78), assuming one employee for each $400,000 of highway construction. The change would occur primarily in Kane County, where it would amount to a 13 percent increase over the 1976 population estimate of 3,400. (Bureau of the Census, Current Population Reports, Population Estimates, Series P-26.) The population change for Kane County for the period 1970-1976 was 39.4 percent.

Glen Canyon City in Kane County is an occasionally occupied place with a few small business operations. It would be only temporarily activated by the location of a construction staging area. It cannot be predicted whether or not the location of Glen Canyon City or its physical resources would be conducive to establishing a center around which development could be organized. If the intent of business and political interests to create a southern Utah settlement were persistent and vigorous, and if this road construction alternative were built, it is possible that a more enduring population center would develop. If development investments were not made in Glen Canyon City, Page would receive the majority of post-construction impacts associated with tourist services. The majority of post-construction impacts associated with traffic flows, however, would occur in Kane and Garfield Counties (largely on National Park Service land).

The effect of this alternative on tourist travel would be to change visitation and expenditures in Garfield and Kane Counties. Because San Juan and Wayne Counties have highways that would connect with the proposed road, each county would potentially receive a slight increase in tourism and revenues from tourist expenditures (Table 30).

Specific socioeconomic impact of Route D-2:

Construction activity would concentrate in Kane and Garfield Counties. Local construction recruitment would occur in Page and Kane and Garfield Counties, and the surrounding region. Post-construction impacts would affect Kane, Garfield, Wayne, and San Juan Counties.

For the southern reach of construction, the nearest access points with available water are Glen Canyon City and Escalante. It is likely that construction staging areas would be established in these two places. These small population centers would be affected by the presence of construction crews.

If construction proceeded southward from Escalante and/or eastward from Boulder, recruitment of labor from Garfield County would be likely. Because Garfield County unemployment is somewhat higher than the state average, it is believed that an available labor pool exists regardless of the time of initiating recruitment. Were work to be initiated at or near Glen Canyon City, these effects would tend to fall more on Kane County and Page. It is likely that construction staging areas would be located in Boulder and just outside the NRA boundary, resulting in the socioeconomic impacts indicated.

Net population effects of construction activity cannot be exactly stated because of uncertainty about the ratio of imported-to-local labor and the unknown emigration of construction labor during non-work time. It is assumed that half of the construction labor force would reside in Kane County and half in Garfield County. Assuming a minimal resident construction labor force in Kane County (a likely assumption), the population would increase by 220 persons (laborers and their families), or 6.5 percent over the 1976 population estimate of 3,400. Assuming a minimal resident construction labor

force in Garfield County (an unlikely assumption), the population would increase by 240 persons, or 7.3 percent over the 1976 county population estimate of 3,400 (Bureau of the Census, Current Population Reports, Population Estimates, Series P-26). The population change for these two counties from 1970-1976 was 16.7 percent.

For post-construction impacts, the effects on Escalante and Boulder would vary according to differences in tourist use of the new roads. Escalante (1975 estimated population, 652) would tend to receive demands for tourist-related goods and services from westbound travelers arriving from Glen Canyon City and bound for Bryce Canyon National Park and the surrounding Forest Service areas.

Boulder (1975 estimated population, 148) would tend to receive demands for tourist-related goods and services from travelers arriving either from Glen Canyon City or Escalante and bound for Bullfrog Basin, as well as from westbound travelers arriving from Bullfrog Basin. On this alternative, Boulder is the most accessible site for tourist-related goods and services; however, the town is largely undeveloped. If it attempts to respond to travelers' needs, the effect on its present condition would be great. In the long term, commercial development and significant demographic changes in population centers from Bryce Canyon to Boulder would result. Because Garfield County has no zoning ordinances, problems associated with unregulated local development could be expected. Of all the road construction alternatives, Route D-2 would result in the greatest increase in visitation and tourist expenditures. Garfield and Kane Counties would receive this increase. However, reduced opportunities for alternative tour routes would decrease visitation in San Juan County. Only slight change would occur in Wayne County (Table 30).

Specific socioeconomic impacts of Route D-3:

Two major construction sites would be involved in separate and relatively distant locations within Kane and Garfield Counties. Local construction recruitment would tend to concentrate more in Kane and Garfield Counties but would also draw on Coconino County and the surrounding region. Post-construction impacts would affect Coconino, San Juan, and Wayne Counties due to altered tour patterns of visitors to the area.

It is likely that construction staging areas would be located near Cannonville and Glen Canyon City. These small population centers would be affected by the presence of construction crews, resulting in the social and economic effects noted.

Construction could be initiated from Cannonville for the southern reach and Boulder for the northern reach. Employment would be as for Alternative D-2. Construction period impacts, however, would not be as large as those of Alternative D-2 because of lower overall expenditures for wage labor.

Problems with making exact population impact assessments are as described for Alternative D-2. For Alternative D-3, it is assumed that all of the construction labor force will reside in Garfield County. Assuming a minimal resident construction labor force (an unlikely assumption), the population would increase by 240 persons (laborers and their families), or 7.3 percent over the 1976 county population estimate of 3,300 (Bureau of the Census, Current Population Reports, Population Estimates, Series P-26). The population change for Garfield County from 1970-1976 was 3.6 percent.

Effects of altered touring patterns would be distributed over a wider geographic area and to more population centers than for the other alternatives. This diffusion of impact would reduce the possibility of concentrated negative impacts (cultural disruption and change in use patterns) and positive impacts (improvement in

community services, commercial development, stabilization of employment and migration).

The effects on tourist travel are slightly less than those of Alternative D-2 except for expenditures in Garfield County, which would be somewhat higher (Table 30).

Specific socioeconomic impacts of Route D-4:

Construction recruitment would primarily occur in Kane and Garfield Counties, although some recruitment might be drawn from Coconino County and the surrounding region. Post-construction impacts would affect Kane, Coconino, Garfield, San Juan, and possibly Wayne Counties due to alteration in visitors' touring patterns.

For the southern reach of construction, construction-period impacts would be as for Alternative D-3.

For the northern reach of construction, staging areas would likely be located at Escalante and at locations near the recreation area boundary in the vicinities of Bullfrog Basin and the southern end of Hole-in-the-Rock road. These sites would be affected by the presence of construction crews, and the social and economic effects discussed in the section on general socioeconomic impacts would occur.

Problems with making exact population impact assessments are as described in Alternative D-2. It is assumed that all of the construction labor force would reside in Garfield County. Assuming a minimal resident construction labor force (an unlikely assumption), the population would increase by 340 persons (laborers and their families), or 10.3 percent over the 1976 county population estimate of 3,300 (Bureau of the Census, Current Population Reports, Population Estimates, Series P-26). The population change for Garfield County from 1970-1976 was 3.6 percent.

For the southern segment, post-construction impacts are as described under Alternative D-3. The use of this route is not expected to be high (Brown and Vlachos 1975, p. 81). An increase in retail trade would occur in Escalante.

The effect of this road construction alternative on tourist travel is the least of all alternatives. Increases in numbers of tourists and expenditures under this alternative would still occur in Garfield and Kane Counties. Wayne County is likely to be affected as under Route D-2 (Table 30).

5. Decision

At this time the National Park Service makes no proposals on any of these routes.

SOURCES

1. Derr and Kasper 1970.
2. McMillan and Assal 1968-69.
3. Mlotok 1972.
4. Brown and Vlachos 1975.
5. Bureau of Economic and Business Research 1975.
6. Lee *et al*. 1972.
7. Nelson 1974.
8. Department of Commerce 1975.
9. _____1972a.
10. _____1972b.
11. _____1972c.
12. Bureau of Economic and Business Research, University of Utah 1978.

IX. CONSULTATION AND COORDINATION WITH OTHERS

A. Consultation and Coordination in the Development of the Proposal and in the Preparation of the Draft Environmental Statement

Table 32 summarizes the record of consultations with outside (i.e., other than National Park Service) interests during the planning effort. Special coordinating mechanisms established for this project are:

1. The Advisory Council for the Future Planning and Development of the Glen Canyon Area, created by Executive Order of the governor of the state of Utah, July 31, 1973, for the purposes of (a) identifying and making recommendations concerning the needs and issues for future development of the resources of the area, (b) consulting with and providing input to the federal planning group on long-range planning and management of resources within the area, (c) making known the desires and priorities of the state of Utah and affected counties, and (d) providing a forum for resolving discrepancies in plans of governmental agencies in order to achieve an overall master plan that complements all resources involved. The council consists of state senators, state representatives, heads of four state agencies, county commissioners of San Juan, Grand, Wayne, Garfield, and Kane Counties, a representative of the Navajo Tribe, and executive directors of the Five County Association of Governments, the Southeastern Utah Association of Governments, and the Six County Commissioners Organization.

2. The Department of the Interior's Interagency Task Force on the Master Planning and Wilderness Planning for Glen Canyon National Recreation Area was created for the purpose of providing information to the National Park Service planning team and coordinating the relevant interests and responsibilities of the various Department of the Interior agencies. The task force consists of representatives from the following bureaus: Mines, Reclamation, Land Management, Geological Survey, Fish and Wildlife Service, and National Park Service. The task force members, including a representative of the Bureau of Indian Affairs and the Navajo Tribe, reviewed a preliminary draft of this document; their comments have been incorporated wherever possible.

As a supplement to the expertise available through these coordinating mechanisms, five additional specialists were utilized: Stanley L. Welsh (botanist) and Joseph R. Murdock (zoologist) of Brigham Young University, Perry J. Brown (recreation resource specialist) and Evan C. Vlachos (sociologist) of Colorado State University, and Elroy Nelson (economist) of First Security National Bank, Salt Lake City. Drs. Welsh and Murdock prepared a "Preliminary Ecological Survey of Road Alternatives, Glen Canyon City to Bullfrog, Glen Canyon National Recreation Area." Drs. Brown and Vlachos submitted a report on the "Probable Social Impacts from Planning Alternatives at the Glen Canyon National Recreation Area." Dr. Nelson prepared an economic profile of the Canyonlands region.

The general public meetings of May 1975 were four formal hearings and four meetings on the alternatives of the preliminary environmental assessment on the master plan and Wilderness study, issued in March 1975. This document elicited 1,581 written comments and 827 pages of transcript containing criticisms and suggestions for incorporation into the planning effort.

Informal communications, via telephone, between the planning team and outside interests, were regularly maintained, particularly with the Bureau of Land Management.

The historic preservation specialist of the state of Utah and the historic sites preservation officer of the state of Arizona were asked to identify National Register properties or candidates within the recreation area.

Table 32. **Summary of public involvement.**

GROUP	DATE(S) OF MEETING(S)	Highway Development	Wilderness	Mineral Development	Water Storage and Lake Level	Grazing	Development	Safety	Recreational Opportunities and Facilities	State Lands	Power Generation	Fishery	Economic Opportunities	Coordinated Planning	Concessions	Communications	Sanitation	Archeology and History	Indian Interests	Boundary Revisions	Conservation	Reservoir and Dam Management	Airport Facilities
General Public	April 12, 1973	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X		
Governor's Advisory Council	October 9,10, 1973	X	X	X		X	X		X				X	X	X				X	X			X
Parks Commission, Navajo Tribal Council	January 3, 1974						X		X					X	X				X				
Interagency Task Force	December 2,4, 1974		X	X	X	X	X				X			X						X	X	X	
Governor's Advisory Council	December 3, 1974	X	X	X		X	X		X	X	X		X	X	X					X			X
Federal Agencies in Utah	December 13, 1974	X	X	X	X	X	X			X				X				X	X	X	X	X	X
Conservationists	December 18, 1974	X	X	X		X	X	X	X	X							X	X		X	X		X
Utah State Agencies	January 7, 1975	X	X	X		X	X		X	X	X		X	X	X				X	X			X
General Public	May 14,15,17,19, 1975	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
General Public	August 26, 1977-January 1, 1978		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X

B. Coordination in the Review of the Draft Environmental Statement

Comments have been received about the DES from the following:

(An asterisk -*- indicates the DES was sent for review but no comments were received)

Federal

Advisory Council on Historic Preservation
Department of Agriculture
*Forest Service

Soil Conservation Service
State Conservationist, Phoenix, Arizona
State Conservationist, Salt Lake City, Utah

Department of the Army
Corps of Engineers, Sacramento District

*Department of Commerce

Department of Energy
Acting Regional Administrator, Lakewood, Colorado

Department of Housing and Urban Development
Assistant Regional Administrator, Denver Colorado

Department of the Interior

Bureau of Indian Affairs
Navajo Area Office, Window Rock, Arizona
Bureau of Land Management
* Arizona State Director
Utah State Director
Bureau of Mines
Director, Washington, D.C.
Bureau of Outdoor Recreation
Assistant Regional Director, Denver, Colorado
Bureau of Reclamation
Commissioner, Washington, D.C.
Fish and Wildlife Service
Acting Area Manager, Colorado-Utah, Salt Lake City, Utah
Geological Survey
Acting Director, Reston, Virginia
Department of Transportation
Federal Highway Administration
Regional Federal Highway Administrator, Denver, Colorado

* Environmental Protection Agency

* Federal Energy Administration

Federal Power Commission
Advisor on Environmental Quality, Washington, D.C.

* Energy Resources Development Administration

State

State of New Mexico
* Central Clearinghouse
State of Utah
Governor Matheson, Salt Lake City, Utah
* Utah State Clearinghouse
* State Historic Preservation Officer
Utah Travel Council
Director, Salt Lake City, Utah
State of Arizona
Arizona State Land Department
Arizona State Clearinghouse
The Northern Arizona Council of Governments, Flagstaff, Arizona

* State Historic Preservation Officer

County

Five County Association of Governments
Southeastern Utah Association of Governments
* Coconino County Commissioners, Arizona
Garfield County Commissioners, Utah
Kane County Commissioners, Utah
* San Juan County Commissioners, Utah
* Wayne County Commissioners, Utah

City

City of Page

Other

Altex Oil Corporation
American League for Industry and Vital Energy
* American Mining Congress
* Arizona Cattle Growers Association
* Arizona Conservation Council
* Arizona Mining Association
* Arizona Small Mine Operators
Arizona Wilderness Coalition
* Arizona Wildlife Federation
* Atlas Corp., Minerals Division
* Audubon Society
Boulder Audubon Society
* Bullfrog Resort and Marina, Inc.
Canyon County Council
* Canyon Tours, Inc.
Coalition of Arizona Students for the Environment
* Colorado Open Space Council
CSU Environmental Corps
Dupage Audubon Society
Ecology Center of Southern California
El Paso Energy Resources Co.
Escalante Wilderness Committee
* Four-Corners Regional Advisory Board
Four Corners Wilderness Workshop
Friends of the Earth
* Fort Lee Company, Inc.
Garkane Power Association, Inc.
Grand Canyon Chapter, Sierra Club
* Hite Marina, Inc.
Holiday River Expeditions, Inc.
* Izaak Walton League of America
Lake Powell Resorts and Marinas
* Lake Powell Ferry Service, Inc.
La Seccion del Rincon of the Grand Canyon Chapter, Sierra Club
Maricopa Audubon Society
Mono Power Co., New Albion Resources Co., and Resource Co.
* Museum of Northern Arizona
* Navajo Tribe
National Parks and Conservation Association
Natural Resources Law Forum
New Mexico Wilderness Study Committee
Northern Arizona Audubon Society
Oil Development Company of Utah
Rio Grande Chapter, Sierra Club
* Rocky Mountain Oil and Gas Association
Sagadahoc Oil and Gas Corp.
* Saguaro High School Conservation and Ecology Club
* San Juan County Tourist Council
Sierra Club
Six-county Commissioners Organization
Southern Arizona Environmental Council
Southern Arizona Hiking Club
Southwest Environmental Service
Southwest Safaris
* Town of Escalante
Tucson Audubon Society
University of Arizona Ramblers
* Utah Cattleman's Association
Utah Mining Association
* Utah Navajo Development Council
* Utah Wool Growers Association
* Wasatch Mountain Club
Whitewater Explorers
Wilderness Society
* Mr. Calvin Black, Utah
* Mr. Bill Young, Arizona

C. Comments about the Draft Environmental Statement and Responses by the National Park Service.

1. Comments from Federal Agencies

Advisory Council on
Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

September 26, 1977

Mr. Lynn H. Thompson
Regional Director
Rocky Mountain Region
National Park Service
655 Parfet Street
P. O. Box 25287
Denver, Colorado 80225

Dear Mr. Thompson:

This is in response to your request of September 2, 1977, for comments on the draft environmental statement (DES) for the proposed General Management Plan/Wilderness Proposal/Road Study Alternatives, Glen Canyon National Recreation Area in Arizona and Utah.

Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Council has determined that your DES appears adequate regarding our area of expertise and we have no further comment to make at this time. 1

Sincerely yours,

Louis S. Wall
Assistant Director, Office
of Review and Compliance

Response to Advisory Council on Historic Preservation Comments

1. Thank you for your comment.

The Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of October 15, 1966 to advise the President and Congress in the field of Historic Preservation.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
3008 Federal Building, Phoenix, Arizona 85025

November 9, 1977

Mr. John Henneburger
Regional Director
Rocky Mountain Region
National Park Service
Denver Service Center
Box 25287
Denver, Colorado 80225

Ref: DES 77-28, General management plan, wilderness proposal, road study alternatives, Glen Canyon National Recreation Area, AZ-UT

Dear Mr. Henneburger:

Following are Soil Conservation Service comments on the subject DES:

General - Although we realize that this is a large complex area, this report frequently refers to inadequacy of information. Examples - general concepts only, p. 6; effects of grazing, p. 84; the lack of erosion information, p. 88. These deficiencies tend to prompt the question of why is this plan and consequent report issued at this time? 2

Page 6 - With the scarcity of roads within this area, the proposal to close 80.8 miles of roads is questioned. 3

Page 11 - How are the region boundaries defined? 4

Page 29 - We believe the term "wild horses" should be corrected. These are not wild animals. They are "feral" horses - escaped domestic livestock. The native wild horse became extinct long ago. 5

Page 71 - Projected tourism appears to be high. The projection of 2.69 times the 1971 values within a 14-year period may not be adequately accounting for economic conditions affected by energy limitations, costs, etc. 6

Page 88 - Since only about half of the allotted AUM's are currently being used (page 87), it is questionable that the proposed management plan will result in the decrease in erosion as described here, unless the allotted AUM's were already too high for the range. 7

Page 105-106 - Concern is raised about the adverse impact of the plan on grazing activities. The management plan does not seem to adequately address itself to the adverse effects upon the ranchers, nor does the mitigation described in section IV or table 27 seem to be satisfactory, especially when consideration is given to the cost-price situation that farmers and ranchers are experiencing. 8

We appreciate the opportunity of reviewing this DES.

Sincerely,

R S Swenson For:

Thomas G. Rockenbaugh
State Conservationist

cc: (5)
Council on Environmental Quality
722 Jackson Place, NW
Washington, DC 20006
Attn: General Counsel

cc: (1)
Environmental Services Division
Soil Conservation Service
Washington, D. C. 20250

Responses to Arizona Office of the Soil Conservation Service Comments

2. This General Management Plan is conceptual in its scope and proposes subsequent planning which must be undertaken after its approval. Included will be a Resource Management Plan which will address natural and grazing resources. Refer to Section II.D. of the Plan.

3. The roads proposed to be closed are for the most part unimproved tracks dating back to early mining days which are not a part of any recognized circulation system. In order to preserve the natural character, access has to be curtailed in some instances.

4. The Region boundaries are somewhat arbitrarily chosen on the basis of similarity of land ownership and use, economics, scenery and topography, and a recreational zone of influence. It extends about 100 miles from the Recreation Area boundary.

5. Your comment about feral horses has been incorporated in Section IV.B.13. of the Plan.

6. We do not feel the projection of 2.69 time the 1971 visitation is unrealistic, inasmuch as visitation at the end of 1977 has realized a 3.09 times increase over 1971 values. While energy limitations and economic factors have increased, the Recreation Area and its environs do not appear to have shared the same slump as other destination recreation sites.

7. The Management Framework Plans and Allotment Management Plans, now being prepared by the Bureau of Land Management, for grazing allotments which are all or in part within the Recreation Area have, almost without exception, prescribed a reduction in AUM's. It is anticipated that this will, indeed, cause some reduction in the erosional processes.

8. The impact of natural area management on grazing cannot, in many instances, be mitigated. Thus, it appears in Section V.J. of the FES as an unavoidable adverse impact which cannot be avoided entirely. While the Grazing Management Plan proposed as a mitigating measure will identify areas where grazing can be allowed and the degree of intensive management which will be permitted within the allotment, this will not totally provide for the continuation of grazing in all areas.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
4012 Federal Building, 125 South State Street, Salt Lake City, UT 84138

November 9, 1977

Superintendant
Glen Canyon National Recreation Area
P. O. Box 1507
Page, Arizona 86040

Dear Sir:

The draft environment statement for the proposed General Management Plan/Wilderness Proposal/Road Study Alternatives, Glen Canyon National Recreation Area, Arizona-Utah has been referred to us by our Washington office for review and comment.

We have reviewed the documents and find them to be well organized and well written and they adequately address most items that are of interest to agriculture.

We offer some suggestions regarding the write up on vegetation. The discussion on pages 33 and 87 seems to confuse range condition with range potential. Climate and soils are natural factors influencing type of vegetation and potential productivity but not range conditions. Even the poorest soils and climate will not prevent the vegetation from reaching potential or climax conditions. Erosion still occurs on many of these sites even when they are in excellent range condition. 9

We appreciate the opportunity to provide input. Please contact us if we can be of further assistance.

Sincerely,

George D. McMillan
State Conservationist

cc: Director of the Environmental Service Division, SCS, Washington D.C.
Council on Environmental Quality, 722 Jackson Place, N.W.,
Washington, D.C. 20006 (5 copies)

Responses to Utah Office of the Soil Conservation Service Comments

9. The text acknowledges that forage production is limited to natural factors such as soil and climate. It is our understanding that range condition and range potential are related. In the Bureau of Land Management's evaluation of range conditions, productivity on the existing allotments was compared to other allotments with comparable influencing factors. In their evaluation, grazing impact also is a factor influencing productivity just as soil and climate are. Erosion may still occur on sites rated in excellent range condition, due to the nature of the soils. Also when range condition is poor erosional processes are accelerated.

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

REPLY TO
ATTENTION OF
SPKED-W

11 October 1977

Superintendent
Glen Canyon National Recreation Area
P.O. Box 1507
Page, AZ 86040

Dear Sir:

The draft report and environmental statement for the proposed General Management Plan/Wilderness Proposal/Road Study Alternatives, Glen Canyon National Recreation Area, Arizona-Utah, submitted to the Executive Director of Civil Works, Office of the Chief of Engineers, has been referred to Sacramento District for review.

We have reviewed the four volumes of material primarily for possible conflicts with programs under our jurisdiction, such as flood control, navigation, and permit requirements.

The proposals and assessment outlined are conceptual but do not appear to conflict with existing or contemplated flood control programs within our jurisdiction. The proposals would have little, if any, effect on navigation; however, Section 10 of the River and Harbor Act of 3 March 1899 (30 Stat 1151; 33 U.S.C. 403), requires that, prior to construction, wharves, piers, breakwaters, bulkheads, jetties, or other structures, as well as excavation in navigable waters of the United States, be authorized by a Department of Army permit. Therefore, if more detailed plans are developed for improvements which might obstruct navigation, these plans should be coordinated with us. In addition, a Department of Army permit as required by Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), will be required if road and other construction involves disposal of dredged or fill material in waterways of the United States. Also, an assessment of possible effects of associated construction activities should be specifically addressed in the final environmental statement. 10

Thank you for the opportunity to review the draft report and draft environmental statement.

Sincerely yours,

for Walter C. Day
GEORGE C. WEDDELL
Chief, Engineering Division

Response to Army Corps of Engineers Comments

10. Any detailed plans regarding additional facilities on Lake Powell which would be initiated as a result of this plan being approved, will be addressed in a subsequent document titled a Development Concept Plan for each developed area under consideration. This will discuss the need to acquire permits and other authorizations which the Department of the Army may require. The impacts associated with each stage of the proposed implementation of any Development Plan would be fully discussed in that site's DCP.

DEPARTMENT OF ENERGY
1075 South Yukon
P.O. Box 26247, Belmar Branch
Lakewood, Colorado 80226

October 4, 1977

Superintendent
Glen Canyon National Recreation Area
P.O. Box 1507
Page, Arizona 86040

Gentlemen:

The Department of Energy Region VIII office has reviewed the draft environmental impact statement on the Glen Canyon National Recreation Area. We submit the following comments for your consideration:

It is the opinion of this office that prior to the withdrawal of lands for wilderness or other non minerals or drilling development, a detailed minerals assessment should be made on the lands to determine whether economic fossil fuels or minerals resources exist. If they are found to exist, their worth as minerals or fossil fuels should be analyzed against their worth as an exclusion area. Blanket exclusions of areas without this review process should be avoided. 11

Thank you for the opportunity to comment on this draft EIS.

Sincerely,

C. Dale Eriksen

C. Dale Eriksen
Acting Regional Administrator

Response To The Department Of Energy Comment

11. All of the lands of the Recreation Area were withdrawn from mineral entry under the general mining law of 1872 by the authorizing act, P.L. 92-593. This Act also required the secretary to recommend to the President areas suitable and unsuitable for preservation as wilderness. The process of making such land selections did require a mineral assessment (gross mineral appraisal) of the Recreation Area. The main basis for this assessment was an unpublished report by the U.S. Geological Survey, dated 1975. Using this report along with other USGS data, minerals resource data of the Utah Geological and Mineral Survey and uranium resource data of ERDA (formerly AEC), a selection of lands to propose as natural (or wilderness) areas was made. The selection was based on a consideration of the mineral resources, including potential, weighed against the non mineral surface resources (scenic, scientific, and historic) for the preservation of which the NRA was originally authorized by Congress.

In most cases, where mineral resources were of unmistakable significance, the general area of the occurrences was excluded from the natural (wilderness) area proposal. The exclusion of major portions of the Orange Cliffs (Tar sand triangle occurrence) and the area south and east of the Dirty Devil's confluence with the Colorado (uranium occurrence) illustrates exclusions of prime natural areas because of known mineral resource occurrences.

Like exclusions in favor of conventional oil and gas occurrences were not made due to lack of evidence, other than broad regional extrapolations, of the occurrence of economically exploitable oil and gas formations.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
EXECUTIVE TOWER - 1405 CURTIS STREET
DENVER, COLORADO 80202

EGION VIII

October 11, 1977

IN REPLY REFER TO:
8DE

Mr. Lynn H. Thompson
Regional Director
National Park Service
U.S. Department of the Interior
Denver, Colorado 80225

Dear Mr. Thompson:

This is in response to your draft environmental statement on the General Management Plan/Wilderness Proposal/Road Study Alternatives, Glen Canyon National Recreation Area, Arizona-Utah.

As you may know, this Department's main areas of concern in responding to a draft environmental statement are (1) the consistency of an action with the comprehensive planning for the area; and (2) the action's impact on housing, particularly in an urban environment. Our review indicated that you have adequately addressed these areas of HUD's jurisdiction as assigned by CEQ.

Sincerely,

Robert J. Matuschek

Robert J. Matuschek
Assistant Regional Administrator
Community Planning and Development

12 <u>Response to Department of Housing and Urban Development Comment</u>

12. Thank you for your comment.

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Navajo Area Office
Window Rock, Arizona 86515

IN REPLY REFER TO:
Environmental Quality

OCT 19 1977

Regional Director
National Park Service
Rocky Mountain Regional Office
655 Parfet Street
P. O. Box 25287
Denver, Colorado 80225

Dear Sir:

We have reviewed the DES for the proposed General Management Plan/ Wilderness Proposal/Road Study Alternatives for the Glen Canyon NRA with particular emphasis on the interfaces of the proposal with the Navajo Area jurisdiction and the Navajo Tribe. In general we have no substantive comments. The DES is quite thorough in its analysis and addresses all relevant facets of the subject.

We did find the wording in Section I.B.22 confusing. The location of the 8.5 and 12 mile segments should be more clearly described and supportive maps included. 13

Thank you for the opportunity to review this DES and congratulations on a document well done.

Sincerely yours,

John J Boka

Acting Assistant Area Director

Response to Bureau of Indian Affairs Comments

13. Thank you for your comments. We regret we are unable to respond to your comment on Section I.B.22. This reference does not appear in our document.

United States Department of the Interior

IN REPLY REFER TO
1793 (U-920)

BUREAU OF LAND MANAGEMENT
Utah State Office
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

NOV 16 1977

Memorandum

To: Superintendent, Glen Canyon National Recreation Area, Page, Arizona

From: State Director, Utah

Subject: Comments on the General Management Plan Wilderness Proposal Road Study Alternatives and Draft Environmental Statement For Glen Canyon NRA

We appreciate the opportunity to comment on the GCNRA Master Plan and Draft Environmental Statement. The following comments relate to major sections of the Plan/ES and are offered for your consideration in the development of the final documents. We trust these comments will assist in improving the plan and ES, resulting in the best possible management decisions.

We have limited specific comments on the ES, as we have already provided comments in a memorandum to the Director, NPS, Rocky Mountain Region, dated June 1, 1977, copy attached. 14

I. INTRODUCTION AND ORIENTATION

This section outlines the responsibilities of the National Park Service and Bureau of Reclamation but does not indicate BLM's responsibilities under Section 6 of P.L. 92-593. This responsibility does appear in Volume 3 Section VI of the Planning Objectives. However, since this situation is unique and confusing, we strongly feel this legal responsibility should be clearly spelled out under this section. We suggest the following wording be added at the end of the first paragraph: "The Act provides for continued use of the area for mineral and grazing leases to be administered by the Bureau of Land Management." 15

II. THE PROPOSAL

II B. MANAGEMENT ZONING PROPOSAL

It is obvious that our wilderness recommendation of June 17, 1975 has been given little consideration in the development of the proposed action. 16

We have previously communicated (May 1976, June 1977) our concerns with the size of the wilderness proposal, and think that our recommendation for a smaller wilderness should have been given more consideration, possibly as an alternative. 16

We are resubmitting as a part of this comment a report titled: "Glen Canyon National Recreation Area: Mineral Resource Considerations for Proposed Management Plan." 17a Based on BLM's responsibilities under P.L. 92-593 we feel that the information contained in this report should be objectively analyzed before management decisions are finalized. 17b For example, Chapter III of the ES discusses the impacts the wilderness proposal will have on the oil and gas resource. The narrative indicates that the GCNRA contains a petroleum resource of perhaps 51 to 155 million barrels. 17c When comparing the oil and gas potentials calculated by the Utah Geological Mineral Survey (BLM Report Map #2) the majority of the high potential areas are included in the proposed wilderness area. The analysis minimizes the oil and gas resource by stating that the 51-155 million barrels represents national needs for 310 days. This seems to downgrade a significant potential, even at the lower (51 million) level.

Another example is the uranium resource. Chapter III of the ES and Map #27 reflect favorable uranium zones. These zones do not match favorable zones identified in USGS Bulletin 1087 and shown on BLM Report Map #3. 18 Comparison of the two maps indicates that more than 30 percent of the favorable zones identified on Bulletin #3 is included in proposed wilderness.

II B. PROPOSED BOUNDARY ADJUSTMENTS

There appears to be a conflict between net boundary adjustments and the legislated acreage limitations imposed by Public Law 92-593. This is a "legislative constraint on management" as shown on Table 1. Both the proposed action and Alternative A would exceed this "constraint". 19 There is no discussion as to how this inconsistency will be resolved.

We agree that boundary adjustments in certain areas will facilitate better management. The Imperial-Bull Valley proposal is an example. However the justification used there (Page 7)....a flat isolated tableland not accessible from the recreation area and, accordingly, not readily manageable by the NPS .... would apply to other areas. 20 Most notably is the southern tip of Fifty Mile Mountain which was suggested in previous correspondence (Sept. 5, 1974) for exchange to BLM to provide more efficient federal management (copy attached).

We have maintained that a boundary adjustment on the San Juan is necessary to facilitate river management on the San Juan. However, the analysis contained in the draft indicate more logic in placing the entire river 21

under the administration of BLM. The BLM presently administers close to 70% of the recreation use on the San Juan River. The GCNRA presently has administration responsibility for 25 miles of the San Juan beginning 21 miles below Mexican Hat. The BLM has administration responsibilities for approximately 60 miles of the San Juan River.

The proposal to add 2,670 acres of San Juan shoreline does not eliminate dual administration and additional expense (personnel, equipment, communications with public) to the public. The boundary adjustments could equitably be as shown by the alternative on Figure 12 in Volume 3, Tables and Figures. 21

The following would be accomplished by the acceptance of the above described alternative:

1. One agency administering use on one river.
2. Public confusion avoided (permits, etc.).
3. Public funds better utilized, (no dual funding).
4. Dual management of Grand Gulch area avoided.

It is agreed that NPS would manage physical access trailheads to the lower Escalante River. However the following proposed acquisitions are not physical access trailheads and management should remain with BLM.

1. Dance Hall Rock 22
2. The 40 and 15 acre parcels just south of Dance Hall Rock.

In addition there is a physical access point in Section 14 T. 37 S., R.6E which has not been identified. This access known as "Egypt" was overlooked in our previous correspondence.

With regard to the ES, we note several statements, e.g., on page 86, that livestock grazing is the most widespread activity contributing to erosion. This judgment on the part of NPS should be supported by appropriate data. On page 87, first and fourth paragraphs, please note that salt licks and stock tanks are not put in to extend grazing, but to facilitate livestock grazing management. Grazing use will not necessarily increase as range conditions improve. Livestock grazing would increase only after multiple land use plans have been developed giving consideration to all uses or values. 23

Also attached are several comments of a technical nature you may wish to consider when compiling the final documents.

Paul L Howard

Enclosures - 3
1. Comments on documents
2. Memo to Dir. NPS, June 1, 1977
3. GCNRA Mineral Cons. for Proposed Mgmt Plan

cc: WO-260
WO-700

Comments on the documents. In addition, see our memorandum of June 1, 1977 (copy attached)

Page 47 Based on information in Utah Geological and Mineral Survey's "Survey Notes" (Volume 10, No. 3, August 1976) we recommend that the last sentence be changed to "The Upper Valley field produced 14,789,908 barrels....." 24

Page 82 It might be well to list the humpback sucker and bonytail, as proposed additions to the endangered species list, and to mention coordination with the Colorado River Fish Recovery Tean plans as well as their proposed species and critical habitat designations. 25

Tables 28-39 The no-action alternative is not included in the tables, but there is no mention in the text that it was dropped from consideration. 26

Page 170 Our records indicate there are 33 known sites in this immediate area, 11 of which are within the NRA boundary. These sites could be damaged because of construction and improved access. 27

Map 30 The Spencer Bench grazing allotment, shown as Allotment 21, does not divide the Rock Creek Allotment, as shown. 28

Map 32 The area bordering the road east of Glen Canyon City is shown as in good range condition, but is in fact unsuitable range. The portion of Grand Bench in the Rock Creek Allotment should be shown as in good range condition, rather than fair. 29

Responses to Bureau of Land Management Comments

14. These comments were considered in the preparation of the DES.

15. The text has been amended in Section I of the Plan to better portray the responsibilities of the Bureau of Land Management within the Recreation Area.

16. The input provided by the Bureau of Land Management and others was reflected in the Environmental Assessment showing several alternative management zones. The BLM proposal along with others was distilled down to form the draft proposal as well as the two alternatives shown to it. Alternative B does discuss a wilderness proposal of less acreage than the Wilderness recommendation. We appreciate your concern and respect your convictions. The Secretary of the Interior will consider our differing viewpoints before arriving at a decision.

17-a. BLM's June 1977 report, "Glen Canyon National Recreation Area: Mineral Resource Considerations for Proposed Management Plan," was analyzed before areas were selected for the preliminary wilderness proposal, Map 4, Volume 2 of the DES. It is quite true that proposed wilderness areas do overlap areas thought to contain some potential for oil and gas, uranium and coal. See also response 11 to the Department of Energy.

17-b. BLM's responsibilities under the NRA's authorizing Act, P.L. 92-593, have meaning and substance entirely based on the "significant adverse effects" clause appearing as the last portion of section 3 (a) of the Act. Activities posing significant adverse effects on the administration of the Recreation Area can be either restricted or prohibited under the provisions of the Act.

17-c. There was no intent to downgrade the oil and gas potential of the NRA, and it is believed that the resource data is presented objectively and in proper perspective. It was essential, however, if the several available estimates of large quantities of petroleum in the NRA were used, to make sure the reader understood they were estimates of what might be there; not what was known to be there.

18. Again, as emphasized in responses #11 and #17-a, the worth of the "30 percent" of the favorable uranium zones was analyzed against the known natural resources in these zones and their contiguity with adjacent natural areas, resulting in their wilderness designation.

19. The text has been changed to show in Section II.C. of the Plan that legislative authority will be sought to increase the authorized acreage limitation contained in Public Law 92-593.

20. The deletion of the tip of 50-Mile Mountain appeared as a boundary adjustment in Management Zoning Alternative B. This alternative was rejected due to the overwhelming public support of the outstanding natural (wilderness) values present.

21. The Recreation Area administers the San Juan River from approximate mile 96 (18 miles downstream from Mexican Hat, Utah) to approximate mile 57, Clay Hills Crossing. The NPS considered as an alternative turning over entire management of the San Juan River to the BLM. The DES proposal (DES Maps 2 and 3) included a boundary addition of 2,670 acres along the river to Mexican Hat. As a result of meetings and study between our agencies, both the alternative and DES proposal have been rejected. Instead, a joint management plan for the San Juan River will be developed by our two agencies based on the current management jurisdiction and administrative boundaries. Refer to the letters that follow from the NPS dated July 18, 1978 and from your agency dated August 18, 1978. Refer to Section VIII.D.3. of the FES.

22. A jointly prepared interpretive plan for the Hole-in-the-Rock Trail has suggested development of a visitor facility in the vicinity of Dance Hall Rock. NPS planners identified this as a possible side benefit from a trailhead access in the same are and, because of its association with the Hole-in-the-Rock it was suggested that this be included under NPS management. You are correct in your statement that the Egypt access was not considered for a boundary adjustment. The need for this adjustment will be studied in subsequent planning efforts and may be recommended as an action subsequent to the backcountry use plan for the Escalante Canyons.

23. The inter-relationship between grazing and erosion was provided by BLM staff writers during the initial drafting of the planning document. We trust this is an accurate judgement on the part of the BLM. It is our understanding that livestock management actions, such as watering tanks are used to extend grazing into areas not presently suitable for grazing because of a lack of water or other range factors. While it is true that grazing will not necessarily increase as ranage conditions improve, our understanding of the Management Framework Planning process is that stocking rates are a factor of range condition. We agree that grazing may be secondary to other uses such as recreation.

24. The Upper Valley Oil Field production figure has been up-dated to the most current total available from the Utah Division of Oil and Gas, 16,774,193 barrels as of December 31, 1977.

25. The presence of the humpback sucker and boneytailed chub are not confirmed in Lake Powell. However, Section IV.C. of the FES, consists of consultation provisions of the Endangered Species Act.

26. The no action alternative appears in Section VIII.A. of the FES. It was deleted from the tables in the interest of brevity. You are correct in acknowledging that we were mandated to study and recommend wilderness within the recreation area. The Wilderness Act clearly shows that consumptive use is not a proper condition within designated natural (wilderness) areas. The RRU zone specifically accommodates mining and mineral leasing activities of a consumptive nature and the minerals management plan previously referenced will identify those areas which contain mineral resources and stipulate the manner in which they can be removed.

27. We are unclear as to which portion of the road alternatives your comment applies to. At such time as additional planning is undertaken for any road segment, the BLM will be contacted for their input as to sites which may not be recorded or included in this evaluation.

28. We have corrected this allotment boundary on Map 8.

29. The comments on range conditions have been incorporated in Appendix 9--Grazing Statistics-of the FES.

United States Department of the Interior

NATIONAL PARK SERVICE
UTAH STATE OFFICE
125 S. STATE STREET
SALT LAKE CITY, UTAH 84138

IN REPLY REFER TO:

July 18, 1978

Memorandum

To: Utah State Director, Bureau of Land Management

From: Assistant to the Regional Director, Utah

Subject: Final Environmental Statement - General Management Plan/ Wilderness Proposal/Road Study Alternatives - Glen Canyon National Recreation Area

This is to follow up our meeting on June 26 between yourself, members of your staff and National Park Service personnel, including Regional Director Glen Bean and Superintendent Reynolds. The purposes of the meeting were to bring you up-to-date on the status of the planning effort, describe to you the recommended plan, and discuss two issues which surfaced as disagreements in your Agency's comments on the DES.

The first issue revolved around our differing viewpoints as to the significance that minerals data should have in constraining wilderness proposals within the National Recreation Area, and the credence that should be attributed to some data pertaining to the probability of mineralization occurring within the area. Consideration for the development of minerals within the Recreation Area must occur within the climate established by P.L. 92-593 wherein Section 3 provides guidance for the development of minerals "..., if he (the Secretary of the Interior) finds that such disposition would not have significant adverse effects on the Glen Canyon project or on the administration of the National Recreation Area pursuant to this Act." Section 9 of the Act requires a wilderness study with no reference to mineral values. In this climate, we might be criticized for excluding parts of the Recreation Area from our wilderness recommendations because of mineral values, but there is little basis in the law for criticism because we included areas with possible mineral values in the recommended wilderness. We have exercised judgement in several cases where mineral values are apparently high and wilderness values are relatively low by excluding those areas from our recommended wilderness.

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The Bureau of Land Management unquestionably has an important role to play within the Recreation Area in minerals management as well as management of grazing. This stems from Section 6 of the Act, and the specifics of that role, as it relates to minerals, will evolve from the minerals management plan which we have been discussing for some time, and may well be required by the latest turn in the Trans-Delta case. Pre-requisite to the minerals issue was the determination as to where, within the Recreation Area, the development of minerals would be precluded by other purposes. We are very near that determination. The way existing valid mineral rights, including oil and gas leases will be handled will also be guided by this plan.

None of the above information is new. It may be, however, a new way of describing how we have come to the conclusions we hold as to prioritization of the several activities in the future of the Recreation Area. We do have some new information resulting from the recordation of mining claims required by the "Mining in the Parks Act" of 1976. We were estimating the existence of some 11,000 claims within the Recreation Area. The opportunity to record claims terminated in October 1977 and there were 667 recorded. About one-third of those recorded are within our recommended wilderness. Recordation, of course, does not imply validity, and preliminary investigation leads to the conclusion that 274 of those in the Recreation Area were located after the area was withdrawn from mineral entry, and may ultimately prove to be invalid. In all cases, the discovery will be tested and there is evidence that only a few claims in each group have ever been explored. Enclosed is a map showing the location of each of the claim groups recorded with us. Also noted on the map are those for which we have requested an administrative decision recommending that these claims be declared null and void ab initio. In those cases where we are overlaying recorded claims with recommended wilderness, we are confident that the wilderness values are sufficiently important to merit that status even if the claims are valid and are developed with the ultimate goal of returning them to wilderness. The same reasoning applies to oil and gas leases.

Your report, "Glen Canyon National Recreation Area: Mineral Resource Considerations for Proposed Management Plan" was analyzed prior to the preparation of our preliminary wilderness recommendation. Our wilderness recommendation does include areas thought to have potential for oil and gas, uranium and coal. These decisions were reached only after a study of pertinent data from the Utah Geologic and Mineral Survey, ERDA and USGS. This included bulletin 1087-c of the USGS. The map on plate 6 of this bulletin shows wide zones of "relatively favorable ground for uranium in the Moss Back, Monitor Butte, and Shinarump member of the chinle formation. These zones overlap parts of the Recreation Area, and are termed "favorable" by interpretation, extrapolation, and comparison representing an opinion of what may be, not what is. In most cases, where mineral resources were of unmistakenable significance, the areas were excluded from wilderness designation. Similar exclusions in favor of oil and gas occurrences were not made due to lack of evidence, other than broad regional extrapolations, and large estimates based on inference. The entire Recreation Area is said to contain oil and gas potential with no solid evidence of where or how much.

The second major issue we discussed was our differences over the future management, more precisely, which of our Agencies will manage the San Juan River between Mexican Hat and Clay Hills Crossing. In this case, we agreed to disagree, pending a decision by your Assistant Secretary as to whether he would want to discuss it with ours. You know most of our arguments, and we know most of yours from the discussion during the meeting. There is little point in repeating them here. We do request, however, that you pursue the question with your Assistant Secretary so that they can agree, or agree to disagree at that level before we produce the FES.

We are hopeful that, as a result of our discussion, and in response to this memorandum, you will re-examine your Agency's comments on our DES, particularly as they relate to minerals, and provide new comments for inclusion in the FES which minimize, if not eliminate the adversary roles your current comments generate.

Also enclosed for your information is a copy of your comment memorandum keyed by numbers to responses we are currently planning to include in the FES. These can, and of course, will be changed to reflect any revision in your comments you may make as a result of our meeting and this memorandum.

James L. Isenogle

Enclosures

cc:
Regional Director, Rocky Mtn Region w/c of encls.
Supt., Glen Canyon NRA " " "
Manager, DSC (Attn: Larry Knowles) " " "
Otis Kittle " " "
Bill Cregg, WASO " " "
Jim Howe, WASO " " "

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Utah State Office
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

IN REPLY REFER TO
1782
(U950)

AUG 18 1978

Memorandum

To: Assistant to the Regional Director, Utah National Park Service

From: State Director, Utah

Subject: General Management Plan/Wilderness Proposal and Draft Environmental Impact Statement. Glen Canyon National Recreation Area. Re: Memo of July 18, 1978.

This is in response to the discussion at our recent meeting and your subsequent memorandum of July 18, 1978. We have reviewed the additional information provided concerning the current status and presence of uranium mining claims within the GCNRA and the Park Service recommended plan and wilderness proposal and re-examined our comments on the proposed General Management Plan and DES.

Admittedly our views differ from that of the NPS, however, I cannot agree with your statement that our comments have generated an adversary role. It is entirely appropriate for a multiple use agency charged with administering the mineral leasing and grazing within the Recreation Area under the "same policies followed by the Bureau of Land Management in issuing and administering mineral and grazing leases on other lands under its jurisdiction" (PL 92-593 Sec. 6); to be concerned about the future role of mineral management and development. If there is adversary roles, these were created by the legislation, not the Bureau.

Your memorandum refers to Section 3 of PL 92-593 as providing guidance for the development of minerals. It appears to us that direction is rather explicit. That section states that the Secretary "shall permit removal of non leasable minerals" and "shall permit the removal of leasable minerals" if he finds that such disposition would not have significant adverse effects on the Glen Canyon Project or on the administration of the national recreation area. This places the emphasis on permitting the removal of minerals unless it can be shown that to do so would have significantly adverse effects. It is our

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view that the NPS has not shown these significant adverse effects but instead takes the position that recreation, particularly in the form of wilderness, has priority and minerals as relegated to a very minor role regardless of the impact of their utilization.

An important point which you have brought forward in your memo is the lack of solid evidence as to the occurrence and extent of several minerals in the area and that most areas identified as being favorable are based on "interpretation extrapolation and comparison", and as such representing an opinion of what may be and not what is. We do not disagree that this is the method used to assess the mineral potential, since our assessment of the mineral resources is based on the best information and methods available under the circumstances. We believe these are the best estimates available without further actual exploration, and trust that they have not been portrayed as otherwise in our comments. We submit, however, that the same kind of subjective rationalization and opinions are utilized by the NPS in recommending areas suitable for wilderness. We are mindful that the State of Utah, through the Governor, recommended much less wilderness than is proposed by the NPS. I think we have indicated to you earlier that the State recommendations would result in a much better balance and give more appropriate consideration to potential mineral development.

We can find little basis in the new information you provided to make significant change in our comments of November 16, 1977. We have reached this conclusion because the information upon which our comments were based is still the best information available concerning the estimated potential mineral resources within the GCNRA. We cannot logically relate the information provided concerning the past uranium activities that have managed to survive administrative action and requirements of law to the uranium potential of the area. This is especially true when you consider the GCNRA was withdrawn from mineral entry and did not benefit from the extensive and successful uranium exploration that has taken place in the adjoining areas in recent years.

Under these circumstances, I think the NPS and the Department should recognize a legitimate reason for our differing viewpoints and consider them along with public opinion and State government views in arriving at a decision.

In regards to the Park Service's proposed response (Comment and Response No. 21, as per your memo) concerning the administration of the San Juan River; the visitor days on the BLM portion of the river (4,351 visitor days - 1976) does not include the visitor use below Mexican Hat or above Bluff which would add significantly to the

total use on the BLM portion of the river. We assume that the National Park Service's visitor days statistic includes use on the BLM portion of the river below Mexican Hat. The proposed response is, therefore, misleading. There was a meeting held this late, August 18, 1978, at Washington, D.C. where the position relative to BLM and the National Park Service was discussed quite thoroughly. Mr. Darrel Lewis represented the BLM. The issue of the San Juan River resulted in a suggestion that a joint management plan for the San Juan River be developed based on the current management jurisdiction and administrative boundaries. We concur in this suggestion.

Paul L Howard

OFFICE OF THE DIRECTOR

United States Department of the Interior

BUREAU OF MINES
2401 E STREET, NW.
WASHINGTON, D.C. 20241

October 17, 1977

DES-77/28

Memorandum

To: Superintendent, Glen Canyon National Recreation Area, Page, Arizona

Through: Assistant Secretary--Energy and Minerals

From: Director, Bureau of Mines

Subject: Draft environmental statement, general management plan and preliminary wilderness proposal for Glen Canyon National Recreation Area, Utah and Arizona

Thank you for the opportunity to review your planning reports for the Glen Canyon National Recreation area. In general, the descriptive portion of the document dealing with mineral resources is adequately documented and supported by high quality visual aids reflecting a professional and thorough approach to the topic.

The section of the document dealing with impacts on mineral resources provides a realistic appraisal of the adverse effects that the natural zone proposal and its subsequent designation as wilderness would have on mineral development. This is not the case, however, for the zones designated for recreation and resource utilization. We realize that until NPS develops a specific minerals management program for these latter zones this evaluation is next to impossible, but the lack of impact identification represents a shortcoming in present planning. 30

With regard to wilderness planning, we realize that the Secretary must review all park system lands for their suitability as wilderness and that the recreation area has lands highly suitable. At the same time, unlike most units in the park system, Congress when it withdrew the area from the mining and mineral leasing laws provided specifically for mineral development under special conditions and appropriate controls. NPS therefore has the administrative tools to accomplish preservation without relying on wilderness designation. We appreciate your position that from the standpoint of preservation wilderness designation under a congressional mandate is preferable to existing administrative control. However, if in the years ahead, mineral production from the wilderness 31

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

area is sufficiently important for the Secretary to approve it, he would not have the administrative options he now has unless Congress declassifies the area. As we have emphasized in previous comments on this proposal, in view of the energy resource potential of the area and of other large nearby proposals for wilderness a reasonable management alternative might be one providing more flexibility to better serve overall needs of the public. 31

Under your general management proposal, the recreation area would be divided into four zones: a natural zone (620,490 acres), a recreation and resource utilization zone (606,595 acres), a cultural zone (25 acres) and a development zone (19,270 acres). The statement says that subject to valid existing rights, the natural zone would be closed to mineral development and motorized access to existing leases and claims within the zone would be restricted. The recreation and resource utilization zone would ". . . allow to the extent possible. . . mining. . . ." subject to provisions of a minerals management program that will be developed after the general management plan has been approved. Realistically, an additional qualifier seems necessary to identify the possible extent of mining that management would permit as perceived by the language in P.L. 92-593, that mining would not be permitted if it resulted in a significant adverse impact on the administration of the recreation area. Interpretation of this provision seems to hold the key, and, as we said above, the plan's omission of mineral resource impacts for the recreation and resource utilization zones leaves potential development uncertain at this stage. 32

In summary, NPS has complied with the letter, spirit, and intent of NEPA as regards mineral resources. Moreover, the DES and management plan represent the culmination of what has probably been a difficult effort at compromise between developmental and preservationist objectives. We are pleased to see that a detailed minerals inventory is proposed for the recreation and resource utilization zone. The disposition of the 11,000 or more mining claims in the NRA might be aided by a thorough mineral assessment of the entire NRA. 33

Director

Responses to Bureau of Mines Comments

30. We acknowledge that present planning of adverse impacts with regard to the Recreation Resource Utilization Zone are not specific. Until a Mineral Resource Management Plan and NPS regulations regarding minerals management are finalized, the effect on future mineral resource recovery can only be analyzed on a case-by-case basis as the situation arises.

31. Public Law, 92-593 mandated that a wilderness study be made of the recreation area to identify areas--both suitable and unsuitable--for preservation as wilderness. The recommendations of this study were to be made by the Secretary of the Interior to the President by October 1974. Congress along can establish wilderness and this wilderness recommendation is but one of several steps to be taken before a final determination is made by Congress.

32. Public Law 94-429 provided for the registration of mining claims within the Recreation Area. An estimated number of unpatented claims prior to the enactment of this Law totaled some eleven thousand. At the present time fewer than 700 claims have been recorded and those will now undergo a mineral examination for validity on a case-by-case basis. A mining plan of operation specific to each claim group will be prepared, and will include an evaluation of the impact on the administration of the Recreation Area and the impact on its natural resources.

33. A minerals inventory, as a part of the Minerals Resources Management Plan portion of an overall Resource Management Plan will be a valuable tool in determining the future disposition of mineral resources throughout the area.

United States Department of the Interior
BUREAU OF OUTDOOR RECREATION
MID-CONTINENT REGION

MAILING ADDRESS:
Post Office Box 25387
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
603 Miller Court
Lakewood, Colorado
Telephone 234-2634

REPLY REFER TO:
DES 77-28

OCT 3 1977

Superintendent
Glen Canyon National Recreation Area
P.O. Box 1507
Page, Arizona 86040

Dear Sir:

This is in response to the request for this Bureau's comments on the draft environmental impact statement for the proposed General Management Plan/Wilderness Proposal/Road Study Alternatives for Glen Canyon National Recreation Area, Arizona-Utah.

We wish to compliment the National Park Service on an excellent environmental analysis and a very readable and well organized document. We found the graphic displays to be particularly helpful in understanding the numerous and diverse elements of the proposed management plan and its alternatives. We believe the document adequately covers the environmental concerns of this Bureau; therefore, we have no comments. 34

Sincerely,

Robert J. Arkins
Assistant Regional Director
Land Use Coordination

Response to Bureau of Outdoor Recreation Comments

34. Thank you for your comments.

United States Department of the Interior

BUREAU OF RECLAMATION
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
715.420

JAN 30 1978

Memorandum

To: Director, National Park Service

From: Commissioner of Reclamation

Subject: Draft Environmental Statement for Proposed General Management Plan/Wilderness Proposal/Road Study Alternatives, Glen Canyon National Recreation Area, Arizona-Utah (DES 77-28)

We have reviewed the subject document and do not believe that the impacts on Bureau of Reclamation activities are adequately described.

Descriptions of Reclamation's needs, i.e., transmission corridors, potential pump-storage hydroelectric sites etc., are not included. Also, certain wilderness area designations could severely curtail operation and maintenance activities around the general shoreline. Our general and specific comments are enclosed.

We request that within the next several weeks your Regional Director Rocky Mountain Region, or appropriate staff members meet with our Regional Director, Salt Lake City, to work out appropriate modifications in the subject document.

Enclosure

Bureau of Reclamation Comments on Draft Environmental Statement for the Proposed General Management Plan/Wilderness Proposal/ Road Study Alternatives, Glen Canyon National Recreation Area, Arizona-Utah (DES 77-28)

General

The Bureau of Reclamation cannot support any of the alternatives as presented by the National Park Service (NPS) for management zoning, wilderness designation, or National Recreation Area (NRA) boundary changes at Lake Powell. Basically, we are not quite comfortable with any of the proposals or alternatives. We do like the concept of the Recreation and Resource Utilization (RRU) zone across the NRA at Halls Crossing; this zone also appears to extend across the San Juan River southeast of there. However, we would like to see spelled out in any of the management and wilderness proposals or alternatives that a major transmission line corridor is established through the NRA as a part of resource utilization. 35

Map 14 displays Reclamation withdrawals and sites that we have considered as having some potential for developing peaking power for the Colorado River Storage Project (CRSP) marketing area. There is no mention of how these withdrawals fit into the preliminary management proposal or the alternatives. We would like to see some discussion concerning our withdrawals and the potential peaking power sites. By memorandum dated October 7, 1977, our Regional Director, Salt Lake City, Utah, told the Assistant to the Regional Director, Utah, National Park Service, that all peaking power 36

sites are presently of interest. It was said that by about April 1978 Reclamation would be able to arrive at some preliminary conclusions as to which few we will continue to study. One site (Nipple Bench) in which we may be interested would involve a pumping plant and pipeline on a small parcel (unmarked on Map 14) on the south side of Wahweap. 36

We are presently preparing plans for revoking withdrawn lands around Lake Powell that are not contemplated for future Reclamation needs. Obviously, this recommendation will exclude those areas that are under study for power peaking development and operation and maintenance (O&M) of Glen Canyon Dam. Until the Bureau of Reclamation power peaking studies are completed and revocation of withdrawn lands are accomplished, it appears the NPS plans for establishing a wilderness area at Lake Powell are premature. 37

The natural and wilderness zones in the vicinity of Glen Canyon Dam and the portion of the NRA southwest from the dam should be deleted. Even though a transmission line corridor is shown on Map 35 and areas administered by Reclamation are shown on Map 13, these are not discussed in the proposals or alternatives. We would like to have the portion of the NRA from the dam southwesterly administered by Reclamation, or at least reserved for possible future Reclamation purposes by zoning it in the RRU category. 38

Specific Comments on Alternatives

Reclamation could support Alternative "B" or the preliminary proposal for management zoning if it has some recognition of and guarantees for Reclamation's development interests, particularly at and southwest of the dam. Alternative "A" is inconsistent with Reclamation needs. 38

Alternative "A" and the wilderness proposal are too restrictive without recognition of and guarantees for Reclamation needs; therefore, the lakeside boundary of the wilderness zone could not extend to the 3,700-foot contour. In fact, we recommend that the wilderness designation come no closer than a horizontal distance measured from the 3,700-foot contour which is the normal high water surface elevation. This would then allow the Bureau of Reclamation full access and unrestricted use of sufficient area around the shoreline of the reservoir to do whatever O&M may be necessary. This particular point was discussed with a local representative of the NPS. He felt that there would be adequate provision included in the proposed wilderness legislation which would allow O&M activity for public safety reasons along the reservoir shoreline and that our recommendation was not necessary. If that, in fact, is the case, we could get along with the wilderness following the high waterline of the reservoir. 39

The proposal is to add to the NRA not delete from; however, Management Zoning Alternative "B" does propose a deletion in the area of the potential Navajo Point pump-storage site and should be resolved. 40

Road Alternative D-1 would facilitate construction and O&M of candidate peaking power sites Last Chance, Grand Bench, Rock Creek, and Navajo Point; otherwise, none of the road alternatives appear to offer any aid or deterrent to Reclamation needs.

Involvement of Navajo Indians

One area of concern in the recreation management and development planning appears to be purposefully avoided. This is the role of Navajo Indian development along the south side of the San Juan arm. 41

Technical Comments

On page 20 of Volume 3, there is a footnote (No. 3) indicating that line flows on the Glen Canyon-Shiprock line could be in either direction This same footnote should also be used for the Glen Canyon-Sigurd 230-kV line. 42

The map on page 35 of Volume 2 does not agree with the table referred to in item 1 above in that the map shows the lines of the now defunct Kaiparowits Project. Although the references to Kaiparowits should be removed from these lines, we would advise leaving them on the map simply as future lines since there is still the possibility of other future steamplants or pumped storage plants using this corridor. In 43

other words, we would strongly advise against reducing the size of the corridor due to the absence of Kaiparowits if, indeed, that should be contemplated. 43

Item 1 on page 114 of Volume 4 should be rewritten as follows: 44

1. A number of methods are available for increasing power flow without increasing the number of lines. These are:

   a. Increased voltage levels. For instance, the capacity of a 500-kV line is roughly twice that of a 345-kV line over the same distance; however, higher voltages do entail greater phase spacing and thus greater right-of-way width. Also, tower heights must be greater for increased ground clearance.

   b. The use of series capacitor devices in the lines. These, in effect, reduce the voltage drop between two points, and this results in greater load-carrying capacity, since it is usually voltage and not the thermal limit which establishes the capacity of a line.

   c. The use of larger conductors. For short lines in particular where voltage drop is not significant, greater capacity can be obtained with larger conductors which carry more load before becoming overheated.

   d. Adding switching stations at intermediate points in a line results in more effective utilization of capacity when there are two or more transmission lines between two points. For instance, with two lines between two points and a switching station at the midpoint, a fault on either line would result in the loss of only one-fourth of the transmission capacity in terms of distance. The remaining one line to the midpoint could then be overloaded with only half the voltage drop that would result if one line were lost the entire distance.

Volume 1, page 20, section 3, has several misleading and false statements. The second half of the first paragraph beginning with "The probability of the occurrence of this event during the next 50 years is about 1 in 1,000" should be stricken and replaced with the following text: 45

> During the normal life of the reservoir, the water level is expected to vary between elevation 3,490 and 3,700 feet. A seasonal variation is normally about 25 feet; however, extreme seasonal variations may be as much as 60 feet or as little as 5 feet. Figure 5 gives annual probability curves based upon a model of future inflow to the reservoir and demands for water for the elevation of the reservoir over the next 25 years. Thus, for example, there is a 50 percent chance that the reservoir elevation will be at or above 3,648 feet some time during the year 2000. A maximum, long-term drawdown of 210 feet (from 3700 to 3490 feet) could occur in about 35 years if the worst period of recorded inflow reoccurred.

In Volume 1, page 20, section 3, figure 5 should be replaced with the enclosed graph of more recently determined probability ranges. 46

On page 21, Volume 1, the first sentence under "5. Sedimentation" should be replaced with the following: 47

> Sediment has been measured for the Colorado River and its tributaries since 1925. The average annual inflow of sediment to Lake Powell is computed to be about 70,000 acre-feet for the 1926 to 1974 period. Because there has been a large decrease of sediment since the early years of measurement, it is now estimated that the 100-year accumulation of sediment into Lake Powell will be 5,000,000 acre-feet. This is 19 percent of the capacity of the reservoir. If more major reservoirs are built upstream, they would trap some sediment and decrease the sediment inflow to Lake Powell.

On page 37, near the top of the page, the figure 106,000 acre-feet should be changed to 50,000 acre-feet. 48

On page 72, near the bottom of the page, the figure 106,000 acre-feet should be changed to 50,000 acre-feet. 49

Volume 1, page 92, section 9, paragraph 2. Concentration should be expressed in the units of ug/m3, not ug/m2 as shown. 50

Resource Management Comments

Page 5, line 3, paragraph 1. Can a truly "natural" setting be maintained while allowing grazing by other than natural native or naturalized wildlife species? We are concerned over what sort of natural experience people can receive with cattle or other livestock using the area. This concern is expressed on page 28, paragraph 1, line 15, to end of paragraph. 51

If grazing is permitted at current, or slightly lower rates on the recreational area, how will recreational use rates be controlled in combination with grazing use to prevent overuse? 52

With regard to overgrazing, there appears to be an inconsistency in the report. In one place it states that undesirable forage is predominate on the range indicating overgrazing, then later in the report it is mentioned that allocated AUM's are underutilized and that BLM would allow greater grazing of the area. 53

Since the area between Glen Canyon and Hoover Dam is well covered with wilderness designated areas, the area recommended for like classification (natural) in Glen Canyon could have a type of modified classification which would allow a permit system for motorized vehicle use for specific purposes (i.e., archeological survey and recovery; management of range resources; ad inistrative purposes assorted with regulatory functions). 54

On page 170, the impacts of the road construction should also point out that besides making archeological sites more accessible to looting and vandalism these same roads would also make these sites more accessible to trained investigation, cataloging, and authorized collection. Also, the roads would make patrolling and protection of the sites easier. 55

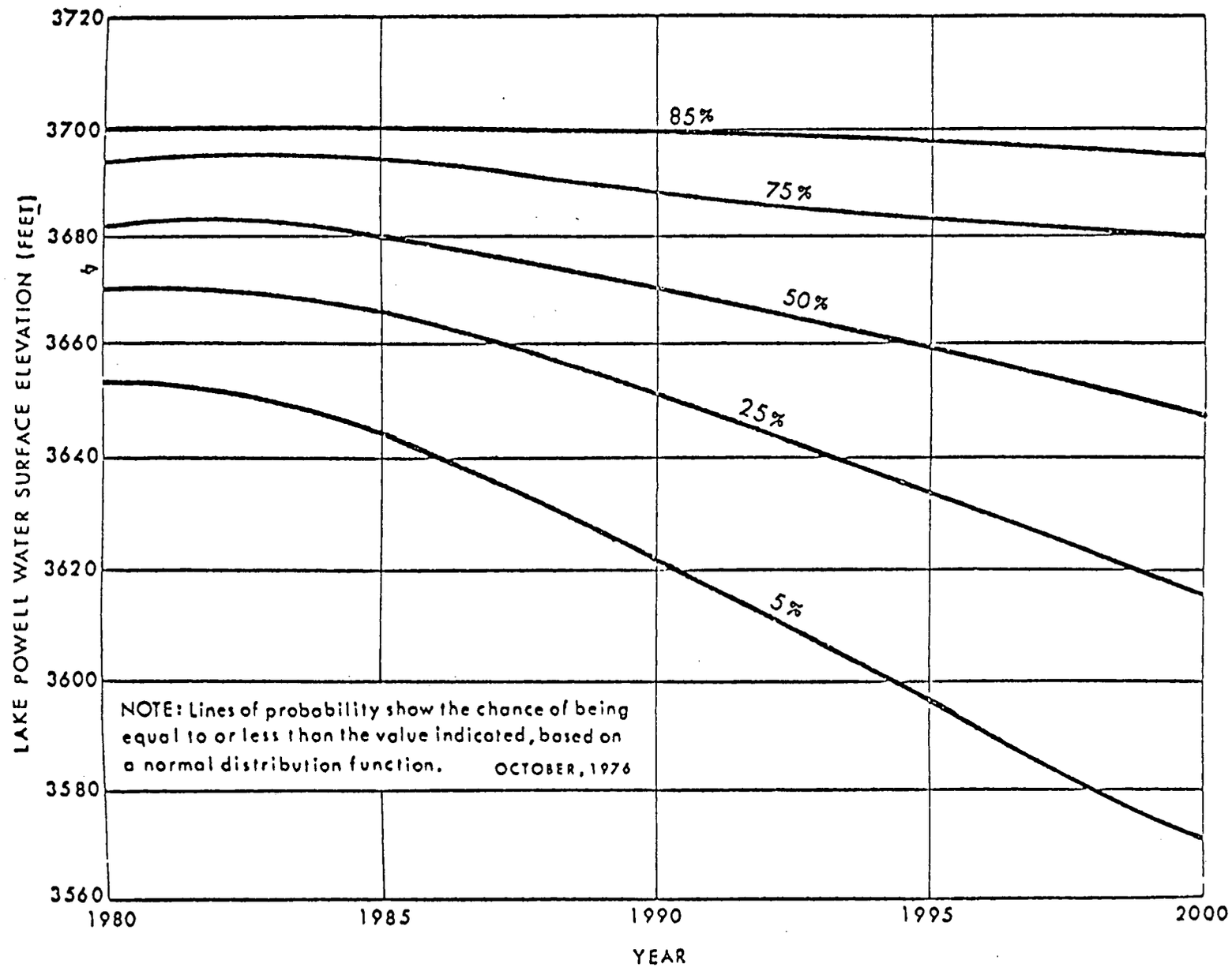
On table 3, Volume 3, the description for the proposed scope of development at Wahweap concerning the relocation of the visitor center and administrative functions should be more fully explained and be consistent with information shown on table 29, Volume 3. 56

Could Class I scenery be preserved without classifying a large area (100,000 Acres plus) as "Natural" or "Wilderness"? In other parts of the country, it seems that NPS has done an outstanding job of preserving class I areas without "locking them up" for the few who have the leisure time, physical vigor, and emotional inclination to use the backpack or horseback route to enjoy an area. If these are truly outstanding, rare, and unique areas, should they not be maintained for the general public to enjoy rather than a limited few, especially in view of the vast area around Lake Mead already designated as wilderness? 57

The Bighorn sheep area, especially the "lambing area", and a reasonable surrounding buffer strip could be designated as "natural" to protect this unique national natural heritage. 58

The alternative on page 134, alternative B, consumptive utilization emphasis seems to have a great deal of merit for resource management. A possible modification would be to include Red, White, and Gypsum Canyons along with those listed in the natural zone. This would help preserve the Bighorn Sheep range. 58

PROBABILITY RANGES OF LAKE POWELL WATER SURFACE ELEVATION



Responses to Bureau of Reclamation Comments

35. There is not currently a specific proposal for any utility, major or minor, crossing through the NRA. Table 2 lists utility and transportation systems as permitted nonrecreational activities under the Recreation and Resource Utilization Management Zone. This, in concert with the mapped proposal for management zoning and wilderness, would leave potential corridors anywhere within the RRU Zone. It is impossible for this document to serve as the NEPA compliance vehicle for any specific utility corridor proposal that may be generated in the future. There is, however, nothing in this document that precludes such proposals.

36. In August 1978 your Bureau notified the NPS that the nine Utah sites had been abandoned. One, not previously shown, on Nipple Bench outside the NRA, would require a corridor (inside the NRA) for a pipeline and pumping station. Peaking power proposals below Glen Canyon Dam remained viable. These and the one on Nipple Bench would not be precluded or interferred with by the final management zoning proposal or Wilderness recommendation. Refer to the letters that follow from the NPS dated July 14, 1978 and from your agency dated August 31, 1978.

37. Refer to response 31.

38. The area proposed for wilderness and Natural Zone upstream from Lees Ferry consists of canyon faces and tops of plateaus, and would not interfere with your interests in this area. The Lees Ferry Development and Cultural Zones represent the location of important public access to the Grand Canyon and a concentration of historic resources. Nothing in this document will alter existing conditions or the authorities of your Bureau as reflected on DES Maps 13 and 35. Refer to response 36 and Section 111 of the Plan (The Wilderness Recommendation).

39. The lakeside boundary of the Wilderness recommendation is coincident with the fluctuating surface of Lake Powell, except for Antelope Island, as concurred in your letter of August 31, 1978.

For this plan and the accompanying final environmental statement the 3,700-foot contour has been used as the boundary. However, as the water surface fluctuates when it is lower than this contour, there would be more Wilderness acreage with a corresponding decrease in non-wilderness acreage. Conversely, the opposite would occur when the fluctuating water surface is higher than this contour.

The Wilderness at Antelope Island has to be treated differently because if Lake Powell's surface falls below about elevation 3620 this area ceases to be an island. For this situation the Wilderness would be coincident with the top of the south side of the channel between this island and Castle Rock. When lower, the Wilderness boundary would remain at this channel.

A Reclamation O&M zone, (Map 3) extending from the high water elevation (3,711 feet m.s.l.) 1/2-mile horizontal distance back, or to the withdrawal boundary, whichever is the lesser distance, will be superimposed over the wilderness area. This zone would provide your agency latitude to conduct emergency and routine operational and maintenance activities.

The language of the authorizing legislation would recognize this "O&M Zone", and include a similar provision to Section 4 of P.L. 92-593. "... provided that nothing in this Act shall affect or interfere with the authority of the Secretary granted by Public Law 485, 84th Congress, Second Session, to operate Glen Canyon Dam and Reservoir in accordance with the purposes of the Colorado River Storage Project Act for river regulation, irrigation, flood control and generation of hydroelectric power." Refer to the letters that follow from the NPS dated July 14, 1978 and from your agency dated August 31, 1978.

Sec. 4 of P.L. 92-593 renders it legally impossible for the NPS to propose anything that would interfere with the operation and maintenance of Lake Powell or the future construction and operation of any other project within the the scope of P.L. 485. This applies to wilderness as well. The Wilderness Act would not apply to the NRA, were it not for Section 9 of P.L. 92-593. Section 4 indicates that nothing in the Act will interfere with the Secretary's authority under P.L. 485 to operate Glen Canyon dam and reservoir, etc. This obviously includes any action taken pursuant to Section 9 of the same Act.

In regard to actions necessary to protect public safety, Section 4.(c) of the Wilderness Act is the genesis of the "minimum tool" concept, and no additional language is necessary. It is apparent that either Reclamation, or NPS,

has the authority to do whatever is necessary to protect the public safety as long as we do it with sensitivity to wilderness values. Refer to Section III of the Plan, and VIII.E.3. of the FES.

40. The FES proposal does not include this boundary change.

41. Potential development sites along the Navajo Reservation shoreline which includes the San Juan arm, are displayed on Map 1.

42. Your comment has been incorporated into this table.

43. DES Map 35 has been revised as you suggested and is now Map 8. The utilities planning corridor size is unchanged.

44. Your recommended text has been incorporated in Appendix 10 of the FES.

45. Section IV.B.3. of the Plan includes your change.

46. Your graph has been incorporated into Section IV.B.3. of the Plan.

47. Section IV.B.5. of the Plan has been changed to incorporate your input.

48. Section IV.B.17. of the Plan has been changed accordingly.

49. Section II.B. of the FES has been changed accordingly.

50. Section III.A.9. of the FES has been changed accordingly.

51. The Wilderness Act does not preclude grazing but rather, stipulates the manner by which the management of grazing may be pursued. It appears that the presence of livestock has been deemed acceptable in "natural" settings.

52. We see no general conflict relative to overuse between grazing and backcountry recreational use. In any event, grazing levels would be adjusted, should such conflicts surface.

53. Because of past overuse and forage depletion, stocking rates were reduced voluntarily by grazers. Both statements are, therefore, accurate.

54. The Wilderness Act provides for management to utilize the minimum tool necessary to carry out its responsibilities. This would not necessarily preclude mechanized access such as a helicopter when that is the "minimum tool" available to do the job.

55. Section VIII.F.4.e. of the FES acknowledges this.

56. The full scope of development at Wahweap is contained in a separate document, the Development Concept Plan approved 1971. Tables 3 and 20 have been revised to eliminate the inconsistency.

57. We see little relationship between proposed wilderness at Lake Mead and the proposal herein described. The principles of wilderness accessibility are well established and are not in conflict with current user patterns.

58. In large part, the suitable bighorn sheep habitat has been included in the natural management zone. One reason it remains suitable is that it requires many of the elements included in the Natural Management Zone criteria.

United States Department of the Interior
NATIONAL PARK SERVICE
UTAH STATE OFFICE
125 S. STATE STREET
SALT LAKE CITY, UTAH 84138

IN REPLY REFER TO:
L76
xD18

July 14, 1978

Memorandum

To: Regional Director, Upper Colorado Region, Bureau of Reclamation

From: Assistant to the Regional Director, Utah

Subject: Environmental Statement for General Management Plan/Wilderness Proposal/Road Study Alternatives, Glen Canyon National Recreation Area

This is a summary of the proceedings of the meeting between yourself and your staff; and National Park Service personnel, including Regional Director Glen Bean and Superintendent Temple Reynolds on Wednesday, June 28, during which the subject FES and plans were discussed.

In accordance with the agreements reached during the meeting, there is enclosed a description of our treatment in the final environmental statement of the several comments on the draft environmental statement (DES 77-28) provided by your Commissioner in his memorandum dated January 30. You will note that items 2 and 5 pertain to the two issues we discussed at some length during the meeting. If the resolution of those issues can be confirmed along the lines we discussed, the responses (2 and 5) need not appear in the FES.

Your peaking power study has progressed to the point where it appears, as we understand it, that all except two sites within, or adjacent to, the Recreation Area are about to be dropped from further consideration. If that is the case, now is a good time to let us know because it would disencumber our wilderness proposal of several areas of "potential wilderness additions" which invariably attract inordinate attention and require repeated explanations in subsequent reviews and the legislative process. The Nipple Bench proposal is compatible with our plan if we understand correctly that there is sufficient flexibility in the location of the water intake structure, and related pumping station and pipeline to avoid the recreation development on the west side of the Wahweap Arm of Lake Powell. Neither is there anything in our plan that would preclude a proposal to either modify the outlet works of the existing Glen Canyon dam, or to construct a new dam upstream from Lees Ferry to provide peaking power. A route for transporting the power from the new dam also exists in the plan if that becomes your proposal. You are aware, of course, that the National Park Service may have concerns about the proposal's impacts on water flows and characteristics downstream, especially in the Grand Canyon. This is, as we view it, a separate issue to be addressed in the context of your planning process.

The second point discussed in the meeting pertained to the location of the wilderness boundary relative to the shoreline of the reservoir. The thinking reflected in item 5 of the enclosure is our view of the legal climate surrounding this issue. It is, however, important to the management of those parts of the shoreline contiguous with wilderness, that the statutory designation, "wilderness" apply to the shoreline, recognizing its propensity and statutory right to fluctuate in accord with the purposes of the Colorado River Storage Project Act. In the interest of protecting your prerogatives to operate and maintain Lake Powell, we suggest that the authority to do so be reaffirmed by drawing a line within the recommended wilderness to identify a zone within which your Bureau would have the same latitude to operate as defined in Section 4 of P.L. 92-593. "...Provided, however, that nothing in this Act shall affect or interfere with the authority of the Secretary granted by Public Law 485, 84th Congress, Second Session, to operate Glen Canyon Dam and Reservoir in accordance with the purposes of the Colorado River Storage Project Act for river regulation, irrigation, flood control, and generation of hydroelectric power."

Where that line is drawn is immaterial to us. We do need to be concerned about tieing the line to administrative designations, such as your withdrawals, which may, and probably will, change. One possibility that has been discussed, and with which we would agree, is a 300 foot horizontal set-back from maximum pool elevation. A more generous set-back would also be acceptable to us because you currently have that authority throughout the existing withdrawn area, if not the entire Recreation Area.

One slight deviation from the wilderness shoreline concept, which does not affect the foregoing and was discussed at the meeting, occurs on Antelope Island. There, in order to curtail unlimited expansion of wilderness in the unlikely event that the channel north of the Island disappears as a result of extreme draw downs, we are proposing that the wilderness boundary follow the fluctuating shoreline down to the elevation of the top of the south side of the channel and no farther.

If you can reach conclusions now pertaining to the peaking power sites, and concur in the concept of a Bureau of Reclamation O & M Zone in the

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

wilderness, with guidance for us as to your wishes relative to the definition of the zone, we would very much appreciate it. If these issues can be satisfactorily resolved, this exchange of correspondence will become part of the FES, and the agreements will become part of our recommendation.

Thank you for your assistance and cooperation.

Jim Isenogle

James L. Isenogle

Enclosure

cc:

Regional Director, Rocky Mtn Region	w/c	of	encl.
Manager, DSC (Attn: Larry Knowles)	"	"	"
Bill Greg, WASO	"	"	"
Supt., Glen Canyon NRA	"	"	"

United States Department of the Interior

BUREAU OF RECLAMATION
UPPER COLORADO REGIONAL OFFICE
P.O. BOX 11568
SALT LAKE CITY, UTAH 84147

IN REPLY REFER TO: 452
120.

AUG 31 1978

Memorandum

To: Assistant to the Regional Director, Utah State Office, National Park Service, 125 S. State Street, Salt Lake City, Utah 84138

From: Acting Regional Director, Salt Lake City, Utah

Subject: Environmental Statement for General Management Plan/Wilderness Proposal/Road Study Alternatives, Glen Canyon National Recreation Area

Your memorandum of July 14, 1978, presents an accurate summary of discussions and conclusions reached to date, regarding the subject environmental statement. We concur in the proposal to extend the proposed wilderness boundary to the shoreline with the following provisions:

1. A Reclamation O&M zone, extending from the high water elevation (3,711 feet m.s.l.) 1/2-mile horizontal distance back, or to the withdrawal boundary, whichever is the lesser distance, will be superimposed over the wilderness area. This zone would provide Reclamation latitude to conduct emergency and routine operational and maintenance activities.

2. The language of the authorizing legislation would recognize this "O&M Zone," and include a similar provision to Section 4 of P.L. 92-593. "... provided that nothing in this Act shall affect or interfere with the authority of the Secretary granted by Public Law 485, 84th Congress, Second Session, to operate Glen Canyon Dam and Reservoir in accordance with the purposes of the Colorado River Storage Project Act for river regulation, irrigation, flood control, and generation of hydroelectric power."

Our peaking power studies have progressed to the point where all of the sites in Utah within the NRA boundary,

have been abandoned except Nipple Bench. This site falls outside of the NRA boundary but will require right-of-way for a piepline and pumping station. Peaking power proposals below Glen Canyon Dam remain viable and we understand that National Park Service proposals do not preclude or interfere with these project proposals.

This exchange of correspondence should complete resolution of the issues raised on the draft environmental statement (DES 77-28).

Harl M. Noble

cc: Regional Director, National Park Service, Rocky Mountain Region, 655 Parfet Street, Denver, CO 80225
Superintendent, Glen Canyon National Recreation Area, Page, Arizona 86040
Project Power Operations Manager, Page, Arizona 86040
Commissioner, Washington, D.C.
Attention: 420

United States Department of the Interior
FISH AND WILDLIFE SERVICE
AREA OFFICE COLORADO—UTAH
1426 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138

In Reply Refer To (ES)

November 18, 1977

MEMORANDUM

TO: Assistant to Regional Director
Utah National Park Service
Salt Lake City, Utah

FROM Acting Area Manager

SUBJECT: Review of DES 77-28-General Management Plan, Wilderness proposal, Road Study alternatives for Glen Canyon National Recreation Area, Arizona/Utah

The Fish and Wildlife Service has reviewed the above draft EIS as it relates to fish and wildlife resources.

The draft adequately describes existing wildlife resources and the site-specific impacts of most physical developments is covered. However, the more widespread secondary impacts on wildlife resulting from increased outdoor activities of expanded tourism have received very little attention. This would be one of the more serious impacts on wildlife. 59

Wildlife, and man's enjoyment of the wildlife resource as a integral part of a high quality back-country experience within the spectacular ecosystem of the area, are best served by the relatively primitive level of access existing at present. Any appreciable expansion of the road system would be detrimental to some extent. The portions of routes D-1 and D-2 crossing the Escalante River would probably be the worst in this respect.

If increased development is in fact necessary, we favor the recommended plan over either Alternatives A or B as it represents a balance between development and preservation. Alternative B would be by far the most destructive and undesirable plan from a wildlife point of view. Within the proposed plan of development those transportation routes that follow existing roads and avoid crossing the lower Escalante Canyon would be less damaging. The Escalante Canyon is a high quality, fragile ecosystem that has been partially protected by remoteness. A highway through this area would subject it to the adverse impact of vastly increased human abrasion.

Volume 1, page 163, Paragraph 2-The bobcat, though not on the official list of endangered species, is sufficiently low in numbers that Utah and several other states have taken action to protect them. This fact should be mentioned. 60

The opportunity to offer these comments is appreciated.

Mitchell G. Sheldon

Responses to Fish and Wildlife Service Comments

59. The detrimental impacts associated with an increase in visitation would primarily come to the more remote land based recreational opportunities within the Recreation Area. Since subsequent planning calls for a Backcountry Management Plan the impacts associated with visitor use will be evaluated with regard to wildlife. Most of the increase in visitation will be oriented towards the surface of Lake Powell, and thus have no significant impact on the terrestrial wildlife species occupying the other 87 percent of the Recreation Area.

60. Your comment has been incorporated in Section VIII.F.4.a. of the FES.

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

OFFICE OF THE DIRECTOR

In Reply Refer To:
EGS-DES-77/28
Mail Stop 760

OCT 12 1977

Memorandum

To: Superintendent, Glen Canyon National Recreation Area
National Park Service, Page, Arizona

Through Assistant Secretary--Energy and Minerals

From: Acting Director, Geological Survey

Subject: Review of draft environmental statement and related plans and proposals for Glen Canyon National Recreation Area, Arizona and Utah

We have reviewed the subject documents as requested in a memorandum of September 2 from the Regional Director.

Environmental impacts related to geologic conditions are comprehensively analyzed in the draft environmental statement and related documents. The maps are especially well done.

It is stated that because of the rate of sedimentation during the next few decades in the upper portion of the Lake Powell Reservoir, especially within the Hite development site (p. 72, par. B.2), either dredging or abandonment of the Hite Marina facilities may be required. The establishment of either new recreational facilities or expansion of existing facilities within this site should include measures such as sediment traps to minimize any increase in the sediment load entering the upper portion of the reservoir. 61

The statement should include references to potential hydroelectric and water-storage sites and to the lands classified or reserved for such purposes by the Geological Survey, as follows. 62

The largest site in the subject area was developed in 1963 when the Bureau of Reclamation completed the Glen Canyon Dam (Lake Powell). In May, 1973, the Geological Survey issued Power Site Cancellation 276 which removed waterpower classifications from about 132,500 acres along Lake Powell in Utah. In August, 1973, we requested that the Bureau of Land Management prepare a public land order to restore an additional 104,500 acres in power site reserves in the same area. Final action has not been taken by Bureau of Land Management. 62

Several waterpower and water-storage sites have been considered on the San Juan River upstream from Lake Powell. The Slithorn site is within the subject area, and the Goosenecks and Mexican Hat sites may be if the proposed boundary additions are approved. The Geological Survey included about 18,000 acres along this reach in a power site classification on July 2, 1910.

The average discharge of the San Juan River at Bluff, upstream from this reach, is about 2,600 cfs. The maximum pool level of the potential reservoir at the Mexican Hat site is 4,302 feet and at Lake Powell is 3,711 feet. Assuming a gross head of 590 feet, an average discharge of 2,600 feet cfs, and 100-percent efficiency, the gross theoretical potential of this reach is 130 MW. 63

In a 1975 report, Potential Pumped Storage Projects in the Pacific Southwest, the Federal Power Commission identified about nine potential sites, all or portions of which may be within the subject area. One of these, Cataract Canyon, is proposed for further study in the February, 1977, Western Energy Expansion Study report.

Specific data or a source of such data can be furnished by Jack B. Dugwyler, U.S. Geological Survey, Federal Center, Denver, Colorado 80225.

Acting Director

Responses to the Geological Survey Comments

61. The NPS controls neither the inflow to Lake Powell nor the surface elevation. Sediment traps do not appear feasible in this instance due to the wild nature of Cataract Canyon. Future planning for the Hite area will take into account anticipated siltation levels projected by the Bureau of Reclamation.

62. We would appreciate being notified when final action on these two public land orders has been taken by the Bureau of Land Management. An attempt was made to obtain data from the source given in your letter but he was too busy.

63. Refer to last sentence of response 62.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION EIGHT
BUILDING 40, DENVER FEDERAL CENTER
DENVER, COLORADO 80225

December 6, 1977

IN REPLY REFER TO:
HED-08

Superintendent
Glen Canyon National Recreation Area
P.O. Box 1507
Page, Arizona 86040

Dear Sir:

Thank you for the opportunity to review the draft EIS for the Glen Canyon National Recreation Area.

Our main concern is that the final proposal includes provisions for the development of necessary roads and trails in order to provide proper access to this large undeveloped area. It appears that provisions have been included to reserve a corridor for a road from Bull Frog to Glen Canyon City. It is recognized that this in itself is a point of controversy. The maps only indicate that location of a corridor south of Steven's Arch is being reserved. There is no indication that a corridor from Steven's Arch to Bull Frog will receive consideration. 64

We feel that with the planning that is being considered, adequate attention needs to be given to provide the required access to serve the limited proposed development.

Sincerely yours,

B P Lautenbach
for Daniel Watt
Regional Federal Highway Administrator

Response to the Federal Highway Administration Comments

64. Map 14 and DES Map 44 both show road study alternatives which include the area between Steven's Arch and Bullfrog Basin.

The NPS does not at this time make a recommendation for any particular alignment of the authorized Glen Canyon City to Bullfrog Basin Road.

Adequate access for the proposed and existing development is a most important element of this planning effort. The final management zoning proposal (Map 1) we believe will provide suitably for this.

FEDERAL POWER COMMISSION
WASHINGTON, D.C. 20426

September 28, 1977

Superintendent
Glen Canyon National Recreation
Area
Post Office Box 1507
Page, Arizona 86040

Dear Sir:

I am replying to your request of September 2, 1977 to the Federal Power Commission for comments on the Draft Environmental Impact Statement for the General Management Plan, Glen Canyon. This Draft EIS has been reviewed by appropriate FPC staff components upon whose evaluation this response is based.

The staff concentrates its review of other agencies' environmental impact statements basically on those areas of the electric power and natural gas industries for which the Federal Power Commission has jurisdiction by law, or where staff has special expertise in evaluating environmental impacts involved with the proposed action. It does not appear that there would be any significant impacts in these areas of concern nor serious conflicts with this agency's responsibilities should this action be undertaken. 65

Thank you for the opportunity to review this statement.

Sincerely,

Jack M. Heinemann
Advisor on Environmental
Quality

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

Response to the Federal Power Commission Comments

65. Thank you for your comments.

2. Comments from State Agencies and Their Subdivisions

SCOTT M. MATHESON
GOVERNOR

STATE OF UTAH
OFFICE OF THE GOVERNOR
SALT LAKE CITY
84114

December 9, 1977

Mr. Wm. J. Whalen, Director
National Park Service
18th and C Streets, N.W.
Washington, D.C. 20240

Dear Mr. Whalen:

The following are comments on the General Management Plan and Wilderness Proposal for the Glen Canyon National Recreation Area. They represent the views of this office and the Executive Branch of the Utah State Government.

Great care has been taken in the development of these comments including review by the State's Environmental Coordinating Committee and Economic and Physical Development Coordinating Committee prior to reaching my desk.

It should be noted at the outset that Utah endorses the continuation of the Glen Canyon Recreation Area as a multiple-use area. Utah recognizes some wilderness areas as resources within themselves. At the same time, many of our citizens question the propriety of any wilderness designation within a national recreation area. However, to meet the concerns of the National Park Service, Utah citizens have reached this compromise recommendation and it should be recognized as such. The recommendation is a sincere attempt at accommodating a true multiple-use concept. It is felt that further compromise does not do justice to the proper utilization of the resource. 66

In that light then, I am recommending that the National Park Service Management Zoning Alternative "B" and Wilderness Alternative "B" be adopted with the following modifications:

Wilderness

1. Adopt the wilderness proposal as reflected in the Park Service's Alternative "B" with the provision that an access road corridor in the southwest corner of the Little Rockies be provided.

Rationale: The Little Rockies should have a road corridor to allow access to grazing rights. While the Alternative "B" Wilderness proposal does not include the high mesas of this section, it includes all access roads. A corridor should be allowed to make the mesa grazing area useful. 67

The scenic value of this area would not be adversely affected by such a road corridor since the road would be bound by wilderness. The wilderness area designated in Alternative "B" is the highest Class I scenic value according to the Park Service's Analysis. 67

Boundary adjustment

1. Delete the Moody Creek and Beef Basin areas from the recreation area as indicated in the Park Service's 1977 preliminary proposal.

Rationale: The Moody Creek has considerable federal oil, gas, and mineral leases. The Beef Basin area is suitable habitat for Bighorn Sheep. Thus, excluding these areas from the recreation area would facilitate management of Bighorn Sheep and enhance mineral exploration. 68

2. Extend the boundary deletion as shown in Alternative "B" in the Silver Falls area so that the main fork of the Silver Falls Creek, the Harris Wash Road Corridor, and everything north of said corridor are out of the recreation area.

Rationale: This would keep the Harris Wash cross-over corridor out of the recreation area, thereby keeping access open. 69

3. Adjust the recreation boundary so the area from Grand Gulch to Mexican Hat is deleted from the recreation area.

Rationale: This area is rich in energy-related resources and excluding it from the recreation area will facilitate development. If the section were left in the Park and designated as wilderness as proposed, the wilderness would preclude access to Muley Point and the Goosenecks Overlook because the roads are partially within the proposed area. Too, attempting to manage just one side of the San Juan River bank as Wilderness (south side belongs to the Indian Reservation) does not make sense in the spirit of the Act. Road maintenance on the area can be continued by the county. 70

Development

1. Support development as indicated in the Park Service's Alternative "B".

Rationale: Proposed development as envisioned in Alternative "B" will provide maximum public enjoyment and use of the National Recreation Area without degrading the landscape in the area. The access provided by the proposal will help distribute pressure throughout the lake thereby eliminating intolerable impacts on any single marina or land development. 71

ADDITIONAL RECOMMENDATIONS

Utah supports the following additional recommendations dealing with the over-all concept and planning of the recreation area.

1. Delete the area from the north side of the Burr Trail running south from the boundaries of Capitol Reef National Park. Then add that area south of the Burr Trail to the boundaries of Glen Canyon.

Rationale: This would leave the Burr Trail Corridor open, would provide some limited access to the high plateau grazing areas. Most importantly, this area is the only road access to Hall's Creek, which is the logical area of development expansion from Bullfrog Basin. The proposed wilderness for Capitol Reef would lock out the access to Hall's Creek. Exchanging boundaries would suit both National Park Service areas well.

2. Request that the National Park Service exchange nonaccessible State sections in the recreation area for land outside the recreation area as designated by the State Land Board. This should be accomplished within a reasonable time frame.

Rationale: This action would enable the State to develop land which is currently nonusable. This, too, could serve to reduce in-park pressures. This should be done within a reasonable time period.

3. The management plan should look at exchanging some of the Canyonlands National Park land in the area north and west of the Orange Cliffs with Glen Canyon so that there is a continuous road corridor.

Rationale: The Moab-to-Hite corridor needs exemption until the best route is selected by the Department of Transportation. That can best be managed if the corridor across the Green River rests within the boundaries of just one of the Park areas. This problem will be addressed in more detail during the Canyonlands management study.

4. Utah would like to note the comments from the Bureau of Land Management's study regarding the Park Service's Alternative "A" and "B". Excerpts from this study are as follows:

"Implementation of the National Park Service Alternative "A" would be a total disaster as far as orderly development of the mineral resources within the area is concerned. Mineral development would be totally excluded within the boundaries of the recreation area, and mineral leases on lands outside the recreation area could become inaccessible due to the closing of existing roads in the area. The wilderness proposal considered under this alternative is not in harmony with the Glen Canyon Act which specifically provides for mineral leasing and development.

"Management Alternative "B" considered by the National Park Service should not have any significant effects on the development of the speculative and known mineral resources within the recreation area. Of the areas thought to have a better potential for the occurrence of mineral resources, only a relatively small portion of the area along the Waterpocket Fold identified as having a high potential for oil and gas would be precluded for development.

"In order to provide for the disposal of mineral resources in the Glen Canyon National Recreation Area as is required by Section 3 of the Glen Canyon Act and meet the Department of Interior objectives of providing for the orderly and timely development of mineral resources, it is clear that Management Alternative "B" is the preferred alternative of the three alternatives considered by the National Park Service. Formulation of the final management plan and wilderness proposal must consider a variety of factors including mineral resource values and local and state government and public opinion. Therefore, the final proposal should not be limited to the three alternatives presented by the National Park Service."

5. Retain all roads and vehicle trails outside the wilderness area recommended by the State and traversable at the time the Glen Canyon Recreation Area was established (October 27, 1972) as public access roads unless they conflict with the State's 1977 wilderness position.

Rationale: It is felt that existing roads and trails should remain open to enable general public access for recreation and development purposes.

We thank you for the opportunity to express our ideas and concerns during this review period and we trust that the eventual Park Service recommendation will reflect the input of the state.

Sincerely,

Scott M. Matheson

SMM:MDG

Responses to Utah Governor Matheson's Comments

66. The NRA is not a multiple-use area in the classic sense because the legislation authorizing its establishment directs the following prioritization of land uses. (1) Nothing done associated with the development or management of the NRA will interfere with the operation of Glen Canyon Dam and reservoir for river regulation, irrigation, flood control, and generation of hydroelectric power. (Sec. 4, PL 92-593). (2) It will not interfere with mineral rights reserved to the Navajo Indians or their rights to use "Parcel B" lands (Sec. 2 (b), PL 92-593). (3) It will provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto ... and will preserve scenic, scientific, and historic features contributing to public enjoyment of the area (Preamble, PL 92-593) in accordance with the Act of August 25, 1916 (Sec. 4, PL 92-593). (4) Mineral development is to be permitted ... "if he (Secretary of Interior) finds that such disposition would not have significant adverse effects on the Glen Canyon project (reservoir) or on the administration of the NRA pursuant to this Act." (Sec. 3 (a), PL 92-593). (5) The administration of grazing leases will be by the same policies used by BLM on other lands under its jurisdiction (Sec. 6) subject to the proviso that it does not significantly affect the reservoir or Recreation Area.

In addition to this prioritization of general land uses, there are the following management guidelines to several specific sub-categories of land use and activities. (1) A Wilderness study is required (Sec. 9). (2) A study is required to locate the specific route of an authorized scenic, low-speed road not required to meet ordinary secondary road standards between Glen Canyon City and Bullfrog Basin (Sec. 8). (3) Easements and rights-of-way will be granted unless they are found to have significant adverse effects on the administration of the NRA (Sec. 7). (4) Hunting, fishing and trapping will be permitted, in coordination with State fish and game agencies (Sec. 5).

67. The only existing road in that area which could conceivably give access to the "Rockies Grazing Allotment" will remain open in both wilderness alternative "B" and the wilderness recommendation.

68. The Beef Basin deletion and a somewhat smaller (9,265 acres compared to 11,410 acres in the DES) Moody Creek deletion are in the proposal.

The Moody Creek deletion was reduced in size to protect its more scenic and rugged western portion and to provide a small trail-head area for hikers going into the Escalante country.

69. Alternative B has been rejected in favor of the Final Management Zoning Proposal (Map 1) and the Wilderness Recommendation (Map 3).

The road referred to is in the canyon bottoms subject to flash floods, both ends of the cross road are accessible by other, better routes, these canyons are highly scenic (refer to DES Map. 15), and a surface crossing of the Escalante River by vehicles is a matter of serious concern anywhere between Utah Highway 12 and Lake Powell.

70. There is the possibility of uranium occurrences although these are no known favorable zones in this area. The Nokai Dome area, downstream of Grand Gulch is a favorable uranium zone, and is not included in the Wilderness Recommendation. There are no recorded mineral claims, no Federal oil and gas leases and only one State section under oil and gas lease between Grand Gulch and the upstream boundary of the NRA.

The existing access to Muley Point and Goosenecks Overlook (a state park outside the NRA) would be unaffected by the Wilderness recommendation or the two wilderness alternatives. The only road affected by the wilderness recommendation is an eight-mile segment of the one providing access to the Perkins Brothers grazing allotment (Map 7). The closure of the road would restrict vehicle access to that part of their grazing allotment within the NRA which is west of Johns Canyon.

This closed road may also be the access to the oil and gas lease on the State Section 32 in that area.

The perpetration of the wilderness values in the 13,010-acre unit in the Wilderness recommendation on the north side of the San Juan River is an achievable management goal regardless of what might happen on the reservation on the south shore. There is little likelihood of anything environmentally damaging happening in the immediate vicinity of the river on its south side in this area because of the rugged terrain and the fact that the San Juan arm of the reservoir does not extend upstream this far.

71. This supports construction of the Trans-Escalante Road and new developments at Lone Rock, Warm Creek, Dangling Rope, Llewellyn Gulch and Farley Canyon as well as expansion of existing developments. It also supports the concept of paving the Flint Trail from Hite through Hans Flat. The only reservoir access sites whose development, or expansion would be facilitated by the construction would be Bullfrog and possibly Llewllyn Gulch. The difficult terrain and expense involved in developing road access down to Llewellyn Gulch may, as it has at Gunsight Bench, preclude land access to this site. Development at either site is not dependent upon the construction of the trans-Escalante Road. There can probably be a rationale developed that divides the reservoir surface into three units based on its ability to sustain boating use and related shoreline activities. These three units also key to avenues of road access. One is the lower end of the reservoir upstream to about Dangling Rope accessible through Wahweap, Lone Rock and Warm Creek. Another is Bullfrog and Halls Creek Bays with opportunities for extended boating excursions to the Escalante and San Juan Arms. This unit is accessible through Bullfrog and Halls Crossing. The third would consist of the upper reservoir down to about Red Canyon Bay and accessible via Hite. Interchange of boat traffic between these units is, and will continue to be common, but the character of the developments, and the access to them, is appropriately different because they are different in their capacity for boating activities. Uniformity in facilities and access, in such a diverse resource area, can only be a contrived superficiality. The trans-Escalante Road would, to the limited extent that it would encourage distribution of boaters on the reservoir, contribute to this contrivance.

Paving the Flint Trail is not a recommendation in the proposal, and there is little to recommend that as a concept over its current status as a four-wheel drive road. The Wilderness recommendation, through provision of corridors for the existing road, would not preclude it. The Utah State Department of Transportation has long been planning a northeast-southwest connection between I-70 near the Colorado border and U.S. Route 89 at Glen Canyon City. The trans-Escalante Road would be part of this and the Flint Trail, if we were to improve it could be much of the remainder. Until recently, the state had envisioned a route from Utah Route 95 around the north end of the NRA projection on the Dirty Devil River and around the north side of Canyonlands National Park.

72. A change in jurisdiction would involve Congressional action. The Waterpocket Fold and Halls Creek Canyon which parallels it on the east are the major resources for which Capitol Reef National Park was set aside to protect. If a jurisdictional change were to be seriously contemplated, it could more logically go the other way; i.e. extend the Park southward into the NRA so as to include the entire Waterpocket Fold in Capitol Reef. The Burr Trail corridor is excluded from the Capitol Reef wilderness recommendation. This corridor is sufficiently wide to accommodate improvements to the road in the existing disturbed area. It protects Muley Twist Canyon, an alternative realignment for the Burr Trail, which is an outstanding natural feature and hiking trail. Muley Twist would be protected regardless of jurisdiction. Access for grazing on the high plateau is from the Burr Trail west of the park via existing roads over BLM land on Wagon Box and Colt Mesas. The lower part of the Burr Trail in the park has been, and still is used as a cattle driveway into a grazing allotment in Hall's Creek. This allotment will eventually phase out in conformity with Sec. 3 of P.L. 92-207. The Capitol Reef legislation provides for the continuation of traditional cattle driveways. (Sec. 4, P.L. 92-207).

Hall's Creek Canyon is one of the few canyons in this area where water for hikers is available. It is ideally suited to hiking as it is relatively easy walking, is somewhat vegetated, and is strikingly beautiful. For these reasons, it was closed to four-wheel-drive vehicles and would remain so regardless of jurisdiction. There is no proposal to develop an additional marina in Hall's Creek Bay. The site capabilities to expand shore-based facilities supporting access to this part of Lake Powell are more than adequate at Bullfrog and Hall's Crossing. A third marina in this same area would be redundant and contribute to overloading of the water surface and shoreline in this area.

73. This is an excellent idea. Refer to Section II,E of the Plan.

74. There are alternatives that don't require the sacrifice of important four-wheeling resources or a crossing of the Green River in the National Park. A change in jurisdiction would require Congressional action and there is literally no resource basis for the NPS to support extending the NRA boundary to include any part of the east bank of the Green River.

75. Refer to response 17.a. to the Bureau of Land Management.

76. As a result of extensive public involvement and reconsideration of management needs, the final management zoning proposal was conceived. Some road segments shown for closure or to be kept open in the DES (Map 12) have been changed in the FES (Map 2).

UTAH TRAVEL COUNCIL
BOARD OF COMMISSIONERS
Kenneth Sowards, Chairman, Vernal
Murray Moler, Vice-chairman, Ogden
Karen Alvey, Kanab
Gordon James Black, Monticello
Harold F. Chesler, Bloomington
Theodore F. Seeholzer, Smithfield
Robert H. Temple, Salt Lake City

STATE OF UTAH
Scott M. Matheson, Governor
DEPARTMENT OF
DEVELOPMENT SERVICES
UTAH TRAVEL COUNCIL

Michael D. Gallivan, Director
Council Hall / Capitol Hill
Salt Lake City, Utah 84114
Telephone (801) 533-5681

December 12, 1977

Mr. Wm. J. Whalen, Director
National Park Service
18th and C Streets, N.W.
Washington, D.C. 20240

Dear Mr. Whalen:

On behalf of our Board of Commissioners, the Utah Travel Council would like to go on record as supporting the position of the Governor and the Executive Branch of Utah State government concerning the management plans for both Glen Canyon National Recreation Area and Canyonlands National Park.

One of the Travel Council's primary responsibilities is the promotion to and utilization of Utah's many recreational opportunities. To this end, we favor a program of balanced development for our parks and recreation areas; one which recognizes the needs and abilities of all segments of the traveling and recreation seeking public.

The state's position relative to Glen Canyon National Recreation Area and Canyonlands National Park, as detailed in correspondence of December 9, 1977, much more adequately represents the necessary balance between wilderness and multiple utilization than does either management plan proposed by the National Park Service.

We appreciate the opportunity to participate in this planning process and trust that the best interests of all people who currently enjoy or may wish to partake of the outdoor experience in the future will be served by your final recommendations. 77

Sincerely,

J. Phillip Keene III
Director

Response to Utah Travel Council Comments

77. Thank you for your comment.

WESLEY BOLIN
GOVERNOR

Arizona
State Land Department
1624 WEST ADAMS
PHOENIX, ARIZONA 85007
602 - 271-4634

OFFICE OF
COMMISSIONER

December 6, 1977

Temp Reynolds, Superintendent
Glen Canyon National Recreation Area
P. O. Box 1507
Page, AZ 86040

RE: #DES 77-28

Dear Mr. Reynolds:

The State Land Department has reviewed the Glen Canyon National Recreation Area General Management Plan, wilderness proposal, road study alternatives, and draft environmental statement prepared by the National Park Service, Denver Service Center.

There are four sections of State Trust Land within the Recreational Area boundary with grazing or commercial leases. The concern of the Land Department lies in accessibility for our lessees to state lands under the road closure plan. 78

Although the State Land Department's resource interests in the Glen Canyon area are limited, we remain interested in the progress of this plan, and would request that your agency continue to keep us informed.

Sincerely,

Andrew L. Bettwy
State Land Commissioner

By: Peggy Spaw
Peggy Spaw
Administrative Assistant

ALB/PS/lj

Response to Arizona State Land Department Comment

78. The only Arizona State trust land within the NRA boundary lies on Section 32, T42N, R8E, G&SRBM, comprising 491.20 acres. Refer to Map 6 for location of this section.

SIGNOFF

OMB Approval No. 29-R0218

FEDERAL ASSISTANCE

1. Type Of Action (Mark appropriate box): ☐ Preapplication ☐ Application ☐ Notification Of Intent (Opt.) ☐ Report Of Federal Action

2. Applicant's application: a. Number [illegible] b. Date 19 [illegible] Year Month Day

3. State application identifier: a. Number AZ 77-80-0048 b. Date Assigned 19 77 10 12 (Year month day)

Leave Blank DEC 2 1977 J. Ann Youngblood

Section I - Applicant / Recipient Data

4. Legal Applicant/Recipient
a. Applicant Name: National Park Service
b. Organization Unit: Glen Canyon National Recreation Area
c. Street/P.O. Box: Post Office Box 1507
d. City: Page e. County: Coconino
f. State: Arizona g. Zip Code: 86040
h. Contact Person (Name & telephone no.): Mr. Temp Reynolds, Superintendent Glen Canyon National Recreation Area (602) 645-2471

5. Federal Employer Identification No.:

6. Program (From Federal Catalog) a. Number 1 5 • 9 9 9 b. Title Unknown
Dept. of the Interior National Park Service

7. Title and description of applicant's project: GENERAL MANAGEMENT PLAN, WILDERNESS PROPOSAL, ROAD STUDY ALTERNATIVES, AND DRAFT ENVIRONMENTAL STATEMENT - FOUR VOLUMES

Draft EIS considers environmental impacts: Within general management plan, proposal dividing recreation area into 4 management zones; wilderness proposal for addition of 519,000 acres to National Wilderness Preservation System, with an additional 68,030 acres proposed for potential wilderness addition; and construction of a road from Glen Canyon City, Utah, to Bullfrog Basin, Utah.

8. Type of applicant/recipient: A-State, B-Interstate, C-Substate District, D-County, E-City, F-School District, G-Special Purpose District, H-Community Action Agency, I-Higher Educational Institution, J-Indian Tribe, K-Other
(Specify): Federal Agency — Enter appropriate letter [K]

9. Type of assistance: A-Basic Grant, B-Supplemental Grant, C-Loan, D-Insurance, E-Other — Enter appropriate letter(s) [E]

10. Area of project impact (Names of cities, counties, states, etc.): Coconino County, Arizona and Utah

11. Estimated number of persons benefiting:

12. Type of application: A-New, B-Renewal, C-Revision, D-Continuation, E-Augmentation — Enter appropriate letter [ ]

13. Proposed Funding

a. Federal	$	.00
b. Applicant		.00
c. State		.00
d. Local		.00
e. Other	1	.00
f. Total	$ 1	.00

14. Congressional Districts Of: a. Applicant b. Project 03

15. Type of change (For 12c or 12e): A-Increase Dollars, B-Decrease Dollars, C-Increase Duration, D-Decrease Duration, E-Cancellation, F-Other Specify: — Enter appropriate letter(s) [ ]

16. Project Start Date 19 (Year month day)

17. Project Duration (Months)

18. Estimated date to be submitted to federal agency 19 (Year month date)

19. Existing federal identification number

20. Federal agency to receive request (Name, city, state, zip code)

21. Remarks added ☐ Yes ☐ No

Section II - Certification

22. The Applicant Certifies That
a. To the best of my knowledge and belief, data in this preapplication/application are true and correct, the document has been duly authorized by the governing body of the applicant and the applicant will comply with the attached assurances if the assistance is approved.
b. If required by OMB Circular A-95 this application was submitted, pursuant to instructions therein, to appropriate clearinghouses and all responses are attached:

	No response	Response attached
(1) Arizona State Clearinghouse	☐	☐
(2) Region III Clearinghouse (NACOG)	☐	☐
(3)	☐	☐

23. Certifying representative: a. Typed name and title b. Signature c. Date signed (Year month day) 19

Section III - Federal Agency Action

24. Agency name

25. Application received 19 (Year month day)

26. Organizational Unit

27. Administrative office

28. Federal application identification

29. Address

30. Federal grant identification

31. Action taken: ☐ a. Awarded ☐ b. Rejected ☐ c. Returned for amendment ☐ d. Deferred ☐ e. Withdrawn

32. Funding

a. Federal	$	.00
b. Applicant		.00
c. State		.00
d. Local		.00
e. Other		.00
f. Total	$	.00

33. Action date 19 (Year month day)

34. Starting date 19 (Year month day)

35. Contact for additional information (Name and telephone number)

36. Ending date 19 (Year month day)

37. Remarks added ☐ Yes ☐ No

38. Federal agency A-95 action
a. In taking above action, any comments received from clearinghouses were considered. If agency response is due under provisions of Part 1, OMB Circular A-95, it has been or is being made.
b. Federal Agency A-95 Official (Name and telephone number)

424-101 Standard Form 424 Page 1 (10-75)
Prescribed by GSA, Federal Management Circular 74-7

Northern Arizona Council of Governments
P.O. BOX 57 • FLAGSTAFF, AZ - 86001 • (602) 774-1895

WILLIAM C. WADE
EXECUTIVE DIRECTOR

Regional A-95 Review

TO: Ms. Jo Youngblood
Arizona State Clearinghouse
1700 W. Washington, Room 505
Phoenix, AZ 85007

RE: Project: National Park Service, Glen Canyon Nat. Rec. Area
Gen. Mgt. Plan, Wilderness Proposal, Road Study Alt., DES
S.A.I. #: 77-80-0048

The Northern Arizona Council of Governments (NACOG) has completed its A-95 Review and Comment upon the above project. Action taken on this project notification is as follows:

☐ Proposal supported as described on the SF-424 and any attachments.

[X] Proposal is supported with certain recommendations, provisions, etc.

SEE ATTACHED SHEET.

☐ Proposal is not supported.

Please be aware that NACOG reserves the prerogative of making additional comments should new information become available to the Agency.

The Northern Arizona Council of Governments has appreciated this opportunity to review and comment on this project.

Thank you.
WCWade
William C. Wade
Executive Director

Date: Nov. 8, 1977

THIS A-95 REVIEW IS SUPPORTED IN PART BY A HUD 701 PLANNING GRANT.

S.A.I. #77-80-0048
National Park Service, Glen Canyon National Recreation Area
General Management Plan, Wilderness Proposal, Road Study Alternatives, and Draft Environmental Statement, 4 Volumes

1. The evaluation of the impacts of changing present management policies and facilities should also include the effects on Page, Arizona, the largest community actually located on the Lake. Except for a few references to Page scattered throughout the Plan, it is hard to realize from the material presented that a community of almost 5,000 people exists there with an economic base very heavily tourist-dependent. 79

2. The visitation in the Glen Canyon NRA this past summer was so great that some updating of Plan statistics should be done. It would also be desirable to discuss the impact this increased visitation had on the existing facilities. The addition of new facilities, which would draw more visitors, should be closely examined to determine if the resource can handle the peak crowds. 80

3. The construction of a new road from Glen Canyon City to Bullfrog Basin is not supported at this time. Road access to Bullfrog is considered satisfactory at present. Primary access to places on the Lake should be by boat. Please leave a few unpaved roads that go to scenic areas so that all of the thrills and adventures of back-country driving are not lost. 81

4. Any expansion of facilities at Wahweap should only be done after considering whether similar facilities or services exist at Page. An increase in visitors or staff at Wahweap will place additional demands on the Park Service to provide more municipal services such as police and fire protection, a sanitary water supply, liquid and solid waste disposal and general administration of these functions. It is felt that these services should not be duplicated at Wahweap, if it is possible to make use of existing services at Page. Any large increases in the service community in the Wahweap area should be housed in Page, if possible. 82

5. Some concept such as "carrying capacity" for the general Wahweap area should be established before more facilities are planned. In particular, should there be limitations on the number and location of launching ramps to prevent overcrowding and hazardous or unsafe conditions near Wahweap or Padre or Antelope Points? 83

6. Project "Fireflood" is not supported. It is considered that experimentation of this type does not belong in a National Recreation Area. 84

7. The establishment and management of the proposed Natural Zone, as outlined in the document, is supported. In particular, the possible slight reduction in potential recoverable mineral resources is considered to be a good trade for the preservation of the identified scenic and unique areas.

State Application Identifier (SAI) OCT 13 1977 77-80-00
OCT 12 1977 State AZ Number

Office of Planning
Dept. of Econ. Security
1717 W. Jefferson St.
Phoenix, Arizona 85007

From: Arizona State Clearinghouse
1700 West Washington Street, Room 505
Phoenix, Arizona 85007

Economic Sec. Region III
Mineral Res.
Indian Affairs
Game & Fish
Ag. & Hort.
AORCC
Transportation
Public Safety-Gendler
Center for Pub Affairs
Health
Water
Land
Parks
Bureau of Geology & Mineral
OEPAD- Kingery Tech.
Silverman

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

Please return THIS FORM AND ONE XEROX COPY to the clearinghouse no later than 17 working days from the date noted abo
Please contact the clearinghouse if you need further information or additional time for review.

☐ No comment on this project
☒ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature R A Lronch Date 13 Oct '77
Title State Planner Telephone 271-5784

Mr. Clinton M. Pattea
Executive Secretary
Indian Affairs Commission
1645 West Jefferson St.
Phoenix, AZ 85007

State Application Identifier (SAI) 77-80-0048
OCT 12 1977 State AZ Number

Economic Sec.
Mineral Res.
Indian Affairs
Game & Fish
Ag. & Hort.
AORCC
Transportation
Public Safety-Gendler
Center for Pub Affairs
Health
Water
Land
Parks
Bureau of Geology & Mineral
OEPAD- Kingery Tech.
Silverman

Region III

From: Arizona State Clearinghouse
1700 West Washington Street, Room 505
Phoenix, Arizona 85007

This project is referred to you for review and comment. Please evaluate as to:

(1) the program's effect upon the plans and programs of your agency
(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

Please return THIS FORM AND ONE XEROX COPY to the clearinghouse no later than 17 working days from the date noted above.
Please contact the clearinghouse if you need further information or additional time for review.

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

86

Comments: (Use additional sheets if necessary)

Reviewer's Signature [signature] Date 10-18-77

Title Telephone

TO:

Mr. Robert Jantzen, Director
Game and Fish Dept.
2222 W. Greenway
Phoenix, Arizona 85023

State Application Identifier (SAI) 77-80-0048
OCT 12 1977 State AZ Number

Economic Sec.
Mineral Res.
Indian Affairs
Game & Fish
Ag. & Hort.
AORCC
Transportation
Public Safety-Gendler
Center for Pub Affairs
Health
Water
Land
Parks
Bureau of Geology & Mineral
OEPAD- Kingery Tech.
Silverman

Region III

From: Arizona State Clearinghouse
1700 West Washington Street, Room 505
Phoenix, Arizona 85007

This project is referred to you for review and comment. Please evaluate as to:

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(2) the importance of its contribution to State and/or areawide goals and objectives
(3) its accord with any applicable law, order or regulation with which you are familiar
(4) additional considerations

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☐ No comment on this project
☐ Proposal is supported as written
☒ Comments as indicated below

Comments: (Use additional sheets if necessary)

A. From the preliminary wilderness proposal map (Map 4), it appears the Colorado River from Glen Canyon Dam to Lee's Ferry is excluded from wilderness status. It is important that wilderness status not be imposed on this area as it would eliminate access to the tailwater fishery. 87
B. The proposed wilderness classification for areas to Lee's Ferry seems unnecessary as the terrain prevents motorized ground travel.
Antelope Island, by fact it is an island, also restricts vehicular travel. 88
C. The proposed road closure will have little affect on access as both roads are already effectively closed. 89
D. The increase in visitor facilities for both Lee's Ferry and Wahweap will not adversely affect fish and wildlife resources as the demand is currently increasing even though the facilities are not present.

Reviewer's Signature [signature] Date October 27, 1977

Title Wildlife Specialist Telephone 942-3000 x245

TO:

Mr. James R. Carter, Director
Agriculture & Horticulture Dept.
421 Capitol Annex West
Phoenix, Arizona 85007

State Application Identifier (SAI)
OCT 12 1977 State AZ Number 77-80-0048

Economic Sec.
Mineral Res.
Indian Affairs
Game & Fish
Ag. & Hort.
AORCC
Transportation
Public Safety-Gendler
Center for Pub Affairs
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Land
Parks
Bureau of Geology & Mineral
OEPAD- Kingery Tech.
Silverman

Region III

From: Arizona State Clearinghouse
1700 West Washington Street, Room 505
Phoenix, Arizona 85007

RECEIVED
OCT 13 1977
ARIZONA COMMISSION OF AGRICULTURE & HORTICULTURE

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90

☒ No comment on this project
☐ Proposal is supported as written
☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature James R. Carter
Date 10-14-77
Title Director
Telephone 271-4373

TO:

Mr. Roland H. Sharer
State Liaison Officer, AORCC
4433 N. 19th Ave., Suite 203
Phoenix, Arizona 85015

State Application Identifier (SAI)
OCT 12 1977 State AZ Number 77-80-004

Economic Sec.
Mineral Res.
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☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature R. H. Sharer
Date Nov. 1, 1977
Title State Liaison Officer
Telephone 271-5043

Mr. Ronald D. McCready, Mgr.
Program Evaluation Section
Transportation Planning Division
Arizona Dept. of Transportation
205 South 17th Avenue, Room 310
Phoenix, Arizona 85007

State Application Identifier (SAI) 77-80-004
OCT 12 1977 State AZ Number

From: Arizona State Clearinghouse
1700 West Washington Street, Room 505
Phoenix, Arizona 85007

Economic Sec. Region III
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☐ Proposal is supported as written
☒ Comments as indicated below

Comments: (Use additional sheets if necessary)

SEE ATTACHED LETTER

Reviewer's Signature Ronald D. McCready Date

Title Telephone 261-7251

ARIZONA DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION
206 South Seventeenth Avenue Phoenix, Arizona 85007

WESLEY BOLIN
Governor

WILLIAM A. ORDWAY
Director

OSCAR T. LYON, JR.
Assistant Director
and State Engineer

November 3, 1977

Ms. Jo Youngblood
Arizona State Clearinghouse
1700 West Washington Street
Phoenix, AZ

RE: General Management Plan
Wilderness Proposal, Road
Study Alternatives, and
Draft Environmental
Statement - Four Volumes
Glen Canyon National Recreation
Area
State Identifier 77-80-0048

Dear Ms. Youngblood:

We have reviewed the above referenced draft environmental statement submitted by the Department of Interior National Park Service.

We note the Road Study Alternatives, pages 147 through 151, Volume I and Map 44 involve four route alternatives, all located within the State of Utah; therefore, we have no comment on that portion of the study.

We also note Map 40 shows the portion of U.S. Route 89 located in the Glen Canyon National Recreation Area will remain open for public travel. This is certainly essential for traffic from Arizona to move into and through this recreation area. We do have a resurfacing project scheduled in Fiscal Year 1978-1979 to resurface the existing pavement on U.S. 89 between the Colorado River Bridge and the Utah State Line. This project is not expected to require any additional right of way.

It is indicated on Maps 37 and 38 and in the text of the environmental statement that additional tourist facilities and related businesses will be developed along the Management Zone bordering U.S. 89 east of Wahweap, between the Colorado River Bridge and the Utah State Line. This will change the land use requiring more points of access to the highway and encroachment closer to the highway. It will also require future upgrading of the highway, and adequate highway right of way provisions must be made. A minimum of 200 feet of right of way is necessary and existing right of way varies up to 400 feet at present. For these reasons we request the management area plans for this region along U.S. 89 in Arizona be coordinated with the Arizona Department of Transportation, Highways Division. 92

HIGHWAYS • AERONAUTICS • MOTOR VEHICLE • PUBLIC TRANSIT • ADMINISTRATIVE SERVICES • TRANSPORTATION PLANNING

Therefore, please contact Mr. E. F. Gentsch, District 5 Engineer at 1801 S. Milton Road, Flagstaff, Arizona 86001, telephone (602) 261-7716, for plans coordination and permits for access to U.S. 89. 92

We appreciate the opportunity to review and comment on this Draft Environmental Statement and would like to receive a copy of the Final Statement when it becomes available.

Very truly yours,

OSCAR T. LYON, JR.
State Engineer

James E. Dorre

JAMES E. DORRE, Manager
Environmental Planning Services

JED:ADG:bjw

cc: E. F. Gentsch, District V
Ron McCready, Transportation Planning

Dr. James Becker
Center for Public Affairs
Arizona State University
Tempe, Arizona 85281

State Application Identifier (SAI) 77-80-004
OCT 12 1977 State AZ Number

Economic Sec. Region III
Mineral Res.
Indian Affairs
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OEPAD- Kingery Tech.
Silverman

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1700 West Washington Street, Room 505
Phoenix, Arizona 85007

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☐ No comment on this project
☐ Proposal is supported as written
XXX Comments as indicated below

Comments: (Use additional sheets if necessary)

The NPS "General Management Plan...for GCNRA" allows too much potential damage to this significant national wilderness recreation facility and cultural resource. Commercial destruction of this publicly-funded, national area NOT an acceptable action. 93

Reviewer's Signature R. J. Becker Date 10/21/77

Title Prof. Center for Public Affairs, ASU Telephone 965-3926

Dr. Suzanne Dandoy, Director
Department of Health Services
1740 West Adams Street
Phoenix, Arizona 85007

State Application Identifier (SAI) 77-80-0048
OCT 12 1977 State AZ Number

Economic Sec.
Mineral Res.
Indian Affairs
Game & Fish
Ag. & Hort.
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Phoenix, Arizona 85007

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This management plan puts "development" lands within, and adjacent to, "natural" lands. The natural lands could eventually be designated wilderness areas. If this happens they would become Class I requiring prevention of significant deterioration of the air quality which would result in an incompatibility between them and neighboring developmental lands.

94

Reviewer's Signature R. Bruce Scott
Date NOV 22 1977
Title ASSISTANT DIRECTOR
ARIZONA DEPT OF HEALTH SERVICES
DIV. OF ENVIRONMENTAL HEALTH SERVICES
Telephone

TO:
Mr. Wesley E. Steiner,
State Water Commission
222 N. Central Ave., Suite 800
Phoenix, Arizona 85004

State Application Identifier (SAI) 77-80-004 0048
OCT 12 1977 State AZ Number

Economic Sec.
Mineral Res.
Indian Affairs
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1700 West Washington Street, Room 505
Phoenix, Arizona 85007

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☐ Comments as indicated below

95

Comments: (Use additional sheets if necessary)

Reviewer's Signature Martin E. Weeks
Date 10-20-77
Title Planner
Telephone 258-7561

Michael A. Ramnes, Director
Arizona State Parks
1688 W. Adams Room 109
Phoenix, Arizona 85007

State Application Identifier (SAI)
OCT 12 1977 State AZ Number 77-80-004
0048

Economic Sec. Region III
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☐ Comments as indicated below

Comments: (Use additional sheets if necessary)

Reviewer's Signature Allen W. Gross
Date 10/17/77
Title RPM
Telephone 271 9174

96

Dr. William H. Drasher, Director
Arizona Bureau of Geology & Mineral Technology
University of Arizona
Tucson, Arizona 85721

State Application Identifier (SAI)
OCT 12 1977 State AZ Number 77-80-004

Economic Sec. Region III
Mineral Res.
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rom: Arizona State Clearinghouse
1700 West Washington Street, Room 505
Phoenix, Arizona 85007

OCT COLLEGE of MINES UNIVERSITY OF ARIZONA

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omments: (Use additional sheets if necessary)

In our opinion only one option is viable--Alternative B: Consumptive Utilization Emphasis--for the General Management Plan and Preliminary Wilderness Proposal for the Glen Canyon National Recreation Area. On balance, this alternative offers the maximum benefit to the maximum number of people and still preserves a major portion of the scenic and recreation value of the area. Mineral exploration and development activities must be permitted in the area because of the known high potential for fuel and non-fuel minerals in the area. Under a proper mineral resources management plan, these resources can be developed with a minimum disturbance to the other values of the area.

eviewer's Signature W. H. Drasher
Date 10/21/77
itle Director
Telephone 884-1943

TO:

Mr. Ralph Kingery
OEPAD
1700 W. Washington, Rm. 505
Phoenix, Arizona 85007

State Application Identifier (SAI)
OCT 12 1977 State AZ Number 77-80-0048

From: Arizona State Clearinghouse
1700 West Washington Street, Room 505
Phoenix, Arizona 85007

Economic Sec.
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98

Comments: (Use additional sheets if necessary)

Reviewer's Signature Ralph Kingery Date 11/1/77

Title Planner Telephone 271-5004

Responses to the Northern Arizona Council of Governmenmts Comments

79. Your point is well taken that the DES has virtually ignored Coconino County and the community of Page. The FES reflects, based on available data, this influence. Refer to Section IV.A.4.b. of the Plan.

80. The socioeconomic data has been updated in the FES to reflect these trends (Table 7 and Figures 6,7 and 8). The addition of new facilities at Wahweap are not intended to draw more visitors, but rather accommodate visitor pressure already being experienced.

81. The National Park Service does not at this time make a recommendation for any particular alignment of the authorized Glen Canyon City to Bullfrog Basin Road. We assure you that adequate unpaved roads will remain in the recreation area to satisfy individuals seeking that type of backcountry recreation experience.

82. We do not disagree with the rationale provided in your comments. It is not the NPS intention to take on additional municipal services when such can be provided elsewhere. There is, however, some economic benefit to the concessioner and thus, to the public being served, if the service base can be accommodated adjacent to the work site.

83. Carrying capacity for Wahweap Developed Area lies mainly with shore based facilities such as parking and launching areas rather than a distribution of visitors on the surface of Lake Powell. As the concessioner expands to meet the currently approved Wahweap Development Plan, the Service will be looking at amendments to that Plan and integration with a Lone Rock Development Plan in order to provide for an orderly recreational experience at these locations.

84. The NPS concurs with the postulate, experimentation of the "Fireflood" type does not belong in the NRA. However, an approximately fifty square miles of oil and gas leases, filed prior to the authorizing Act, lies within the NRA on or adjacent to the Tar Sand Triangle ("Fireflood" project area). Refer to DES Maps 21 and 29. Until the Fireflood experiment is completed, the problem of valuation of the leasehold interests involved (required prior to acquisition by "taking" or negotiation) is well-nigh impossible. This factor, added to the apparent

worsening energy shortage, left us little choice in the matter. As covered in the DES, the Orange Cliffs region of the NRA was designated wilderness or potential wilderness from the east boundary to the lip of the cliffs on the premise that neither Fireflood nor open pit exploitation was feasible to the east due to the deeply eroded canyons.

85. Thank you for your comment.

86. Thank you for your comment.

87. The Colorado River between Glen Canyon Dam and Lees Ferry is not proposed for inclusion in the Wilderness recommendation.

88. Bench lands west of Lees Ferry and north between Lees Ferry and the dam are potentially accessible to four-wheel drive vehicles. Including this area in the Wilderness recommendation will guarantee it a higher degree of protection. Antelope Island does not remain an island at lower water levels. Including it in the wilderness will insure that the natural processes protected by wilderness designation will continue even if the lake should recede.

89. We concur with your analysis.

90. Thank you for your comment.

91. Thank you for your comment.

92. The Arizona Department of Transportation Highways Division will be a party to any developments planned along U.S. Highway 89.

93. The Natural Zone proposal now contained in the FES has been increased by almost 50,000 acres to afford additional protection to resources within the NRA. Those areas outside of that zone will be managed with full consideration for environmental damages.

94. The 1977 amendments in the Clean Air Act do not provide for wilderness areas not currently designated to become Class I Airsheds. Class I Airshed designation can only be established at the request of the appropriate state governor and concurrence of the surface managing agency. If such lands should acquire a Class I Airshed, then it would require additional planning and careful management by outside influences in order to prevent any significant deterioration of the air quality.

95. Thank you for your comment.

96. Thank you for your comment.

97. Refer to response number 11 to the Department of Energy.

98. Thank you for your comment.

five county association of governments

P. O. BOX "0"
ST. GEORGE, UTAH 84770
PHONE (801) 673-3548

8 November 1977

James Isenogle, Assistant
Regional Director, Utah
Federal Building
Room 3418
125 South State
Salt Lake City, Utah 84138

Dear Mr. Isenogle:

At a recent meeting the Steering Committee of the Five County Association of Governments met with representatives of the National Park Service to review the General Management Plan, the Wilderness Proposals, the Road Study Alternatives, and the Draft Environmental Statement for the Glen Canyon National Recreation Area. I'm writing to inform you of the position of the Association of Governments with respect to these issues.

It is our view that any major actions taken with regard to the Glen Canyon Area should be consistent with the multiple-use concept of the land. If this concept is followed, the interests of all affected parties can be most nearly met. Two of the three wilderness alternatives appear to us to be extreme measures which are not worthy of serious consideration. Wilderness "Alternative A", which would designate 82 percent of the land as wilderness area, and the "preliminary wilderness proposal", which would designate 42 percent as wilderness, would foreclose too much of the Glen Canyon Area to alternative uses and therefore would not be consistent with the interests of the majority of people, both in Utah and the nation. The predominant feeling in Southern Utah is against the creation of any wilderness area. However, if a wilderness designation is to be made, "Alternative B", involving 13 percent of the land, is by far the most reasonable of the three alternatives. 99

The road study alternatives are also of paramount importance. The Congressional action creating the Recreation Area specifically authorized the construction of a scenic, low-speed road from Glen Canyon City to Bullfrog Basin which is to cross the Escalante River at some point south of Stephens Arch. Construction of this road along the proposed Route "D-1" would be of the greatest benefit to the general public by providing better access to the scenic wonders of the area. It is our hope that Congress will appropriate funds for this project in the near future. 100

BEAVER GARFIELD KANE WASHINGTON

In summary, we believe that the greatest benefit to Utah and the nation will be served through the application of the multiple-use concept to the Glen Canyon Area. We strongly urge against any action such as the wilderness alternatives mentioned above which would severely limit the recreation potential of the area.

Thank you very much for your consideration of the views of the Five County Association of Governments.

Sincerely,

Mayor Wallace G. Lee
Chairman, Five County
Association of Governments

WGL:rbd

Responses to Five County Association of Governments Comments

99. Refer to response 66 to the Governor or Utah.

100. Refer to response 31 to the Bureau of Mines. Of the three wilderness possibilities presented in the DES, Alternative A received overwhelming public support--87 percent of all 1,049 respondents. Alternative B received 3 percent, the proposal 6.5 percent and those with no specific comments about wilderness 3 percent. 101

101. Refer to the first sentence of response 81. Congress must appropriate funds before construction could take place.

SOUTHEASTERN UTAH ASSOCIATION OF GOVERNMENTS

GARDELL SNOW
Chairman
WILLIAM K. DINEHART
Executive Director

P. O. Drawer A I Price, Utah 84501 Telephone 637-5444

10 November 1977

Mr. Glen T. Bean
National Park Service
Denver Service Center
Denver, Colorado 80202

Dear Mr. Bean:

Glen Canyon National Recreation Area:
A Draft EIS and Proposed Management Plan

Our staff has reviewed the above documents (four volumes) and prepared some preliminary comments. I hope they will assist you in the process of developing your final EIS and management plan.

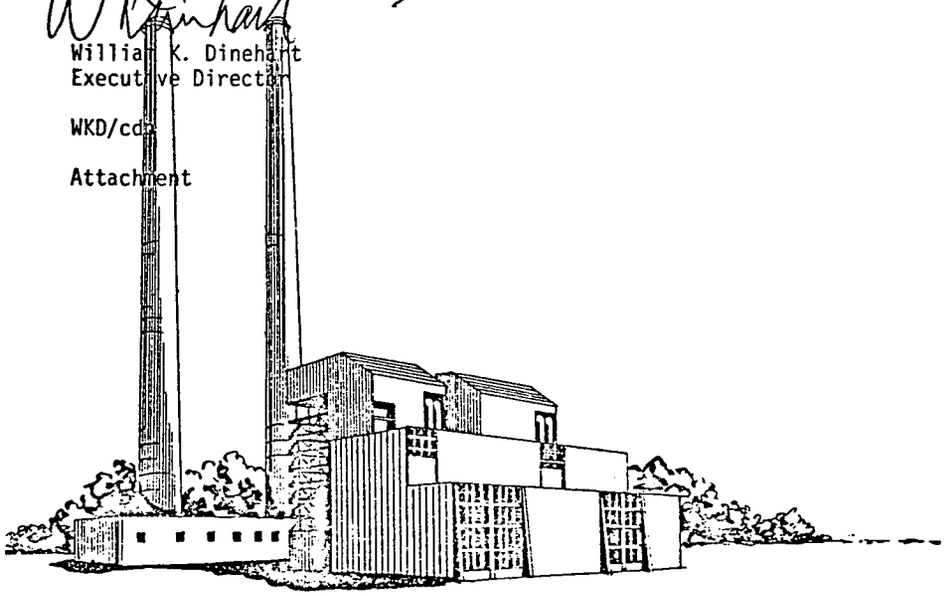
Cordially,

SOUTHEASTERN UTAH ASSOCIATION OF GOVERNMENTS

William K. Dinehart
Executive Director

WKD/cd

Attachment



SUMMARY AND COMMENTS ON THE DRAFT EIS AND
PROPOSED MANAGEMENT PLAN FOR THE
GLEN CANYON NATIONAL RECREATION AREA

There is apparently a consensus among all of those interested in such things, that major national resources such as the Glen Canyon National Recreation Area must have a well thought-out and comprehensive management plan. This magnificent area is, and rightfully so, recognized by law and man as part of our collective national heritage and the birthright of every American. This is clearly inherent in the text of the introduction, where "outdoor recreation use and enjoyment" is cited as the prime motivation for the Glen Canyon Act (PL 92-593). Similarly the context of the law demonstrates the intent of Congress to make this area as broadly accessible and functional as possible. This multi-use aspect is highlighted by the text, as follows:

..."to provide for outdoor use and enjoyment"

..."to preserve scenic, scientific, and historic features"

Further, the law states that the Secretary

..."shall permit the removal of the non-leasable minerals"

..."shall permit the removal of leasable minerals"

..."shall permit hunting, fishing and trapping"

..."shall grant easements and rights-of-way on a nondiscriminatory basis upon, over, under, across, or along any component of the recreation area."

..."shall designate what additional roads are appropriate and necessary for full utilization of the area"

This law, then, may be a new landmark in legislation, granting access to its citizens while preserving a part of our national trust. Surely any action or plan of action must be consistent with this ideal, and any restriction on such access must be in the context of the full utilization and multi-use intent of that law.

In this context, we have reviewed the draft environmental impact statement for the Glen Canyon National Recreation Area and the National Park Service proposal for the recreation and wilderness uses of the area. Our findings can be summarized as follows:

Draft Environmental Impact Statement*

1) Much of the socio-economic data is inaccurate, outdated, or deliberately misleading. 102

2) The description of existing environment(s) has been cast so as to downgrade most recent developments, ignore potential developments of great overall impact (i.e., IPP), and generally misrepresent positive data in favor of negative or no-growth opinions. 103

3) Existing qualitative and quantitative data and analyses available to researchers have been overlooked, while unsupported generalizations are freely quoted. 104

4) Economic analyses are not made in the context of current and true potential market conditions and are contrary to the national energy policy (as we know and understand it). 105

5) Assumptions as to impacts on local economies are not made in the context of the last several years of severe drought and inflated tourism activity. 106

6) Ignores, duplicates, and/or conflicts with data contained in other EIS documents produced within the last several years in this area. 107

7) Does not consider impacts on the socio-cultural and economic environment of the adjacent communities or Grand County (mining, grazing, and tourist economy). 108

Park Service Proposal

1) This proposal obviously and blatantly ignores the legislative intent, in that the four zone designations emphasize restrictive uses and ignore multi-purpose uses. 109

2) Potential non-recreation benefits of the area and its resources, which were so clearly specified in the law, have been generally excluded. This may, in part, be due to the poor economic assessment in the draft EIS. 110

* Details of our initial analysis are attached for review.

3) Closures of existing accessways and proposed restrictions on future transportation corridors are contrary to the "full utilization" specified in the law. 111

4) The massive set-aside of areas to be without road access disenfranchises many of the American people who, because of age, physical disabilities, or other constraints, will be prohibited from enjoying their equal share of the grandeur of this land. 112

5) Ignores much of the public and governmental input developed by hearings and meetings over the last several years. While catering to a special-interest few, it ignores the rights of access of many non-western citizens of the USA.

Summary

The National Park Service Proposal - "A": Is contrary to the multi-use intent of the enabling legislation, divests a large portion of the American people (over 18 percent) of their rights of access to a national treasure, directly conflicts with national energy policy in a time of crisis, favors a special interest group to the detriment of the general public, is based on socio-economic assumptions that are not valid, presumes economic conditions and technological levels not founded in current or knowledgeably predictable trends.

That the proposal would facilitate management by the Park Service seems quite obvious. To knowingly and willfully design a plan to satisfy the operating bureaucracy, at the sacrifice of the peoples interest, is, I'm sure, not the intent.

While the conflicts inherent in the concepts of preservation are in opposition to the developmental concepts of minerals, roads, et al, the proposal does not outline a mechanism for resolution of those conflicts. This plan assumes that the proposal and justifying EIS are intrinsically correct by publication.

COMMENTS AND OBSERVATIONS ON THE DRAFT EIS
FOR THE
GLEN CANYON NATIONAL RECREATION AREA (GCNRA)

For ease of reference, comments will cite volume and page. The reader should review these comments concurrently with the textual references.

The Socio-Economic Environment Section of the General Management Plan

Page 13 (a) Question the validity of high out-migration rate. On a regional basis, recent economic increases have reversed this trend. 113

Page 13 Suggest that "the generally low economic development in this county" (San Juan) is not a valid reflection. When statistics not influenced by the Navajo Reservation population are used, the county's economy is quite healthy.* 114

Page 15 Believe the tourist industry of Wayne County, particularly in the Hanksville area, deserves more attention, particularly since the opening of the major tourist artery of U-95. Don't believe total number of people involved in area--extensive industry like agriculture is the best indicator of economic activity overall. 115

Page 15 The use of 1970 and 1971 unemployment data is ridiculous. Since that time, major changes in the national, as well as local, economy have taken place. Deliberate choice of outdated and unfavorable data casts serious doubt as to the validity of the entire process. 116

While this plan advertises the impact area as generally economically depressed, with unemployment rates of 13 percent or higher (1971 figures), recent (1977) LPW-II by the U. S. Department of Commerce found San Juan to have unemployment rates below 5 percent. To be quite frank, 1970/1971 data 117

* When San Juan County applies for Federal assistance, to other government agencies, justifying statistics may not include data covering the independent and semi-autonomous Navajo Nation, its lands, and peoples. In these instances, the unique legal status of these lands and peoples is cited. The N.P.S. apparently is not using the same standards as other Federal agencies.

are meaningless. In 1970 Emery County, just north of Wayne County and within the 100-mile radius of GCNRA, was quite depressed; but in 1977, it ranks in the top 5 percent of all United States counties in growth rate and assessed valuation per capita. 117

Page 15 (d) More totally outdated data. Why are we quoting 1969? Between 1970 and 1973 alone, Garfield County experienced a 39.55 percent increase in total personal income.* With growth rates like these, the use of 1969 data is more than inaccurate. 118

Page 15 ..."in a broader sense, the association with uncrowded natural amenities contributes importantly to the value of a life-style chosen by people who live in the region. These are real values not captured in statistical income measurements." I compliment the perception and descriptive skill of the analyst on this point; it is both valid and often overlooked. I would suggest, however, that lest the reader be lulled into a misconception as to life-style options and degree of choice, some of the economic realities be reviewed. Drought has driven many of our ranchers out of business these last two years; low agricultural profits have reduced many family-supporting operations to the status of part-time (with one or more adult members being forced to seek employment to supplement and sustain the failing family fortunes); and last, but not least, land decisions by major Federal management agencies make and break both agriculture and tourist-based businesses throughout this "fragile" economic area. 119

Page 16 (e) Don't believe this is generally true. The high vacancy rate has not been true in San Juan County, at least for some years. More old data? 120

Page 16 Vague reference to population estimates for 1985 suggesting little change is preposterous. The IPP Project, currently being sited, but proposed for Wayne County, would generate 6000-plus jobs and increase the population from 1,500 to 121

* Reference Statistical Abstract of Utah, BEBR, University of Utah, January 1976

15,000 by 1985. Is this, and similar economic development in the impact zone, what this proposal would have us believe to be "little change" by 1985? Wayne, San Juan, and similar counties are part of the reason Congress is currently considering the Hart Bill for impact assistance. 121

Once again it would seem that a superficial review and banal presentation are being advertised as finished analytic conclusions based on good data.

Page 16 (f) In that social services delivery systems within the State of Utah have radically changed within the last year, this section should be completely discarded and replaced. 122

Page 17 Believe that water and sewage treatment facilities should be considered "impediments" to growth, vice the stronger and less accurate "barriers." Culinary water and adequate waste water treatment are the products of engineering and economics. In similar circumstances, neighboring counties and communities have overcome these problems as the economics of the area justified the investment in the improvement costs. 123

Page 17 (g) "Local government revenues are apparently strained to provide more, or better, services than now exist, should government officials so desire."

Well said. Analogous to this condition is the plight of local officials when impacted by decisions of Federal agencies which will "boom" or "bust" local economies (and resulting tax bases) without parallel compensation or coordinated planning. 124

Page 17 "Relative economic inactivity of the area" is an indefensible generalization. 125

Page 17 (h) Agree that favor-of-change is the general opinion in southern economic communities. Doubt that the Kaiparowits study reflects the opinions of Wayne and San Juan Counties. Strongly suggest that a current-opinion study, covering this proposal, be included. Don't think that two southern 126

Utah communities can be statistically representative of an area larger than many of the states in this country. 126

Page 18 In the light of massive public meetings, protests, etc., the case for growth in Kanab is overwhelming. To quote limited data, predating these events is unjustified. 127

Page 22/23 "Geologic Hazards" should discuss the fault zones and potential for earthquakes and related major geologic events. 128

Page 27 Suggest some commentary as to visitation levels in contexts other than current conditions, i.e., what impact does gas at $1 per gallon have. 129

Page 27 Note that most of the great increases in visitor use have been via developed facility sites and transportation corridors. 130

Page 28 Suggest that the overall carrying capacity is a product of the development and management strategy, as well as the natural environment. 131

Page 36 (Para. 17) Water quality in the GCNRA is a serious consideration and should not be understated. Agree mercury is a problem, but existing data (Refer to our commentary on EIS Page 89) clearly shows other problems in this area. 132

Page 37 The allusion to future coal-fired generating plants aggravating the mercury problem is weak. What plants? Where? Whose estimate? Based on what sampling, modeling and plant technologies? 133

Where is the data to support such generalizations?

Page 39/40 (Para. 20) Air Quality

"No data on the current air quality of the GCNRA are available." How, then, do you say on Page 72 that there is a "decline in regional air quality" (ascribed to the coal-fired power plants)? Either you have data and can draw conclusions, or you don't. The whole issue is being glossed over and understated. 134

Page 43 (Para. 22) I find it difficult to believe that an area of over one million acres has only two locations of historic importance. While I enjoyed the brief history of the area in the appendix, experience in similar environs just north of the GCNRA has shown that careful detailed research will reveal numerous, as yet undocumented, historical sites. In Carbon and Emery Counties, a resident historian averages two new nominations to the State and National Registers per month. I believe the Utah Historical Society is so convinced of the need for the research that they are currently contracting for an in-depth historical research of the San Juan area. Perhaps such a review is required for the entire impact area. 135

Page 45+ Mineral Resources :

Rather than quote and review, line by line, this section, some general comments should suffice.

1) The use of terms "un-economic" and "sub-economic," when referring to energy and other mineral resources and reserves, must be accompanied by commentary outlining under what economic conditions and technologies. Lacking which, these terms are meaningless. We now "mine" the refuse dumps of the 1950's for valuable, recoverable resources which were then sub-economic or unrecoverable and which are now very valuable. 136

2) We cannot glibly describe the nation's single largest deposit of tar sands without reference to the current national energy crisis.* No management plan should ignore a major potential energy source when energy independence and development of prerequisite energy technologies is a matter of national policy.** 137

Page 48 (c) That the coal resources must be underground-mined should not have been surprising. Over 95 percent of Utah's current production (approximately 8 million tons per year) is from 138

* Per Presidential Introduction to the National Energy Plan, Dated 29 April

** National Energy Plan, GPS, April 1977

sub-surface mining. Curiously, no attention is drawn to the advantages of this coal:

1) It is very low-sulfur, low-ash and high-BTU coal; a very high grade.
2) Sub-surface mining has limited impact on surface conditions. 138
3) Sub-surface coal mining is labor intensive and provides vastly greater economic benefits to neighboring communities than other methods.

Page 49 (d) The section on uranium is totally out of date. Factorial increases in uranium prices have caused old mines to open (not close), new mines to start, and many so-called sub-economic occurrences to be profitable. Current national policy is encouraging this trend and would be in direct conflict with any plan to limit such development.* 139

Page 50/51 Other Minerals

Same comment on the mis-use of the term "economic(ly)" in the context of potential.

Page 52 Para. 25 Grazing - See comments under EIS Review.

Note that while this plan will "make or break" some of the remaining ranchers of the area, the subject warrants only one paragraph in review. Apparently, accent and analysis have been influenced by other factors than impact. 140

* Ibid.

Volume I - Draft EIS

Page 65 (b) Agree total duplication of the Gordon Flats fire flood unit EIS data would be costly and inefficient. A brief summary of that data is necessary, however, since 35 percent of that project is in the GCNRA; lacking which, we do not have a clear understanding of the interrelationships. 141

Page 66/67 (b) The conflict of the Grand Canyon and GCNRA proposals should be resolved prior to EIS action. The presumption that the Grand Canyon National Park proposal will be revised in favor of GCNRA presumes to anticipate events which are not that certain. The GCNRA EIS should not be based on assumptions which may significantly affect subsequent management proposals. 142

Page 69 (1) Why have the Utah Governor's Advisory Council proposals for service communities "not influenced the proposal"? At the least, an explanation to the reader is required, particularly since the chosen action will require that "these communities would have to be constructed on less desirable sites farther from the lake. This constraint will decrease the likelihood that the projects will be implemented." 143

Page 69 (f) To quote the general guidelines of the State of Utah Comprehensive Outdoor Recreation Plan, while rejecting (or ignoring) the compatible and coordinate recommendations of its Glen Canyon Committee, looks strongly like deliberate mis-application of the quotes to mask faulty decision processes or logic chains. 144

Page 69 (g) Quoting extracts of the exclusionary elements of the law, while ignoring the far broader references to multi-use, is clearly meant to justify, not inform. 145

Page 70 Since the GCNRA is not to interfere with "...river regulation, irrigation, flood control, and the generation of hydro-electric power," can this EIS be complete without the BOR recommendations for pumped-storage hydroelectric facilities? 146

To say that "Resolution of the potential conflicts will require additional study, planning and cooperation" is a massive understatement. Question if any proposal based on naive assumptions as to future inter-agency actions is valid. 146

Page 71 (a) Don't believe the suggestion that the 100-mile zone is predominately grazing and recreation. Strongly suggest a current analysis would find mining and processing employs more people, generates greater incomes, and has greater socio-economic impact than grazing. 147

Page 71 (a) Note that specific references to primitive recreational activities will supposedly increase without the GCNRA proposal. Significantly, no reference to other, more common and universal recreational activities is included. 148

Special Note:

If we assume that: Those under 5 years (16 million), and those over 65 years (22 million), and those permanently and totally disabled (1.6 million) do not normally participate in "backpacking, tent carrying, hiking, rafting, and canoeing," we see 39.6 million Americans are not included in the potential visitors to primitive recreation areas.*

By thus excluding our young, our senior citizens (and much-traveling retirees), and the disabled (many of whom became such in serving their county), we inequitably exclude.

Page 71 (a) Agree that the local tourist industry has a high potential for growth and is expected to expand significantly. This expansion, however, is predicated on a continuance of current GCNRA management policies, canyonlands policies, gasoline prices, and a number of other variables.

Page 72 Question whether there is documentation for the "decline" in regional air quality, per se, or ambient air degradation from specific point sources. If the latter is the case, detailed analysis and mitigation should be a part of this EIS. 149

* Reference the U. S. Fact Book, "Statistical Abstract of the U. S.," Bureau of Census, D.O.C., 1977

Page 77 Note that the proposed plan reduces recreational activities that rely on motorized transport (i.e., motor touring) by 57 percent, to less than half of the total GCNRA. This isolation of over half of GCNRA to vehicles denies access to approximately 18.58 percent of Americans. 150

Page 78 Note with interest that while many areas of vital concern are only summarized in text, the proposal will "require an increase in the number of personnel needed for managing the area." This increase of 10 to 20 people seems to have been well thought-out by the gaining agency.

Page 80 Note the alarm that the proposal shows in describing the potential for "...deleterious influences of mining, development, use of motorized vehicles, and intensive recreational use," even though it is admitted that these disastrous and deleterious events are "not now occurring in outstanding scenic areas." 151

It would appear that the analyst has become so convinced by an emotional and unconfirmable arguement relative to possible harm, etc., that he has chosen to lock out a large portion of the U. S. population (rather than resolve the preservation issue through other management approaches).

Page 87 Suggest that the current depressed state of the livestock industry (drought, low prices, high costs, etc.) is involved in the low utilization rate on AUM's. Suggest that appropriate commentary should have been included. 152

Page 88/89 Note with chagrin that while "quantitative information on present erosion rates...is not available," the potential for erosion through over-grazing, too many people, too much traffic, is dealt with in the EIS and proposal as a well-known reality. 153

Page 89 "The quality of water in Lake Powell is good and poses no significant constraint on development and use...." 154

Strongly suggest that U. S. Water Resources Council 1975

Water Assessment Analysis of Upper Colorado Salinity and the "208" Water Quality studies by the Southeastern Utah Association of Governments show serious reservations in water quality (i.e., TDS, sulfate, selenium, arsenic, and occasionally, iron and manganese). 154

When the described mercury problem is reviewed, with the existing and potential problems highlighted by the above (and other similar reports), the suggestion that water pollution in the Lake will be "entirely negligible overall" seems more than optimistic. Similarly, until detailed EPA "208" studies of surface and ground water within San Juan County are completed, generalizations not consistent with similar studies completed in adjacent areas should not be included as analysis of impacts. 155

Page 92 The final study proposal for reclassification of air quality zones by the State of Utah has <u>not</u> been completed as suggested. As cited, the current quantities of pollutants are unknown. 156

Page 94 "In conclusion, implementation of the proposed plan will result in a small improvement of air quality in the Natural Zone, temporary, localized degradation of air quality associated with increased vehicular use in the developed areas, and potentially significant--<u>but presently undeterminable--deterioration of air quality in the RRU Zone if mining operations are ever authorized in this zone.</u>"

Believe the last sentence emphasizes the negatively-biased analysis of the EIS. Also suggest that references to degradation and deterioration when data on air quality is admittedly lacking are designed to prejudice the judgment of the reader. 157

Feel the "if mining operations are ever authorized in this zone" is diametrically opposed to the intent of the legislation, which uses the phrase "<u>shall</u> permit" in regard to development of leasable and non-leasable minerals.

Any attempt at objectivity in this EIS has apparently long since been abandoned. 157

Page 96 Historic Resources

See commentary on previous section.

Page 97-100 Strongly recommend that the coal/oil/tar sands/gas/uranium be completely reviewed and rewritten. The context of Federal energy policy is in conflict with this analysis. Similarly, the "economic" analysis is fallacious in today's market. 158

Page 102 Question if the cost of court actions, conceded to be forthcoming, was part of the cost/benefit in the proposed Plan A? 159

Page 105 Reference: Grazing

Note the following:

"The price/cost squeeze would affect smaller, marginally efficient operators first."

and

"The potential loss of 8,229 AUM's to livestock permittees could put present users out of business."

Isn't the loss of livelihood for operators, who may be in the third generation of ownership and operation, worthy of more than two references buried in text? The livestock industry is in major trouble throughout the southwest and the USA. It does not need additional, arbitrary actions to further drive operators out of business. We should, in fact, be encouraging managed use of all resources to help a sick industry which is so vital to the national interest. 160

Page 107 I guess I'm lost. Somehow this section says we'll help local economies and employment because they will diversify, and this apparently is because we will: 161

Cut motor-tourist access to the park areas;

Severely restrict, if not stop, energy and other mineral development;

Drastically cut, and force out of business, traditional livestock operators who have used GCNRA grazing lands. 161

Page 108 Note that the wilderness designation "will help preclude" mining, use of vehicles, development, utility corridors. This, then, helps preserve the area.

It would seem to me it is time for Americans to ask, "Preserve it for whom and from what"? If our Congress legislated one million acres for the exclusive use of a young environmentalist elite and a privileged affluent, local caucus (having horses, etc., and profiting from rentals to those that don't), then this National Recreation Area will serve that 5 percent or so. Eighteen percent of the people will have no access to these areas, and most of America would be unwilling and unprepared to sacrifice for the privilege of access after traveling so far just to get here. 162

Fortunately, the law did not so designate this area, and it is the "agency" who would accomplish this, without Congressional sanction, per se.

Comments to Volume II - Maps

Excellent craftsmanship

Clearly Display the conditions intended

Some Comments on Volume IV

1. Appendix 4

Nine roadless areas totaling 1,152,740 acres (1801 square miles) an area larger than nine different states, would be closed to trailers, cars, campers and mobile homes. This cannot be in the interest of most Americans. 163

2. Appendix 31

Note grazing statistics do not reflect the recent three year record breaking drought. 164

3. Appendix 34 - Population

Population figures are totally wrong! 165

	Garfield		Kane		San Juan		Wayne	
	EIS #	1976* Total	EIS #	1976* Total	EIS #	1976* Total	EIS #	1976* Total
1975	3286	3500	2498	3600	10413	11200	1503	1700
1980	3361		2252		11229		1498	
1985	3278		2589		11934		1468	

Existing 1976 population no only exceeds the the projected 1980 figures in three of the counties but is already higher than the 1985 figures quoted. On this margin of error long term management decisions are being made by the National Park Service?

4. Appendix 34 - Sales

All data is for 1967 and over 10 years out-of-date 166

5. Appendix 34 - Occupations

Data is for 1970. Seven years out-of-date 167

6. Appendix 34 - Unemployment

These figures are three years old and not consistant with the Department of Commerce LPW-II (1977) figures. 168

7. Appendix 34 - Housing

Vacancy rates and housing totals for 1970 are totally irrelevant at this time. 169

8. Appendix 34 - Local Government Finances

1967 Data - Too old

Also note the omission of capital outlay in calculations. Capital outlay is the impact keyed point of stress on local Government financing. Onission of same makes the resulting figures most misleading. 170

9. Appendix - 36

A limited survey, for another purpose in another area. It does not represent a valid approach to the local opinion issue. 171

Responses to Southeastern Utah Association of Governments Comments

102. Most of this data has been completely rewritten or updated by the University of Utah Bureau of Economic and Business Research and is contained in Section IV.A.4 of the Plan.

103. Refer to response 102.

104. Refer to response 102.

105. Refer to response 102.

106. Refer to response 102.

107. This simply is unrealistic and impossible to achieve.

108. Grand County was believed too far removed from Glen Canyon for this type analysis.

109. The legislative intent, as explained in some detail in response numbered 66, expressed in the statute constrains the classic concept of multiple use or "multi-purpose uses" by imposing a prioritization of land uses to be reflected in the management of the area. The four zone designations in aggregate accommodate the full gamut of land use activities envisioned by the legislation. Grazing would be permitted on the 1,063,560 acres of the Natural, and the Recreation and Resource Utilization Zones consistent with their other uses. Mineral development is an appropriate activity in the 557,890 acres of the Recreation and Resource Utilization Zone consistent with its other uses. This parallels the results of the traditional BLM multi-objective planning process, recognizing the priorities imposed by the Glen Canyon statute, and that this is a general plan. Specifics pertaining to individual grazing allotments, or mineral claims or leases will result from the resource management plans described in Section 11. D. of the Plan.

110. The economic assessment in the FES has been revised. However, the DES clearly identified those non-recreational values such as mining and grazing interests, which were provided for in the enabling legislation.

111. Enabling legislation does not call for a "full utilization" of any portion of the Recreation Area. Closing of existing access ways and restriction on future corridors are well within the prerogatives and mandates that Congress provided.

112. An option of the proposed action will not, in our opinion, disinfranchise any portion of the American public, nor does it ignore the input provided through the public review process. Any change in the existing natural area management will have little effect upon the recreational opportunities for the vast majority of the American public, in as much as most of this occurs in a water based or car windshield type of opportunity. Those recreationists seeking a remote area experience will have this opportunity enhanced if the plan is adopted.

113. Refer to response 102.

114. Refer to response 102.

115. Refer to response 102.

116. Refer to response 102.

117. Refer to response 102.

118. Refer to response 102.

119. Refer to response 102.

120. Refer to response 102.

121. Refer to response 102.

122. Refer to response 102.

123. Refer to response 102.

124. Refer to response 102.

125. The short term income sources in question derive from export employment in the retail trade, business services, and entertainment sectors (primary producers of income such as that cited). None of those sectors are sizeable components in Garfield and San Juan Counties. Only one sector in Wayne County and two sectors in Kane County are noteworthy components of these counties' economies. Refer to response 102.

126. Refer to response 102.

127. The public opinion survey reflects greater variation of viewpoint that is expected from most public meetings and protests. The focus of the text is on the reasoning behind several types of viewpoints rather than the specification of any one representative viewpoint. Additional information is given in Chapter IX and Table 32.

128. The United States Geological Survey Report herein referenced did not identify any hazard relative to fault zones or potential for earthquakes. In point of fact, this remains one of the most aseismic areas in the nation.

129. The NPS is unable to quantify this impact. With a nationwide increase in gasoline prices in 1977, the visitation to the NRA doubled. Boat gasoline at Rainbow Marina already exceeds $1.00 per gallon with no apparent effect on recreational distribution or opportunity.

130. Your observation is correct.

131. Carrying capacity, indeed, can be a product of management strategy; however, this is oftentimes dictated by the natural environment which sets limits on distribution patterns, as well as the availability of surface area, for economically viable shore based developments.

132. Water quality of Lake Powell is certainly not to be taken lightly. While it is true the presence of other trace elements has been noted, none exceed Public Health Service standards for human consumption with the exception of the presence of mercury, present in large game fish muscle tissue which is a produce of bioamplification.

133. This data is provided on Page 14 of Lake Powell Research Project Bulletin No. 1 published June 1973 entitled Mercury In The Lake Powell Ecosystem by Standiford, Potter & Kidd. This is further supported in Lake Powell Research Bulletin No. 26 published August 1976 entitled Predicted Transport Of Air Pollutants From The Navajo and Kaiparowits Generating Stations Into Lake Powell by Eric G. Walther.

134. Section IV.B.20 of the Plan has been changed to clarify this apparent discrepancy.

135. It is correct to assume that additional sites worthy of nomination to the National Register of Historic Sites will come to the attention of the NPS. Both historic and archeological resources are currently being inventoried and evaluated for inclusion in future nominations. A Cultural Resource Management Plan, as a part of the overall Resource Management Plan, will be developed as subsequent planning after approval of the General Management Plan.

136. Refer to first paragraph on page 45 of the DES. It states: "resources of Glen Canyon are defined according to terminology officially adopted by the Department of the Interior. Certain of these definitions appear below and in DES Appendix 27." This last sentence would have been more informative with addition of: "on pages 103 to 105 of Volume 4--Appendixes."

137. Had the Tar Sand Triangle been established as an economically exploitable energy resource, not just a large occurrence of viscous (unrecoverable to date) petroleum residues; its relation to the current national energy crisis would have been emphasized.

138. The advantages of the coal occurring in the Kaiparowits field (southern extremity affected by wilderness designation) were not mentioned due to the small portion of this energy resource occurrence found inside the boundary (Doelling and Grahm, UGMS, 1972), 9.75 million tons out of a total for the field of 15,198 million tons, or less than 1/10th of one percent.

139. Refer to the first two paragraphs of response 11 to the Department of Energy comments.

140. We feel that it would be presumptious to assume that this plan will "make or break" some of the remaining ranchers. At the present time there is no way of evaluating which rangers will choose to pursue grazing under a natural area classification. The impacts of on-grazing are discussed in Sections III.A.13., and V.J. of the FES. See also response 8 to the Soil Conservation Service.

141. The Fireflood project would be the subject of a separate environmental document. It is inappropriate to discuss it in detail in Glen Canyon's FES. It suffices to say it would not be precluded if the proposal is adopted.

142. This conflict has been resolved as described in Section 1.C.2 of the FES.

143. This is not entirely a correct statement. One of the council's proposals, the one adjacent to Wahweap, did influence the proposal as discussed in Section 1.E. of the FES. The other two, contributed to the development of management zoning alternative B which was overwhelmingly opposed by respondents to the DES.

144. This was not the intent.

145. It is necessary, in order to accomplish Congressional intent, to understand it. Public Law 92-593 clearly withdraws the lands within the boundary of the NRA from the public lands. The public lands are the territory wherein the concept of "multiple-use" is practiced. The law also directs the Secretary of the Interior to manage the area under the provisions of the Act of August 25, 1916 which is the National Park Service's "organic act." The 1916 statute makes no reference to multiple use, and, in fact, renders the concept inoperative by directing management toward different objectives. The Glen Canyon establishing legislation does broaden the scope of management purposes to permit mineral development and grazing as long as they do not interfere with the other purposes of the Act. The law does an effective job of describing the array of activities the Congress intended to take place within the NRA and it equally and effectively defines the prioritization they intended to be applied in making decisions about which of these activities should occur and where they should occur. A clear understanding of this aspect of the statute is essential to the comprehension of the plan because it is the framework of previous Congressional decisions upon which the planning builds. It is, consequently, imperative that reviewers of the plan have those Congressionally-mandated constraints on the management of the area in mind. They will be frustrated in their personal desire for a more, or less, liberal attitude toward resource development in the plan, if they are not so informed.

146. The FES acknowledges that the Bureau of Reclamation is contemplating pump storage hydroelectric facilities. Pump storage facilities, if proposed, would of course require their own environmental documentatiion under the National Environmental Policy Act of 1969. The full scope of interagency actions and resolution of conflicts should be discussed in that document.

147. There is no doubt that grazing and recreation are the most widespread land uses in the region as described in Section IV.A.2 of the Plan. Facilities for mining and processing cover probably less than 1 percent. However we agree with your second sentence which is enlarged upon by the data in the FES provided by the University of Utah's Bureau of Economic and Business Research. Refer to response 102.

148. The first paragraph of Section II.A. of the FES points out that the construction of new roads and the upgrading of existing ones in the region will improve access and circulation, thereby enhancing recreational opportunities which would include windshield viewing and other low physical demand types of recreational pursuit. See also response number 112. It is estimated that with or without the implementation of the proposed action tourist industry and recreationasl opportunities will continue to expand in the Glen Canyon region.

149. The decline in regional air quality has been documented. Refer to response 133.

150. We do not agree that there will be a 57 percent decrease in recreational motor touring, inasmuch as those roads proposed for closure under the plan are not now serving any significant recreational traffic. These roads are access roads related to grazing or mineral recovery programs, constructed prior to the establishment of the NRA and are not receiving use at this time. There is no significant impact on the major roads currently being used for windshield recreation.

151. The proposal as described in the FES has been developed thru the process of much public involvement, planning and management considerations. The guiding hand throughout was Public Law 92-593. The proposal has both gone too far and not far enough according to many regarding the preservation issue. However, the NPS believes that the proposal is the best solution to the many type uses covered in Public Law 92-593.

152. The material provided by the Bureau of Land Management did not identify factors which have contributed to the allotments not being fully utilized. The factors you suggest may well be involved but the entire economic picture is unknown for grazing and ranching inside the NRA.

153. While we have not quantified the amount of loss to erosion, the principles causing that erosion are well documented.

154. Lake Powell Research Project Bulletin No. 34 entitled The Concentration Of Ten Heavy Metals In Some Selected Lake Powell Game Fishes, published November 1976, authored by Bussey, Kidd and Potter, addresses the quality of water in Lake Powell. Since the discovery of widespread mercury contamination in equatic ecosystems, there was a corresponding increased concern over the possibility that other heavy metals may be contaminating fresh water. The concentrations of the more toxic heavy metals found in the edible portions of Lake Powell fishes were compared to the levels observed in some common foodstuffs. At this time none of the elements, with the exception of selenium, appears in concentrations highest enough to be cause for concern. The presence of arsenic, lead and cadmium is well below safety levels. Copper, zinc and chromium are found in trace quantities. Although selenium concentration was high, little is known of the factors influencing the element's uptake and assimilation in game fish.

155. The National Park Service is cooperating in the "208" studies of surface and ground waters surrounding Lake Powell and when such data is available, it will be incorporated in future planning efforts. We do not feel that we are overly optimistic in believing that the impacts associated with approval of this plan will be "entirely negligible overall, with regard to water pollution of the Lake."

156. The comment relative to the status of the State of Utah's plan for reclassification of air quality zones is accurate. The text has been revised to read ... "designation to Class I in the recreation area and to Class III for most of the surrounding area was preliminarily examined by the State of Utah. After a series of public meetings, it was decided that more work was necessary before a proposal was formulated. No further action is anticipated until the State Implementation Plan for Prevention of Significant Deterioration is prepared in compliance with the Clean Air Act Amendments of 1977." Reference to action pending by EPA is deleted.

157. Section III.A.9. of the FES has been revised in an attempt to remove any appearance of bias. We believe that response 133 and 134 adequately address the question of air degradation data.

While Public Law 92-593 uses the phrase "shall permit" with regarding removal of leasable and non-leasable minerals, the decision must consider any significant adverse effects on the administration of the NRA pursuant to the Act. The preamble to the Act states that the NRA is established for public outdoor recreation use and enjoyment of Lake Powell and to preserve scenic, scientific and historic features contributing to public enjoyment of the area. It is clear that these considerations take precedence over mineral leasing and mining activities.

158. All portions of the mineral resource sections of the DES have been reviewed. Where indicated by later information, some statistical data has been updated and other appropriate chanages have been made.

The omission of prime natural areas from wilderness designation on both the Orange Cliffs and Dirty Devil portions of the NRA (Place Overlay 1 on Map 5) were specific illustrations of mineral resource potential outweighing known natural resources. The controlling guidelines establishing the criteria used to weigh the comparative significance of mineral against natural (wilderness) potential is set forth in both the Wilderness Act and the Act authorizing the NRA. To the extent permitted by the legislation, both the federal energy policy and the growing national energy crisis were important factors affecting the selection of natural (wilderness) areas of Glen Canyon.

The economics of known and measured mineral reserves currently unexploitable due to a market price too low to mine at a profit are complex and a subject that experts seldom all agree on. The economics of postulated (hypothetical) mineral resource estimates are inescapably tied to the level of credibility of the source data upon which they are based. When such data consists of broad geologic extrapolations from which both grade and quantity of mineral occurence are projected, the end product is solely a statement of theoretical probabilities. "Hard" conclusions and tonnage estimates resulting from such projections are not significant mineral resource information; and carry little weight compared to known surface recreation, scenic and wilderness resources.

159. Court action costs were not included.

160. Refer to response 140. As with mining and mineral leasing activities, grazing is managed with full regard for the primary use of the NRA as set forth in the preamble.

161. Economic stimulation is predicted because of increases in weak areas of economic development (retail trade sector, personal service sector, construction sector). Gaining strength in weak areas is beneficial because it spreads general economic activity out over a larger array of jobs, goods, and services. For the four counties, these gains are of greater relative importance than slight declines in agriculture and mining. The net effect of these changes is to relieve dependency on drought threatened agriculture by creating other employment opportunities.

162. Refer to response 31.

163. Our wilderness recommendation consists of 567,265 acres which includes about half of the roadless study areas. This we believe is in the interest of most Americans.

164. Grazing statistics reflect the most current comprehensive figures available to us from the Bureau of Land Management. While they may not reflect the three year drought, any error in impact evaluation to the rancher would be magnified in favor of the rancher by not having the reduced figures available to us. The discrepancy will be noted in subsequent planning documents, such as the Grazing Management Plan.

165. Up to date population figures provided by the University of Utah's Bureau of Economic and Business Research are contained in Appendix 4 of the FES.

166. Refer to response 165 but substitute "sales" for "population".

167. Refer to response 165 but substitute "occupations" for "population".

168. Refer to response 165 but substitute "unemployment" for "population".

169. Refer to response 165 but substitute "housing" for "population".

170. Refer to response 165 but substitute "local government finances" for "population".

171. Refer to response 127.

RESOLUTION NO. 1977-3

WHEREAS, the Board of Commissioners of Garfield County, Utah is committed to preserving the means available to farmers, ranchers, miners and other small businessmen to earn a livelihood, and

WHEREAS, the National Park Service of the U.S. Department of the Interior has proposed a management study policy regarding the Glen Canyon National Recreation Area, and

WHEREAS, land within the Glen Canyon National Recreation Area is used extensively by Garfield County farmers, ranchers, miners and other small businessmen in earning their livelihood, and

WHEREAS, many small, operating mines are located within the Glen Canyon Recreation Area in Garfield County, Utah, and

WHEREAS, the said proposed management study policy, if adopted, would severely limit access to grazing allotments and mineral leases,

NOW THEREFORE, BE IT RESOLVED by the Board of Commissioners of Garfield County, Utah, that the National Park Service of the U.S. Department of the Interior is urged not to adopt its proposed management study policy for the Glen Canyon Recreation area.

PASSED and APPROVED at a regular meeting of the Board of Commissioners of Garfield County, Utah, held at Panguitch, Utah on the 26 day of Sept, 1977.

BOARD OF COMMISSIONERS OF
GARFIELD COUNTY

By Jay Proctor
Jay Proctor, Chairman

Wallace Ott
Wallace Ott, Commissioner

H. Dell LeFevre
H. Dell LeFevre, Commissioner

ATTEST:
Edra R. Miller
Edra R. Miller, Clerk

CLERKS CERTIFICATE GARFIELD COUNTY, UTAH

State Of Utah

County Clerk And Ex-officio
District Clerk And
Of Utah County Cer-
Above and Foregoing Is A True
Copy Of The Original
Resolution # 1977-3
And Record In My Office,
and Seal Of My Office At
County, Utah, This 28
Day Of September, 77.
EDRA MILLER, COUNTY CLERK
BY Edra Miller

172 Response to Board of Commissioners of Garfield County Comment

172. Thank you for your comment.

GLEN CANYON

NATIONAL RECREATION AREA

PRIORITY LISTING

AND

JUSTIFICATION

by

Kane County Board of Commissioners

Merrill R. M^ac^Donald, Chairman

Sterling Griffiths

Bob Russell

Kanab, Utah

November 9, 1977

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GLEN CANYON NATIONAL RECREATION AREA

INTRODUCTION

On behalf of the great majority of the people of Kane County, the Kane County Board of Commissioners respectfully submit this statement for consideration relative to the Glen Canyon National Recreation Area.

We offer this with a view of promoting wise, efficient utilization of the natural wonders and natural resources available to the people of these United States within the confines of the Glen Canyon National Recreation Area, the greatest share of which is in Kane County.

We realize that we have opposition in reference to our proposals. However, we feel that our viewpoint in reference to these opponents no longer is an isolated, unique set of concepts. For that reason at the outset we wish to enter into the record the comments contained in *The Environmental Health Letter, June 15, 1977 (Volume 16, No. 12)* which states the following:

ROCKEFELLER ASSOCIATE SAYS ENVRIONMENTAL EXTREMISTS ENDANGER THE MOVEMENT:

Fred Smith, an associate of Laurance S. Rockefeller and identified with conservation causes for nearly 50 years, says that "the environmental movement is endangered because it has degenerated and is now in one of the most far-reaching, mixed-up, complex, recriminating upheavals the country has ever seen."

"It has created an endless parade of villains, including not only big business but the guy next door that we never liked anyway, and it has fed the press and television with the kind of sensational blood-and-thunder copy they cherish," he said in an address to the annual convention of the Edison Electric Institute in Philadelphia.

"What started in the late fifties as a fresh look at the man-nature relationship, and broadened in the early sixties to a new respect for Natural Beauty, has deteriorated into a monumental exhibition of recrimination, revenge and complex demands for violent reform, including over-all reform of the 'the System'."

He described glowingly what he considered to be a genuine spirit of cooperation between industry, particularly the utilities, and government and public in the late 1950s and early 1960s on behalf of Natural Beauty.

"But what a long and tragic leap it has been," he continued, "from those earlier days of hopeful, constructive planning and widespread, willing cooperation to the present arbitrary tactic of going directly to the courts to stop, with injunctions, anything that somebody with a handy lawyer and an accommodating judge doesn't happen to like! On occasion this has amounted to dictatorship by what may well be an infinitely small, tunnel-visioned, single-minded, short-sighted minority--which invariably cloaks itself in the mantle of the Public Interest.

"The important question of today is really this: will the under-powered and crippled society of the next few years agree with a relative handful of activitists were acting in the public interest when with monumental arrogance they stopped by court action nearly ten billion dollars' worth of construction and development in the energy field alone because it presumably endangered, for example, such non-human critters as small darters, clam larvae and kangaroo rats? Perhaps, as claimed, these creatures were endangered. But so are nearly 220 million people."

We, ourselves, have thrown harsher harangues at these people--these preservationistic organizations; however, for this study the condemnation of one of their own will suffice for our purposes.

The point made in the speech stands. We accept that as our own condemnation of these people. We submit through this report a different philosophic point of view for consideration.

The Kane County Board of Commissioners after carefully reviewing the materials contained in the Glen Canyon National Recreation Area Draft Environmental Statement wish to stress some concepts that we feel are paramount as reference to our country and to the national recreation area.

WILDERNESS: The first overriding concept that we wish to present is that there should be absolutely no wilderness at all. If it must needs be that areas should be designated as wilderness, then we will acquiese to the recommendations of Governor Scott Matheson's Glen Canyon National Recreation Area Task

173

Force. However, let this record and all subsequent records attest to the fact, that this acquiesence is given extremely reluctantly and without a firm conviction in the necessity for such wilderness designations. 173

RECREATION: Another concept that we wish to stress prior to our presentation of our priority listing is that Glen Canyon is a National RECREATION Area and is not a national park. Further, the intent of the Congress of the United States was that this should be established and maintained as a national recreation area and not as a national park.

National Parks and national recreation areas are set aside for their intrinsic worth and merit for the edification and relaxation of the ENTIRE people of the United States. These are not private preserves for the rich, for the able and for the care-free. These areas belong to all of the people of these United States. They belong to the old, to the handicapped, to the harried who cannot or will not take the time nor suffer the hardships to trek on foot or on horeseback into these areas of pristine beauty. 174

Great White Throne in Zion, Thor's Hammer in Bryce and all of the areas of the Grand Canyon have been made accessible to the general touring public. They have not suffered adversely. These works of wonders, these natural manifestations of the hand of God can stand the impact of being seen.

With this in mind, we submit that we should keep Glen Canhon National Recreation Area totally open for everyone. Let's help everyone to enjoy and appreciate the beauty that God has created for us here in the Western United States.

PRIORITY LISTING

LAKE POWELL ROAD: The Congress of the United States is a truly unique body. It presents, ponders and passes legislation. All too often, however, this action is totally ignored by the entities created by the Congress. Bureaucrats are a breed unto themselves. Congress proposes; bureaucrats dispose. A classic case is the Lake Powell Road approved and authorized by the Congress of the United States. Several years after Congress has acted, the bureaucrats are still dodging this action saying in essence:

> "Congress must not have really wanted this road, since we don't want it. Maybe in time, they will forget they made a mistake!"

It is the emphatic, unalterable and vigorous contention of the Kane County Board of Commissioners that the Lake Powell Road from Glen Canyon City to Bullfrog Basin (via trans-Escalante route) must be built. This road must be built now. Delay and vacillation have been implemented and effected for far too long. 175

This road shall serve as the crux to all proper and orderly development of Lake Powell. The lake road is imperative. It will serve as the artery to help move the vacationing public along the lake without creating adverse impacts in any one area. At the present time, the concentration of people in a few selected areas has generated some extremely severe problems. Because of this, it is our contention that the National Park Service is not properly servicing the traveling, vacationing public in a manner commensurate with the original intent of this lake as a vacation spot.

Further, this tourist road is an integral element for public safety. It is mandatory that this road be built for proper search and rescue, safety development and law enforcement features that are so necessary on an lake of this size. It is essential that there should be access provided at a reasonable point from any spot where problems may arise.

There is an obligation implicit in the National Park Service's assumption of control of this lake that they will work to provide a safe, recreational facility and experience for all of the people of this nation. To do less than this would be to deny the purpose for which the National Park Service was founded so many years ago. To do less than this would be to invite the National Park Service, its directors and its staff into legal complications.

The Kane County Board of Commissioners are firmly committed to and strongly supportive of the development of this recreational road. We shall not hesitate to take political, and, if the need should ever arise, legal action to actualize the development and construction of this total road fronting Lake Powell through the length of eastern Kane County, Utah.

We have begun and will continue to work with the Governor of the State of Utah and the Congressional Delegation representing the people of Utah for the establishment of this simple tourist road. We feel that, if necessary, our actions will transcend the political actions that we have taken in the past.

DEVELOPMENTAL PROGRAMS: One would think that those charged with responsibility for the Glen Canyon National Recreation Area would actively work to develop a plan that would secure the best utilization and protection for this, their charge.

It is with regret that once more we must stress publicly our contention that there must needs be properly planned and properly placed developments along the lake face. This is necessary to forestall the overcrowding and unsafe features that have already begun to arise in the southern area of Lake Powell. It is encumbent upon the National Park Service, the Kane County Board of Commissioners and the Kane County Sheriff's Office that we work avidly and cooperatively to provide a program of development along the lake to meet the needs of our many visitors.

With this in mind, we must take exception to the arbitrary and capricious development programs embodied in the Draft Environmental Statement for the Glen Canyon National Recreation Area. We respectfully submit the following proposals for consideration and inclusion in the final Management Program for the Glen Canyon National Recreation Area.

Lone Rock Marina: We respectfully submit and request favorable action for a marina established at Lone Rock--the northern tip of Wahweap Bay. It is our contention that a marina is necessary in this area to help to disburse the heavy influx of people on the lake in the southern Wahweap area during the summer months especially. We believe that a marina with facilities proper to such a development would be sufficient.

We, at this time, deny the necessity for such facilities as motels, restaurants, service stations, etc., et al. in the Lone Rock area. We feel that this facility should be retain for the convenience of the boating public. Thus it is that we recommend that this facility should be developed for the maximization of boat launching in the southern part of Lake Powell. 176

If tourist facilities are necessary, we feel that these should be placed on private patented land and not be placed within the national recreation area boundaries.

Warm Creek Development: The Kane County Board of Commissioners contends that any marina development at Warm Creek would be redundant and have a deleterious impact on the southern part of Lake Powell. Development for the sake of the boating public is not necessary in this area. This area is much too close to Wahweap Marina and the Lone Rock Marina areas for proper utilization of the lake and the proper dispersal of the public. This is not a proper site for marina development or for public recreational facilities. 177

However, we respectfully submit that this area must be set aside for water withdrawl. This should be one of the sites established for a corridor to implement the state of Utah's utilization of their allocation of water from the Colorado River. 178

It is our contention that in reviewing the entirety of the Glen Canyon National Recreation Area's Draft Environmental Statement there are few areas along the lake that would lend themselves so superiorly to

this project. After consultation with others, there are not that many areas along the entire distance of the Colorado River in the borders of Utah that would so easily accommodate this project.

This is not to deny the development of other areas for the water withdrawl of the Utah allocation of Colorado River water. In fact, it will be imminently essential to establish several areas for such withdrawl. However, we submit that the Warm Creek area is preeminently suited for this. An additional factor is that the Warm Creek site will serve as the final opportunity within the state's boundaries to exercise their ultimate utilization of this water allocation. 178

Padre Bay Recreational Site: In lieu of any recreational development at Warm Creek, which would continue to compound a prevalently bad situation, we submit that the plans for development on Lake Powell should be amended to delete any recreational aspects being developed and promoted at Warm Creek and to place a total recreational package at Padre Bay. 179

It is our philosophy that the recreational facilities should be spaced across the face of the lake and not concentrated in a few given areas. With recreational development at Warm Creek three major sites would be concentrated essentially in one bay. This should and can be avoided. We offer Padre Bay as a logical and necessary alternative for the recreational development at Warm Creek.

This should in no wise be read or construed as negating the concepts advanced in the previous section calling for development at Warm Creek for the water withdrawl for the State of Utah's allocation of the Colorado River water.

179

In reference to Padre Bay, it is our contention that this would also expedite any search and rescue operations, enhance health and safety and promote proper law enforcement on the lake.

Dangling Rope Marina: We support the concept advanced by the National Park Service for a marina at Dangling Rope. This would further our basic philosophy of properly intersperced developments along the lake. It is our contention that there should be nothing more than a marina with temporary docking, a fueling area and a store. We can anticipate no reason for any extensive type of development in this general area.

180

Further, it is our contention that there should be no reason for any access to the Dangling Rope area other than by boat. We cannot at this time see any justification of the proposal of trying to create a road into this area for access to the lake.

Conclusion: With reference to the Developmental Programs for the Glen Canyon National Recreation Area, we respectfully request that the following priority listing be observed and approved. We feel that the Lone Rock area should be developed immediately upon approval of the Master Plan for the Glen Canyon National Recreation Area. This should be placed on a short-range priority base.

181

The Dangling Rope Marina would not be of immediate concern; however, it is our contention that this should be developed and taken care of in the next three to five years at the very outside.

Finally, we feel that the Padre Bay area should be opened for private entrepaneurs to develop within the next five to seven years. It will be necessary for this development to take place to have the Lake Powell Road in place with a spur leading down to Padre Bay. It is our contention that there should be no reason to keep this area closed much beyond this delineated time frame.

BOUNDARIES

After reviewing the data prepared by the personnel fo the National Park Service and after consideration of the factors inherent in the administration of the national recreation area, the Kane County Board of Commissioners endorses the concept that the boundary for the Glen Canyon National Recreation Area on the west should follow the configuration of the Lake Powell Road. This means that the southern and eastern right-of-way following the Lake Powell Road would be the administration for the National Park Service.

182

There are areas in the Hole-In-The-Rock and Escalante Canyon regions where the proposal would not be feasible. However, for the southern part of the Glen Canyon National Recreation Area, we would deem this to be a logical and expeditious method for establishing and maintaining the boundaries for the National Park Service and also for all of the visitors to the area.

183

An additional element relative to this proposal would be that the maintenance of this road would then be the responsibility of the Department of Transportation of the state of Utah and the Kane County Road Commission. Access to the various areas within the national recreation area would, of course, be the responsibility of the National Park Service. This could be contracted with Utah Department of Transportation or others to alleviate the heavy cost factor to the National Park Service for equipment and personnel to maintain these access roads.

RESOURCES

"Those resources we waste today, we shall pay for tomorrow." This sentiment is found expressed in an article, "About the Sierra Club" in the Sierra Club 1977 Calendar. Frankly the Kane County Board of Commissioners could not agree more.

The natural resources that are available to a nation and to a people are of such a nature that they should not be taken lightly or dismissed out-of-hand. The apparent attitude of the framers of the Draft Environmental Statement seems to be that the resources mean nothing...lock the entire area up into perpetual wilderness. We reject this philosophy totally, completely and irrevocably.

With all resource development and utilization, the Kane County Board of Commissioners has in the past and will continue in the foreseeable future to have as its philosophic premise--"utilitarian conservation." We feel that these resources must be developed; however, there is no justification for their being wasted. Further, to develop these resources, there is no need to lay waste the land.

Mineral Resources: In the immediate environs of the Glen Canyon National Recreation Area there is a multiseam deposit of coal with seam thicknesses ranging from less than four feet to 35 feet. The total coal resource has been estimated at about 18 billion tons. Much of this coal is under federal or state lease. This desposit is extremely important to the people of Kane County, the state of Utah and the United States.

Former President Nixon stressed, "National energy independence means

that the United States will reduce energy imports to the lowest level deemed economically and socially acceptable." The Project Independence Report said, "Coal is the most abundant fossil fuel in the United States."

We feel that we must develop our coal resources creatively and that we must be open and amenable to whatever advancing technology presents to us for the good of the people of the entire United States.

The Glen Canyon National Recreation Area Draft Environmental Statement has attempted to impact these coal reserves that we have in the Kaiparowits Plateau. We reject as totally unacceptable any attempt by the National Park Service to lock the Kaiparowits into wilderness. "Those resources we waste today, we shall pay for tomorrow!" 184

The oil and gas resources in the Glen Canyon National Recreation Area are in jeopardy of being totally encased in political amber. We as a people and as a nation cannot afford the luxury of indiscriminately disposing of millions of barrels of oil and gas. We cannot totally accept the judgment of the National Park Service relative to the test wells drilled in the southern Escalante Canyon area. Reports we have received subsequently contradict the stand of the National Park Service that both of these wells are dry or economically infeasible. "Those resources we waste today, we shall pay for tomorrow!" 185

The uranium, vanadium and copper resources are sufficiently important to the people of these United States that the land should and must needs be kept open for extraction of these minerals. "Those resources we waste today, we shall pay for tomorrow!" 186

Regardless of the present mineral deposits in the Glen Canyon National Recreation Area, we contend that indiscriminate locking of an area can and will be a disastrous mistake. A hundred years ago, how many Americans understood the importance of oil and gas that was then being found in Pennsylvania? With indiscriminate wilderness designations, how many resources of tomorrow will be locked away permanently today?

As a general rule, it is our contention that the mineral resources contained within the national recreation area must be left open for present and future development. The quantities and qualities of the minerals in this area are of outstanding dimensions. We cannot see any justification whatsoever for locking these resources into oblivion. They are essential, necessary for our people in Kane County, in the state of Utah and in these United States.

It is for this reason that once more we state our position that ehre should be absolutely no wilderness at all in the Glen Canyon National Recreation Area.

Cattle: The cattle industry has historically been the mainstay of the economy of southern Utah and Northern Arizona. We feel that with the wilderness designations, the Park Service would be indiscriminately attempting to close down 35 cattle operations. This is outlandish. We find it arbitrary and capricious. We reject the concept of the park service that rocks are more important than people; and that cattlemen, as such, have no rights nor can they make demands for the continuation of their livelihood.

We submit that the attitude of the National Park Service should be changed in reference to the national recreation area so that cattle grazing will be permitted in 100% of the total land areas or in those areas that have had, do have and should continue to have cattle grazing. We submit that the policy of the National Forest Service and the Bureau of Land Management should be emulated by the National Park Service in this instance. 187

CONCLUSION

In the past several years, the people and officials of Kane County have been subjected to various Draft Environmental Statements of one order or another. Frankly, these studies are not designed to give a great deal of pleasure to those who live and work in the greater Kane County area. This statement is no exception. Some of the replies that we have made in the past to these statements have been read and then ignored, others have been simply ignored. It is our hope with this report that it will be read, considered and incorporated into the final Management Plan for the Glen Canyon National Recreation Area.

GLEN CANYON NATIONAL RECREATION AREA

KANE COUNTY BOARD OF COMMISSIONERS
PRIORITY LISTING

Number	*Item*	*Priorities*		
		Short Range	*Medium Range*	*Long Range*
I.	LAKE POWELL ROAD Glen Canyon City to Bullfrog Basin	X		
II.	DEVELOPMENTAL PROGRAMS			
	A. Lone Rock Marina	X		
	B. Warm Creek Water Withdrawl		X	
	C. Padre Bay Marina			X
	D. Dangling Rope Marina		X	
III.	BOUNDARIES To follow the road contours	X		
IV.	RESOURCES			
	A. Mineral--to be left open for present and future development	X		
	B. Cattle--100% grazing area comparable with policy of the Forest Service & BLM--total multiple-use	X		
V.	RECREATION	X		
	Total Recreation Concept--the areas must be open for utilization by all of the people. There should be no areas of exclusivity, nor should we practice recreational discrimination.			

Responses to Kane County Board of Commissioners Comments

173. Your comment will become a part of the official record.

174. We agree that Glen Canyon is a National Recreation Area and not a National Park; and with your second paragraph under Recreation.

175. The NPS at this time does not make a proposal for or against a road between Glen Canyon City and Bullfrog Basin. Congress must appropriate funds for this authorized road before construction could take place.

176. A Development Concept Plan is in preparation for a Lone Rock development. It addresses several levels of development for Lone Rock; however, the NPS is not considering the addition of new concessioner operated developments at this location. We concur that initial devewlopment at Lone Rock should be limited to public recreation servicing facilities.

177. We concur with you with regard to future marina development at Warm Creek. This development site has been deleted.

178. We acknowledge that the State of Utah's water allocation must be provided for. Our planners, in conjunction with planners from various industry representatives, agree that a most likely area for a water development would be in the Warm Creek drainage near its confluence with the main channel. The RRU zoning category would accommodate a utility and transportation corridor servicing this facility.

179. We concur that Warm Creek Bay is not a recommended development zone for a full service recreation facility. In keeping with your suggestion, a Padre Bay site has been identified on Map 1, with a similar type of visitor service available.

180. The Dangling Rope Marina is envisioned as being a replacement of the existing Rainbow Marina with a similar type of visitor service available. We agree that public access should be limited to the water and see no need for an extensive recreational development.

181. Development planning is under way for Lone Rock as well as Dangling Rope Marina. We are optimistic that development can begin within your suggested time frame. Padre Bay is unlikely to be developed in the immediate future because of the lack of adequate road access to the lake shore. In any case, only a Padre Bay location, as indicated on Map 1 would be seriously considered.

182. The boundary alignment suggested by the Commission was considered in Alternative B but rejected in favor of the NPS proposal.

183. We envisioned that at such time as Congress appropriates money for the construction of a road between Glen Canyon City and Bullfrog Basin along any one of the alternatives set forth, that road will be constructed with federal monies and maintained by the NPS as a low-speed recreational parkway. We further envision that commercial traffic such as that related to mining and mineral activities would be prohibited in keeping with NPS management policies for other roads of this character.

184. A comparison of Map 3 with Map 4 shows that only 10 miles of the 44 miles of NRA boundary cutting the southeast end of the Kaiparowits Plateau (coal field) is affected by the wilderness recommendation. This leaves 34 miles (over 75 percent) of the south end of the coal field in the RRU Zone, open to recreation and/or regulated mineral resource exploitation. This does not lock the Kaiparowits into wilderness.

185. With the exception of one or two test wells drilled near Oil Seep Bar, all of those in the southern Escalante Canyon region were reported,"dry holes and abandoned" by both industry and the Division of Oil and Gas, state of Utah. The Oil Seep Bar wells were reported, "dry and abandoned" on industry oil well maps of Utah; but as "oil shows and abandoned" by USGS and other literature sources. This difference in reporting reflects industry's simple approach: Even with a "show" of oil, if it cannot be pumped profitably, it is abandoned as a dry hole. In contrast, geologists and mineral resource theoreticians emphasize the "oil show" and are seemingly unimpresssed by the "abandoned" status, the economic reality.

186. Refer to first and second paragraphs of response 11 to the Department of Energy.

187. The mandates and policies of both the BLM and Forest Service differ somewhat from that of the NPS. Refer to response 160. It is acknowledged that the wilderness designation may influence the management of certain areas of the NRA for grazing. We are unable at this time to quantify this impact because of the unknown response by grazers to a less mechanized grazing management operation. Our actions are neither indiscriminate nor capricious and the mandate of management under wilderness is clearly spelled out.

City of Page

P.O. Drawer HH
697 Vista Ave.
Page, Arizona 86040
(602) 645-8861

November 15, 1977

National Park Service
Mr. Temple Reynolds, Superintendent
Glen Canyon National Recreation Area
P.O. Box 1507
Page, Arizona 86040

Dear Mr. Reynolds:

The City of Page Mayor and Council representing an official population of 5,892 respectfully requests that you enter into the record the following comments on your General Management Plan, Wilderness Proposal, Road Study Alternatives and Draft Environmental Statement.

"WILDERNESS PROPOSAL"

The City of Page does not oppose the Wilderness Proposal as presented. It is felt that there should be a clarification as to whether or not the Colorado River between Glen Canyon Dam and Lee's Ferry is to be included as a wilderness area. If that were the case, the City of Page would oppose that section of the Colorado being included as a wilderness area. 188

"ROAD STUDY ALTERNATIVES"

Included in your Road Study Alternatives should be the road leading to the future Page landfill leased from the BLM and to be constructed in the immediate future by the Bureau of Reclamation. This road was provided for in the Act of Congress permitting the incorporation of Page, March 1, 1975, and it is our understanding that the National Park Service will also need to utilize this facility. 189

"GENERAL MANAGEMENT PLAN"

1. The City of Page supports the proposal to relocate Rainbow Marina to Dangling Rope to relieve present congestion problems and to provide marina facilities for fueling, sewage removal and treatment closer to the main channel. This should also permit more convenient refuge from storms and needed lake evacuations of injured boaters since it is understood that a small air strip is planned at that location.

2. The City of Page would like to be considered 190

as a possible future concessionaire-marina operator at a proper marina site which would be approximately 1.1 miles northwest of an extension of the abandoned Page north access road. This particular location was recommended as a probable site in the Marina Feasibility Study conducted by the Northern Arizona Council of Governments, submitted in April, 1976. Access to the facility would be developed in conjunction with federal and state highway funding for economic development in Page. Arizona SLIF funds and BOR funds would be requested to develop actual on-site facilities which were non-profit in nature, and revenue bonds could be issued to develop concessionaire type income producing facilities which would likely be subcontracted by the City of Page. Actual developments proposed include:

a) Gas dock and pump out facility
b) 60 rental slips
c) Improved parking
d) Picnic facility
e) Rest rooms and fresh water
f) Courtesy dock
g) Information booth
h) Launching ramp

Since it is understood that concessionaire facilities have considerably greater requirements, limitations and liabilities than Day Use Facilities, we would respectfully request that the plan at least include provisions for the City of Page to develop and maintain a Day Use Facility as follows: 190

a) Launching ramp and pump out station
b) Improved parking
c) Rest rooms, fresh water and picnic facility
d) Courtesy dock
e) Information booth

The City of Page has a substantial economic need for a launch ramp on this side of the lake and it is felt that such a facility would have the following benefits and possibly many others:

a) Non-commercial boat launching which would relieve crowding of the Wahweap launch ramps during peak periods.
b) Funding available to Page under various grant programs could enhance National Park Service developments.
c) Quicker rescues could be provided since such a launch ramp would be considerably closer than the Wahweap facilities to the Page ambulance services.
d) Police and fire services could be provided through mutual aid agreements as needed.

e) Response of the USCG as requested by the National Park Service could be expedited by closer launching facilities.

Page would experience a substantial economic benefit, not to mention related convenience to boaters should such a launch ramp be located in closer proximity to Page's business community. 190

"SUMMARY"

The City of Page wishes to go on record as being in support of the Glen Canyon General Management Plan with the exception of those things listed above. We would also go on record as not being in support of the plan recommended by the Sierra Club, et al.

Sincerely,

Marjorie Doland

Marjorie Doland
Mayor

MD/lml

Attachment: City of Page Official Minutes - November 14, 1977

SPECIAL MEETING
PAGE CITY COUNCIL
November 14, 1977

Call to Order: A special meeting of the Page City Council was held on Monday, November 14, 1977. Mayor Doland called the meeting to order at 8:03 PM. Reverand Robert Anderson of the Christian Church gave the invocation. Members of Council present were: Mayor Marjorie Doland and Councilmen Stanford Bracken, Raymond Hickman and Don D. Thibodeaux. Also present were City Manager Rance S. Makuch, City Clerk Jimmie W. Frost and twenty citizens in the audience.

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Marina: Motion by Councilman Thibodeaux, seconded by Councilman Gidcumb that Council approve the draft that has been presented on the National Park Service.

There was some discussion and Mr. Makuch, City Manager, reviewed the statement prepared for the Mayor and Council on "General Management Plan Wilderness Proposal Road Study Alternatives and Draft Environmental Statement" for the Glen Canyon National Recreation Area.

Motion was carried by unanimous vote.

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Adjournment: The meeting was adjourned at 11:00 PM.

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STATE OF ARIZONA)
COUNTY OF COCONINO)
CITY OF PAGE)

I, Jimmie W. Frost, City Clerk of the City of Page, certify that this is a true and accurate excerpt from the minutes of a meeting of the City Council of the City of Page, held on November 14, 1977.

Jimmie W. Frost, CMC
City Clerk

City of Page

P.O. Drawer HH
697 Vista Ave.
Page, Arizona 86040
(602) 645-8861

November 17, 1977

National Park Service
Mr. Temple Reynolds, Superintendent
Glen Canyon National Recreation Area
P.O. Box 1507
Page, Arizona 86040

Dear Mr. Reynolds:

As an addendum to the Glen Canyon General Management Plan, the City of Page would like to request that a small site be designated in the Beehive Rock area for re-location of the City's TVOR, a small building sized aviation signal device. We apologize for this addendum, but our consultants, Willdan, brought the re-location alternative to our attention during an Airport Board meeting held on November 16, 1977. Our present TVOR will have to be moved to another site in accordance with any of 3 alternative plans presented for development of the Page Airport, and the only site presented which has obtained both support of the FAA and the Page Airport Board in terms of terrain, non-obstruction, utilities and location is the Beehive location. A map marking the general site is attached. Of those four sites marked in orange on the attached map, the Beehive site is the only long-term realistic site. 191

We would sincerely appreciate your concurrence with this item, since the TVOR is a delicate piece of aviation equipment, and its location alternatives in relation to the Page Airport are very limited.

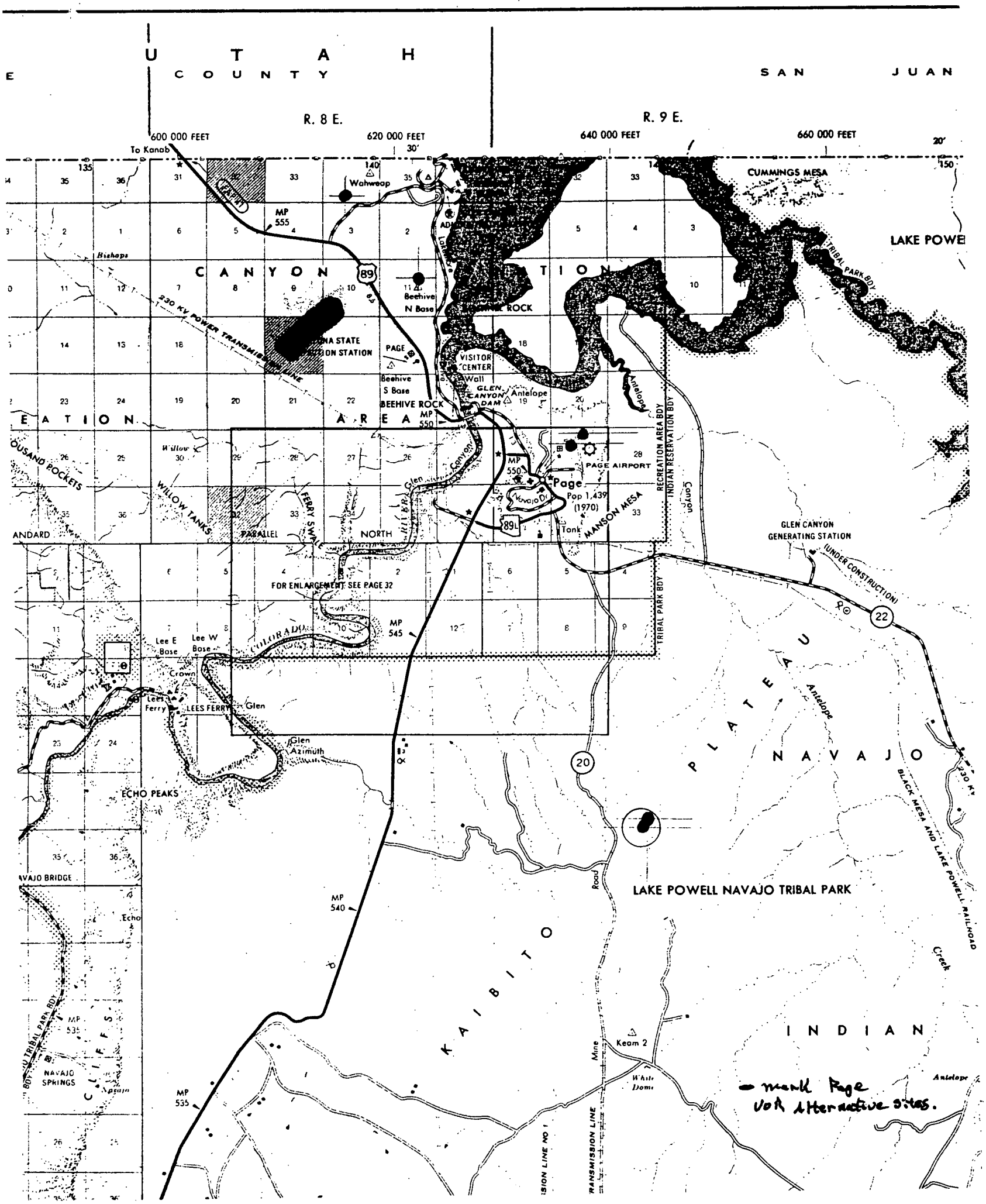
Sincerely,

Marjorie Doland
Mayor

Kirby Jackson
Chairman, Page Airport Board

MD/lml

Attachment (1)


UTAH
COUNTY
SAN JUAN
R. 8 E.
R. 9 E.
600 000 FEET
620 000 FEET
640 000 FEET
660 000 FEET
To Kanab
Wahweap
MP 555
CANYON
Bishops
230 KV POWER TRANSMISSION LINE
Beehive N Base
PAGE
Beehive S Base
BEEHIVE ROCK
MP 550
VISITOR CENTER
Wall
GLEN CANYON DAM
Antelope
CUMMINGS MESA
LAKE POWE
TRIBAL PARK BDY
RECREATION AREA BDY
INDIAN RESERVATION BDY
PAGE AIRPORT
Page
Pop 1,439 (1970)
Navajo
Tank
MANSON MESA
Canyon
GLEN CANYON GENERATING STATION
(UNDER CONSTRUCTION)
22
20
Willow
THOUSAND POCKETS
WILLOW TANKS
FERRY SWALE
PARALLEL
NORTH
Glen Canyon
FOR ENLARGEMENT SEE PAGE 32
MP 545
COLORADO
Lee E Base
Lee W Base
Crown
Lees Ferry
LEES FERRY
Glen
Glen Azimuth
ECHO PEAKS
PLATEAU
NAVAJO
BLACK MESA AND LAKE POWELL RAILROAD
LAKE POWELL NAVAJO TRIBAL PARK
MP 540
KAIBITO
Road
Mine
Keam 2
INDIAN
NAVAJO BRIDGE
Echo
MP 535
NAVAJO SPRINGS
CLIFFS
TRIBAL PARK BDY
Creek
Antelope
TRANSMISSION LINE
mark Page
for alternative sites.

Responses to the City of Page, Arizona Comments

188. Refer to response 87.

189. The road to the landfill site crossing the NRA from U.S. Highway 89 is now zoned on Map 1 as Development.

190. The NPS has reviewed your proposal. In perspective, it appears best to take this proposal and prioritize it against other developments already programmed and identified for the lower end of the lake. After a maximization of the Wahweap-Lone Rock facility, and the realization of a Navajo development at Antelope Point, additional thought could be made to the development of some type of public day-use facility at the confluence of Wahweap Creek and the main channel.

191. The NPS is not eager to become the recipient of the TVOR site when other available sites have not been fully explored which may be utilized within your city's boundaries.

3. Comments from Organizations

Rather than print all of the statements from the 38 organizations that responded, several have been selected with widely divergent viewpoints which contain the greatest number of comments.

SIERRA CLUB STATEMENT

GLEN CANYON NATIONAL RECREATION AREA

General management plan

Wilderness proposal

Road study alternatives

Draft environmental statement

November 14, 1977

GLEN CANYON NATIONAL RECREATION AREA

SIERRA CLUB STATEMENT NOVEMBER 14, 1977

This statement presents the position of the Sierra Club, a national conservation organization having 180,000 members, in response to the General Management Plan, Wilderness Proposal, Road Study alternatives, and Draft Environmental Statement for Glen Canyon National Recreation Area prepared by the National Park Service.

The Glen Canyon area has long been of special interest to the Sierra Club, representing probably the second area outside the state of California in which the then-expanding Club chose to involve itself. Glen Canyon, the Place No One Knew, one of the early exhibit format books for which the Sierra Club has become famous, was published in 1963 and was part of an intensive effort to preserve the original Glen Canyon. Now the original river canyon is hundreds of feet under water. A man-made lake has been created with 163,000 acres of water surface for motorized use, and almost 2,000 miles of shoreline available for wilderness camping. The Sierra Club proposed that the loss of this magnificent canyon ecosystem should not be followed by the motorized degradation of the lands surrounding the 163,000 acres of artificial lake. These lands should be designated as wilderness, most especially the entire Escalante drainage, all of the Orange Cliffs area, Grand Bench and Gunsight Bench, the Little Rockies, the Wilson Mesa Triangle, Kaiparowits-Fifty-Mile Mountain, the Red Canyon-White Canyon Bighorn Sheep Lambing Area, the San Juan Arm, and the Dirty Devil.

We commend the National Park Service for a proposal that recognizes some of the higher priority wilderness values while at the same time providing for expansion of existing marinas and also for potential new marina locations. However, it is extremely inadequate in the amount of area that is recommended

for wilderness. There are many areas that were apparently ignored by the wilderness study that eminently qualify according to the National Park Service's own definition(Volume I, page 9): "scenically outstanding, relatively undisturbed, isolated and remote from the activities of man, or bordering on areas with complementary land-use practices." These additional areas most certainly should be recommended for wilderness designation.We will go into this matter in greater detail in subsequent pages of our testimony.

II. GENERAL MANAGEMENT PLAN

A. Management Zoning Proposal

We strongly recommend the adoption of Management Alternative A and corresponingly of Wilderness Alternative A.

It is beyond our comprehension that 48% of the National Recreation Area was classified Recreation and Resource Utilization lands with the primary purpose of allowing mining on those lands. In fact, we object to the nomenclature for this category, as mining and recreation are not compatible uses. The legislation specifies that the National Recreation Area was created "to provide for public outdoor recreation use andenjoyment of Lake Powell and lands adjacent thereto.....and to preserve scenic, scientific, and historic features contributing to public enjoyment of the area..." Nowhere in the purposes of the Act does it specify mining. By what interpretation does the National Park Service think that mined-over lands would contribute to public enjoyment or to preservation of the area? 192

The legislation further states that "the Secretary (of Interior) shall permit.....(mining)....if he finds that such disposition would not have significant adverse effects on the administration of the national recreation area."

Is this draft EIS the means whereby the Secretary "finds that mining would not have significant adverse effects on the national recreation area"? We most strongly take issue if this is indeed the finding; and further argue that there is not within the draft EIS adequate documentation to support such an absurd hypothesis. The EIS refers to a planning document for mineral resources; we submit that such a plan is premature without the finding (mentioned above) required of the Secretary. 192

It is our understanding that Congress wrote Legislation allowing mining but in no sense whatever mandating mining. If the national need ever dictates an overriding necessity for the mineral resources, then they may be extracted. Otherwise, recreation adn preservation are to be the normal uses of the recreational area.

The EIS points out (page 98) that the U.S.G.S. estimates of the National Recreation Area's total speculative petroleum reserves might be enough to supply the nation's needs for 3 to 10 days. In the first place, the reserves are speculative, whereas the wilderness values actually exist. In the second place, even if these reserves were proven, supplying 3 to 10 days' worth of our energy needs would not justify tearing up some of the most uniquely beautiful landscape in the nation. 193

Page 102 further states"In some cases considerable emphasis is placed on the possibility of large quantities being present in favorable formations solely because no previous exploration has been completed and indicated otherwise."

We would like to further comment that Map 24 shows the locations of test wells but fails to record that all of these wells were either dry wells or had merely a show of oil. (As shown on the map in BLM document: Glen Canyon National Recreation Are: Mineral Considerations for Proposed Management Plan June 1977.) 194

Similarly, according to the EIS, (pages 99-100) the recreations area's uranium resources are "hypothetical", unproven and "the location of the recoverable deposits is unknown." "It is not known what fraction of the recreation area's uranium resources is recoverable. The actual percentage of the total recoverable hypothetical resources probably lies considerably below 0.5 percent." Again, the proven, unique, irreplaceable wilderness values far outweigh "hypothetical", unproven, minimal mineral values. 195

Paragraph 2, page 5, refers to"areas possessing somewhat less scenic value", and the map on page 15 purports to classify land into four categories according to its scenic qualities. We take ussue with much of the classifications of specific land areas (too many to be able to list them all) and at the same time point out that his is such a highly subjective classification as to be almost impossible to use. Furthermore, the criteria for the scenic categories were never clearly specified. 196

Paragraph 3, page 5 states that the 3700 foot contour line has been used, for the purposes of this study, as the boundary of the lake. We strongly support Alternative E. 1. a. (page 146) which would align the lakeside boundary of each classification with whatever is the current level of Lake Powell. Without this alternative, we see a very real possibility of totegoats and trailbikes being driven around on the empty lakebed (or the unfilled lakebed, since it has not yet attained the 3700 foot contour line). This could become a real administrative headache. By using the current shoreline of the lake as the boundary, motorized use is restricted to the water surface (where there is wilderness classification) and motorized use is prohibited on the shore. 197

B. Development Proposals

We are totally opposed to the development of Llewellyn Gulch as a new marina site. Since no access now exists, any new access would be extremely difficult and expensive, and would greatly scar and disfigure the natural terrain. It would be better to enlarge some or all of the existing marinas, or to develop the proposed sites at Wahweap/Lone Rock or Warm Bench. 1

We are somewhat disinclined to trust the National Park Service with the planning of development sites since the catastrophic construction of the Hans Flat ranger station in Canyonlands National Park. This site is, in our opinion, a total catastrophe. It is inexcusable that the first permnent buildings in Canyonlands National Park should be built in the Maze section, the part of the Park that is slated for least development. Furthermore, in are area where the buildings should be unobtrusive, it is poorly planned and not hidden by the natural terrain and by the trees. We are further disenchanted with Park Service planners who located Rainbow Bridge Marina in an unsatisfactory location, and have had to move the Hite Marina three different times. We might also add that whatever the reason--whether poor planning or inadequate development capital, the Hall's Crossing Marina looks like a slum. 1 2

Since Rainbow Marina is obviously an unsatisfactory site, we do not oppose its relocation to Dangling Rope Canyon; provided that no road access is planned for any reason whatsoever, provided that it remains a refueling and visitor interpretation and safety site only, and provided that the airstrip is deleted from the plan. We are certain special authorizations can be made for the use of helicopters specifically for medical emergencies and for the occasional use in wildlife management. We see no other justification for airplane access. 2

We feel that the Warm Creek site would serve its function and the public 20

better if it were moved as close to U.S. 89 as possible, presumably on the east shore of Wahweap Bay.

The administrative site proposed for the Hole in the Rock Road should be located at the junction of Utah Route 12 and the Hole in the Rock Road. This would provide opportunity for all visitors to register and to recieve information, and would allow the staff of the adminstrative site access to facilities in the town of Escalante in case of emergency. Such a site should be staffed especially on Friday evening, Saturdays and Sundays, as a large share of the visitation occurs on weekends. This site should be planned and used as an administrative site only, and not as a visitor center.

C. Proposed Boundary Adjustments

We strongly oppose the deletion of NRA land in the Purple Hills area. This area is an integral part of the geologic and scenic unit, and as such should be protected with the rest of the unit. Furthermore, to quote V. I, Page 80, "Erosional scarring as a result of mineral activities and vehicular use would be particularly severe in areas of ersion-susceptible rocks. The accumulation of sediment in natural drainages as a result of these activities will also have adverse scenic effects. In particular, the proposed deletion of the Purple Hills area from the recreation area will make erosion-susceptible rocks vulnerable to uranium mining. This activity could result in severe erosion, and the sediments that might accumulate in the drainage feeding the Escalante River could seriously impair the scenic quality of these Class I (outstanding) areas." The potential for damage to the Escalante River, not only in the immediate vicinity but further downstream, far outweighs any need to exclude 11,410 acres from the national recreation area. Furthermore, other than a vague reference to uranium deposits, no need, logic, or substantiation for this deletion was developed.

Indeed, rather than a deletion in this vicinity, we would like to make

202 a strong recommendation that there be an addition by extending eastward to the Capitol Reef National Park boundary the section line between T 35 S and T 36 S. This would include Deer Point and Ruckel Rock, two outstanding landmarks visible from many miles in all directions in this area. These outstanding scenic features should have been included in Capitol Reef National Park; 205

203 they would make a fine addition to the national recreation area. (See pictures in Escalante section)

We also oppose the Bull Valley exclusion. If it were excluded, the national recreation area would be a thin thread of land along the river in an area that is proposed for wilderness. The Sierra Club has long advocated that Beef Basin be included in Canyonlands National Park in order to protect the many significant Indian ruins there. The national recreation area should include the Bull Valley land so that eventually all are administered by the same agency. 206

The additions of the canyon bottoms along the east side of the Escalante River make good sense, and we commend their addition to the NRA. However, it makes no sense whatsoever to include the upper reaches of Harris Wash and then to delete the lower end of Harris Wash from wilderness, presumably to reinstitute a road there which is already closed. We presume this non- wilderness corridor (which appears on map 2, map 4, map 10, and map 12) is an error. If not, we strongly protest the reopening of a road which has been closed and for which there has been no demonstrated need. 207

204

We deem it possible that the maximum-acreage provisions could conceivably be solved by Congress itself, either raising the allowable acreage or designating the map (GLC-91,006, August, 1972) as the actual boundary. If Congress feels that the acreage listed must be strictly conformed with, then we suggest that the deletions on the north of the Warm Creek road (Map 38; 560 acres, 7,350 acres, and 8,570 acres) be the deletions. 208

On this same map, we most strenuously are opposed to the following de- 209

letions:

7,140 acres in the vicinity of Harris Wash

7,760 acres on the top of Fifty-Mile Mountain 209

5,690 acres near Bullfrog Marina

6,815 acres in the vicinity of Hall's Crossing Marina.

E. Proposals for Land Exchange

We support a cooperative plan by NPS, BLM, and the Statesof Utah and Arizona to determine priorities and scheduling for exchanging land holdings.

G. Road Study Alternatives

The Sierra Club has long been opposed to the construction of route D-1 as it bisects the biggest unit of wilderness, is unnecessary, and is prohibitively expensive. The legislative history includes the questioning of Rep. Wayne Aspinall on the floor of the House just prior to passage of the bill, and Congressman Aspinall's response was that just because Congress authorized the road, that did not mean that the road had to be built. Five years later, with an energy crisis upon us, it seems thoroughly unlikely that Congress will appropriate the millions of dollars that would be necessary to construct a scenic road. The Park Service has properly left to Congress the final authority on the road decision.

III. The Preliminary Wilderness Proposal

The Sierra Club acknowledges the validity of the National Park Service wilderness proposal in that it includes as wilderness much of the area that has national support of citizen environmental groups. However, it omits large areas which are equally scenic, equally undisturbed, equally devoid of

evidence of the activities of man, but more remote and hence less well-known than the wilderness areas proposed by citizen conservation groups. No rationale whatever is given for disqualifying these lands from wilderness. We will discuss these area by area:

A. Grand Bench and Gunsight Butte

These benches are level plateaus which are lined at the water's edge by long rows of beautiful cliffs and buttresses. From many points along the cliffs one may obtain spectacular views across the reservoir toward similar cliffs and buttes on the opposite side. This area provides some of the finest long distance views in the GCNRA. Access to viewpoints may be obtained by walking across level, pleasant benchlands from the Smoky Mountain road.

Grand Bench and Gunsight Bench are geographically contiguous with the benches below Spencer Point, which are included as wilderness in the Park Service proposal, and with the Kaiparowits Plateau, which the BLM will surely consider for wilderness classification. Grand Bench and Bunsight Bench need to be designated as wilderness so that the continuous scenic area remains protected. 210

Note pictures from Arizona Highways magazine, which depict the scenic grandeur of this area. Please be aware that the Draft EIS classifies this scenery as Class III, just one step above the least scenic there is.

B. Orange Cliffs

The Park Service Proposal includes the flatlands below the Orange Cliffs and adjacent to Canyonlands National Park, but leaves out of wilderness one of the most beautiful places in the entire area--Panorama or North Point.

The sweeping vistas in all directions form this overlook are beyond description. From this single point one can see the LaSal Mountains, the Abajo Mountains, Elaterite Butte, the pinnacles, buttes and chimneys of the Land of Standing Rocks, the flat benches below which have been marvelously sculptured by the erosional process, and the canyons of the Green and the Colorado Rivers. The vastness of the landscape, the emptiness of it, and the variety of form and color are completely overwhelming. This is truly one of the most beautiful places that God has created.

The Park Service proposes to keep open the Road to Panorama Point. This would be total folly, and we most strongly protest such ill-advised plans. The road to Deadhorse Point has effectively destroyed the sanctity of that overlook by encumbering it with fences, walls, asphalt, and signs. One such error is enough. 211

Tar sands in this area "are identified as a subeconomic resource in the submarginal category requiring new technology before economic recovery is feasible." (page 97) And "the deposit is of very low present interest and is unlikely to be developed in the foreseeable future even if restrictions were not present." (page 97) 212

The tops of the Orange Cliffs should be classified as wilderness, not put in the RRU zone. The cliffs, and the views from them, are too spectacular to be ruined by exploitation of an eneconomical, submarginal tar sands resource. The Orange Cliffs area is magnificent wilderness and must be preserved as such.

The maps accompanying the EIS show a network of roads in the vicinity of the Orange Cliffs, many parallel to each other, and often only one or two miles apart. There is real doubt in our minds whether all of these roads are currently in fact useable, and, more to the point, whether there is a valid need for so many roads. We strongly support the road system as shown on Map 40, which leaves open the main through roads in 213

the area and closes off the rest, many of which were bulldozed helter-skelter by uranium prospectors in the '50s during the uranium boom. 213

The entire section of Glen Canyon National Recreation Area that is west of Canyonlands National Park, from the north boundary south to Clearwater Canyon, should be designated as wilderness. Much of it was originally proposed for inclusion in Canyonlands National Park, and it is National Park-caliber land. It should be protected as wilderness (and Natural Zone) with the exception of the road corridors as shown on Map 40. 214

(See accompanying photographs)

III C. Red Canyon-White Canyon Bighorn Sheep Lanbing Area, Blue Notch Canyon

Red Canyon and Blue Notch Canyon are both wide valleys with high Wingate sandstone walls rising above multicolored, uneven badlands on the valley floors. The canyons converge near Castle Butte, an impressive sandstone monolith near the reservoir.

Except for a dirt road in each canyon, and a pipe (possibly a capped well) immediately adjscent to the Blue Notch Road, the area is undisturbed. Although there is intrusive mining activity in upper Red Canyon, it is located some ten miles outside the Glen Canyon National Recreation Area boundary. Major intrusions are not present within the recreation area between Red Canyon and the White Canyon bridge. The area between Red Canyon and White Canyon firs the definition of wilderness and should be designated as such.

This area is prime lanbing area for the rare desert bighorn sheep. The EIS makes it clear that the absence of man's mechanized presence is essential to continued use of the habitat. For this reason alone it is essential that the small portions of Red Canyon and White Canyon within the national recreation area be designated as wilderness and that the Bureau of Land Management also designate the upper reaches of these canyons as contiguous wilderness areas.

215

To quote form the EIS (page 30)" "The desert bighorn sheep is the area's single most important big game species. The Glen Canyon area, with tributary side canyons and adjacent plateaus and mesas, supports some of the last relict bighornherds (probably around 100-200 animals), which were once abundant throughout the state. (The primary cause of the reduction in numbers of sheep in Utah is loss of habitat, over-utilizations of range by domestic livestock, and illegal hunting--Irvine 1969, Wilson, 1968.) In fact, the Red, White, and Gypsum Canyon regions, where the bighorn are definitely known to occur, are among the few areas in Utah where the species is currently

maintaining its numbers."

215

(See accompanying pictures)

III D The Little Rockies

The canyons of the Little Rockies are much like those of the Escalante. The geological strata are at a higher elevation, however, than the corresponding strata in the lower Escalante and Bullfrog Basin areas, with the result that the most scenic features will remain permnently above reservoir level. The canyons contain many sheer Navajo and Wingate sandstone walls with beautiful overhangs and water-streaked tapestries. The canyons sometimes narrow to within an armspan or less. Ther are numerous shady, we, mossy alcoves, such as the beautiful overhanging grotto and waterfall in a tributary of Trachyte Creek. (See photo)

The benches above the canyons are also very impressive. Numerous colorful slickrock domes cover the area, and the views are excellent. (See photo)

One may visit the area either by hiking up the canyons from the reservoir or hiking across the hills and benches from Utah Route 276.

The Little Rockies area is probably the most pristine in the Glen Canyon National Recreation Area, being free of traces of mining, twentieth century petroglyphs, and litter. Much of the area lacks any indication that cattle or sheep have ever been present.

The wilderness area should be extended beyond the Park Service's proposed boundary (which follows the bottom of Tic aboo Creek) in order to include therugged slickrock benches at Good Hope Mesa and southward. Good Hope Mesa is highly scenic, with spectacular views into Ticaboo Canyon and across the reservoir. The Park Service's proposal wisely includes as wilderness Mancos Mesa, which is directly opposite Good Hope Mesa and is very similar in character. The justifications for designating Mancos Mesa as wilderness apply equally to Good Hope Mesa and the benches to the southwest. 216

(See accompanying pitures)

III E Dirty Devil River

The lower Dirty Devil reminds one somewhat of the Grand Canyon. Although the geological layers are in fact different. the walls of each canyon rise in similar manner, in a series of receding layers from the canyon floor. Along the Dirty Devil, the Wingate layer is particularly striking, forming a continuous row of vertical walls and buttresses high above the river bottom.

A striking and unusual geological feature is found just across the Dirty Devil from the mouth of Hatch Canyon. At some time past a large avalanche of mud and degris apparently slid down the hillside, and boulders from the harder sandstone above fell on top of the resulting mass of debris. The weight of the boulders compressed and hardened the mud directly beneath them, so that as the silt pile washed away, huge solid mud pedestals with boulders on top, resembling mushrooms, were left standing.

Access to the river, which can be hiked without difficulty for its entire length, is possible from the reservoir, the highway near Hanksville, and any of several side canyons. Traces of cattle and sheep are absent along the river bottom.

The Dirty Devil is clearly worthy of wilderness protection. 217

(See accompanying picture)

III F. North Shore of the San Juan River

The entire north shore of the San Juan River should also be classified as wilderness. There is essentially no development presently existing. The Bureau of Land Management's Grand Gulch Primitive Primitive Area and its proposed addition , Slickhorn Canyon, need to be joined along the river by wilderness.

With a multiplicity of marinas being considered by the Navajo Tribe on the opposite shore, it is more important than ever that the north shore be maintained in its present primitive state.

The road corridor to Clay Hills Crossing should be deleted from the wilderness (as on Map 12) but the remainder of the north shore merits wilderness designation.

218

III G Wilson Mesa (the Golden Triangle)

The entire area of the Golden Triange, from Slickrock Canyon to the southwest, whould aso be designated as wilderness. The high plateaus provide access to panoramic views: of the huge Rincon (see picture from Arizona Highways), of the southern end of the Waterpocket Fold, of the Great Bend of the San Juan River. The route of the Hole-in-the-Rock Expedition follows across the top of this high plateau, after first climbing an exceedingly rough and steep gully from the River, then wending its way through and between a network of canyons, finally climign again through bare slickrock chutes and gullies. This generation and future generations ought to be able to experience this route on foot or on horseback, just as members of the original expedition did. The road is very unobtrusive in most places, being primarily a route over which it is possible to drive a four-wheel-drive vehicle rather than a made road. In some places where it crosses slickrock, it would be impossible to find except for the occasional pockets of sand with tire tracks in them to show the way. The country appears to be much as it was then.

219

The Hole-in-the-Rock expedition are said to have discovered the way out of the tanlge of canyons in which they found themselves when a hunter from their party shot and wounded a bighorn sheep, and then followed the wounded animal through the canyons and passes that led to the plateau. We suggest that bighorn sheep be reintroduced to this area.

220

(See accompanying pictures)

III H The Escalante Drainage

Note: this area is included in the draft proposal as wilderness)

The Escalante drainage has become in the past ten years one of the major national wilderness issues in the lower 48. It is the most beautiful remnant of the original Glen Canyon, having all of the characteristics of the wild lonely beautiful canyon that John WEsley Powell named on his first rip down the Colorado. The area is easily accessible, is totally free from the impact of man (except for two small one-room cowboy cabins), has year-round dependable running water from seeps and springs (flowing heavily even during this drought year), and is greatly used by hikers and backpackers all year long.

Navajo sandstone is the predominant layer, although Kayent, Wingate, and a small amount of Chinle are found. The Navajo layer is the one from which the forces of nature sculpture the most exquisite curves, domes, caverns, and arches. Many, many seeps are found, both in canyon bottoms and on canyon walls, The latter support incredible hanging gardens , withdraping fronds of maidenhair ferns, scarlte monkeyflowers, and yellow columbines. The draft EIS refers to approximately 10 acres of hanging gardens within the entire national recreation area; we believe that most of thses ten acres are found within the Escalante drainage.

Between the deep narrow sculptured canyon walls flow the ever-present streams and the Escalante River, bordered by towering Fremont cottonwood trees, buckthorn, gambel oak thickets, hackberry trees, and the exotic species, tamarisk. Hanging tapestries, caused by water trickling down a cliff face for hundreds of years, adorn the steep cliffs, as do colored lichens. In a few places it is possible to gain access to the plateau above. Occasionally Moki footsteps or toeholds, help make this possible. A few granaries and Moki homes are still standing, and petroglyphs and pictographs still mark the passing of the ancient Anasazi.

Canyon wrens belt out their scale-descending trill and water ouzels play under the waterfalls.

The serenity of the place has to be experienced to be appreciated. Wallace Stegner, Ed Abbey, and other writers have variously commented upon it. The play of light, the different nuances af color that the canyon walls give off at different times of day, make it a continually changing experience.

The reds, oranges, roses and buff-colors of the canyon walls complement the intense blue of the clear skies. The bright green of streamside plant life further brightens the picture.

The Escalante wildernss should be designated jointly by the National Park Service and by the Bureau of Land Management on all of the Escalante drainage. The token designation of the North Escalante Canyons Outstanding Natural Area, the Phipps-Death Hollow Natural Area, and thGulch Outstanding Natural Area are only the merest tokenism. We feel sure that the Bureau of Land Management, under their new organic act, will do an adequate job of wilderness studies and will declare all of the drainage (except where existing roads are necessary) as wilderness.

(See accompanying pictures)

III I 50-Mile-Mountain-Kaiparowits

This area is proposed for wilderness by the draft proposal, and we heartily commend that recommendation.

However, it is proposed for deletion on Map 38, Management Zoning Alternative B; it is the 7,760 acre deletion as the southern end of 50-Mile-Mountain. 221

Eventually, we are certain that the entire top of 50-Mile-Mountain, as well as certain scenic and undeveloped lands to the west of it, will be declared a 50-Mile-Mountain-Kaiparowits Wilderness by the Bureau of Land Management. At that time, it might be fitting to transfer this acreage to the Bureau of nand Management so that all of it is managed by one agency. However, at this time we strongly oppose any such transfer and strongly support wilderness designation for this piece of land.

Fifty-Mile-Mountain is the high point for many miles on the morth side of the Colorado River. One can see for many miles in all direction: to Monument Valley, Navajo Mountain, Boulder Mountain and Thousand Lake Mountain, the entire Escalante drainage, Deer Point and Ruckel Rock (which are proposed for addition to eh NRA), and parts of Lake Powell. The portion of 50-Mile-Mountain that is north of the Glen Canyon National Recreation Area boundary has several year-round springs, groves of huge aspen trees, and ponderosa pines.

It is prime wilderness, and that part within the national recreation area should be immediately designated wilderness; the rest should be similarly designated after it has been studied by the Bureau of Land Management.

(See accompanying photographs)

Motorless Arm of Lake Powell

In keeping with the wilderness proposal for the Esclante section of the national recreation area, we urge that the Escalante arm of Lake Powell be maintained as a motorless arm and designated a wilderness area. 222

Yellowstone Lake in the National Park of the same name has its own motorless arm for use by toruists and visitors who prefer a slower, quieter trip. We feel that this woul be a fitting complement to the Escalante Wilderness. The arm could be explored by kayak and canoe.

It is nothing less than traumatic to arrive at Lake Powell, after walking for six or eight miles in the lower canyons of the Esclante. away from the sights and sounds of civiliation, and then to come upon the cans. paper plates, charcoal briquets, and the litter and the noise of power cruisers throttling up the shore. The power boat users have almost 2,000 miles of shoreline to explore and to enjoy motorized access to; they can well afford to allocate a small proportion of that mileage to the nonmotorized boating public.

Bureau of Reclamation Pumped Storage Sites

All of the Bureau of Reclamation's proposed pumped st sites within the Glen Canyon Naional Recreation Area should be abandoned, starting with those that are engineeringly unfeasible and those that are economically unfeasible. The Glen Canyon wilderness is no place for such things. If pumped storage projects are necessary, there must be adequate sites outside the national recreation area. 223

Hole in the Rock Road

The Hole in the Rock Road is a historic part of the area, and should not be paved. The dirt road is a good onegenerally easily passable along 224

its entire length by passenger car.

Visitors drive this road to see the Hole in the Rock slot and trail--a historic site--and the old dirt road is as much a part of that history as is the trail. 224

Permanent Communities of 20,000 Persons inside Recreation Area

The Eis notes (page 136) that management zoning alternative B would delet large acreages from the national recreation area in the vicinity of Bullfrog, Wahweap, and Hall's Crossing marinas in order to create permanent communities of as many as 20,000 persons. (Map 38--a 5,690 acre deletion adjacent to Bullfrog, a 6,815 acre deletion adjacent to Hall's crossing, and a 560 acre deletion adjacent to Wahweap.) The area in question simply cannot stand that degree of impact. The desert ecosystem is a fragile one, and the impacts of such a huge number of people permanently located in a confined area would destroy it. Offroad vehicular damage would be extensive and community service structures and facilities would permanently alter the land and the entire area. Furthermore, the constant use=pressure of this number of permenent residents would be far greater than the impact of occasional visitation by many many times that number of pepole. In a sense, a few would be suing up the resource at the expense of the many. 225

Furthermore, the Glen Canyon National Recreation Area is a national recreation area. It is not private playground, it is not a development site, it is not a speculative piece of real estate. Such gross intrusions on the land are unthinkable.

Other deletions on Map 38

We strongly oppose the 7,140 acre deletion of Harris Wash, Silver Falls Creek, and the land north of Silver Falls. These two canyons are two of the more scenic side canyons in the entire Escalante. Harris Wash most nearly resembles Coyote Creek (without the waterfalls or the arches.) It is wide and gentle, with many cottonwooods, and with many huge cavernous overhangs to provide shelter at night. The remnants of the Mormon dugway come down into lower Harris Wash, another reminder of the historic past. It would be real folly to think of deleting Harris Wash and Silver Falls Creek. Silver Falls Creek has some of the most beautiful hanging tapestries in the entire area. 226

Grazing

We recommend that the Bureau of Land Management bring the allocated AUM's within the carrying capacity of the land. Much of the range is at present in only fair condition, and of that amount a fair percent only has potential for being fair range. (Because of the rugged topogrpahy or because of inadequate forage or water, 18% of the area is unallocated and an additional 30% is allotted but unused.)

Care should also be taken that future grazing improvements not be allowed to detract from potential wilderness.

As range improvements occur on land outside the national recreation area on public domain land and as additional grazing capacity becomes available, it should be made available on a priority basis to any permittees who may have been displace as a result of need to improve the range. inside the national recreation area. 227

The cryptogramic soild must be protected and indeed reestablished if we are to prevent wind-and water-induced erosion. If the present drouth persist, grazing will have to be further reduced to prevent further deterioration of the range. However, if the range is in a continuously improving s situation and carrying capacity of the range permits, then grazing should be allowed.

In areas where there are springs, seeps, and collecting pools, cattle and sheep should be prevented from contaminating the water by fencing or other minimal rustic structures. 227

Bighorn Sheep

We urge reintroduction of Bighorn Sheep in the Escalante drainage, on Wilson Mesa, upper San Juan River north shore, and the Little Rockies as soon as is practical. 228

The Sierra Club response was prepared by June Viavant after consultation with Ruth Frear, Brant Calkin, Paul Salisbury, Brian Beard, Dan Cortsen, and Gordon Swenson.

Parts of the text were written by June Viavant, Gordon Swenson, and Ruth Frear.

Photographs are by Ruth Frear
Gordon Swenson
June Viavant
Jack McLellan
Charlie Keller
Bruce Baker
Mel Davis
John McComb
Nick Strickland
Alexis Kelner
anonymous friends of the Escalante Wilderness Committee
and from Arizona Highways

Responses to the Sierra Club Comments

Your attractive statement has been included in this FES except for the color photographs. These were deleted because of reproduction problems.

192. As set forth in Table 2 (Management zones) the Recreation and Resource Utilization (RRU) Zone is a multi-use zone mainly planned for recreational use of the public. It is also the only zone in which mining may be permitted in areas that will be identified in a future Mineral Resource Management Plan. The primary purpose of the RRU Zone is to foster many types of recreation. Mining, if, when and where permitted, will be regulated to minimize its effect on the environment and the prime recreational purpose of the authorizing Act.

The DES, as Sections II and III of Volume 1 set forth, is a series of proposals and alternatives prepared to assist the Park Service, the Department of the Interior, the administration, the Congress and the interested public in choosing a good and workable general management plan, choose areas suitable for wilderness and resolve road and access problems in the NRA. It is, in no sense, a statement of policy other than that set out in the Park Service Organic Act, the authorizing Act, the Wilderness Act and the National Environmental Policy Act.

Your "understanding that Congress wrote Legislation allowing mining but in no sense whatever mandating mining is also the understanding of the Park Service. However, (1) prior right valid mineral interest owners will either have to be bought out or permitted to mine, and (2) where (as covered in the first paragraph of response number 11 to the Department of Energy) the worth of the known and postulated mineral resource occurences are greater than the known other natural resources, the removal of minerals may be permitted if it is found that such disposition would not have adverse effects on the administration of the Recreation Area pursuant to the authorizing Act.

193. Postulated oil and gas resources that might occur in the Recreation Area played no part in the selection (or non-selection) of natural (wilderness) areas. The known resource occurence, the Tar Sand Triangle, was considered in the selection process.

194. The DES erred in not being more specific as to the test wells shown on Map 24. An explanatory note on Map 5 has been included to state, "dry well or show or oil only, all abandoned".

195. Only areas of known past uranium production history were considered in wilderness selection or non-selection; and even then, only if the occurences were reported to have previously unminable tonnages of uranium ore, either currently extractable due to the greatly increased price of uranium or soon to fall into that category.

196. The scenic value classification in the DES and illustrated on DES Map 15 precipitated many unfavorable comments, especially by conservationists. The general consensus was that all of the recreation area was of the highest value. However, a value ranking has little meaning if everything has the same rank. Granted the classification was subjective; but it was and still is the best attempt to differentiate between the scenic resources of the recreation area. The most difficult task in this entire planning process was the evaluation of known observable natural resources such as scenery with the worth of the known and postulated mineral resource occurrences. It was no more realistic or unbiased to portray the area to be equal scenically than to give equal weight to the speculative mineral resources such as oil and gas.

197. The boundary for the natural management zone has been selected as the shoreline of Lake Powell. The wilderness proposal, if adopted, would provide that wilderness begins at the shoreline wherever the surface of Lake Powell is on that particular day.

198. Llewellyn Gulch is only identified as a future development site when the need for a mid-lake facility is realized. Existing marinas, such as Wahweap and Lone Rock, would be our first priority. We do not envision Llewellyn Gulch as being more than another Dangling Rope or Rainbow Marina but situated to where it better serves boat traffic associated with Bullfrog and Halls Crossing. Feasibility and engineering studies for access to Llwellyn Bench have not been carried out nor are they contemplated in the immediate future.

199. Hans Flat Ranger Station is in Glen Canyon National Recreation Area rather than in Canyonlands National

Park but it serves as an outpost ranger station for the Maze District operation of the park.

200. The present location of Rainbow Marina has served its purpose but increasing visitation and pressures on it, as well as the expenses involved with a full floating marina have caused the NPS to seek an alternate means of providing this service. The Hite Marina has been moved in response to changes in lake elevation and is being developed at its permanent location.

201. Airplane access to the Dangling Rope Marina is of great importance from a management point of view. It is not envisioned as a public airstrip nor would there be any aircraft servicing facilities available. Helicopters are not generally available in the Glen Canyon region and their response time and cost do not bear out their usefullness at this time. From the standpoint of medical evacuation and administrative control, it is imperative that a STOL strip be a part of the Dangling Rope complex.

202. Refer to our response to the Kane County Commissioners, number 154.

203. The site for an Escalante operations center has not been determined. Three suggested locations have been received as a result of the Draft Impact Statement, these being in the community of Escalante, at the junction of Utah Route 12 and the Hole-in-the-Rock road, and down the Hole-in-the-Road near its intersection with Harris Wash Road. Further studies of the feasibility of each location will be conducted prior to the establishment of this facility.

204. The proposed deletion has been decreased from 11,410 to 9,265 acres. However, the inclusion or deletion of the Purple Hills area from the NRA will have little affect on the erosion processes. Mining claims have been recorded within the area proposed for deletion. It is likely that some mining activity will take place on them regardless of their federal ownership. All such action will require an erosion control provision on any mining activity carried out regardless of surface ownership.

205. A General Management Plan for Capitol Reef National Park is scheduled in the near future. It would be appropriate to study boundary adjustments for this park at that time.

206. The Bull Valley deletion places the land in the same administrative agency as Beef Basin. The Bureau of Land Management shares the same charge with protection of cultural resources as does the NPS.

207. The Harris Wash road corridor has been included within wilderness in the FES. The original rationale was to allow for emergency access for management purposes, however, the wilderness act adequately provides for this situation.

208. Refer to response 19.

209. None of these alternative deletions appear in the FES.

210. While it may be accurate to portray Grand Bench and Gunsight Bench as continuations of the Harvey's Fear Spencer Point topography, one must recognize that there are currently management roads and stock water improvements existing on both Grand Bench and Gunsight Bench which diminishes its wilderness character.

211. The road into Panorama Point is indeed to be left open, however, there are no plans to develop it into a formal over-look such as you described at Dead Horse Point.

212. The two paragraphs on Tar Sands, Page 97 of the DES, must be read in conjunction with the pilot Fireflood Project coverage on pages 64 and 65. A re-reading and correlation of these data, using Overlay 1 on Map 21 (as suggested on page 97 of the DES) points up that; (1) The first paragraph, page 97, is concerned with the portion of the Tar Sands west of the Orange Cliffs; (2) The second paragraph, page 97, is concerned with only the portion of the Tar Sands east of the Orange Cliffs where the Tar Sands formation is close to the surface (see cross-section, DES Map 22); and (3) the comment quotation from the DES, "<u>the deposit is of very low present interest and is unlikely to be developed in the foreseeable future even if restrictions were not present</u>" refers to only that portion of the Tar Sands lying east of the Orange Cliffs; <u>not</u> the whole Tar Sands deposit.

The compelling factors and method used in the selection or non-selection of natural (wilderness) zones is covered in response number 11 to the Department of Energy.

213. The appearance of the road network in the Orange Cliffs is deceiving. While many of the roads appear to parallel one another they are removed by several hundred feet of vertical distance in nearly every case. It may be that there are some individual portions of road that can be closed under future management determination of need.

214. The Orange Cliffs portion of what is now Glen Canyon NRA was originally deleted from the proposed Canyonlands National Park in order that the mineral resources present be available for extraction. In addition roads already existed and surface disturbing activities had taken place over a large area. For the same reasons that the area was deleted from Canyonlands National Park, the area was deleted from Glen Canyon NRA wilderness proposal.

215. The road network in Red Canyon is fairly well established. Mining claims occur both at the NRA boundary, as well as inside the boundary near the vicinity of Castle Butte. The bighorn sheep is not a rare animal. It is managed as a big game species by the State of Utah. An investigation has been conducted by the State Division of Wildlife Resources in cooperation with the Bureau of Land Management and NPS as to the effect of man's activities on the distribution of sheep in Red Canyon. The result of these studies is inconclusive.

216. The Good Hope Mesa area was reconsidered for wilderness potential. However, this was not added to the wilderness recommendation because of mining and grazing resources, low scenic qualities and a lack of primitive or outstanding natural values adjacent to but outside of the NRA.

217. The Dirty Devil River and its tributary side canyons are included within the wilderness recommendation.

218. Grand Gulch and Slickhorn Canyon and the rugged land area between are included in the wilderness recommendation. The nonwilderness portion adjacent to the north shore of the San Juan remains as such for the same reasons given in response 216.

219. Most of Wilson Mesa including the Rincon, Slickrock Canyon and the south shore of Lake Canyon are now contained within the revised wilderness proposal. The road to Cottonwood Canyon is in a non-wilderness corridor.

220. It is probable that a remnant populaion of bighorn sheep currently inhabit portions of Wilson Mesa. It is on a list of potential transplant sites which the Utah Division of Wildlife Resources can utilize in cooperation with the NPS for the transplanting of excess animals from other nearby herds.

221. While considered as an alternative, the entirety of the tip of Fifty Mile Mountain is proposed for retention within the NRA and designation as wilderness in the NPS proposal.

222. The NPS considered and rejected designating any portion of the surface of Lake Powell as wilderness. Kayakers and canoers along with power boaters presently utilize many of the side canyons of not only the Escalante Canyon but other remote reaches of Lake Powell. We are unaware of any insurmountable conflicts between these user groups.

223. Refer to response 36.

224. The Hole-in-the-Rock Road is 56 miles in length, all but 8 miles lie in a corridor which is presently county maintained. The NPS would only propose to upgrade the 8 mile portion within our boundaries at such time as the other portion of the road is paved or otherwise upgraded by another government entity. The NPS does not intend to unilaterally improve that portion of the road lying within the NRA.

225. The deletions at Bullfrog and Halls Crossing are not included in the proposal. However, the Wahweap one is. Your points are well taken, and hopefully zoning by the counties and Utah would assure that any developments nearby but outside the NRA would be adequately sensitive to the environment.

226. The Harris Wash-Silver Falls deletion remains as an alternative, however, it is proposed for retention in the NRA in the FES.

227. The entire question of grazing within the NRA and the management of that activity will be the subject of an indepth Grazing Management Plan which will call for additional research as needed to determine carrying capacities, productivity, and other controls on grazing programs. The influences of natural zone management on grazing activity are unquantified at this time due to our lack of information on the possible courses of action which individual grazers will pursue.

228. The Utah Division of Wildlife Resources has reintroduced bighorn sheep on a continuing basis into the Escalante drainage and is contemplating a transplant into the Little Rockies area. Other areas which are considered historic range and appear suitable for bighorn habitat will be restocked as opportunity and funding are available by that Division.

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Mr. Temple Reynolds
Superintendent
Glen Canyon National recreation Area
Page, Arizona 86040

November 10, 1977

Dear Mr. Reynolds:

The following comments regarding the General Management Plan, Wilderness Proposal, Road Study Alternatives, and draft Environmental Statement for Glen Canyon National Recreation Area are presented on behalf of Friends of the Earth.

Our organization is deeply disturbed to learn the National Park Service still supports a proposal nearly identical to the plan conceived during a prior administration which was an obvious political compromise to the Utah congressional delegation to allow extensive oil, gas and mineral development in the spectacular canyon and mesa wildlands surrounding the Glen Canyon Reservoir.

The Park Service seems to have ignored the overwhelming public sentiment in favor of protecting the wilderness resources of Glen Canyon National Recreation Area expressed during the hearings held after the release of the preliminary Master Plan in 1975. 229

The several thousand individuals who participated in these hearings or submitted written comments expressed support of the Conservationists' Wilderness Proposal by a large margin. Yet, the Park Service recommended wilderness alternatives remains essentially unchanged from what apparantly was a previous administrative decision to allow the occurance or probability of mineral deposits to dictate the wilderness boundaries for the recreation area.

The 1972 enabling legislation which created the National Recreation Area would "permit removal...of minerals" in accordance with the preservation of "scenic, scientific, and historic features contributing to public enjoyment of the area." However, the plan announces an intention "...to encourage mineral use." Obviously, there's a considerable difference between permitting the removal of minerals and encouraging their use. How does the Park Service square this encouragement with its 1916 mandate, "The fundamental purpose of the National Park Service is to conserve the scenery and the natural and historic objects and wildlife therein, and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations?" 230

It seems that the Park Service criteria for National Recreation Areas-spacious areas containing outstanding natural and/or historic features located and designed to achieve comparatively heavy recreation use with outdoor recreation as a primary management purpose, such management being compatible with the protection of national and historic resources-stand rather at odds with the stated mineral development objectives for Glen Canyon National Recreation Area.

he Park Service proposal fails to make any attempt to rationalize their two conlicting goals, or to adduce evidence as to why they should be rationalized. Rather, hat emerges is a pachwork zoning approach for the convenience of mineral developers.

230 Consequently, Friends of the Earth has submitted a request to the Secretary of the Interior that the wilderness proposal for Glen Canyon National Recreation Area receive n executive review because of the mineral development bias, anti-wilderness sentiment nd possible continued political influence reflected in the recommendations contained n the document.

Ne example of the mineral bias expressed in this document is found in the subjective valuation of the scenic values of the recreation area. Four "value classes" are preented,placing deep sandstone canyons into Class 1, while "unremarkable" mesa tops, inyon-juniper forests and badlands receive a Class IV rating. This attempt at rating atural landscapes can only be considered to be a very subjective evaluation at the east.

231 In addition, the "value classes" approach fails to recognize the value of diversity and ntegrity in unaltered natural landscapes. It does, however, fit quite well into the nergy companies' plans for the Glen Canyon National Recreation Area.

or example: the Purple Hills of the Escalante region, a brightly colored, rolling pinon-juniper forest, lies between the center gorge of the Escalante and Waterpocket Fold, he principle feature of Capitol Reef National Park. Despite being surrounded by Class 1 cenery, the Purple Hills received a Class IV rating. Deposits of uranium. however not "monotonous ex panses of shrub," inspired this proposed land giveaway.

he report refers to the area as a "mineralized area of relatively low scenic value" and ites the area's "favorable uranium zone" along with existing federal oil and gas leases o justify the transfer of 11,410 acres of the Purple Hills to the administration of the ureau of Land Management.

232 he plan's only comment on the impact of the withdrawal is that "the proposed deletion ill make erosion-susceptible rocks vulnerable to uranium mining." which "could result n severe erosion. Sediment that might accum late in the Escalante River could seriously impair the scenic quality of these Class 1 areas" - to say nothing of impairing the nfortunate soul who may happen to be drinking the water downstream!

Once transferred to the Bureau of Land Management, it is almost assured that the Purple ills would be opened up for extensive mineral exploration and development. The remaining Escalante region within the National Recreation Area would then be managed by the ark Service as a "natural zone."

Proposing simultaneous management of wilderness and mineral resources in such close proximity presents perhaps an insuperable problem. It would be ridiculous to have hikers encountering oil and gas drilling rigs. noise from heavy equipment, uranium strip-mining, blasting, et al, and still call that a wilderness experience. One might as well hike in the canyons of Manhattan.

In addition, the Purple Hills region is an integral part of the Escalante Basin, long since proposed by conservation organizations, led by the Escalante Wilderness Committee, as a wilderness area. Friends of the Earth strongly opposes the proposed transfer of any lands within the boundaries contained within the 600,000 acre proposed Escalante Wilderness Area and urges the plan to transfer the 11,410 acres of land within the 233 Purple Hills to the Bureau of Land Management be eliminated from the final proposal.

The Park Service Wilderness Alternative also fails to recognize the Escalante Canyon Basin region as an integral geographical, ecological or resource management unit.

The Escalante Canyon Basin region cannot be subdivided to accomodate questionable demands for resource exploitation without the wholesale sacrifice of the unique and nationally significant wilderness values of this magnificent natural area.

Friends of the Earth urges the National Park Service to classify the 326,110 acres of the Escalante Basin within Glen Canyon National Recreation Area as wilderness in accordance with the Conservation Wilderness Proposal. We further request the National Park Servide to work in conjunction with the Bureau of Land Management and the United States Forest Service towards the realization of the long-overdue 600,000 acre Escalante Wilderness proposed by the Escalante Wilderness Committee. 233

The proposed transfer of the Purple Hills region of Glen Canyon National Recreation Area to the administration of the Bureau of Land Management for mineral development also raises the important issue of side effects affecting other National Park areas in the region.

Uranium ore mined in the Purple Hills region would have to be trucked over the Waterpocket Fold in Capitol Reef National Park to present mills in Moab or south of Monticello either via Green River or Blanding, both popular tourist routes to Canyonlands and Arches National Parks, and Natural Bridges National Monument.

Should additional milling capacity be required as a result of expanded uranium mining operations in the Purple Hills, White Canyon, Dirty Devil River Canyon, Waterpocket Fold, and San Rafael Swell areas, the likely location for such a facility would be the Hanksville, Utah area. The location of such a uranium mill in this vicinity would then assure the continued pressure from energy interests and Utah politicians for the expansion of uranium and exploration and development in all the uranium bearing areas in the National Recreation Area as well as regionally. 234

Once again, it is not the purpose of the enabling legislation c reating Glen Canyon National Recreation Area or the mandate of the Park Service in managing this area to "encourage" such mineral related development.

Throughout the recreation area, wilderness boundaries are largely determined by the occurance of known or probable recoverable mineral reserves and only the most scenic segments of the wild canyons are spared.

The identified and hypothetical uranium deposits within the Glen Canyon National Recreation Area total a paltry 14.5 million pounds. The plan admits that the recoverable fraction of this is unknown. It goes on to state that "the recreation area's recoverable uranium constitutes less than 0.5 percent of the projected domestic annual uranium needs to the year 2010 if fast-breeder reactors are developed." Based on this highly speculative and fairly confusing statement, significant wilderness reserves are placed in the Recreation and ResourceUtilization Management Zone. 235

In addition to their significant archeological resources, these areas contain critical habitat for the region's remnant population of desert bighorn sheep. The report admits that "the recreation area's 100-200 desert bighorn sheep will be adversely affected by proposed zoning. To the extant that physical interruption of the animal's activities (e.g. poaching and havitat destruction) is facilitated by the zoning, the potential for a population decline is even greater." This is a serious evolutionary price to pay for a speculative half percent of our projected annual domestic uranium needs. 236

We would like to also point out the construction of plutonium fast-breeder nuclear reactors are not supported by the Carter Administration.

The significant wildlands deleted in the expectation and/or support of this outmoded and highly dangerous technology should be included within the wilderness proposal.

The existence of the Tar Sand Triangle deposit has created considerable needless opposition to wilderness designation for this spectacular region which is geographically part of (and should have been included within) Canyonlands National Park. Although the major part of this deposit is located outside of the recreation area boundary, the proposed wilderness boundary for this area is drawn at the very edge of the Orange Cliffs apparantly so as not to conflict with the experimental tar-sands recovery being attempted nearby.

No technology exists to feasibly extract this tar-sands deposit and wilderness designation for this area will assure this deposit will remain in the public trust until such technology may be developed. Friends of the Earth recommends the Pilot Fire-Flood Project be relocated outside the recreation area boundaries and this spectacular natural area which includes the Orange Cliffs be protected within the wilderness boundaries in the Conservation Wilderness Proposal.

The report includes a map depicting some 50 to 150 million barrels of "speculative" oil and gas deposits in spite of a total lack of evidence of identified deposits or producing wells. These "speculative" deposits are estimated by the U.S.Geological Survey to be adequate "to supply this country's needs for three to ten days." The fact the document includes this map, which shows these deposits in potential wilderness areas, again underlines the apparant mineral and oil and gas development bias in the study. However small these speculative reserves are, their identification within the Glen Canyon National Recreation Area simply increases their vulnerability to exploitation. It leads us to wonder whether those three to ten days of driving pleasure would really merit gutting several years worth of erosion-hewn grandeur with exploration roads and test wells.

Given the obvious mineral fetish of the Park Service planners, one might presume that the Kaiparowits Plateau region within the National Recreation Area was deleted because of the nearly ten million tons of coal deposits found there. Federal regulations prohibit the issuance of coal leases on lands within a unit of the National Park System, and the amount of coal within the National Recreation Area is relatively small compared to the estimated 15 billion ton reserve of the Kaiparowits Plateau as a whole. The reason for this non-wilderness designation is more probably simply to provide unimpeded access to the much larger coal deposits north of the recreation area. This deletion is completely inconsistent with the Wilderness Act of 1964 for review of this area as to its wilderness attributes.

All the proposed National Park Service recommendations outlined above receive very little or no justification for their existence in the document.

It would seem further unlikely for the Park Service to encourage mining operations in such a spectacular natural recreation area as Glen Canyon, especially considering the determination of the agency to terminate mining in Death Valley and Glacier Bay National Monument.

The Conservation Wilderness Proposal would dissallow many of the needless additional mineral exploration activities and developments in Glen Canyon National Recreation Area and reflects the most appropriate future management plan for this important natural resource.

Glen Canyon National Recreation Area is a significant asset of American culture, not only as a recreational facility, but also as an enduring wilderness resource. The spectacular canyon and mesa wildlands adjacent to the reservoir within the recreation area fully qualify for and deserve wilderness designation under the provisions of the 1964 Wilderness Act. No exclusions should be made for mineral or oil and gas developments in the wilderness of Glen Canyon National Recreation Area. Extensive areas outside the Glen Canyon National Recreation Area offer much greater mineral potential than exists in the proposed wildlands. Oil and gas and mineral exploration activities would seriously detract from the recreational values of the area and would constitue a violation of the primary purpose for which Glen Canyon National Recreation Area was established.

The Wilderness Act, Section 4 (c) protects the holder of valid mineral rights and oil and gas leases until they are acquired by the Department of the Interior. The Wilderness Act also protects the 40,620 acres of state-owned lands until acquired by the Department of the Interior, when they automatically become wilderness.

237 Conservationists have proposed to designate 1,030,830 acres within the recreation area as wilderness. The basis philosophy of this proposal is that all the areas within Glen Canyon National Recreation Area that are presently wilderness should be legally recognized as such and protected within the National Wilderness Preservation System.

The Conservationist's Wilderness Proposal would protect an integral part of the Glen Canyon region, perhaps the greatest unrecognized wilderness resource left in the American West outside Alaska.

The wilderness proposal of this region has been recognized since 1936 when Robert Marshall, the founder of the Wilderness Society, proposed to set aside an eight-million-acre Escalante Wilderness Area as the largest roadless area in the contiguous United States. The proposal, strongly supported by Aldo Leopold, would have included Glen Canyon and what 238 is now Canyonlands National Park as well as the Escalante Canyon region. During the same period, Interior Secretary Harold Ickes proposed an Escalante National Monument of 1,280,000 acres.

The Conservationist Wilderness Proposal supports the provisions for the establishment of Glen Canyon National Recreation Area as defined in Public Law 92-593: "in order to provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto in the States of Arizona and Utah and to preserve scenic, scientific and historic features contributing to public enjoyment of the area, there is established the Glen Canyon National Recreation Area..."

239 The fulfillment of these legislative mandates is contingent upon the protection and preservation of the lands within Glen Canyon National Recreation Area.

A number of notable wildlands within the National Recreation Area including the Escalante Basin, Cataract Canyon, Dirty Devil River Canyon, the Little Rockies of the Henry Mountains, Wilson Mesa, Kaiparowits Plateau, Grand Bench, and the Orange Cliffs are all equally important wilderness resources which fully deserve adequate protection of their outstanding natural values.

Friends of the Earth supports the proposal for expanding the Recreation Areas' boundaries in the Escalante region, and along the San Juan river. We urge the National Park Service and the Navajo Nation to join in protecting the San Juan River as a Wild River under the provisions of the Wild and Scenic Rivers Act. In addition, we request the National Park Service propose the inclusion of Rainbow Bridge National Monument within the National Wilderness Preservation System. Finally, we urge the National Park Service to continue it's coordinated work with the Bureau of Land Management in the study of wild lands contiguous to Glen Canyon National Recreation Area for Wilderness Area Classification.

Friends of the Earth strongly commends the National Park Service for its decision to "make no proposals" on the highly controversial proposed Glen Canyon City to Bullfrog Basin trans-Escalante Parkway.

This 133-mile, 100 million dollar highway to be built for the sole purpose of providing motorized visitors a paved shortcut between the two principle marinas on the reservoir represents an inconceivable waste of federal funds. This road would also be the beginning 240 of a paved route to the Kaiparowits coal fields. Additionally, construction of the parkway would cause considerable defacement to the natural slickrock terrain and irreparably damage the nationally significant wilderness resources of the spectacular Escalante Basin and lower Waterpocket Fold regions. The paving of the Boulder Mountain Road, now in progres

will complete the Canyon Country Parkway proposed by the Escalante Wilderness Committee and alleviate any reasonable justification for an additional paved route between Wahweap and Bullfrog marinas.

However, we strongly dissagree with the recommendation to pave the Hole-in-the-Rock road, now adequately accessible for passenger cars. 243

The expansion of recreational developments and facilities of Glen Canyon National Recreation Area should be restricted to existing areas. The proposal for a marina at Llewellyn Bench is totally unnecessary and highly undesirable. The reason for the necessity of this development is not explained in the document. 244

Friends of the Earth strongly supports Management Zoning Proposal Alternate A for Glen Canyon National Recreation Area.

We hope this paper outlines our position regarding the future management directions for this outstanding unit of the National Park System and hope these comments will be considered and utilized in the public planning process.

Sincerely,

Gordon Anderson

Gordon Anderson
Colorado Plateau Representative
Friends of the Earth

cc: The White House
The Secretary of the Interior
The Director, National Park Service
Assistant to Regional Director, National Park Service
Director, National Forest Service
Director, Bureau of Land Management

Enclosures:

Responses to the Friends of the Earth Comments

229. The NPS supported no plan in the May 1975 Wilderness hearings. Six alternatives were presented with no preference given. The wilderness recommendation contained in this FES was a result of much public input, planning effort and management considerations taking into account Congressional mandates in the Act of 1916 which established the NPS, the Glen Canyon Establishment Act and the Wilderness Act.

230. This was a most glaring mistake in the DES. The only use of the word "encourage" in this sense in the DES was in Table 1, Volume 3, the fifth item in the column entitled, "Level III Objectives". It was used in error and has been corrected to read, "To manage mineral and grazing use...". Refer to response 11.

231. Refer to response 196.

232. The "Purple Hills" deletion has been decreased from 11,410 to 9,265 acres. The more scenic western portion has been added to wilderness, leaving the remaining 9,265 acres of this mineralized area of relatively low scenic value still as a deletion. Refer to response 204.

233. The Wilderness recommendation does contain all of the Escalante Canyon Basin within the NRA, except the road corridor to Hole-in-the-Rock, the Llewelyn Gulch proposed development, and the Purple Hills deletion.

234. Park Service planners concur with the principle expressed in this comment, i.e., it is not the purpose of the enabling legislation creating Glen Canyon NRA or the mandate of the NPS in managing any area to encourage mineral related development. You are referred to response number 11 to the Department of Energy for the basis of and methods used in selection or non-selection of natural (wilderness) zones. Refer to response 230.

235. Again, you are referred to the Department of Energy response number 11 for the basis of and methods used in selection and non-selection of natural (wilderness) zones.

236. The status of bighorn sheep in southern Utah appears to be increasing due to better control and reintroduction of populations into suitable habitat. As a

game species managed by the Division of Wildlife Resources, this resource is closely monitored.

237. Your recommendation to move the Pilot Fire-Flood Project outside of the NRA is concurred in by the NPS. However, the options open do not permit such a solution to the problem. The leases (mineral interest land rights) involved in the Pilot Fire-Flood Project antedate the Act authorizing the NRA, putting them in the category of "prior rights". The growing energy shortage requires utilization of all available domestic resources and urgent action to increase petroleum production by devising better recovery methods from known large deposits. The Tar Sand Triangle is such a deposit; and the Pilot Fire-Flood Project does utilize a new recovery method. If this test project proves successful, a large additional energy source will be put into production. If the tests fail, the project and leaseholds involved will be abandoned.

238. As covered in the last paragraph of response number 11 to the Department of Energy, exclusions from natural (wilderness) designation in favor of potentially favorable oil and gas areas were not made, due to lack of evidence (other than broad regional extrapolations) of the occurence of economically exploitable oil and gas formations.

239. As mentioned in response number 184 to the Kane County Board of Commissioners, 10 miles of the 44 miles of Recreation Area boundary cutting the southeast end of the Kaiparowits Coal Field does border on the proposed natural (wilderness) zone. Since the Kaiparowits Coal Field falls into the category of large known, measured energy resources, the portion lying inside the boundary was one of the factors considered in the selection or non-selection of wilderness. The analysis leading to selection in this case, as throughout the NRA, was as described in response number 11 to the Department of Energy comments.

240. The enabling legislation for Glen Canyon adequately provided for the removal of mineral resources and charged the NPS and the BLM to allow such disposition as would not have significant adverse affect on the recreational use and enjoyment of Lake Powell and the preservation of scenic, scientific and historic features contributing to the public enjoyment of the area. We do not view mineral resource recovery as a totally incompatible activity within the primary purpose for which the NRA was established.

241. All of the recommended areas with the exception of Grand Bench and the upper cliff tops in the Orange Cliffs are contained within the proposal for wilderness.

242. That portion of the San Juan River within the NRA will continue to receive protection by the NPS. As for Wild and Scenic River status, you may wish to express your interest to the Heritage Conservation and Recreation Service, a new federal agency that has the responsibility of identifying rivers for study to Congress. There does not appear to be any way that Rainbow Bridge NM could qualify as Wilderness due to its small size and being incroached upon by Lake Powell. We certainly will continue our coordinated work with the BLM.

243. As set forth in our response number 224, it is not the NPS intention to unilaterally pave the Hole-in-the-Rock Road.

244. Refer to response 198. Development of a Llewellyn Gulch Marina would be dependent upon a demonstrated need for that facility and it would be subject to a full management and environmental review.

NPCA

Southwest Representative:
Route 8, Box 550-B,
Tucson, Arizona 85710.
Tel.: 602-296-5019.

November 10, 1977.

The Superintendent,
Glen Canyon National Recreation Area,
Post Office Box 1507,
Page, Arizona 86040.

Subject: Draft Environmental Statement for
Proposed General Management Plan,
Wilderness Proposal,
Road Study Alternatives
Glen Canyon National Recreation Area.

Dear Sir:

National Parks and Conservation Association appreciates receipt of the subject document, DES 77-28, and is pleased to submit these comments.

NPCA is an organization of some 50,000 members, scientific and educational in nature, founded over half a century ago to support and promote the objectives of the National Park Service. It is therefore well qualified historically to address this subject.

NPCA is further qualified to comment on the specific issues involved in the subject NPS document, having engaged in extensive field trips throughout the area and the adjacent region, having testified at wilderness hearings for Arches, Canyonlands, Capitol Reef and Grand Canyon National Parks, and having participated in numerous earlier GCNRA subjects: a detailed statement dated June 8, 1972 concerning the Area's proposed enabling legislation, a statement in 1975 on the Greenehaven Development, another last year on the Hall's Crossing "development concept plan", and testimony at public hearings in Phoenix on May 19, 1975 on the GCNRA Preliminary Master Plan and Wilderness Study.

Since the proposals and alternatives in the present document are stated to be preliminary, it is presumed that none of them will necessarily be adopted as a "package", but that, after review of comments, some features may be either dropped or included in different combinations. Specific suggestions of that nature will be advanced herein.

I. The General Management Plan.

The mission of the Department of the Interior as a conservation agency is expressed ably and succinctly on the inside cover of Volume 1, following page 202: the Department "has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, and parks and recreation areas, and to ensure the wise use of all these resources." This statement is consistent with the purposes for which Congress established the GCNRA, as set forth in the enabling legislation, PL 92-593: "to provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto . . . . and to preserve scenic,

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scientific and historic features contributing to public enjoyment of the area".

In the context of those underlying fundamentals, it becomes obvious that Alternative A of both the Management Zoning Plan and the Wilderness Plan should be the basic proposals of the National Park Service, rather than the watered down ones offerred in the published document. Note that in the heading on page 125, Alternative A is described as having "Preservation Emphasis". Let us examine the rationale more closely.

Map 10 and Table 7 demonstrate vividly that 99% of the present land use is now classified as "Natural". By the magic of the printed word, the Park Service proposal would reduce this to 57%, converting 42% to other less restrictive uses, including immense allocations to so-called "resource utilization". (The proposal fails to break down the RRU zoning classification into its components, but judging from some of the maps in Volume 2 the area assigned to Resource Utilization must be very extensive.) This term means exploitation of non-renewable resources, such as oil, gas, coal and uranium. 245

According to the DES, all of the above resources except coal exist in unknown, highly speculative quantities. Appendices 28, 29 and 30 paint a very bleak picture of the prospects for significant petroleum deposits being found, the U. S. Geologic Survey estimating probably less than ten days' supply of U. S. needs. With coal so readily available elsewhere, and the relatively minute quantity of uranium likely to be found here, the DES indicates little will be lost for the present if these resources are left untapped.

NPCA takes issue with the classification system by which the Park Service appears to have arrived at the designation of "Natural" Management Zones in the proposal, as shown in Map 2. A comparison of that map with Map 15, which shows the rating of scenic values, indicates that areas which were deemed to fall into value classes below the top two for scenic purposes could not be considered natural for management purposes. NPCA does not concur. Evaluation of scenic attributes under the guidelines on pages 28-29 would be subjective at best, and bears no direct relation to whether a particular area should be zoned for management as natural or otherwise. 246
If its existing condition is natural, for conservation and survival the entire ecosystem needs to be preserved regardless of scenic values; in fact, it would be a rare ecosystem indeed if it did not encompass a range of conditions which embrace a variety of scenic qualities.

How, then, can the Park Service justify reclassification of partial ecosystems, especially in the light of the Department's stated conservation responsibilities? NPCA submits that the evidence in the subject document clearly demonstrates that only Alternative A fulfills those responsibilities.

Certain aspects of the zoning proposal could be appropriately incorporated into Alternative A. NPCA deplores the conditions at the Rainbow Bridge Marina, and would strongly endorse the proposed substitution at Dangling Rope, provided public access is by water only. NPCA shares the NPS concern over the threat of siltation at Hite in the relatively near term. The Farley Canyon vicinity would be an acceptable substitute, and it therefore seems reasonable to reserve it and its land approach (a road shown as closed on Map 40) for future development when that becomes necessary. In connection with any new facilities, the NPS should take the opportunity to 247

review its concessioner policies and to reexamine concession contracts to ensure adherence to those policies.

It is noted that the road closures in the Orange Cliffs area under Alternative A would preclude access to certain roads outside the Recreation Area. Among these are the primitive roads in Canyonlands National Park which lead to "The Dollhouse", the Maze Overlook and Horse Canyon, the latter ultimately providing an outlet to the Green River opposite Queen Anne Bottom. The Wilderness Proposal and Management Plan for Canyonlands contemplate continued access to those destinations, and it is presumed that closure of connections in GCNRA would not be undertaken without coordination by both units. 248

In general, NPCA opposes upgrading any of the present jeep roads in the Orange Cliffs area to two-wheel-drive quality, or paving any existing roads there. The lands which they traverse are much too fragile to be jeopardized by making them accessible to the heavy traffic to which they would be subjected if the roads were upgraded, and the recovery period for disturbed surfaces is too protracted due to the normally scant precipitation. In fact, the closure of many jeep roads which would otherwise interfere with establishing and managing large wilderness units is desirable. 249

This position will be opposed by interests which seek to exploit the oil and gas potentials of the Tar Sand Triangle, most of which lies outside the GCNRA. Clearly, the adverse impacts caused by the inevitable disturbance of the land surface, and the destruction of the "natural" land character, are contrary to the purposes stated in the Recreation Area's enabling legislation. The technical aspects of petroleum recovery from tar sand have been studied in other parts of the world without significant success and, in the absence of a proven, economically feasible process, we see no excuse for invading the natural sanctuary of a Recreation Area for such experiments. 250

One of the roads shown on Map 40 as being closed for purposes of Alternative A is the one on Brown's Rim east of Hite Bridge, where active mining is in progress. NPCA would not endorse that, since the road is needed for a legitimate use under valid rights. 251

On pages 27-28 of the proposal, the NPS confesses that the carrying capacity of GCNRA has not been determined, but cites specific cases in which it has been exceeded. It appears illogical to advance a proposal involving the extensive increases in development and in the activity load indicated in Table 3 of Volume 3, without first appraising the impact they will have on the Recreation Area as a whole, or knowing whether the carrying capacity as a whole can support them. This problem is well stated on page 28, and its solutions should be determined and quantified. However, this should be done <u>before</u> the proposed General Management Plan is approved rather than after, as is suggested in Section D on page 7, and at the top of Table 4. 252

Such appraisal should weigh the impacts of the additional visitation on such factors as land, air and water pollution, traffic congestion on roads and on the lake, at marinas, on hiking trails and at all types of service activities, waste disposal systems, safety and security management, scenery, wildlife and vegetation, soil erosion and grazing management.

In making the appraisals, consideration should be given, where applicable, to the effects resulting from extremely high and low levels of Lake Powell, should they occur in spite of the improb-

ability thereof as projected on page 20 of Volume 1. For example, partly due to a below-normal snowpack, the small runoff in 1977 has resulted in a 27-foot drop in the water level in just one year. A succession of such years could have a profound effect on the shoreline, as indicated in the second paragraph on page 20, and thereby on the lake's carrying capacity and usefullness of facilities. 25

NPCA concurs with the boundary adjustments of Alternative A on Map 37, and would also add the deletion of 560 acres shown on Map 2 near Glen Canyon City on the south side of U.S. Highway 89. The other deletions shown on Map 2 are not acceptable for a variety of reasons. For example, Map 27 indicates a potential for uranium mining in the Purple Hills area. We know this to be a more scenic region than the subjective value placed on it, and suspect that the possible presence of uranium was a factor in the deletion proposal. 25

The concept of providing an Escalante Operations Center is endorsed as an important step toward monitoring possible overuse of the backcountry trails and canyons. To control and, if necessary, to ration such use, the Center should be so located as to enable permits to be issued near the critical trailheads.

II. The Wilderness Proposal.

For the same reasons that apply to the Management Zoning Proposal, NPCA endorses Wilderness Alternative A, Map 41, to be substituted for the Wilderness Proposal, Map 4, except for the same modifications suggested for Management Zoning Alternative A.

The DES, starting on page 126, describes the impacts of Zoning Alternative A, which in general apply also to Wilderness Alternative A. Almost without exception, the impacts of the alternative are favorable. The most conspicuous exception is the presumed prevention of development of mineral resources in the Natural Zone (pages 130-132), and therefore also in Wilderness. This is not necessarily so. The guidelines which define the management zones and the use restrictions applicable to each zone are not established by statute. They are internally generated within the Department, are easily revised and readily adapted to a given situation. Even the Wilderness Act affords some protection to developers of valid mining claims and existing oil and mining leases. It is therefore inaccurate to infer that Alternative A shuts the door on mineral development while the Proposal does not. The door remains open to the extent permitted in the enabling legislation, PL 92-593, Sec.3(a), which is equally applicable to land-use designations under both the proposals and the alternatives. 25

III. The Road Study Alternatives.

A. Routes between Glen Canyon City and Bullfrog - Map 44.

Before considering the alternatives, certain generalities must be understood:

1. Road transportation is possible today, with no new construction, between any two important points in GCNRA.
2. The cost of building new and upgrading existing roads along the most direct route between Glen Canyon City and Bullfrog would be staggering.
3. The principle recreational use of GCNRA is water-oriented, whether it be for sports on Lake Powell, exploring the side canyons of the Escalante and other tributaries, or countless other activities, As such, the basic highway need is to have good roads over which to haul boats to and away from the lake. Once there, the boats can take

visitors anywhere, given an efficient network of supply points. A road system skirting the lake has a questionable need at best.

4. A new direct route between Glen Canyon City and Bullfrog would divert much traffic away from small towns such as Hanksville, Torrey, Loa, Boulder, Escalante, Henrieville and Cannonville, with potentially severe economic impacts.

With this as background, Map 44 presents four alternative routes between Glen Canyon City and Bullfrog:

D-1 (red). This is the most direct, 127 miles, and follows the general Escalante alinement authorized by Congress. However, of the four routes, this one involves the most new and costly construction, some 56 miles across severely challenging terrain, and would be disastrous to the economies of the small towns which would be by-passed.

D-2 (brown). The longest alternative, 222 miles, with 28 miles of new construction; does not cross the Escalante watershed, therefore is less objectionable than D-1. Some small towns would not be hurt.

D-3 (green). The second longest, 189 miles, but follows existing rights-of-way entirely and small towns retain economic position.

D-4 (blue). A little shorter than D-3, 178 miles, but divides the Escalante wilderness in half with 28 miles of difficult new highway; a few small towns would not be affected.

All of the alternatives employ some existing unpaved roads. NPCA does not advocate upgrading any except routes most likely to bring boat trailers to marinas on the lake from distant metropolitan centers. Only one meets that criterion without a paved alternate, the 47-mile segment from East Clark Bench on U.S. Highway 89 north up Cottonwood Canyon to Cannonville.

Wahweap is reached by paved connection from U.S. 89, Hite by Utah 95 from the east and northwest, Bullfrog by Utah 95 and then Utah 276, both paved, and Hall's Crossing by paved Utah 263. Thus there is no need to pave the graded roads south from Torrey/Boulder and Notom, since Bullfrog can be better served from distant places by other existing paved routes. Furthermore, portions of those roads pass through Capitol Reef National Park and would impact proposed wilderness areas in that Park.

Similarly, there is no need to pave the Hole-in-the-Rock Road from Escalante since it serves no marina. Mostly it is used by day visitors to Hole-in-the-Rock, and for access by hikers to trailheads from which to explore canyons of the Escalante basin.

An additional reason for not paving this road is to keep visitation down to manageable levels. NPCA has noted the remark on page 77 indicating the possible future need to ration use of this road, and the reference on page 28 to already excessive use of Coyote Gulch by hikers. It simply does not make sense to invite an added wave of superfluous, casual visitation into this corridor. 255

The wilderness which is the Escalante basin was added by Congress to GCNRA largely at the insistence of conservation groups and outdoor enthusiasts who had long understood and appreciated the unique qualities of that remote land. They had explored it extensively, realized its geologic and archeologic values, learned how its inaccessibility enabled it to keep its many ancient secrets and provide a rare sense of solitude for visitors. They feared the consequences if it were to lose the cloak of that inaccessibility which had always hidden it from prying eyes of unfeeling humans.

That is the threat which hangs over the Escalante in the form of the proposed road which is a link in routes D-1 and D-4 and would bisect the basin. It would be a cruel blow indeed if the heroes who fought to protect the integrity of the Escalante were to be rewarded with that 1,270-foot bridge across its canyon within full view of Stevens Canyon Arch which is one of its prime landmarks. For these reasons, NPCA urges the NPS to request Congressional de-authorization of this project.

B. Road Proposals of the Arches/Canyonlands/Capitol Reef Transportation Study - Map 6.

1. The Orange Cliffs area. We have already commented on the proposals here, and would point out that the DES on page 62 confirms our position as to paving the Flint Trail.

2. Roads in Canyonlands National Park. The principle factor in the Island-in-the-Sky District is that of very limited carrying capacity. If that road were to be paved, the NPS should be prepared for the need to ration its use during periods of peak visitation. As to the proposed Confluence Overlook road in the Needles District, the NPS has recently announced its decision to abandon plans to complete it. This was a bold and brave decision, for which NPCA extends congratulations. Throughout the lengthy controversy, NPCA has frequently and vigorously pointed out the adverse environmental impacts of that unnecessary project, and sincerely appreciates the action now taken by the NPS.

3. Roads in Capitol Reef National Park. Comment has already been made regarding roads directly serving Bullfrog. Indirectly, the proposed road from Caineville to Fremont Junction is also involved, but it lies entirely outside the Park. Map 6 also shows a proposed new road inside the Park leading to South Desert. NPCA strongly opposes this as it is illustrated as being entirely within the Park, and we happen to know of a better way.

The writer has personally travelled in this area and can advise the NPS that there is yet a third route, which in its southern stretches lies almost entirely outside the Park. About 1½ miles of it appears on the U.S.G.S. topo map for the Fruita quadrangle. From the road which follows the Fremont River, one turns north at a point near the west edge of section 20 (T.29 S., R.8 E.), crosses the river, then takes a primitive road to the east and then steeply north. The map shows the ending at the northwest corner of Section 17, but it in fact continues for many miles toward the northwest. It traverses the length of North Blue Flats, circles Bentonite Hill (not shown on map), follows Cathedral Valley and passes along The Hartnet for over ten miles. There are several short spur roads to the west to overlooks within the Park, from which good views of South Desert and impressive views of the northern end of the Waterpocket Fold may be obtained. NPCA recommends this route as it disturbs a minimum of Park land and promotes wilderness designation within the Park for most of this uninhabited and rarely travelled northern segment.

Respectfully submitted,

Robert L. Coshland

Robert L. Coshland, NPCA
Southwest Representative.

Responses to the National Parks and Conservation Association Comments

245. The management zone "Recreation and Resource Utilization" does not mean exploitation of non-renewable resources. Refer to Table 2 - Management Zones for more information. Other studies will begin after approval of the General Management Plan. Included will be a Minerals Resource Management Plan that will further break down the RRU Zone.

246. This is an incorrect conclusion. By placing Overlay 1 on DES Map 15 it is readily seen that considerable acreage in all four of the scenic value classes are in the Natural Zone; not only the two top ones as you stated. Refer to Table 11 for the acreages.

247. It is the feeling of the NPS that air access is a much needed administrative and emergency tool which must be incorporated into the Dangling Rope proposal. Refer to response 201.

248. Road closures in the Orange Cliffs area have been coordinated with the Canyonlands Wilderness and General Management Plan proposals. The revised road corridors are shown on Map 1.

249. The NPS has not proposed unilateral upgrading of any unpaved roads within the NRA. The closure of many jeep trails and tracts is appropriate in order to remove possible illegal accesses into proposed wilderness.

250. Refer to response 84.

251. This road would be left open in the proposal.

252. The General Management Plan calls for subsequent planning including a backcountry use plan. Carrying capacities and impacts of increased visitation must be assessed on a site-by-site basis as developments within the Recreation Area are pursued following approval of the General Management Plan. To do otherwise would be to put the cart before the horse with regards to our planning direction.

253. Refer to responses 204 and 232.

254. The proposal and alternatives have one thing in common regarding mineral resource development. All must recognize prior valid mineral rights regardless of location within the NRA. Alternative A would "shut the door" on mineral development on much more acreage than the proposal. Compare the difference by placing Overlay 1 and DES Overlay 2 on Map 6.

255. Refer to response 224.

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JAMES L ISENOGLE, UTAH DIRECTOR
NATIONAL PARK SERVICE
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SALT LAKE CITY UT 84138

RECEIPT OF DRAFT MANAGEMENT PLAN, ETCETERA FOR GLEN CANYON NATIONAL RECREATION AREA IS ACKNOWLEDGED.

THE GRAND CANYON CHAPTER, SIERRA CLUB, ARIZONA, MAINTAINS ITS LONG STANDING CONCERN ABOUT THIS REGION AND IS PLEASED TO BOND.

GLEN CANYON COMPRISES A MAJOR PART OF A REGION LONG RECOGNIZED INTERNATIONALLY AS ONE OF THE NATURAL WONDERS OF THE WORLD. WE STRONGLY BELIEVE THAT AS SUCH AND BECAUSE OF:

-THE LACK OF OTHER DESIGNATED WILDERNESS IN THE VICINITY,
- AMPLE AVAILABILITY OF OTHER NEAR BY AREAS FOR DEVELOPMENT AND DESTRUCTIVE RECREATION,

IT SHOULD BE PRESERVED AND PROTECTED IN ITS NATURAL STATE FOR THE LONG TERM BENEFIT OF ALL.

WE ENDORSE ALTERNATIVE A AS THE ONLY MANAGEMENT PLAN WHICH ACCOMPLISHES THIS. THE NPS STUDY SHOULD BE RECOGNIZED FOR ITS FINE JOB IN PREVENTING INFORMATION AND DELENIATING ALTERNATIVES: WE FIND THAT THE RECOMMENDED PLAN, WITH ITS PATCHWORK QUILT OF MUTUALLY CONFLICTING ZONES, IS AN APPARENT ATTEMPT AT "COMPROMISE" WHICH DEMONSTRATES THE INHERENT INCONSISTENCY OF SUCH AN APPROACH.

MANAGEMENT ZONING

WE QUESTION THE VALIDITY OF THE SYSTEM BY WHICH REGIONS OF THE NRA ARE CLASSIFIED WITH RESPECT TO SCENIC VALUE AND OBSERVE THAT THERE ARE INCONSISTENCIES IN ITS APPLICATION. THE DISTINCTION BETWEEN THE GIVEN CLASSES IS CONSIDERABLY LESS THAN THAT BETWEEN THE ENTIRE REGION AND OTHERS, SUCH AS GARY, INDIANA OR ELIZABETH, NEW JERSEY. THE IMPORTANT POINT IS THAT THE ENTIRE AREA HAS EXCEPTIONAL AND UNIQUE SCENIC VALUE. 256

(A) RRU

THE PROPOED RRU ZONING IS APPROPRIATE TO ONLY A VERY LIMITED PORTION OF THE NRA. MINING ACTIVITY IS, ACCORDING TO THE STUDY, "SPECULATIVE," "SUB-ECONOMIC," HAVING CIRCUMSTANCES WHICH "IMPEDE DEVELOPMENT." EVEN FULFILLMENT OF THE MOST EXTRAVAGANT CLAIMS WOULD CONTRIBUTE NEGLIGIBLY TO NATIONAL NEEDS. 257

UTILITY CORRIDORS ARE NOT NEEDED EXCEPT IN PRESENT LOCATION. ORV'S HAVE 258

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MUCH PREFERABLE COUNTRY IN ADJACENT AREAS. GRAZING IS COMPATIBLE WITH WILDERNESS ZONE. 258

(B) CULTURAL

PROTECTION OF HISTORICAL AND ARCHAEOLOGICAL RESOURCES IS NOT INCOMPATIBLE WITH WILDERNESS.

(C) DEVELOPMENT

THE NEED AND UTILITY OF THE LLEWELLYN BENCH PROPOSAL HAS YET TO BE DEMONSTRATED. RECOMMEND NO DEVELOPMENT HERE, CLOSING LLEWELLYN BENCH SPUR. 260

MINIMUM FACILITY AT DANGLING ROPE IS PREFERABLE TO PRESENT SITUATION AT RAINBOW BRIDGE.

(D) WILDERNESS

THE WILDERNESS ZONE SHOULD THEREFORE BE EXPANDED AS MUCH AS IN ALTERNATIVE A.

ADDITIONS

SIDE CANYONS OF THE ESCALANTE ARE A VIRTUAL NECESSITY TO PROPER MANAGEMENT OF THIS VERY IMPORTANT FEATURE. 261

RECOMMEND STUDY OF SIMILAR ADJOINING AREAS, NOTEABLE ALONG ESCALANTE AND DIRTY DEVIL. 262

SERIOUS RESERVATION MUCH BE EXPRESSED ABOUT EXTENSION OF PARK SERVICE RIVER MANAGEMENT TO SAN JUAN IN LIGHT OF CURRENT PROBLEM AND INEQUITIES IN GRAND CANYON. 263

DELETIONS

PURPLE HILLS SHOULD APPROPRIATELY BE CLASSIFIED SCENICALLY "OUTSTANDING" - CLASS I AND RETAINED IN NRA. 264

ROAD STUDY

GLEN CANYON/BULLFROG HIGHWAY: WE FIND THE SOARING ECONOMIC AND ENVIRONMENTAL COSTS NOT JUSTIFIED BY NEGLIGIBLE PUBLIC BENEFITS ALLEGED. STRONGLY RECOMMEND THIS PROPOSAL BE DROPPED. 265

WILDERNESS

WE FEEL THAT ALTERNATIVE A IS ESPECIALLY SUITABLE WITH RESPECT TO

(1) THE 1916 CHARTER OF THE NATIONAL PARK SERVICE, AND
(2) THE CONGRESSIONAL MANDATE IN 1972 ENABLING LEGISLATION FOR GCNRA, IN THAT

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(3) THE WILDERNESS ACT OF 1964 PROVIDES A PARTICULARLY APPROPRIATE MANAGEMENT TOOL IN THIS CASE.

IN CONTRAST, THE RECOMMENDED WILDERNESS PLAN PROPOSES, IN EFFECT, TO ALLOW A DESEGRATION OF LAND QUALITY IN 36 PERCENT OF THE NRA THROUGH DELIBERATE MANAGEMENT POLICIES. THIS APPEARS TO SERIOUSLY CONFLICT WITH OBJECTIVE SPECIFIED BY CONGRESS IN THE NPS CHARTER AND GCNRA MANDATE.

IT SHOULD BE NOTED IN PARTICULAR THAT:
-THE PROPOSAL FAILS TO JUSTIFY SUCH A RADICAL DISRUPTION OF THE NATURAL AREA,
-THE PROPOSAL DOES NOT TAKE INTO ACCOUNT THE ADVERSE IMPACT OF MINING AND OTHER ACTIVITIES MENTIONED FOR RRU AND DEVELOPMENT ZONING ON CAMPING, WHICH, ACCORDING TO FIGURE 9, FAR EXCEEDS OTHER RECREATIONAL PURSUITS IN THE NRA AND IS GROWING ALMOST EXPONENTIALLY, 266
-THE RRU AND DEVELOPMENT ZONING PROPOSAL NOTED ABOVE ADVANCE LEVEL III AND IV OBJECTIVE AT THE EXPENSE OF LEVEL I AND II OBJECTIVES (REFER TABLE I),
- N PROPOSING THE LEVEL III OBJECTIVE TO "ENCOURAGE" MINERAL AND GRAZING USE (TABLE I), THE NPS IS APPARENTLY EXCEEDING ITS MANDATE.

ENOUGH HAS BEEN DONE TO GLEN CANYON ALREADY. THE HIGHEST GOOD WILL BE SERVED BY LEAVING WHAT REMAINS IN ITS NATURAL STATE.

PAUL HUDDY
VICE CHAIRMAN, GRAND CANYON CHAPTER, SIERRA CLUB, ARIZONA

CC: CONGRESSMAN MORRIS K. UDALL, SENATOR DENNIS DECONCINI, SECRETARY CECIL D. ANDRUS, DIRECTOR WILLIAM J WHALEN AND SUPERVISOR TEMPLE REYNOLDS

1024 EST

MGMCOMP MGM

Responses to the Grand Canyon Chapter, Sierra Club Comments

256. Refer to response 196.

257. Your comments on the significance of the mineral resources in the NRA are in general correct. However, as outlined in response 11 to the Department of Energy and the second paragraph of response 17-a to the Bureau of Land Management, the selection of RRU zones and Natural (wilderness) zones was based on an analysis of the significance of the mineral occurrences weighed against the relative significance of the natural resources found in the area of concern, along with other management factors, the authorizing Act, NEPA, the Wilderness Act and the NPS Organic Act.

258. We cannot forecast where utility corridors might be needed in the future. Such corridors were mandated by Congress in the Glen Canyon establishing Act, and to provide for these future needs the RRU Zone was conceived. The proposal does not give ORV's free license to travel anywhere. These are restricted to existing roads. Yes, grazing is compatible with Wilderness providing no motorized equipment is used.

259. You are correct in stating that protection of cultural resources is not incompatible with wilderness. It must be recognized, however, that wilderness management does increase the cost of protection and preservation and thus constrains the amount of cultural preservation that can be contemplated for a given dollar.

260. Refer to responses 198 and 224.

261. The side canyon tributaries as well as most of the upper cliffs have been included within the wilderness recommendation.

262. Wilderness criteria has been applied to adjacent study areas along both the Escalante and Dirty Devil Rivers.

263. We see little application of alleged problems at Grand Canyon to the San Juan River. The proposal is not to extend NPS administration over the San Juan River to Mexican Hat; but rather to develop a joint management plan with the

Bureau of Land Management based on the current management jurisdiction and administrative boundaries.

264. The proposed deletion of the Purple Hills area now contains a reduced acreage figure, reflecting a re-evaluation of its scenic classification. Refer to response 204.

265. Refer to responses 81 and 101.

266. Refer to responses 66 and 230.

11/15/77

Mr. James L. Isenogle
National Park Service
125 S. State St. Rm. 3418
Salt Lake City, Utah 84138

Dear Mr. Isenogle,

The Natural Resources Law Forum has the following comments and suggestions in response to the draft Environmental Impact Statement on the management of the Glen Canyon National Recreation Area.

In general, we support the maximum wilderness possible. We would like to see greater emphasis on maintaining primitive areas and preserving archeological sites than the general management plan contains. But we do not think it necessary to exclude non-wilderness uses totally in some areas. The highest wilderness priority should be the Escalante country east to Waterpocket Fold. The San Juan arm should also be considered. We would like to see almost as much wilderness designation as in Alternative A but with the following exceptions.

Lakeshore Development.
We support the Dangling Rope proposal to replace the Rainbow Bridge Marina, as well as the reservation of Farley Canyon for possible future needs. We do not approve, however, of the Llewellyn Bench proposal due to its steep slope,encouragement of access road development and its proximity to the Escalante.

Road Construction.
We oppose construction of any additional roads in the Glen Canyon NRA. We particularly disapprove of the corridor concept through designated Wilderness areas. Such encouragement of motorized vehicles defeats the purpose of the Wilderness Act. Certainly avoid bridging the Escalante River.
However, retaining access to Hole-in-the-Rock and even upgrading the Hite-Hans Flat road would be valuable.

Grazing leases.
Grazing need not be eliminated over the entire area, but it is incompatible with the Wilderness possibilities of the Escalante-Waterpocket Fold area. Where the range is poor-fair, grazing should be conscientiously reduced. 267

Wildlife.

We also note that the Bighorn population concentration and particularly the lambing areas are not within the proposed Wilderness boundaries under the general management plan. We would prefer to see these sections of Red, White, and Gypsum canyons and all known lambing grounds in wilderness to minimize human interference. Grazing leases should be managed to mitigate or eliminate competition for water in Bighorn areas. 268

In addition, there are some items in the EIS itself that need clarification. Mineral claims data will need to be updated in the final EIS do to additional validation determinations that have been made since the draft version was published. The Local Government Finances section should also be modified to reflect the recent passage of in lieu tax money from the federal government. Please clarify the saltcedar problems in the final EIS. And we question the scenic value classification. The pinyon-juniper and even the desert shrub country have a different but very real beauty. 269

Although many copies of the draft EIS were printed, there were still severe availability problems. Copies could be made accessible at more central locations around Utah, such as library reserve rooms.

We deplore the bureaucratic practice of presenting the favored proposal in by far the most detail flanked by two impractical extreme alternatives. Unreasonable alternatives do not facilitate any decision. We would support an intermediate alternative between the general management plan and Alternative A if one were available. 270

There is no place in the world like the red rock country of southeast Utah. We must all recognize our responsibility to use and conserve it wisely.

Sincerely,

Francesca Cary Rey
Stephen Hall
Ralph Becker
[illegible]
A. John Davis
Kate Lahey
Thomas C. Roberts
Patrick Garner
Suzanne Marchus
Ronald J. Bigelow
Joan Degiorgio

Responses to the Natural Resources Law Forum Comments

267. The BLM and the NPS will cooperate in the preparation of a Grazing Resource Management Plan. One area where grazing reduction will be studied is in the riparian zone within the canyons proper.

268. DES Map 16 identifies habitat suitable for bighorn sheep. It is not meant to delineate with a high degree of accuracy actual population densities. Refer to response 215.

269. We concur with your comment regarding the updating of the status of validity of the unpatented mining claims filed within the NRA. The FES contains current totals covering the matter.

Salt cedar (Tamarix ssp.) will become established on suitable beaches throughout the shoreline of Lake Powell. There are no immediate plans or known remedies to this and it must simply be accepted as a factor influenced by the fluctuation of the lake level. Several environmental effects which will occur include additional shading and micro-climates suitable for many avifaunal species due to an increased prey base and associated cover, increased transevaporation of lake water through this plant species, and some loss of beach which had been otherwise suitable for recreational camping or day use activities. Salt cedar establishment will not be affected by the adoption of the proposal or the alternatives.

270. Due to printing costs, a conservative number of the DES's were ordered. Several copies were sent to libraries in Utah and elsewhere. More copies of this FES have been made due to anticipated demand, and reduced printing costs brought about by shortening and simplifying this document as compared to the DES. You can tell from the many comments that the proposal and alternatives have been criticized as unreasonable as well as praised.

Canyon Country Council
P.O. box 613 moab, utah 84532

November 5

James B. Martin

Superintendent
Glen Canyon National Recreation Area

The Canyon Country Council is an organization of people, across the country, with an headquarters in Moab, Utah. CCC was formed to promote the protection of wild lands and environmental quality on the Colorado Plateau. Glen Canyon, more than any other region, lays claim to representing the spirit and soul of the canyon country. Few issues so intimately affect our members as does this one. We would like to take this opportunity to comment on the Draft General Management Plan for Glen Canyon National Recreation Area.

Alternative A

We must support Management Alternative A, as that option would best protect the environmental integrity of several critical areas, the Escalante drainage being the most prominent.

The Orange Cliffs lie adjacent to Canyonlands National Park. The cliffs and the mesas to the west are poorly described in the draft document as monotonous. This area is important in terms of wildlife management, as a wilderness resource, and for pure esthetics. Classifying this area as natural would allow for an integrated management of Canyonlands N.P. and the adjoining areas.

The entire arm of the San Juan River should be classified as natural and wilderness. Segments of the San Juan River qualify for protection under the Wild and Scenic Rivers Act. The San Juan would best be served by management by one agency, the N.P.S., in a natural/wilderness category. This is necessary to protect and preserve a free-flowing river.

Road Proposals

It is quite impossible to offer any substantive remarks on this issue. It is imperative that the "no construction" alternative be adopted. Construction of any of the proposed roads would seriously, unavoidably, and excessively impact the environment. The slickrock wilderness of Glen Canyon could only be destroyed by the paved access mania.

(continued)

Most emphatically, the road traversing from Glen Canyon City to Bullfrog Marina should not be constructed. That comment should speak for itself, as opposition to that road is as old as is the proposal.

Potential Wilderness

The Wilderness Act provides for protection of valid mineral rights and oil and gas leases. The Act, in no way, abrogates those pre-existing rights. Consequently, I can discern no reason for not including, in the wilderness proposal, all state lands and federal lands with mineral and oil and gas leases.

Questions

Skepticism as to how you rated areas for scenic value seems unavoidable. The Purple Hills deletion seems to miraculously correspond to the class 3-4 scenic value. The demarcation, opposed to class 1 areas is rather abrupt. This seems highly questionable.

Your statement- that the pinyon-juniper covered mesas of Kaiparowits, Gordon Flats, et cetera, are monotonous strikes one as starkly capricious. Such areas are fragile, biologically valuable, and not at all unappealing in the aesthetic sense.

All the proposals designate the Escalante area as natural. What forms of recreational development do you propose for the sections of the Escalante accessible by river? Have you considered closing such areas to motorboat access? 272

The National Park Service has performed well in executing this draft EIS. I am impressed with the incredible detail encompassed by the document (which took days to absorb). I hope you will consider these comments in your final deliberations.

271

Sincerely

James Martin
JIM MARTIN

cc. Congressman Gunn McKay
William Whalen, Director, N.P.S.
James Isenogle, Assistant to the Regional Director

Responses to the Canyon Country Council Comments

271. The NPS rejects classifying any of the Lake Powell surface as Natural or Wilderness. The San Juan River may qualify for study under the Wild and Scenic River Act. It is managed by the BLM, the NPS, and the Navajo Tribe of Indians. The San Juan River is, of course, subject to the control of the Bureau of Reclamation with regard to its releases from the Navajo Dam.

272. The NPS does not consider any recreational development of the Escalante Arm of Lake Powell and further rejects closing the area to motor traffic. Refer to response 222.

SOUTHERN ARIZONA ENVIRONMENTAL COUNCIL
BOX 49044 • TUCSON, ARIZONA 85717

October 18, 1977

Superintendent
Glen Canyon National Recreation Area
P.O. Box 1507
Page, Arizona 86040

Re: DES 77-28

Gentlemen:

The attached document consists of our comments on the Draft Environmental Statement for The Glen Canyon National Recreation Area. It was prepared by George Cechmanek for the Executive Committee. I forward it to you with our concern that Glen Canyon remain the exceptional and unique recreation area that we all enjoy by protection of invaluable landscapes. We do not favor increased visitor utilization or development.

We appreciate the opportunity afforded us to respond to this document. If you should have any questions on our views, please contact us.

Sincerely,

Victoria Dahl
President

A Council of community organizations working together to improve public understanding of environmental problems.

COMMENTS ON THE GLEN CANYON DRAFT ENVIRONMENTAL STATEMENT (DES 77-28)
SOUTHERN ARIZONA ENVIRONMENTAL COUNCIL
OCTOBER 17, 1977

DES 77-28 proposed additional development and expansion of visitor facilities. The plan describes an ambitious development and utilization of the proposed recreation area by a greatly increased number of visitors and concessionaires. The Southern Arizona Environmental Council (SAEC) is concerned that the lession demonstrated by the over-development of Yosemite National Park has not been learned. In addition, the Council is concerned that the fragile and unique qualities of the Glen Canyon terrain would be damaged beyond repair by increasing visitor utilization.

The DES includes considerable discussion of grazing and mining activities. This is understandable since over 60% of the area involved is federal land. The discussion on grazing, though voluminous, lacks a realistic approach or a rational solution to either grazing allotments, management, or the prevention of consistant over-grazing. The best that can be said for the discussion is that the drafters of the DES have recognized the problem. There is no legitimate excuse for overgrazing of public lands by stockman operating under grazing leases (or permits) from the Federal Government. Grazing in this area, and in fact on all public lands, should be more effectively managed, and the numbers of animals permitted on grazing allotment strictly controlled. Inspection of the number of public lands under grazing leases bears out conclusively that most ranges are over-stocked primarily because stockmen knowingly exceed the number of animals permitted in their allotments. In some cases, the number of animals permitted by the government exceeded the carrying capacity of the land. Government services responsible for range management should be adequately funded and staffed with capable personnel. Funds necessary to fully discharge this responsibility should be requested from Congress. We are not impressed with the repeated statement that restriction on motor vehicle use by the services will greatly hamper management range leases. 273

The area encompassed by the proposed plan includes private mineral interests and various mining claims that allow many types of mining activities. These activities are and would be wholly inconsistant with the character of a recreation area and beyond the carrying capacity of the fragile soils. The soils being very fragile are highly susceptible to severe erosion when disturbed by development, mining, vehicle traffic, and even moderate over-grazing. It would seem appropriate to thoroughly evaluation the benefits of all mining interests in the area from a national perspective. It is important to weigh the value of mining in an area of national significance already jeopordized by various activities. 274

The enormous influx of sediments from erosion of the immediately surrounding area and that brough in by inflowing streams is estimated to aggregate over 106,000 acre feet annually. According to official estimates,at this rate sediments will occupy 60% of the maximum volume of Lake Powell in 100 years. While we concede that sedimentation of the lake will be rapid, the above estimates are probably conservative since the rate of sedimentation will increase in direct proportion to the increased utilization of both land and water areas. Moreover, high water levels and fluctuation of water levels will create land and rock slides of considerable proportions. Applying these considerations, the accumulation of sediments equally 60% of the lake's maximum volume will more realistically occur in 60-75 years. Dredging of Marinas and certain boat channels may become necessary in 25 years of less. Geologic hazards will continue to expose recreationists to ever present dangers, particularly on or near the shores. Sand deposits, slumping piles of sandstone and rock slides present formidable safety hazards. These hazards will be multiplied with the increased boating activities and water level fluctuation in the lake. Records show that land and rock slides have presented constant danger to boating and beach recreation in many areas. Scarring and influx of silt from eroded areas aggravated by development, road construction, and over-utilization will greatly accelerate the silting up of the lake and will degrade certain areas beyond recovery. 275

The waters in Lake Powell and inflowing streams already contain too much mercury due to erosion and weathering of sedimentary rocks. The game fish in Lake Powell already contain 100-700PPB of mercury. The maximum tolerance for human consumption is 500PPB (not more than twice a week). This condition will be aggravated when the Navajo coal fired plant in Page goes into full operation. This plan will discharge large quantities of mercury vapor into the atmosphere, 40% of which will enter the waters of Lake Powell. Tons of fly ash containing mercury will be discharged by this plant. Some of this will return into the waters of Lake Powell. Consequently, should the proposed development of recreational utilization be implemented, fishing for human consumption by recreationists may become non-existant.

Air pollution caused by excessive motor boat activity on Lake Powell and the full-capacity operation of Navajo Power Plant will create a pollution situation similar to most urbanized areas. [Stack emissions from the plant average 7.25 tons of particulates, 210 tons of sulphur dioxide, and 204 tons of nitrogen oxides per day] This is hardly desirable in a national recreation area. The installation of ten pumped hydro-electric facilities proposed by the Bureau of Reclamation appears to be wholly unwarranted. There are many other objections to the proposed plan in DES-77-28; they are too extensive to be mentioned herein. However, we would hope that the environmental impact of the proposed action will be thoroughly considered by various governmental agencies. 276

While there is some question on whether Glen Canyon Dam should have ever been built, the dam is history. The situation is already environmentally tricky and should not be exaccerbated by further

development for increased visitor utilization for those few who can afford this type of recreation. The unique and fragile environment of the Glen Canyon area has already been jeopordized by the dam and the resulting human uses. It would seem improper to afford further development that would not only threaten the environment but also assuredly diminish the recreational experience now available.

The Council supports wilderness designation for the Escalante Canyon, and, therefore, supports maximum wilderness area outlined in Alternative A. We support the "no construction" alternative for the road proposed through Glen Canyon NRA. In addition, we support Management Zoning Proposal Alernative A proposing minimum development.

273. Less than 5 percent of the surface area within the NRA boundary lies outside of Federal ownership. We concur that grazing and mining activities are significant resource functions and, consequently, a great deal of attention was spent in the discussion of these two items. We further concur that the continuation of these resource utilization activities can only take place with full consideration for other natural values. It is further our intent to develop management plans that are specific to these activities as a part of the NRA's overall management program.

274. We concur in general with your comments. Refer to response 11 to the Department of Energy. As set forth in section 3(a) of the authorizing Act, mining and other activities are to be permitted if it is found that such disposition would not have significant adverse effects on the administration of the Recreation Area.

275. The Bureau of Reclamation's 1976 Lake Powell Sedimentation Survey Report states that: "The sedimentation pattern varies with the cycle of operation of the Reservoir". In light of this, it is extremely difficult to make any type of close approximation with regard to eventual siltation of the reservoir. While it is probable that a silt delta build-up may occur in the vicinity of Hite and Farley Canyon by the year 2000-2010, there are no assurances that this trend would continue downstream at a similar rate due to many geologic and geographic factors.

276. The DES, on pages 92 through 94 describes, but does not quantify, the air quality impacts resulting from the proposal. The impacts are not quantified because there is no suitable way to calculate emission rates from a source as variable, portable and intermittant as automobiles and boats. Air quality is expected to deteriorate in the developed areas as a result of proposed increased public use capacity. That capacity would increase from about 11,000 to about 25,000 visitors per day. (DES page 92). As the reviewer notes, the stack emissions from the Navajo Plant are quantified. Some of the air quality impacts of those emissions have also been quantified. With the enactment of the Clean Air Act Amendments of 1977, it may be possible to reduce the impacts on regional visibility by retrofitting the plant with additional emission control equipment. Degradation of visibility is the most critical of the air quality problems currently associated with the plant.

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BENNETT, MARSHALL & BRADLEY 1890-1896
BENNETT, HARKNESS, HOWAT SUTHERLAND & VAN COTT 1896-1902
SUTHERLAND, VAN COTT & ALLISON 1902-1907
VAN COTT, ALLISON & RITER 1907-1917
VAN COTT, RITER & FARNSWORTH 1917-1947

OF COUNSEL
GRANT H. BAGLEY
CLIFFORD L. ASHTON

October 28, 1977

Superintendent
Glen Canyon National Recreation Area
P. O. Box 1507
Page, Arizona 86040

Re: Comments on Draft Environmental Impact Statement on Proposed General Management Plan/Wilderness Proposal/Road Study Alternatives, Glen Canyon National Recreation Area

Dear Sir:

On behalf of our clients, Mono Power Company, New Albion Resources Co., and Resources Company (the "Companies"), we submit herewith comments on the Draft Environmental Impact Statement covering the General Management Plan/Wilderness Study/Road Study for the Glen Canyon National Recreation Area. These comments are in response to a Federal Register notice of September 7, 1977 (42 F.R. 44851), in which written comments on the Draft Statement were invited. Pursuant to a notice from the National Park Service, dated September 15, 1977, the period for comments was extended to November 15, 1977.

INTRODUCTION

The Companies are wholly-owned subsidiaries of Southern California Edison Company, San Diego Gas and Electric Co., and Arizona Public Service Company, respectively, which three last-mentioned companies were participants in the formerly-proposed Kaiparowits Power Project in Southern Utah.

The Companies currently are co-lessees of approximately 48,000 acres under Federal and State coal leases, which cover

lands in Kane County, Utah, outside the Glen Canyon National Recreation Area located in parts of Townships 40, 41, and 42 South, Ranges 3 and 4 East, S.L.M. In addition, the Companies hold a water allocation from the State of Utah entitling them to appropriate up to 30,000 acre-feet per year from Utah's allotment of Colorado River water.

On October 2, 1969, the Companies entered into a Water Service Contract with the Bureau of Reclamation, United States Department of the Interior, pursuant to which the Companies have the right to withdraw up to 102,000 acre-feet of water from Lake Powell. Under the Contract, the Companies are obligated to pay an annual "readiness to serve" charge to the United States until the Companies actually take water from Lake Powell, after which they must pay a service charge of $7 per acre-foot per year for water taken from the Lake. To date, $251,302.50 has been paid by the Companies to the United States as the "readiness to serve" charge in order to reserve the right to withdraw water from the Lake in the future.

The Companies, through Kaiser Engineers as their designated operator under the aforesaid coal leases, have submitted to the United States Geological Survey, Department of the Interior, a Mining and Reclamation Plan which contemplates the development and operation of five underground coal mines on the Kaiparowits Plateau and the utilization of the Companies' water rights from Lake Powell. Proper development of the Kaiparowits coal deposits by the Companies is dependent upon the use of an existing county road from Glen Canyon City through Missing Canyon, along what is commonly referred to as the Warm Creek Road. In addition, the construction of service roads for the water pipeline from Lake Powell to the mine sites and related facilities will be necessary. Furthermore, construction of a paved road from Glen Canyon City to Bullfrog Basin would provide access to the water pipeline and related facilities. 277

The Companies recognize the need for protection of recreational and environmental values within the Recreation Area. The Companies agree that there are regions within the Recreation Area that might properly be classified as "natural." However, the Companies are not aware of any extraordinary or unique features in the area affected by or in the vicinity of the proposed water pipeline or Warm Creek Road which would be significantly disturbed by the construction and operation of the pipeline and road and related facilities. For the reasons set forth below, we anticipate

the General Management Plan and the Final Environmental Impact Statement will contain clarifications of the intent of the National Park Service which will provide for access to mining operations and use of rights-of-way corridors for water transit. Clarification is also required in the definition of the "utilities planning corridor" below the Glen Canyon Dam.

ROADS

Implementation of the Management Zoning Proposal would preclude the construction of new roads, including a road from Glen Canyon City to Bullfrog Basin through the Recreation Area. The abandonment of plans to construct a road from Glen Canyon City to Bullfrog Basin and the prohibition against the construction of other roads in the Recreation Area conflicts with the Act of Congress establishing the Recreation Area. (Public Law 92-593, 16 U.S.C. §§460dd through 460dd-9) (the "Act"). Section 8(a) of the Act (16 U.S.C. §460dd-7(a)) provides in part as follows:

> The Secretary together with the Highway Department of the State of Utah, shall conduct a study of proposed road alinements within and adjacent to the recreation area. Such study shall locate the specific route of a scenic, low-speed road, hereby authorized, from Glen Canyon City to Bullfrog Basin, crossing the Escalante River south of the point where the river has entered Lake Powell when the Lake is at the three thousand seven hundred-foot level. . . . In no event shall said route cross the Escalante River north of Stephens Arch.

The language of this section of the Act that the route of a road from Glen Canyon City to Bullfrog Basin is "hereby authorized" is a Congressional mandate that more than a mere study be made of the route. The legislative history of the Act makes this point abundantly clear. On page 8 of H.R. Rep. 92-1446, the House Committee on Interior and Insular Affairs made the following statement:

> Another major issue considered by the Committee involved a provision in the bill which directs a road study to be made and authorizes the construction of a road from Glen Canyon City to Bullfrog Basin. As already noted, access to areas within the proposed recreation area are severly limited. Existing highways permit visitors to enter the area at Page, Arizona, near the dam, and highway access is available, with spur roads to Bullfrog Basin and Halls

> Crossing, near the headwaters of the reservoir; however, only primitive roads exist in the intervening miles.
>
> While arguments can reasonably be made that the natural values should not be disturbed, the Committee decided that the specific language of the bill--which requires any road constructed to be a low-speed, scenic road, the route of which is to be carefully planned in order to "Minimize any adverse environmental impact"--should prevent any undue disruption of the natural values. Since the area is a recreational unit, and not a national park, it should be noted that the objective is to maximize the opportunities for the visiting public. This, the Committee concluded, could best be accomplished by providing reasonable access by road to as much of the area as possible. Most people have a limited amount of vacation time and do not have the equipment required to enjoy some of the back-country areas in the absence of reasonable automobile access.
>
> [T]he people of Utah and their elected representatives consider [the road's] completion essential to the orderly growth and to the utilization of that portion of the recreation area lying within the State of Utah. In addition to enabling travelers to traverse a massive area through which no alternate route is available, a significant bonus effect would result in that the road would provide one of the most spectacular, scenic drives anywhere in the country.

In light of the clear intent of Congress that the Glen Canyon City to Bullfrog Basin road be constructed, along with other roads necessary to ensure full development of the Recreation Area, it is incumbent upon the National Park Service to clarify its intent with respect to these roads in the General Management Plan and in the Final Environmental Impact Statement. In addition, there should be a clear statement in both the General Management Plan and the Final Environmental Impact Statement that new secondary roads, including those needed for maintenance of utility rights-of-way or other facilities such as patrol roads along water pipelines, will be permitted within a Recreation and Resource Utilization Zone.

The existing State Highway 277 and connecting county roads traversing the Recreation Area can be and will be used for commercial traffic, including the hauling of coal from mines situated northwesterly of the Recreation Area boundary, as would any other public road in the State of Utah. Portions of these roads could follow the same alignment as the road from Glen Canyon City to Bullfrog Basin that was authorized by Congress in the Act which established the Recreation Area. However, for the purposes of safety, an alternative alignment of the road might be considered. If this were done, State Highway 277 and the connecting county roads could be upgraded to meet state highway standards and used for general access and commercial traffic. A separate alignment for the scenic, low speed route authorized by Congress could then be developed, so as not to bring it into conflict with commercial traffic. The areas suitable for these alignments are in an area presently designated as a Recreation and Resource Utilization Zone and are proposed separately in this letter for deletion from the Recreation Area.

RIGHTS-OF-WAY

The General Management Plan includes the designation of a 4,470-acre "utilities planning corridor" to be established in the Recreation and Resource Utilization Area below the Glen Canyon Dam (pages 8 and 54 of Draft; Map No. 35). As presently written, the Draft Statement could be interpreted to preclude the location or construction of any type of utility right-of-way outside of the utilities planning corridor. It appears that the intent of this "utilities planning corridor" is merely to provide a location for power transmission lines to cross the Recreation Area. It is unclear whether this "utilities planning corridor" is intended to be the exclusive location of utility rights-of-way in the Recreation Area. If the corridor is to be the exclusive location for rights-of-way, such action would conflict with Section 7 of the Act (16 U.S.C. §460dd-6), which provides: 281

> The Secretary shall grant easements and rights-of-way on a nondiscriminatory basis upon, under, over, across, or along any component of the recreation area unless he finds that the route of such easements and rights-of-way would have significant adverse effects on the administration of the recreation area.

This utilities planning corridor should be more explicitly defined as a general purpose east-west corridor completely through Recreation Area lands for whatever purposes may be currently planned,

or which would require rights-of-way in the future. The corridor should not be restricted to power transmission lines, but should include coal slurry pipelines, water pipelines, gas and petroleum pipelines, communications facilities, and a railroad.

The General Management Plan as set forth in the Draft Statement does not expressly provide that permits and rights-of-way are permissible within a Recreation and Resource Utilization Zone for water intake facilities at the Lake and the transportation of water by pipeline across the Recreation Area for use in the development of the coal resources outside the Recreation Area. However, the Recreation and Resource Utilization Zone is described on page 5 of the Draft Statement as follows:

> The RRU [Recreation and Resources Utilization] Zone consists of areas possessing somewhat less scenic value [than the Natural Zone], greater susceptibility to the activities of man, potential or actual mineral resources, or value for utilities rights-of-way or development. 281

Water pipeline and other rights-of-way within a Recreation and Resource Zone would not necessarily have "significant adverse effects on the administration of the recreation area" (16 U.S.C. §460dd-6). Therefore, the General Management Plan and the Final Environmental Impact Statement should contain statements that such rights-of-way may be allowed in a Recreational and Resource Utilization Zone. The absence of such a policy will result in a denial of due process and would be an unconstitutional taking of the Companies' property without just compensation in relation to the Companies' rights under the aforesaid Federal Water Service Contract.

ALTERNATIVE MANAGEMENT PROPOSALS

The Draft Statement discusses two alternatives to the General Management Plan. The first is Management Zoning Alternative A, which would place 96 percent of the Recreation Area in a Natural Zone. Only 2 percent of the Recreation Area would be in a Recreation and Resource Utilization Zone, with the remainder of the Recreation Area in Development and Cultural Zones. Some 285.3 miles of roads within the Recreation Area would be closed, and 176.3 miles of roads outside the Recreation Area would be blocked by closure of the roads inside.

The Draft Statement recites that, under Alternative A, "Access to adjacent coal fields, outside of the recreation area, would be unaffected" (page 130 of Draft). We disagree. Although 282

the adjacent coal fields may be approached from outside the Recreation Area, such access is only possible with the construction of new roads over difficult terrain. In addition, rights-of-way within the Recreation Area for pipelines, communications, and associated facilities would be virtually precluded by Alternative A, which as noted above, would prevent the use by the Companies of water from Lake Powell to which they are entitled. 282

Management Zoning Alternative B would place 17 percent of the Recreation Area in a Natural Zone, with most of the remainder of the Recreation Area being placed in a Recreation and Resource Utilization Zone. This proposal would not result in the closure of any roads, and would include the construction of a paved road from Glen Canyon City to Bullfrog Basin. Provided that rights-of-way for water pipeline, communications, and associated service roads and other facilities will be granted across Recreation and Resource Utilization Zones, Alternative B would be acceptable as far as proper development of the coal deposits adjacent to the Recreation Area is concerned.

BOUNDARY ADJUSTMENTS

The various Management Alternatives contain proposals for adjustments of the boundaries of the Recreation Area. The lands included in the proposed deletion of certain areas from the Recreation Area are inaccesable from the Recreation Area and thus difficult to manage as part of the Recreation Area, or have a low scenic value. We propose a further adjustment of the boundaries, which would involve the deletion of the lands traversed by the Warm Creek Road. The area traversed by the road has a low scenic value, according to Map 15 of the Draft Statement, with the result that deletion of the area would not adversely affect the Recreation Area's scenic values. The area of the road also is on the periphery of the Recreation Area, so that its deletion from the Recreation Area would be relatively simple. In addition, deletion of the area would remove any restraints on upgrading the road to facilitate access to the coal lands adjacent to the Recreation Area. 283

ADEQUACY

As an environmental impact statement prepared pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. §§4331 et seq.), the Draft Statement is deficient in several respects. For example, a major defect in the Draft Statement is the inadequate consideration of the effect of the General Management Plan and the 284

alternative plans on the development of coal lands adjacent to the Recreation Area. Although the closure of existing roads and a prohibition against the construction of new roads would prevent proper development of the adjacent coal deposits, the Draft Statement contains virtually no discussion of the effect of each management alternative on the nearby coal lands, other than a conclusory generalization that "Access to adjacent coal fields, outside of the recreation area, would be unaffected" (pages 130 and 140 of Draft Statement). 284

Another defect is found in the discussion (page 91 of Draft Statement) of alleged adverse effects of mining coal, including the handling of tailings or waste. That discussion ignores the current policy of the United States Geological Survey and the Bureau of Land Management, and the compliance with these policies by mining operators, as explicitly stated in the Companies' Mining and Reclamation Plan currently under review. 285

The Draft Statement is deficient in its analysis of the socio-economic impacts of the various alternatives it considers. The Draft Statement ignores the beneficial socio-economic effects of the development of the coal resources near the Recreation Area. The Draft Statement does not adequately analyze the adverse effect to Kane County of the restrictions imposed by the General Management Plan. 286

It is evident that the Draft Statement does not meet the statutory requirement that an environmental impact statement contain a detailed statement analyzing the alternatives to the proposed action (42 U.S.C. §4332). Accordingly, the Final Environmental Impact Statement should include such an analysis. 287

CONCLUSION

Based on the foregoing, we respectfully request that the General Management Plan and the Environmental Impact Statement be modified as set forth herein.

Respectfully submitted.

VAN COTT, BAGLEY, CORNWALL & McCARTHY

By Richard K. Sager
Richard K. Sager
Attorneys for Mono Power Company,
New Albion Resources Co., and
Resources Company

RKS/as

Responses to Mono Power Company, New Albion Resources Company, and Resources Company Comments

277. The NPS has not included the Warm Creek area in the Natural Management Zone. We see no conflict in a possible future water pipeline and access road on the shores of the Warm Creek Bay of Lake Powell. We do, however, have reservations regarding the use of the existing Warm Creek Road and do not feel that commercial high speed truck traffic is an appropriate use. We further maintain that any horizontal or vertical realignment of the road would require the specific approval of the Department of the Interior. While the NPS does not, at this time, make any recommendation for a future alignment of the Glen Canyon City to Bullfrog Road, we envision that should it be constructed, its use would be limited to a scenic parkway which in similar instances prohibits commercial truck traffic.

278. The utilities planning corridor has been clarified in Section IV.B.26 of the Plan to not preclude any utility crossing. This could include such types as railroad crossings or coal slurry pipelines.

279. Refer to responses 81 and 101.

280. Refer to responses 81 and 101. Table 2 - Management Zones - under the Development Permitted column includes unpaved roads in the RRU Zone.

281. Refer to response 278.

282. Refer to response 277. The same rational for commercial, high speed truck traffic would apply to Alternative A. However, this alternative has been rejected by the NPS.

283. Deletion of the land traversed by the Warm Creek Road was a consideration in one of the alternatives; however, it is not contained in the proposal.

284. The General Management Plan, as proposed, will not in and of itself have any particular impact on the development of coal lands adjacent to the NRA. There are no roads proposed to be closed or wilderness management constraints placed upon those lands lying between Lake Powell and the Kaiparowits Plateau. Therefore, the statement "access to adjacent coal fields, outside of the Recreation Area, would be unaffected" is accurate.

285. The discussion does not specifically address the effects of mining coal but includes that of oil and gas exploration, as well as uranium exploration and extraction. Irregardless of the policies of both the surface managing and cooperating agencies, the potential for pollution exists wherever industrial activities take place close by both intermittent and perennial watercourses.

286. We wish to reiterate that the General Management Plan did not propose restrictions in addition to those that already exist with regard to mineral extraction on the Kaiparowits Plateau. Social economic effects of the development of the coal resources are purely speculative and not properly a part of this FES.

287. NEPA does not specify what constitutes "a detailed statement analyzing alternatives". The courts, however, particularly in Natural Resources Defense Council v. Morton (458 F .2d at 836), have interpreted the specification to mean that the detail required is that necessary to permit a reviewer to make a reasoned choice among alternatives, including the proposal. This is the approach taken in the subject document. The depth of the analysis of alternatives (revised and expanded in response to public comments on the DES) is parallel to that of the proposal and consistent with the courts' interpretation of what constitutes adequate compliance.

The discussion is also in harmony with the goals of CEQ's latest draft regulations on implementing NEPA (December 12, 1977), which (among other things) call for reducing the length of environmental impact statements. Undoubtedly, more detail and a greater number of topics could have been covered--when is this not the case?--but at the cost of unnecessarily lengthening an already voluminous document. The courts have ruled on this question, too, and have acted to balance the need for complete environmental disclosure against the reasonableness with which resources may be devoted to the environmental investigation. This "rule of reason" (Natural Resources Defense Council v. Morton, 458 F .2d 827) was also elaborated in Environmental Defense Fund v. Corps of Engineers (331 F. Supp. 925), where the court found that the phrase "to the fullest extent possible" (NEPA, section 102) is not an absolute expression requiring perfection. The court went on to say that "If perfection were the standard, compliance would necessitate the accumulation of the sum total of scientific knowledge of the environmental elements affected by a proposal.

AMERICAN LEAGUE FOR INDUSTRY AND VITAL ENERGY

P. O. Box 98 KANAB, UTAH 84741

Mr. Temple Reynolds,
Superintendent,
Glen Canyon National Recreation Area
Page, Arizona

Mr. Reynolds:

The American League For Industry And Vital Energy must take extreme exception to the Glen Canyon National Recreation Area - Draft Environment Statement. Either the National Park Service is loaded with rank fools or unmitigated liars, or both. We have not had sufficient time to research thoroughly all facets of this report. However, in these areas we have been able to explore beyond the mere surface, we have found blatant misrepresentations, misleading statements and outright lies.

We respectfully submit that this report is not founded on objective research, is not presented in an unbiased manner and is not worth the paper it is written upon. It is our contention that this entire report must be returned to the National Park Service as totally unacceptable and that they should be instructed to resubmit a report predicated on fact, presented without editorial slant and consistent with the concept that the National Park Service is an agency devoted to the interests of all the people of the United States and not just a special few. 288

We respectfully submit these recommendations predicated on the following:

1. The technical language throughout the report is incorrect. This has reference to the oil and gas segments as well as the geologic report on soil.

None of the standard concepts of soil terminology are utilized. In this report, the "experts" from the National Park Service have developed their own vocabulary without benefit of a glossary. They have wstablished unique criteria for reporting on the phenomena of the soil within the national recreation area that is totally alien to the world of geology. Why?

In reference to oil and gas, who among the National Park Service "experts" can explain the work "speculative". In the realm of oil and gas the criteria are 1) Proven 2) Probable 3) Possible; and 4) None. Nowhere does speculative play a role. Why did the National Park Service coin their own term?

2) In reference to oil and gas, nowhere in the report is there any discussion of the gas production potential of this area.

According to the Utah Division of Oil, Gas and Mining there is probably 750,000,000 to a trillion cubic feet of gas. And this is not mentioned!! Why??

In reference to Map 25 with its comments the Mexican Hat Oil Field is not abandoned. From six wells there is still production of 19,000 barrels. Why did they try to insinuate this was a non-producing area? Why??

The passing reference to Big Flat is that it is not substantive. A review of this area is that it is highly productive in several areas. Long Canyon is still producing one million barrels of oil. 295

There are Bartlett Flat, Big Flat, John's Valley and Horse Point that are all producing $1\frac{1}{2}$ million barrels of oil. And this is supposed to an inconsequential area. According to whose standards? Not according to today's standards for most of the people of these United States. Why did the National Park Service down-play the importance of these two fields? Why?? 296

A third major oil field is in the Escalante Canyon area. The report shows two test wells, both of which are supposed to be dry. That is extremely misleading. According to the Utah Division of Oil, Gas and Mining, there are thirty wells in the area. Of the thirty, approximately five of them are dry. None of them by today's standards would be identified as test wells. They have all been proven. Why did the National Park Service present a blatant misrepresentation. 297

The well at Oil Seep Bar was drilled by Henry Kissinger (no relation) of the Kissinger Company of Denver, Colorado. He drilled 385 feet and hit oil. He swogged it out and fo a six-hour period he pulled 26 barrels of oil. He then drilled 4,485 feet. He got "excellent shows" at 3,000 to 3,020 feet. Since at the time he could not move the oil out, he capped it. This is far from a dry test well. Why did the National Park Service indicate that this was a dry test well? 298

3) The references to the Tar Sands throughout the report are of a denigrating nature. References are in an off-hand deprecating manner. And yet the Utah State Division of Oil, Gas and Mining reports that the value of the Tar Sands have been proven and that there are $5\frac{1}{2}$ to 7 billion barrels of oil to be recovered from the area. Further, there is no distinction made between oil from tar sands and from oil wells. There is the same quality, same utilization, same national need. Why did the National Park Service personnel try to down-grade the importance of this resource? 299

289 4) In the Escalante Canyon area, there is a proven carbon dioxide area that was not even mentioned. This CO_2 is extremely important in the tertiary recovery of oil and gas. This was NEVER mentioned in the report. And yet, there have been entities interested in developing this resource 290 for use in the Aneth, Utah area. Why wasn't this mentioned? 300

5) There are proven areas of natural gas in the Glen Canyon National Recreation Area. They were not mentioned. Why? 301

291 6) There are known helium deposits in the Glen Canyon National Recreation Area. They were never mentioned. Why? 302

292 7) We dispute the socio-economic findings of the report as outmoded, out-dated and totally useless in light of today's standards. The National Park Service utilized old data when current data was available. Why? 303

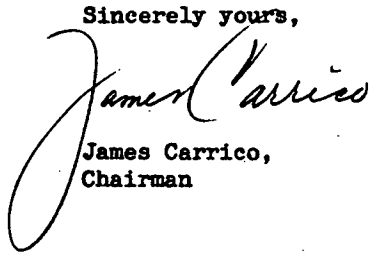
293 8) We deny the contention that only 80.9 miles of road are to be closed. Our survey indicates over 200 miles of roads will be impacted, 294 and millions of acres of land placed in "de facto wilderness". 304

These are merely a few of the areas that the limited time for review has allowed to study. It is our contention that virtually every area researched would prove just as blatant in the misrepresentations, fabrications, omissions and deliberate lies.

Throughout the reply, we have asked why. We feel that the answer is because there was a deliberate attempt on the part of the National Park Service to deceive the members of the Congress of the United States and to override the interests of the people of Utah and Arizona.

We submit this report should not be allowed as it is presently constituted. We feel that this Draft Environmental Statement should be referred back to the bumbling, bungling bureaucrats that first spawned this abomination.

Sincerely yours,



James Carrico,
Chairman

JC/rw.

Response to the American League for Industry and Vital Energy Comments

288. The purposes of the DES and the methods used in the selection of the proposals it presented are covered in response number 11 to the Department of Energy and response 169-b to the Sierra Club. The sources of the factual material used in the preparation of the DES will be found on 14 pages numbered 185 to 199, near the end of Volume 1-text.

289. The technical language used in the DES derived from the several disciplines represented by the authors of the source data used in its preparation.

290. The soils terms are those used in the source materials supplied by the Soil Scientist, State of Utah, and contained in the soils map of Coconino County, Arizona. The more technical terms (e.g., "Typic Torripsamments" and "Lithic Ustollic Calciorthids") have been placed in Appendix 14 in the hope of simplifying the presentation of significant facts in the text proper; they are all part of the standard lexicon of the official Soil Taxonomy Manual of the Soil Conservation Service, U.S. Department of Agriculture. The non-technical terms, "rockland", "badland", "sand", and "alluvium", are part of the standard soil survey vocabulary and are defined in the official Soil Survey Manual, also of the U.S. Soil Conservation Service.

Although soils bear a fundamental genetic relationship to geologic materials, the respective properties and processes that go on within them are quite distinct. Therefore, geologic terms per se are not appropriate for the description of soils attributes, which possess their own unique vocabulary. The terms used in the report are part of this vocabulary, and are contained in the above-cited reference works.

291. As used in the various oil and gas sections in the DES, "speculative" is synonymous with "theoretical", "extrapolated" or "little hard evidence for".

292. No "hard evidence" was found in source data indicating other than theoretical and extrapolated potential for gas in the NRA.

293. The estimate of the Utah Division of Oil, Gas and Mining falls into the theoretical or extrapolated category. Formations containing gas in other localities occur throughout much of the NRA. There is no evidence to date that those within the NRA contain economically recoverable quantities of either gas or petroleum.

294. Bulletin 94, Utah Geological and Mineralogical Survey by Carlton Stawe, 1970, page 120, indicated the Mexican Hat Field was abandoned in 1970 with a cumulative production of 72,792 barrels of oil and no gas. Inquiry with the Utah State Oil and Gas Division in March 1978 indicates the field did not shut down (changed operators) and produced 20,152 barrels of oil and 316 MCF (thousand cubic feet) of gas by the end of 1977. This mistake has been corrected in the FES.

295. Your comment regarding high oil productivity in fields around the NRA has basis in fact. These fields are 14, or more, miles outside the boundary.

296. The closest of these fields is 14 miles outside the boundary and none are large producers. The location and productive history of these fields is of minimal significance as an indicator of the oil and gas potential of the NRA.

297. It is assumed the occurence (thirty wells in the area) covered in your comment refers to the upper Valley Field, which lies 30 miles west of the NRA boundary and does have a number of producing wells. The location of the dry test wells are shown on Map 4.

298. The entire comment regarding the well at Oil Seep Bar may be historically accurate. The fact remains, the well was capped and abandoned; and additional test wells, based on the oil-show reported, were not drilled. The DES put the well in the "dry test well" category because, regardless of "show", it never produced profitably and was abandoned.

299. The Tar Sand Triangle deposit has potential value only when the Pilot Fireflood Project or some other recovery method is successfully completed. Until that time, this deposit and other similar deposits have no proven value. Refer to the DES coverage of the project on pages 64 and 65 of Volume 1 and Map 7 of Volume 2. The Tar Sand occurences in the NRA were significant factors in the selection of natural (Wilderness) zones.

300. Many gas wells in Utah will average 20 to 30 percent carbon dioxide (CO_2). Bulletin 94, UG & MS, 1972, indicates some Utah gas wells run in the 80 and 90 percent range in CO_2. The literature on Utah minerals and non-minerals is not informative on the subject of CO_2.

301. & 302. The literature on the subjects mention no proven areas of economically recoverable natural gas or helium in the NRA.

303. Refer to response 102.

304. The proposal would close 91.3 of the 474.3 miles of roads in the NRA. An additional 1.5 miles outside the NRA would be unusable because of blockage of a road inside the NRA.

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PRESIDENT
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VICE PRESIDENT
PETER BEHRENS
VICE PRESIDENT
DAVID L. BIGLER
VICE PRESIDENT

November 14, 1977

Mr. James L. Isenogle
United States Department
of the Interior
NATIONAL PARK SERVICE
125 South State Street
Salt Lake City, Utah 84138

Re: Glen Canyon National Recreation Area
General Management Plan

Dear Mr. Isenogle:

The Utah Mining Association has reviewed the General Management Plan, Wilderness Proposal, Road Study Alternatives, and Draft Environmental Statement, DES 77-28, for the Glen Canyon National Recreation Area. The statement appears to be inadequate in its evaluation of mineral resources and in its evaluation of the impact of the proposed alternative management plan upon the development of those resources.

Item 23 of the Plan, Mineral Resources, describes the mineral resources of the area. This description is inadequate in its economic analysis, in its demand analysis and in its description of demands for the resources. The mineral potential of the area and its economic importance are much more significant than is indicated. One example of the superficial treatment accorded to minerals appears in Section 23 (d), Uranium: "The uranium deposits have been subeconomic in the past and may be economic in the future. (Within the past year interest and recovery of these resources has increased markedly . . .)". Since the uranium mining period of the 60's, the price of uranium yellowcake has risen from $8.00 a pound to over $40.00 a pound. Substantially all of this rise has occurred in the last three years. The impact of the price rise is reflected by the reopening of many uranium mines in Southern Utah, the construction of one uranium mill in Southern Utah, and the proposed construction of at least two more mills in Southern Utah. In addition, ore buying stations are being built in the Hanksville and Blanding areas. There are many small mines, some of them independent, some of them captive, 305

with ore buying stations to collect the ore from independent mines and mills to process ore from the surrounding area. With ore buying stations and mills available in the Hanksville area, uranium in the Glen Canyon National Recreation Area is of more than average economic value.

Because much of the uranium found in Utah has become economically recoverable only within the last year or two, there has been minimal exploration for deep deposits. The inadequacies of the current information on uranium reserves are admitted in Paragraph 23(d). However, in evaluating the impact of the recommended alternative in the Draft Environmental Statement, the Park Service ignores those inadequacies and asserts that "in the context of projected domestic annual uranium needs for the years 1972-2010 the recreation area's recoverable uranium constitutes less than 0.5% of these requirements if fast breeder reactors are developed, and less than 0.3% of these requirements if today's non-plutonium-recycling reactors continue to be constructed and used." 306

Recoverability of uranium is an economic concept. The economic analysis in the draft environmental impact statement appears to be based on current or even on early 1970 uranium price figures. This economic analysis is inadequate and unfounded. Pre-1972 projections for uranium needs assume a price of approximately $8.00 a pound for yellowcake, and they fail to consider uranium demands resulting from the energy shortage and recent commitments made by the President to produce and export enriched uranium. Any evaluation of the almost 14,000,000 estimated pounds of U_3O_8 in the Glen Canyon National Recreation Area must be done in light of current market figures and current projected demands. At $40.00 a pound, almost all the uranium deposits in the area are commercially viable. 307

The inadequacies of the evaluation of uranium resources are particularly distressing considering the statement at the beginning of the uranium section of the draft EIS: "About 30% of the areal extent of all the favorable uranium zones . . . occurs within 308

the natural zone. The proposed zoning will prevent the mining of identified uranium resources in the part of the favorable uranium zones lying within the natural zone in the Hite area and Purple Hills region." Although 30% of the area containing uranium occurs within the natural zone, the figures in the maps of the draft environmental impact statement indicate that approximately 90%, almost all of the uranium, will occur within the natural area and will thus be withdrawn from possible recovery. 308

This one example of the inadequacy of the evaluation of mineral resources is extreme enough to indicate that the draft environmental impact statement and the general management plan are defective and would be rejected if subjected to judicial review. 309

If you have any questions on this matter, please do not hesitate to call.

Very truly yours,

Jack E. Christensen
Executive Vice President

305. The economics of the uranium occurences in the NRA involve some presently known and estimated low grade reserves that, in spite of rising prices for uranium, remain in the sub-economic category. Much of the estimated uranium in the NRA falls in the inferred or postulated category of mineral resources. The economic analysis of both categories was discussed in the DES as covered in response 135-c.

306. The coverage in paragraph 12d pages 99 and 100 of Volume 4 of the DES as stated, is in the context of uranium needs projected for the years 1972-2010 (directly referring to Figure 11, page 64, Volume 3). The admited inadequacy of information on uranium resources in the NRA mentioned in paragraph 23 (d) of Volume 4 has but remote connection with projected future uranium needs.

307. As pointed out in the DES in the paragraph on Uranium under availability of mineral resources (summary), Section 12 J, pages 102 and 103 of Volume 1, there is too little data available as to quantity, quality (% U 08) and location (in relation to proposed wilderness areas) to project impacts of evaluate economics when so many factors are admittedly hypothetical. Totals based on the rising price paid per pound of U308 contained, using current or projected higher future prices by definition, would also be only hypothetical "totals".

308. By placing Overlay 1 over Map 5, it will be found that none of the uranium resources along the San Juan, very little in the Purple Hills, and less than half of the Hite area are affected.

309. Under judicial review the factors controlling selection and non-selection of natural (wilderness) zones and the evaluation method used in comparing the relative worth of natural resources with mineral resources, as covered in response number 11 to the Department of Energy comments, are the factors with which any judicial review would be mainly concerned.

ALTEX OIL CORPORATION 205 NORTH VERNAL AVE. • P. O. BOX 666 • VERNAL, UTAH 84078 • PHONE 801-789-4550

November 8, 1977

Superintendent
Glen Canyon National Recreation Area
P. O. Box 1507
Page, Arizona 86040

RE: General Management Plan. Wilderness Proposal Road Study Alternatives, and Draft Environmental Statement for Glen Canyon National Recreation Area.

Dear Sir:

The purpose of this letter is to set forth the comments of Altex Oil Corporation in connection with the above referenced area.

Altex Oil Coproration has leases in said area which we have farmed-out to Oil Development Company of Utah, and inasmuch as ODCOU is the operator of the proposed federal unit, we are very concerned about the continued delay, the environmental restrictions that have been placed upon them, and about the decision to be made by your department as to designated uses of the area.

Let this letter be our approval and reiteration of all of the items set forth in ODCOU's letter to you dated November 2, 1977, a copy of which is attached hereto. We would hope that the situation will be resolved so that they might be able to start their proposed fire-flood project and validate the oil and gas leases.

As you are well aware, this area has been designated as the country's single largest deposit of tar sands and is believed to contain 12.5 to 16.0 billion barrels of oil. Should the ODCOU proposed fire-flood work be successful - and there is every indication that it will be - the contribution to our country's needs will be tremendous. Our country's energy needs require that a method of extracting this significant oil commence in this area as soon as is practically possible in order to reduce the country's dependence on foreign oil. We believe that any further delay will only be detrimental to the people of this country and 310

approval of ODCOU's request for commencement of its fire-flood project is a necessary first step to accomplishing this goal. 310

Your consideration of the comments contained in the ODCOU letter of November 2nd in making your designation decision as to usage of this area will be sincerely appreciated.

Very truly yours,

Cecil C. Wall

Cecil C. Wall
President

CCW/hd

AMERICAN NATIONAL BANK BUILDING P.O. BOX 12058,
AMARILLO, TEXAS 79101 • PHONE 806/376-6741

OIL DEVELOPMENT COMPANY OF UTAH

A SANTA FE INDUSTRIES COMPANY

November 2, 1977

UT-20-1

Superintendent
Glen Canyon National
Recreation Area
P. O. Box 1507
Page, Arizona 86040

Re: General Management Plan. Wilderness Proposal, Road Study Alternatives, and Draft Environmental Statement for Glen Canyon National Recreation Area

Dear Sir:

The purpose of this letter is to set forth the comments of Oil Development Company of Utah ("ODCOU") on the above mentioned Draft Environmental Statement (the "DES") relating to the Glen Canyon National Recreation Area (the "Recreation Area"). ODCOU is the operator of the leasing unit which is shown on Map 7 in Volume 2 of the DES and, as noted at page 64 of the DES, ODCOU proposes to conduct a pilot fireflood project involving five wells on a two acre site in the extreme northern portion of the Recreation Area. ODCOU's project is referred to specifically at pages 64 and 65 of the DES and the heavy oil deposits which are the target of ODCOU's project are referred to in a number of places in the DES.

ODCOU's comments on the DES relate only to the portion of the Recreation Area in Wayne County, Utah, and ODCOU does not wish to comment on the DES insofar as other portions of the Recreation Area are concerned.

ODCOU concurs with the DES insofar as it designates the area west of the Orange Cliffs as a Recreation and Resource Utilization zone and as non wilderness area. ODCOU therefore supports the Park Service's plan, the DES, Alternative B, and any other proposals which result in a RRU Nonwilderness classification of that area. ODCOU agrees that there are potentially serious environmental and

TWX No. 910-898-4111

Response to Altex Oil Corporation Comments

310. Most of the area involved in the Pilot Fireflood Project has been left in the non-wilderness RRU zone. Place Overlay 1 on Map 4. Mineral exploitation and other activities will be permitted in the RRU zone when found to not have significant adverse effects on the administration of the NRA pursuant to the authorizing Act, P.L. 92-593.

technological problems involved in developing the heavy oil deposits east of the Orange Cliffs and ODCOU will not oppose proposals which would foreclose development of those deposits in that area.

ODCOU is greatly encouraged by the statement appearing at page 65 of the Draft Environmental Statement which provides,

> The Proposal will allow both the execution of the pilot fire-flood project and, if successful, the development of that portion of the Gordon Flats Unit Agreement that lies within the Recreation Area.

ODCOU does, however, take exception to certain aspects of the DES and believes that portions of the description of the proposed fire-flood project are inaccurate and misleading.

The DES contains the following statements on page 45.

> This petroleum, in it's natural state, cannot be recovered by normal petroleum recovery methods.
>
> No method has been devised to date to make an economic recovery of these deposits.

The above statements give the impression that there is no method available to recover the petroleum from this vast heavy oil deposit. However, to the contrary, the petroleum industry has developed recovery technology that applies heat and pressure to highly viscous reservoirs to aid the flow of crude oil to the producing wells. Under a standard oil and gas lease the operator is permitted to apply such technology to enhance the recovery of heavy oil in place. 311

As to the economic recovery of the heavy oil, ODCOU must apply this technology in the form of a pilot project before concluding the economic outcome. It is the purpose of the ODCOU pilot proposal, referred to on page 65, to test known recovery technology through to a point where the application of fireflooding and the economics of the process can be evaluated for this particular heavy oil deposit.

The DES contains the following statement on page 65.

> The resulting heat and pressure would lower the viscosity of the highly viscous oil and force it up and out the four surrounding wellbores. If successful, the project would be expanded to commercial fireflood operations, and the 16,636

> acres of federal and state oil and gas leases in the proposed Gordon Flats fireflood unit would be subject to development.

The process of fireflooding is a method of applying heat and pressure (insitu) to a crude oil reservoir for the purpose of accelerating the movement of the heavy viscous crude to the recovery wellbores. However, it should be pointed out that the fluid movement in the reservoir is enhanced by these forces, but that the production through the wellbore is accomplished by conventional well pumping equipment. The above statement gives the impression that the crude would flow, when in fact the volumes would be controlled by pumping from the wellbore through pipelines to the necessary storage tanks. 312

In regard to the expanded development, it should be pointed out that the 16,636 acre unit is for the purpose of holding leases and it is doubtful that the expansion of any operations would be that wide spread. To determine the final size of such operations of course will require additional drilling and testing, but it is envisioned that an expanded operation from the central pilot operation would not exceed more than a few hundred acres, largely outside of the present recreational boundary. 313

The DES contains the following paragraph at page 65:

> On October 15, 1975, the Department of the Interior's Solicitor opined that tar sand deposits cannot be fireflooded under an oil and gas lease. Further, it appears that the Oil and Gas Act of 1920 will have to be amended by the Congress to specify the type(s) of lease under which oil can be produced from tar sands. Once this issue is resolved, the appropriate type of lease can be issued and the draft environmental statement on the project completed. There is no indication when resolution will take place. 314

ODCOU believes that this statement is inaccurate both as to matters of fact and as to matters of law. The Solicitor's Office of the Department of the Interior has rendered an informal opinion that the hydrocarbon deposits underlying the lands subject to ODCOU's leases in the Gordon Flats Unit area are "tar sands" and are not subject to development under oil and gas leases. The Solicitor's Office has not rendered a formal opinion on this matter and, in the event such formal opinion is rendered, the matter would have to be resolved in the courts. At any rate, the position taken by the Solicitor's Office relates only to federally owned minerals. The paragraph quoted above implies that the legal and factual issues involved have been finally resolved and

that development can only occur if appropriate legislation is enacted. The Mineral Leasing Act, as amended, specifically authorizes the Secretary of the Interior to grant leases to qualified lessees with respect to "native asphalt, solid and semisolid bitumen and bituminous rock. 30 USC &241(a). It is ODCOU's position that the heavy oil deposits in the Gordon Flats Unit area are "oil" within the meaning of the Mineral Leasing Act and can legally be recovered under federal oil and gas leases. However, even if it were finally determined that the hydrocarbon deposits fall within the scope of Section 241(a), the law allows the issuance of lease and it does not necessarily follow that an amendment to the Mineral Leasing Law is necessary before development can occur. 314

There is much discussion in the DES concerning the impacts of mining operations. The statement as drafted leaves an impression that development of the heavy oil deposits as proposed by ODCOU involves "mining". The description of ODCOU's project should be expanded to include a brief description of the surface use required in connection with the fireflood project. The only relevant comment now in the statement appears at page 121 under the section headed "Irreversible Commitments" and is a parenthetical comment which provides: 315

> The exploitation of the tar sands would take place underground and would not entail surface disruption, except for the temporary emplacement of extraction,storage and transport facilities.

Although ODCOU recognizes the need to analyze particular mineral development projects on a case-by-case basis, ODCOU believes that the DES is unduly negative and restrictive insofar as the heavy oil deposits are concerned. ODCOU's fireflood project and its possible environmental impacts have already been examined in detail. Nevertheless, there are numerous statements throughout the DES to the effect that mineral development may be permitted in an RRU zone, and that access for mineral development may be allowed through an RRU zone. We are very concerned that the fireflood project, which has already received careful scrutiny and which is limited to a two-acre tract and existing roads, may be delayed for several years while the Park Service and other agencies complete mineral resource inventories, designate areas in RRU zones where mineral resource development can occur, and develop regulations, plans, and policies for such development. 316

There are several statements in the DES to the effect that little is known about the "tar sand" deposits or about techniques for commercial 317

development. ODCOU's proposed fireflood project would provide valuable data on both issues. The DES is deficient to the extent that it fails to address the ready availability of such data. 317

Yours very truly,

Carl J. Berry

Carl J. Berry

CJB/mk

Response to Oil Development Company of Utah Comments

311. The "normal petroleum recovery methods" referred to are synonomous with "drilling a well to a horizon containing pumpable liquid petroleum". There are methods available to recover petroleum from heavy oil deposits in many parts of the world. However, no method has yet been tried resulting in the profitable recovery of petroleum from the Tar Sands Triangle deposit.

312. The DES was in error, as you point out, and is corrected in this FES as follows: "and force it up and out" is deleted and replaced by "making it pumpable by conventional well pumping equipment from".

313. This FES describes the expanded operation as effecting not more than a few hundred acres, largely outside of the NRA boundary.

314. The facts, beliefs and conclusion in your comment may be correct. However, since the paragraph referred to as inaccurate was based on the opinion of the Solicitor, Department of the Interior, it will not be revised.

315. The parenthetical statement was used to emphasize the minimal surface disruption resulting from exploitation of the Tar Sands compared to the preceding coverage on the surface effects of uranium mining.

316. The Orange Cliffs area involved in the Pilot Fireflood Project was zoned RRU, in spite of being a prime natural area, in recognition of the significant potential energy resource attributed to the Tar Sand Triangle. Response number 11 to the Department of Energy specifically mentions the exclusion of the Tar Sand Triangle occurence due to its significance.

317. Little is known about the "tar sand" deposits as to the actual quantity of petroleum remaining per unit of horizon formation reservoir. Too few test holes have been drilled to arrive at anything but a rough estimate. And, no estimate on recoverability will be valid until the Pilot Fireflood Project tests are successfully completed.

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WEST COAST OFFICE:
P.O. BOX 40040
SAN FRANCISCO, CALIFORNIA 94140

November 9, 1977

UT-20-1

Superintendent
Glen Canyon National Recreation Area
P. O. Box 1507
Page, Arizona 86040

Re: General Management Plan. Wilderness Proposal, Road Study Alternatives, and Draft Environmental Statement for Glen Canyon National Recreation Area

Dear Sir:

Our company is the junior partner with Oil Development Company of Utah re the proposed pilot in situ fireflood oil recovery program proposed for T30S, R16E, Wayne County, Utah, and we would appreciate the following comments being added to those already made by Oil Development Company of Utah on November 2, 1977.

Perhaps the key Federal Oil & Gas Leases within the proposed 16,636 acre Gordon Flats Fireflood Unit lie within Sections 21, 22, 27, and 28 in T30S, R16E, Wayne County, and it is our understanding that Sections 22 and 27 are now within the boundaries of the Glen Canyon National Recreation Area. It should be noted, however, that these Federal Oil & Gas Leases were issued prior to the formation of the Glen Canyon National Recreation Area by Congress and that our very small company, along with Oil Development Company of Utah, have expended very substantial sums of money in drilling and evaluation efforts necessary as a preliminary to instituting a thermal oil recovery program. Any "after the fact" restrictions of any kind would, in effect, deny us our legal rights under the terms of the Federal Oil & Gas Leases issued prior to the Glen Canyon National Recreation Area. 318

We consider the term "Tar Sand Triangle" to be a misnomer. Whereas the active oil seeps a number of miles east of our area of interest in Big Water Canyon and a number of miles southwest of our area of interest in North and South Hatch Canyon may have the general look of "tar" in that the substance is black and viscous, the actual oil bailed to the surface from wells drilled within T30S, R16E, as well as the oil extracted from cores, is a heavy, conventional, viscous crude oil very similar in chemical composition to the oil being produced from numerous other oil fields within the United States from Federal, State, and fee lands. This conventional oil will flow into a well bore, albeit slowly, and can, and has been, successfully bailed to the surface. Enclosed with this letter, you will find two photographs taken on June 28, 1972 showing me holding a small bailer full of liquid oil and pouring this oil into a glass container. The oil was bailed on this date from the Sagadahoc No. 2 Federal well drilled in Section 22, T30S, R16E, Wayne County, Utah. 319

Sagadahoc certainly concurs with the DES in that the area west of the Orange Cliffs should be designated as a Recreation and Resource Utilization Zone and as a non-wilderness area. We also agree that the area east of the Orange Cliffs should be classified as wilderness. Sagadahoc, therefore, supports the National Park Service's plan, Alternative B.

Sincerely yours,

SAGADAHOC OIL & GAS CORP.

William H. Hart, Jr.
President

WHH/lk
Encls.

Responses to Sagadahoc Oil & Gas Corporation Comments

Your two photographs were deleted because of reproduction problems.

318. Sections 22 and 27, T30S, R16E, do fall within the boundaries of the NRA. They lie within the Recreation and Resource Utilization (RRU) Zone proposed in the FES. As indicated in Section II A, of the Plan, the RRU zone is "characterized by maintenance of natural processes while allowing to the extent possible both mining and grazing".

Section III.A.12.a, of the FES indicates "the proposed zoning may allow the extraction of oil from the tar sands---in the area west of the Orange Cliffs (place Overlay 1 on Map 4), subject to the regulations of a mineral resources management plan. The area west of the Orange Cliffs, though prime wilderness in character, was zoned RRU in recognition of the significant energy resources attributed to the Tar Sand Triangle oil deposit.

319. Tar Sand Triangle is a misnomer. As pointed out by Doelling (page 97, Bulletin 107, UGMS, 1975), it is an oil-impregnated rock deposit named the Tar Sand Triangle. Map 36, Energy Resources map of Utah, UGMS, 1975, also uses the name but puts it in the "oil-impregnated rock category.

The coverage of the Pilot Fireflood Project, Section 1.B. of the FES is in keeping with your comment, indicating ODCU has "proposed an attempt to recover commercial quantities of oil from the oil-impregnated White Rim sandstone of the Tar Sand Triangle.

El Paso ENERGY RESOURCES COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

S. F. SHERWOOD VICE PRESIDENT

November 15, 1977

National Park Service
125 So. State
Room 3418
Salt Lake City, Utah 84138

Attention: Mr. James Isenogle
Assistant Regional Director

Re: General Management Plan
Wilderness Proposal
Road Study Alternatives
Draft Environmental Statement
DES 77-28

Gentlemen:

The following comments are offered for your consideration after our review of the captioned DES 77-28.

1) El Paso currently holds valid coal leases in the area of the Kaiparowits Plateau to the west of the Glen Canyon Recreation Area. Map 6, Volume 2 of the DES shows that the Utah State Department of Highways has proposed to pave the road between Glen Canyon City and Bullfrog Basin. Although this road crosses a portion of the Glen Canyon Recreation Area, allowance should be made to permit upgrading this road to commercial use. The DES does not discuss the impact of the wilderness proposals on plans to upgrade the haul road to commercial use. 320

2) On page 130 of Vol. 1 of DES, the discussion of Management Zoning Alternatives under Alternative A: Preservation Emphasis item (12) Impacts on development of mineral resources, subsection (c) Coal states "....Access to adjacent coal fields, outside the recreation area, would be unaffected." This is not a factual statement with respect to the road from Glen Canyon to Bullfrog Basin. 321

3) Map 8, volume 2 of DES 77-28 depicts an "area of primitive or outstanding natural values recognized by BLM" overlapping existing coal leases in the Kaiparowits Plateau Area. Potential conflict of land use and associated compensation or mitigation measures for existing mineral rights are not discussed. 321

Selection of an area of primitive or outstanding natural value overlapping existing coal leases leads to confusion regarding land use planning. Federal legislation and regulations require "due diligence" in regard to coal lease development. Impediments on coal leases and access to coal leases as suggested in the contemplated DES can be an absolute burden on coal lessees. 322

Yours sincerely,

S. F. Sherwood

mm

Encl.

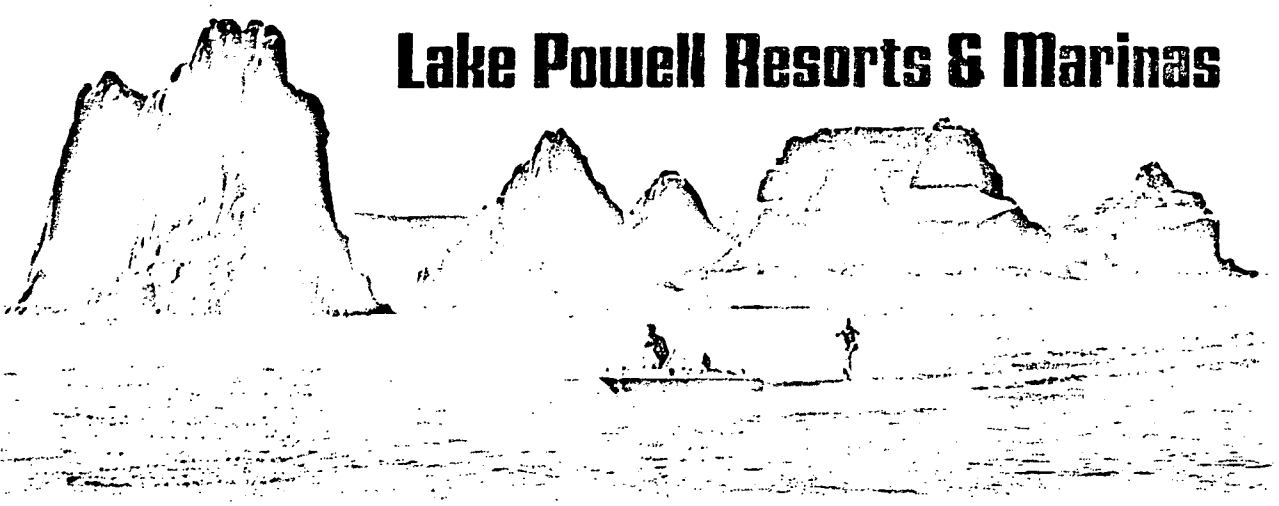
cc: Messrs. C. R. Bowman
R. L. Jones
O. D. Niedermeyer, Jr.

Responses to El Paso Energy Resources Company Comments

320. The Wilderness recommendation does not impact the utilization of the Warm Creek Road. The NPS believes that any commercial use of the Warm Creek Road, in whatever form it may finally appear, is incompatible with the recreational precepts for which the NRA was established. Refer to response 283.

321. There will be no impact on access to adjacent coal fields resulting from the proposal or Alternative A. Refer to responses 283 and 284.

322. It is inappropriate for this document to discuss conflicts of land use exterior to the NRA boundary. This will be fully discussed in both the Regional Coal DES, now in preparation, as well as the Wilderness Study mandated by the Bureau of Land Management's Federal Land Policy and Management Act of 1976 (Public Law 94-579).



c/o 3800 NORTH CENTRAL AVENUE • SUITE 1501 • PHOENIX, ARIZONA 85012 • TELEPHONE (602) 264-8274

November 14, 1977

Mr. Temple Reynolds
Superintenant, Glen Canyon
National Recreation Area
National Park Service
P.O. Box 1507
Page, Arizona 86040

Dear Temp:

Attached are our comments on the General Management Plan for Glen Canyon National Recreation area. On behalf of Del E. Webb Corporation and our Lake Powell Concessions, we submit our comments and thank you for the opportunity to have this in-put.

Sincerely,

David L. Johnson
Vice President

Rex Maughan
Executive Vice President

DLJ:jlb

DEL E. WEBB CORPORATION RECREATIONAL PROPERTIES

Wahweap Lodge & Marina
P.O. BOX 1597 • PAGE, AZ 86040
(602) 645-2433

★

Bullfrog Resort & Marina
HANKSVILLE, UT 84734
(801) 684-2233

★

Hite Marina
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Duplication of facilities, poor location, construction scars from access roads and many other factors could damage and negate the tremendous planning effort that has gone into the master plan of this area if the Indian developed areas are not carefully coordinated and included in this plan.

We basically agree with the other proposed development areas in the premliminary management plan.

QUESTIONS

1) Why delete 560 acres from the recreation area southwest of the Wahweap development zone? 323

2) Antelope Island would be a good area for creating a balanced wildlife area with perhaps antelope, buffalo, wild horses and whatever. Has this been considered and would wilderness designation prohibit the creation of such? 324

3) Not much was mentioned about the use and management of the area between Glen Canyon Dam and Marble Canyon. What will be its uses and management? 325

4) Since Hite Marina may eventually be moved to Farley Canyon, shouldn't this be shown as one developement area? 326

5) Shouldn't more consideration be given to the tremendous cost (dollars) of some of the proposed items in the plan? i.e., Road from Wahweap to Bullfrog, move Rainbow Marina and build entirely new facility at Dangling Rope, move Hite Marina to Farley Canyon, and the loss of potential minerals and energy sources by making wilderness designations. 327

6) What is the estimated time frame for development of the proposed roads, developed areas and final approval of a master plan? 328

7) If Rainbow Marina is to moved to Dangling Rope shouldn't the Llewllyn Gulch Marina be opened at the same time to avoid traveling an extra 14 miles for refueling by boaters from up lake? 329

COMMENTS

1) The wilderness boundry at the lake shoreline should be defined as elevation 3711 or maximum flood level of the lake. This would give the lake users enough shore or beach to do most water oriented recreation. We realize this will not be easy to define in certain areas but could be sign posted in the most used ones. 330

2) We basically agree with the premliminary management plan, zoning, roads, uses and wilderness proposal. Please, however, consider the exceptions and questions mentioned above. We have chosen not to comment on several areas which probably will not affect our operations. We feel that over-all everyone involved has done a good job on the plan.

ROADS

BULLFROG-GLEN CANYON CITY

1) The portion between Bullfrog and Hole-In-The-Rock road should swing west of Stevens Arch so that as much of the Escalante River Canyon area as possible, will be without road access or visibility of roads from the canyon and lake.

2) The portion between Glen Canyon City & Hole-In-The-Rock road should follow the existing Smoky Mountain Road to the top of the Kaiparowits Plateau and then down to the Hole-In-The-Rock Road. A side scenic loop could follow the top of the Kaiparowits Plateau Rim for overlook of the lake. The alignment will allow direct access between Wahweap and Bullfrog Marinas, provide the auto traffic with views of the lake and still preserve the natural view from the lake while limiting road access to the water. (See attached map). A corridor should be provided in the wilderness areas for this road. This road is very much needed for:

   1. Circulation of visitor traffic around the lake.

   2. Management of operations and control of the facilities in the area.

   3. Provide visitors with overviews of the area, especially those who cannot hike or have access by boat.

BULLFROG-HALL'S CROSSING FERRY

Little has been said about the immediate need for regular ferry service of a type that could carry several vehicles and buses between Hwy. 276 at Bullfrog and Hwy. 263 at Hall's Crossing. By connecting these two state hwys. many miles would be cut from travelers to these marinas and the increased visitation would justify the further development of the facilities at each developed area. As the operation of the ferry service does not appear feasible for existing concessioners, or they would have been operating it now, it seems that the state or National Park Service should provide funds and/or assistance to implement this service. 331

DEVELOPED AREAS

Since the Park Service must approve sites for developed areas and administer the water based facilities on Indian lands, we feel that future development sites on the reservation should be located and made a part of this management plan so the both the Indians and others concerned with future developments and facilities will have known sites upon which to base planning and expansion. 332

Responses to Lake Powell Resorts and Marinas Comments

Your attached Texaco highway map could not be reproduced in this FES because it is copywrited.

323. In response to input from the Governor of Utah's Advisory Council, this deletion was proposed. The 560 acres of isolated, rolling, shrub land south of Highway 89 in the northwest corner of Wahweap Development Zone is essentially land locked and not accessible to, nor a contributor to management by the NPS. In this instance it appears most feasible to use the highway as the boundary for the NRA.

324. Antelope Island has been studied for possible transplant of antelope; however, range forage is deemed inadequate to support a population over winter. Buffalo had been discussed at one time; however, no serious consideration was given them due to the potential hazards to boating public coming ashore. An introduction of feral horses would be contrary to NPS policies.

325. The Colorado River, between Lees Ferry and the Glen Canyon Dam, will remain in the Recreation and Resource Utilization Zone. The scope of development at Lees Ferry will continue to be low key with primary emphasis on the area's history and access to the Colorado River. The Colorado River below its confluence with the Paria River is within Grand Canyon National Park.

326. The Hite and Farley Canyon areas are meant to be a single development zone. Certain of the intervening land is unsuitable for development and, thus, was not included.

327. Much more consideration would be given before the first two items you mentioned are constructed. Refer to response 326 for the third. The loss of known mineral resources would be minimal.

328. Construction of these facilities would depend on when Congress appropriated funds. Final approval of this general management plan should occur about one month after this FES was made available to the public.

329. Llewellyn Gulch is identified only as a future potential development site when a demonstrated need is shown to exist. We see no need to have funding to undertake

simultaneously developments at both Dangling Rope and Llewelyn Gulch. We do not perceive the additional travel to Dangling Rope from uplake departure points as a significant inconvenience.

330. The NPS has decided to use the fluctuating shore line of Lake Powell as the boundary for the appropriate management zones. This will make it immediately evident where the boundary is for both enforcement personnel and recreationists.

331. Lake Powell Ferry Service, concessioner at Halls Crossing, is authorized to conduct ferry service on Lake Powell. While it would clearly be a convenience to have regular ferry service at this time, there is no clearcut demonstration of need for this type of service. A lake-wide ferry service feasibility study will be undertaken in fiscal year 1978 by the NPS to answer many of the questions you bring up.

332. The Navajo shoreline developments have been included on Map 1 showing all potential development sites.

4. Comments from Individuals

Rather than print all of the statements from the almost 1,000 individuals that responded, several have been selected which contain the greatest number of comments.

E. J. (JAKE) GARN
UTAH

4203 DIRKSEN SENATE OFFICE BUILDING
TELEPHONE 202-224-5444

JEFF M. BINGHAM
ADMINISTRATIVE ASSISTANT

United States Senate

WASHINGTON, D.C. 20510

COMMITTEES
ARMED SERVICES
BANKING, HOUSING AND URBAN AFFAIRS
INTELLIGENCE

December 12, 1977

Mr. James Isenogle, Director
National Park Service-Utah
2208 Federal Building
Salt Lake City, Utah 84138

Dear Mr. Isenogle:

This letter is in response to the Glen Canyon and Canyonlands proposals formulated by the National Park Service, and now open for comment from the public and from elected officials. Since the two proposals are so closely linked, I am going to comment on both Canyonlands and Glen Canyon in a single letter.

As I am sure you know, members of my staff have participated in the Governor's Task Force on the Glen Canyon and Canyonlands Wilderness Proposals, and I would like now to express a brief opinion on the substance of the proposals.

Canyonlands: I feel strongly that natural areas should be managed so as to provide maximum enjoyment to the greatest number of people. If our National Parks are not the private domain of local residents, no more are they the private preserve of those with the time, energy, and money to enjoy them on foot or horseback. Fortunately, the natural resources of Utah are great enough in extent to be able to meet the demands for true wilderness and for easy access for the young, the old, and the infirm. For that reason, the suggestion of the Governor that the Island in the Sky be generally developed, with the Needles and Maze kept more natural, seems to me to be a good compromise. I have myself traveled extensively throughout Canyonlands, and can appreciate the feelings it engenders in those who are familiar with it. I would not like to see the splendor of Big Spring Canyon spoiled by an unsightly bridge. At the same time, I feel that there was a commitment made to the completion of the road to the confluence. Alternative routes have been suggested, and the Governor's recommendation takes note of them.

Glen Canyon: In general, I support the recommendation of the Governor on Glen Canyon. The diversity in options is well known, and it is clear that a great deal of negotiation remains to be done. Nevertheless, I feel that the Governor's position accomplishes the essential in preserving the canyons of the Escalante area as a wilderness. Virtually all parties agree on the desirability of keeping Escalante undevoloped, though some feel that specific designation may cause some difficulty with state game management programs.

The point of greatest controversy is, of course, the Glen Canyon City-Bullfrog Basin Road. I would not at this time like to make a commitment to the construction of such a road. However, I feel that the option should not be foreclosed by the wilderness recommendation. In view of the congested situation at Wahweap, it is clear to me that at some point additional development will be needed on the north side of the lake. At that time, the road may be necessary, and for that reason the Kaiparowits plateau should not be included in any wilderness. 333

The corridor across the Escalante is pointless unless the road could be continued northeast to Moab. Under the Park Service recommendation the construction of such a road would be impossible. It would be desirable in my opinion to leave the Orange Cliffs area out of wilderness status, to accomodate possible future road construction and to permit possible development of the tar sands deposits in this area. Utah has more known tar sands deposits than any other state in the nation and the Orange Cliffs area may contain as much as five billion barrels of oil recoverable from the tar sands. 334

It would be very desirable to maintain an access corridor between Capitol Reef and Glen Canyon for future access to Halls Creek. Some have suggested moving the boundary of Capitol Reef north, away from Burr Trail, and extending the Glen Canyon north to the trail. That would leave a corridor between the two Parks. 335

General: There are a great many errors in the documents issued in support of the proposals on both Glen Canyon and Canyonlands. It is not clear why, when so much time and money is being spent preparing documents, it is not possible to get accurate and up-to-date information on populations, growth, development, and income. There are a number of multi-county organizations available, and the Bureau of Economic and Business Research at the University of Utah has extensive statistical analyses. The State offices are also equipped to supply these needs. In the preparation of future documents, I would strongly recommend that these resources be employed. It is not immediately evident what impact the inaccurate figures have on the recommendations, but when one is compiling information on which to base a decision, it would seem appropriate to make sure that information is as accurate as possible. The use of out-of-date statistics makes the judgement of the agency preparing the document somewhat suspect. 336

Mr. James Isenogle
Page 2
December 12, 1977

The Governor has gone through a very elaborate procedure to develop a State position, and, with the clarifications outlined above, I strongly urge that the greatest weight be given to that position. It is consistent with the intent of the original act, and with the needs of the State and nation. I am happy to be associated with it. 337

Sincerely,

Jake Garn

JG:gjk

Responses to Senator Garn Comments

333. The option to construct this road has not been foreclosed by the proposal. The NPS does not at this time make a recommendation for any particular alignment of this authorized road. Its location would be designated and funding for construction would be appropriated by Congress. Map 3 - Wilderness Recommendation - makes provision for a road corridor south of Stevens Arch.

334. Refer to responses 74 and 11.

335. Refer to response 72.

336. Your suggestion has been followed and the Bureau of Economic and Business Research at the University of Utah has rewritten or updated much of this data.

337. The State's position, developed through an extensive process involving a great deal of input from local people with various interests, is in support of Alternative B of the DES with the modifications outlined in Governor Matheson's letter dated December 9, 1977. That letter is reproduced in its entirety, and responded to, elsewhere in this section of the FES.

DAN MARRIOTT
2ND DISTRICT, UTAH

COMMITTEES:
INTERIOR AND INSULAR AFFAIRS
SMALL BUSINESS

COUNTIES:
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November 15, 1977

William Whalen, Director
National Park Service
Department of the Interior
Washington, D. C. 20240

Dear Mr. Whalen:

I would like to submit the following comments as part of the official record on the Glen Canyon Recreation Area management proposals.

After reviewing the National Park Service management proposals for Glen Canyon, I have several reservations which cause me concern. I'm disturbed by the apparent disregard of the multiple use concept which has traditionally determined the use of national recreation areas. The purpose of designating an area a national recreation area is to set aside scenic lands for the enjoyment of all of the people, not just those who own a boat or hiking boots. 338

The adoption of the Park Service's Management Plan Alternative A virtually limits the use of Glen Canyon to boaters and backpackers. It must be open to all, particularly our senior citizens who hopefully have the time to enjoy these areas. I believe this is the intent of the original legislation which established Glen Canyon as a National Recreation Area.

Alternative A does not provide for the fact that the original legislation for Glen Canyon indicated that there would be a study to locate a road connecting Glen Canyon City with Bullfrog Basin. Alternative A has no provision for either the study or the location of the road. Why? 339

The major objections I have to Park Service Management Plan A are that the plan does not adequately address the problem of roads within the area. Without roads we have no corridors through the area. We will not have access to crucial mineral resources. Lack of roads prevents access to state-owned lands and perimeter lands which also are rich in resources. 340

Even Alternative B does not contain the specific provisions I urge the Park Service to consider. Among these are:

1) Some provision should be made to exchange the Canyonlands' fragmented road corridor to Glen Canyon in the area north and west of the Orange Cliffs area in Glen Canyon, so there is a continuous road corridor between Glen Canyon and Canyonlands. 341

2) Delete the area from the north side of the Burr Trail running south from Capitol Reef, and add the area south of Burr Trail to Glen Canyon, thereby leaving the Burr Trail corridor open. This would also provide access to Halls Creek. 342

3) Adjust the boundary so that the area from Mexican Hat to Grand Gulch is deleted from the recreation area to allow development of energy-related resources. 343

4) Extend the deletion area as proposed in Alternative B so that the main fork of the Silver Falls Creek, the Harris Wash Road Corridor, and everything north, are outside of the recreation area. This maintains access in that area. 344

5) Deletion of the Moody Creek and Beef Basin areas from the recreation area. This would allow development of the valuable oil, gas and mineral leases in Moody Creek area. Beef Basin is a suitable habitat for Bighorn sheep and access is important for management purposes. 345

I urge that the Park Service include these exceptions in the Alternative B proposal.

Reiterating my concern regarding mineral development, I point out that implementation of Alternative A does not take into consideration the recommendations of the Bureau of Land Management.

"Implementation of the National Park Service's Alternative A would be a total disaster as far as orderly development of the mineral resources with the area is concerned. Mineral development would be totally excluded within the boundaries of the recreation area, and mineral leases on lands outside the recreation area could become inaccessible due to the closing of existing roads in the area. The wilderness proposal considered under this alternative is not in harmony with the Glen Canyon Act which specifically provides for mineral leasing and development. 346

"Management Alternative B considered by the National Park Service should not have any significant effects on the development of the speculative and known mineral resources within the 347

recreation area. Of the areas thought to have a better potential for the occurrence of mineral resources, only a relatively small portion on the area along the Waterpocket Fold identified as having a high potential for oil and gas would be precluded from development.

"In order to provide for the disposal of mineral resources in the Glen Canyon National Recreation area as is required by section 3 of the Glen Canyon Act and meet the Department of Interior objectives of providing for the orderly and timely development of mineral resources, it is clear that Management Alternative B is the preferred alternative of the three alternatives considered by the National Park Service. Formulation of the final management plan and wilderness proposal must consider a variety of factors including mineral resource values and local state government and public opinion. Therefore, the final proposal should not be limited to the three alternatives presented by the National Park Service." 347

pp. 20-21 B.L.M. Study of
National Recreation area
1977

Again, I am concerned about the state-owned lands (approximately 29,000 acres) which would become landlocked without access roads if the National Park Service adopts Management Alternative A.

I am not opposed to Wilderness designations, but I believe we should encourage planned, orderly development that allows maximum use of our natural resources, both scenic and mineral, without deterioration of the environment.

It appears, however, that the multiple use concept is becoming more and more restrictive and it is essential that a state such as Utah, which is at least 68% owned by the federal government, have some input into the various wilderness designations and management.

The State of Utah has spent many hours researching the Glen Canyon proposals. Much expertise has gone into their recommendations. These recommendations are ignored by the Park Service's Management Proposal A. Let me suggest that the National Park Service review the Superintendent's records to determine what basis they actually have for these important, far-reaching decisions. 348

Perhaps neither alternative will completely satisfy the concerns we all have in regard to our environment and how it is to be managed. It is

crucial that we resolve these conflicts as expeditiously as possible, because until we find workable solutions, we are locked into "de facto" wilderness, and that is not an equitable solution.

I appreciate the opportunity to add my remarks to the record, and I wish to extend my pledge of support in your efforts.

Sincerely,

Dan Marriott
Member of Congress

DM/cc
cc: Jim Isenogle
Temp Reynolds

Responses to Congressman Marriott Comments

338. The applicability of the multiple use concept to management in the NRA is discussed in response 66. The purpose for establishing the NRA was outlined in Section 1 of PL 92-593..."That in order to provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto in the States of Arizona and Utah and to preserve scenic, scientific and historic features contributing to public enjoyment of the area,..." This mandate clearly places preservation of values on an equal plane in priorities for management with public enjoyment. Visitation to the NRA exceeded 2,129,000 in calendar year 1977. While this may not be all of the people, it does rank the visitation to the area 23rd among the 294 areas administered by the NPS. There were a total of 1,239,000 overnight stays, about half of which were by either backpackers or boaters. Over 116,000 stayed in concessioner lodging, and the remainder camped in campgrounds, accessible by automobiles. The proposal would approximately triple (from 11,600 to 33,900) the capacity of the developed sites for daily visitation. Aside from increasing total annual visitation, this would have the effect of shifting the balance of the visitor use pattern toward less extensive recreational activities such as hiking and boating toward more intensive recreational pursuits in and around developed areas and concessioner facilities. Certainly both activity types would increase, but the latter would be expected to realize by far the more dramatic growth.

339. Alternative A was developed through much input from the public expressed during the May 1975 Wilderness Hearings. Opposition to the authorized road between Glen Canyon City and Bullfrog Basin was overwhelming. The road study has already been conducted in accordance with Public Law 92-593. Alternative A, if adopted, would preclude by Congressional action the establishment of a road corridor through the wilderness.

340. Alternative A would preclude access roads through any portion of the wilderness zone.

341. The road corridors contiguous with Canyonlands have been restudied and the conflicts have been eliminated. The revisions appear on Map 1.

342. The General Management Plan for Capitol Reef will be undertaken sometime in the future. Boundary changes are correctly a point to be addressed in that document.

343. Boundary adjustments along the San Juan River were considered, however, none now are in our proposal. (Refer to Section VIII.D.3 of the FES.) Future studies of potential pump storage or other energy impoundments on the San Juan River by the Bureau of Reclamation will be required by that agency. Refer to Section I.G. of the FES.

344. Access has been terminated into both Harris Wash and Silver Falls and the adoption of our proposal would not change this situation. The boundary extension you propose was considered but rejected in Alternative B.

345. This deletion is proposed in the FES.

346. This FES contains a Final Management Zoning Proposal that includes 45 percent of the NRA in the Recreation and Resource Utilization Zone within which mining may be subsequently permitted in certain areas to be identified by a future Mineral Resources Management Plan. Alternative A includes 14 percent.

347. We agree that Alternative B should be the least restrictive for utilization of mineral resources. There is a disagreement between the NPS and BLM regarding mineral data. We believe that the U.S. Geological Survey and the Energy Research and Development Administration are the best authorities for such information and used their data rather than the BLM's. Refer to response 11.

348. The Governor of Utah's recommendations and input provided the basis for Zoning Alternative B. Alternative A was formed from the input provided by numerous environmental and conservation organizations and individuals.

HOUSE OF REPRESENTATIVES
STATE OF UTAH
318 STATE CAPITOL · SALT LAKE CITY 84114

December 6, 1977

Mr. James L. Isenogle
Utah Director
National Park Service
Salt Lake City, Utah 84111

Dear Mr. Isenogle:

We the undersigned oppose the construction of the Trans-Escalante Road which would extend from Glen Canyon City to Bullfrog Basin in the Glen Canyon Recreation Area.

The act of Congress creating the Glen Canyon Recreation Area required a study of a road corridor for the Trans-Escalante Road. The Park Service has studied five road alternatives, one of which is the "no construction" alternative. We encourage the Park Service to choose this alternative.

The construction of a Trans-Escalante Road is an unnecessary, costly (in excess of $200 million) venture. Existing roads, both paved and unpaved, provide a unique and comprehensive scenic access to Glen Canyon National Recreation Area and surrounding areas.

We are sympathetic with the needs of area residents (as in Boulder and Escalante) for improved local roads to facilitate ranching businessess, and we will work toward getting those roads. But the Trans-Escalante Road is not one of these. Instead, it would disrupt the fragile desert environment, divide the watering sources (for the animals, subjecting them to the hazards of road crossing), and open up more land to the abuses of graffiti, liter and rangeland damage.

STEPHEN HOLBROOK, REPRESENTATIVE

JEFF FOX, REPRESENTATIVE

ENNIS STARR, REPRESENTATIVE

FRANCES FARLEY, SENATOR

349 Response to Representatives Holbrook, Fox, Starr and Senator Farley Comments

349. Refer to responses 81 and 101.

Glen Canyon National Recreation Area

Comments on the Wilderness Proposal and Master Plan
Prepared for the National Park Service
by Robert H. Hassell; Aztec, New Mexico

I appreciate this opportunity to comment on the preliminary wilderness proposal and master plan for one of the most beautiful places on earth, the Glen Canyon National Recreation Area. For many years I was privileged to live near the magnificent Escalante the the beautiful Circle Cliffs country, and I considered myself almost as the guardian of this place. Even now, however, as I sleep far from the land of my spiritual roots, I maintain a lively interest in the future of this region and intend, as far as I am able, to see that this country remains in as fine a condition as it was when I discovered it for myself so many years ago.

General Comments

This is the first time in my experience that I have ever encountered a management plan and EIS in this format, and after having been through it my impressions are generally negative. Putting the text, the figures, and the maps in seperate volumes makes the document very difficult to read, and it has a tendency to make the reader want to just give up trying to get at all the information it contains. I can see no objection to having the appendices in a seperate volume, but the maps should definitely be a part of the text material. All relavent tables and graphs should occur in the text next to the written material relavent to them. I suggest that the format for the final plan and EIS be redone on more traditional patterns. 350

In May, 1975, there were several public hearings held around the area to solicit public comment on various alternative wilderness proposals which were then under consideration. There is only one small mention of these hearings, no comments whatever on what was said at these hearings, no presentation of the alternatives which were then presented, and no rationale for why so much of the original Alternative A was deleted from wilderness in your new proposal. Your presentation makes it appear that the entire 1975 effort was mere window-dressing and that the National Park Service is now putting forth its own proposal without regard to what the public thinks. Your final statement should contain a lot of information on how the public statements made in 1975 have influenced the formation of this final proposal. It does not appear to me that they have. 351

Finally, I think you need some justification for excluding lands which you do not propose for wilderness. Your initial statement contains no

rationale for the decision that has been made, and it looks rather like a clumsy attempt to take conflicting views and simply split the difference. I'm sure I don't have to tell you that this is not the way to manage the most beautiful place on earth. If there are conflicts which disqualify a region from wilderness consideration, the public has a right to know what these conflicts are so that they can decide and weigh the relative value of these conflicts.

Wilderness

All the areas you have chosen as wilderness in your preliminary wilderness proposal certainly qualify as such, and I commend your recognition of important wilderness values in these areas. In particular, your designation of almost the whole of the Escalante River and its tributaries in the wilderness catagory is a most far-sighted and informed decision. Since my first visit to the Escalante in the winter of 1970 I have been drawn back time and time again by those very qualities which the Wilderness Act was passed to protect. There is no spot left on earth which has the special qualities of this almost sacred place. Here we have a shimmering thread of silver sweeping through a ribbon of green, hemmed in by a canyon of incredible beauty and delicacy; tapestry walls painted by God's own hand, and miles of rolling petrified sand dunes sheltering pockets of wildflowers and gardens of cacti. Any motorized intrusion on such a place cannot be justified, and the fact that you have seen your way clear to preserve it for the future as wilderness is to be commended.

There is, however, one glaring flaw in the protection you offer to the wholeness of the Escalante Wilderness, and that is the small white strip which enters from the west very near the National Recreation Area's northern boundary - the Harris Wash Road. Properly speaking, this is not a road at all, just a sandy creek bottom which happens to be traversible by four-wheel drive traffic at times. Hence, by leaving this canyon "open," you are really providing for off-road vehicle traffic in an area which has become one of the most important hiking access routes both to and from the upper Escalante. There can be no real excuse for allowing this kind of built-in conflict to occur, especially in such a cathedral as Harris Wash. The very presence of vehicle tracks distracts from the wilderness experience available here, and the actual presence of jeeps and motorbikes with their attendant noise is simply intolerable. In addition, once these vehicles have reached the Escalante there is really nowhere they can go except up or down the Escalante River itself, something

which is physically possible for several miles in either direction. The best alternative is to simply close the Harris Wash streambed to all vehicular traffic from the corral downstream.

I certainly appreciate your placing the south end of Fifty-Mile Mountain in the wilderness zone. I have hiked and camped in the area of Navajo and Spencer Points and found the place truly exquisite. The protective arm of wilderness will also help to save the abundant archeological resources of the area.

I like your proposal for wilderness in the Dirty Devil - Little Rockies area. This will nicely complement BLM proposals for wilderness on adjacent public lands, and will provide secure habitat for the desert bighorn sheep on the west side of Lake Powell. Now what we need to do is supplement this with a wilderness proposal on the east side of the reservoir between U-95 and Red Canyon. The end in view is to protect the population of desert bighorn located here. Your EIS makes it plain that there is no compatibility between these animals and RRU zoning of this area, and so unless there is some compelling need to do otherwise (which need I have never seen explained) we should have this area put into a wilderness classification.

The next area which is of concern is the Orange Cliffs area between Hite and the Hans Flat region. There are numerous trails and roads in this area and I can appreciate the need for leaving some of them open. However, all land not in such a classification should be in wilderness. I can see the need to someday test the tar sands triangle for possible resource utilization, but there seems little excuse for doing so in the NRA when so little of the resource underlies National Recreation Area land. Better that all this area be put in the wilderness catagory now.

I can see no reason to leave Wilson Mesa and most of the San Juan arm in the RRU zone. People should be able to experience today the old Mormon Trail as the Hole-In-The-Rock expedition experienced it - mostly on foot and in a totally unspoilt condition. Hence, all the area on Wilson Mesa and north to Hall's Crossing should be in the wilderness zone.

Finally, all the land which lies south of the Grand Bench road between Rock Creek and Warm Creek should be in the wilderness zone. There is no reason to exclude this large area, as any exploitable resources which lie here are equally plentiful on lands outside the National Recreation Area. This would not need to preclude an eventual development at Warm

Creek Bay and would not impede any existing access.

The crazy patchwork mess which excluding state lands and oil and gas leases from wilderness classification has made of your maps can certainly be avoided. Law gives the state and the holders of these leases protection until such rights and lands are acquired, and a wilderness zone encompassing such lands now would serve to provide a simple and painless method of protection for the land once state and leasee rights have been acquired. The potential wilderness catagory will only serve to complicate the process once the lands and leases are acquired, while giving no new protection to state and leasee rights. Let's start now to eliminate this notion of the "potential wilderness addition" from Park Service planning.

In summary, I certainly find wilderness Alternative A more attractive than your preliminary proposal, but it, too, needs modification. While you have presented it as an all-or-nothing proposition, it would be possible to keep open several of the roads and trails (like the North Point road) in the Orage Cliffs country, as well as provide for developments at Farley Canyon, Warm Creek Bay, and Dangling Rope. This could alleviate most of the objections to this alternative as you have proposed it while still allowing for maximum wilderness zoning for the lands of the recreation area. Certainly wilderness supporters for a Glen Canyon wilderness have no desire to be unreasonable in their wish to protect this precious resource. All we really wish is to see that all qualifying lands in the National Recreation Area are placed in the wilderness zone.

Boundary Adjustments

Your proposal to delete 3,730 acres in the Imperial-Bull Valley area seems acceptable from a management standpoint, although drawing boundaries to make good topographic sense in this country is all but impossible. Recognizing that the congressional boundaries were somewhat arbitrary, the National Park Service will simply have to learn to live with the occasional incongruities that have arisen as a result. Hence other boundary changes proposed for similar reasons would have to be considered on a case-by-case basis.

I am absolutely opposed to the proposed 11,410 acre deletion of the Purple Hills region from the recreation area boundary. While perhaps not highly scenic compared to the Escalante or the Waterpocket Fold, the region is certainly not worthless or "unscenic." Its location, however, is crutial. Located on the head of the Moody Creek drainages and almost on the boundary of Capitol Reef National Park, the area should definitely not be developed, in spite of the outcrop here of formations favorable to

uranium mining. Encouraging development in this area will cause untold problems with access both with the National Recreation Area and to Capitol Reef, and this in an area which should be a buffer zone for both. Far better that the area just be left alone.

I have no objection to the deletion of the 560 acres along Highway 89. This seems quite reasonable.

All the additions proposed in the Escalante area next to the Hole-In-The-Rock road seem reasonable, but I predict that these little "worms" of land will cause untold numbers of management problems and will solve few. Far better, I think, to work cooperatively with the BLM in solving the difficulties of crowding, sanitation, and car park areas than to create new difficulties by trying to include the upper reaches of specific canyons. The only addition thst I believe has to be made is the 70 acre addition between Liston Seep and Hurrican Wash where Coyote Creek temporarily flows outside the recreation area.

352

Your San Juan proposal seems all right, but I think putting the whole San Juan River from Mexican Hat to Clay Hills Crossing in the Wild River catagory would eliminate any need for this boundary change.

Development Proposals

I cannot fault your development zones except for one area - Llewellyn Gulch. A water-level development here would be fine, but I can see no excuse for initiating plans for another land-based marina here. Visitors from the south would have to bypass both Wahweap and Warm Creek to get here; visitors from the north already have Hite and Bullfrog; visitors from the east have Hall's Crossing. Why, then, the need for a land access point here? It would seem that the major excuse for such a proposal is to mollify opinion in Garfield and Kane Counties, which somehow feel that their tourist industries have been "bypassed" by Lake Powell developments. I would suggest that any major development planned for this area would be so economically marginal to result in only a trashy, unattractive "fishing camp" atmosphere, and this in an area which ought to remain forever wild, quiet, and clean.

Roads

I have already spent considerable time talking about the Harris Wash Road, so here I will concentrate on discussing the Glen Canyon City - Bullfrog Higway alternatives as you present them here. Now, I realize that the law establishing a GCNRA mandated a study of possible

alternate highway routes between Glen Canyon City and Bullfrog Basin, and so I recognize the need to bring up this topic in the first place. I also appreciate the Park Service not recommending a specific route, as this is properly the job of Congress, which must eventually fund any road construction decided upon. However, the management plan and EIS are very ambiguous about whether any new road construction at all is mandated by the law. A study of the law, the accompanying report on it, and the legislative history of the act itself all indicate that only study, not road construction itself, is mandated by the law. In fact, language mandating such construction was specifically removed by the Senate before passage, and this language change was accepted by the House. There is, thus, no need for the "road corridor" language as it appears on Map 2, no obligation for Congress to mandate construction of a road south of Steven's Arch, and no obligation on the part of the Park Service to build it. Congress, of course, may demand such a road, but I have little doubt that our legislators will avoid throwing away the millions such a road would cost when it knows the full environmental effects such a corridor would leave in its wake. I will deal with this topic further under my comments on the EIS itself.

Your proposal to pave Hole-In-The-Rock road is unacceptable. The road is just wild enough now to discourage the casual tourist from going somewhere he probably doesn't want to go anyway, and just good enough for the cattlemen and the adventurous to get where they need to be. The lower end of the road, from Fifty Mile Point on, is very reminiscent of the track the original pioneers must have traveled over, and paving it would destroy this link with our past. In addition, I can see little reason why the State of Utah would want to waste its now-preious highway money to pave its fifty miles all the way to Escalante.

Environmental Impact Statement

On page 3 under "The Plan" we find that Lake Powell exists "for the purposes of river regulation, irrigation, flood control, and the generation of hydroelectric power." Really, now! Not a single drop of Lake Powell water irrigates any crop at all. About the only irrigation it does is the lawn on top of the dam's power plant. As to flood control, what floods where - in the Grand Canyon? Between Narrow Canyon and Lake Mead there is no place which could have been flooded - ever. It must be remarked that much of this country is now flooded and inaccessible - permanently, while

the Grand Canyon suffers from the lack of scouring the spring floods used to provide.

I am glad for the frank and realistic appraisal on page 81 of the incompatability of the bighorn sheep population in Red and White Canyons with the RRU Zoning of this area. It should, perhaps be added that not only will desert bighorn not live with man's activities - they won't live with man at all. Absolutely no developments, roads or otherwise, should be allowed in areas needed for the survival of these magnificent animals. There is little enough room for them today as is.

On pages 105-106 the EIS goes to great lengths to calculate the costs to the livestock industry of closing certain roads. This closure would, presumeably, make access to the range and to water developments more difficult and expensive, but if gasoline and oil costs continue to rise as forecast, it will soon be much less expensive to operate a cattle business by horseback. Second, the "hypothetical" loss of AUM's due to restricted access is simply ridiculous. I personally know a number of of ranchers wo operate in the Escalante portion of the National Recreation Area, and I know that the dominant feeling is that road closures will enhance, not detract from, the operations they run. In fact, one cattleman out of Escalante threatened to join the Sierra Club if any new roads were built crossing his allotment! If the National Park Service continues to deal in a fair and reasonable way with these ranchers there is no need for the loss of a single AUM in grazing within the recreation area.

On page 125 the statement is made that adoption of alternative A and the placing thereby of state lands and federal oil and gas leases within the natural zone would make these lands "from the date of adoption of this alternative, subject to the management policies of this zone." This is simply not true! As is made clear in other places in the document, state land rights and leasee rights will not be abrogated by the adoption of the natural zone alternative, as they are preexisting rights. These lands would be subject to the rules of the natural zone only when the lands are acquired and the leases terminated. 353

The EIS consideration of the various road alternatives is quite good in evaluating the environmental impacts mile by mile. In fact, I have scarcely seen any evaluation of a highway route done better. However, one very important fact which needs to be brought out is the relative cost of each alternative. On the basis of the impacts described, I would guess that D-1 is terribly expensive, both in sum and per mile. In an EIS this should be an important consideration, and since a feasibility study has 354

been done on each route, this is some information that should be now available. 354

Your analysis on pages 168-169 of the effect of routs D-1 and D-4 on the wilderness quality of the Escalante is excellent. You have done a real service to the decision-makers by these comments, and if there were no other reason to reject these routes this reason alone would be sufficient.

Your analysis of the economic effects of the various alternatives leaves something to be desired. For example, on page 173 we find, "The net effect of highway development would be the creation of a vigorous economic climate and the damping of seasonal variation." This would be true if the highways to be constructed actually went through southern Utah towns, but route D-1 wouldn't come within sixty miles of any Utah town. Of the routes involving new construction only D-3 would be likely to produce anything like the effect you describe here, and when put up against a rigorous analysis of need, this, too, seems doubtful. In summary, the no construction alternative is the only one which makes good economic sense. 355

Responses to R. H. Hassell Comments

350. Your suggestion has been followed.

351. Refer to response 229. This FES contains much rationale on how and why the proposal was selected. The next document to be prepared will be the Final Wilderness Recommendation. It will contain much of the information you mentioned and will be made public as soon as the President sends his Wilderness recommendation on the NRA to Congress.

352. Both the BLM and we believe that these Escalante additions will result in better management of the resources and service to the public.

353. You are correct and we have deleted this statement and others like it from the FES.

354. The cost of each alternative has been added to Section VIII.F.3.a-d of the FES.

355. We believe this statement still is a realistic forecast.

Dartmouth College HANOVER · NEW HAMPSHIRE · 03755

Department of Mathematics · TEL. (603) 646-2415

December 4, 1977

James L. Isenogle
Assistant to the Regional Director
Dpt. of the Interior
National Park Service
125 S.State Street
Salt Lake City, Utah 84138

Dear Mr. Isenogle:

On November 15 I sent a statement on the Draft Environmental Impact Statement on the Glen Canyon National Recreation Area to William Whalen, Director, National Park Service, Washington. At the time I sent it I was in California, and though I had brought the DEIS with me, I had neglected to bring your letter of Sept. 16 inviting me to comment on the document. In my statement to William Whalen I indicated that I would be sending a supplement replying to specific lines ans paragraphs in the DEIS and its supplementary documents. I am sending you a copy of both the statement and the supplement at this time.

I want to thank you for inviting me to take part in this review. I hope my comments are helpful and that my delay in getting them to you hasn't inconvenienced you.

Sincerely yours,

Robert Z. Norman

Robert Z. Norman

GLEN CANYON NATIONAL RECREATION AREA
Comments on Draft Environmental Impact Statement
and related documents: general management plan, wilderness proposal, road study alternatives and supplementary materials, by

Robert Z. Norman
18 Rayton Road
Hanover, NH 03755

I appreciate the opportunity to comment on the DEIS. I am familiar with many parts of the area, having visited it in 1963, 1964, 1965, and 1970, and having flown over parts of it in 1964, 1965, 1970, and 1973. I am particularly familiar with the Escalante region, The Colorado River from Wahweap to Iceberg Canyon and from Hite northwest to the boundary of the Area including some of the tributary canyons such as the Dirty Devil and Dark Canyon, and to a lesser extent the Waterpocket Fold and Circle Cliffs (mostly from a low flying airplane) and the southern part of the Orange Cliffs region (on the west side of the Colorado). My visits were primarily as a tourist and back country hiker, though the 1970 trip was in part to study changes in water levels as a function of the depth of water in Lake Powell. I am a mathematician and part of my work deals with constructing mathematical models.

I urge you to adopt Management Plan A and its related Wilderness Proposal A. This is an area of unsurpassed scenic desert and canyon splendor, and while it has suffered in quality from the drowning of some of its best canyon lands, it still ranks well with the best scenery in the world. Its combination of upland deserts and pinyon-juniper forests with sudden canyons, the magnificent variety in rock formations and geological strata, the variety of plant and animal life form a whole that will tempt me back again and again. It is threatened with overuse, particularly in the Escalante area, where the remnants of the Indian cultures and fabulous arches are easy prey to vandals and to even well meaning individuals who wish to pick up shards or touch the pictographs and petroglyphs. The proposed management plan (about which many details later) with its many pockets of RRU land interspersed amid wilderness and with its limitations on wilderness in some of the less-than-superb-areas will make the wilderness experiences less satisfactory and will put more strain on the top quality areas to carry the burden of wilderness-seeking individuals -- e.g. in the Orange Cliffs area, the southeast bank of the Colorado around the Rincon, the area east of the Dirty Devil, etc. I am particularly concerned about the deletions in the Purple Hills area and that east of the Orange Cliffs. I urge you to include the maximum amount of wilderness in the great areas of the Escalante Canyon and the land to and including the southern Kaiparowitz, the Waterpocket Fold and Circle Cliffs, the Orange Cliffs and the Needles, the San Juan River, the Dirty Devil and Dark Canyons, and other canyon tributaries

Additions and deletions I object to the deletion of the Purple Hills region from the GCNRA and from the Wilderness. Instead I would like to see additional land north of the current GCNRA added to the GCNRA. This would include the land directly west of and adjacent to the Waterpocket fold that would border the Capitol Reef National Monument. The amount of uranium in this region is small, and if a national emergency required that it be extracted it might be necessary to reexamine this decision. The deletion of the eastern part of the Orange Cliffs region for possible oil extraction by as yet undeveloped technology seems unwise at this time. The region should now be protected as part of the Orange Cliffs and Needles Wilderness area. I am very pleased to see the additions along the San Juan River and along the western tributaries of the Escalante, the former because of its superb scenery (second hand information) and the latter to complete and protect the roadheads into the Escalante Wilderness area. I am concerned about making too much of these roadheads, and hope you will not make anything but the extreme western tip RRU if that. The proposed designations on Map 3 show disturbingly large RRU assignments, which suggest encouraging overuse of the area. And

the substantial RRU area around Dance Hall Rock disturbs me. Let the incursions of civilization come just short of Dance Hall Rock so that the area southeast of there will be as they are now -- and as they were in the 19th century, attractive rocks and open space filled with apricot mallow and other wild flowers. Encouraging roadhead use at Harris Wash and 25-mile Wash to remove some of the pressure on Hurricane Wash and Coyote Creek is a good idea.

Roads and roadless areas I am very pleased to see that the general management proposal is negative on the proposed road between Bull Frog Basin and Glen Canyon City. That road would do severe damage to the wilderness character of the Escalante, Waterpocket Fold, and the vicinity of Stevens Arch. Please hold firm in your resolve not to allow that road to be built. Please do not pave the road from Escalante to Hole-in-the-Rock. I know it is a dusty drive -- I have made it three times -- but it will lead to overuse of the delicate parts of the Escalante Canyon. Those anxious to get in can get in now. I also urge you not to pave the 32-mile stretch from Boulder via the Burr Trail to the East Side of Capitol Reef and the 17-mile stretch within Capitol Reef from Highway 24 to Bull Frog Basin. I also that the graded roads betweeh Hanks Flat and Horseshoe Canyon and between Highway 24 near Hanksville to the Flint Trail be left unpaved. 356

Development Please keep minimum development at the roadheads along the road to Hole-in-the-Rock. Let us have no marina at Hole-in-the-Rock, but keep it as a historic and scenic site only. Likewise no marina at Dangling Rope Project Fireflood should be limited to areas outside the GCNRA for the present and the forseeable future.

Scenery and scenery classifications Your classification system tends to disregard the larger concept of what the country is like. It is not pieces of Class I, II, III, and IV pieces in isolation, but rather a complex whole. I think you have underrated areas in the Orange Cliffs (I know only the west side of the Green and Colorado Rivers well enough), around Dance Hall Rock, near Icdberg Canyon, but the main observation I want to make is that we need much of what you call Class IV and III scenery within the wilderness unit. I feel that Management Plan A accomplishes this and the general management plan is inadequate. (Management Plan B leaves so little outside the most spectacular, and not even all of that at the north end of the area, as to be an out-and-out disaster -- what little it tries to preserve would be subject to irredeemable degredation in short order.) The Wilderness proposal has so many small exclusions as to leave the hiker often close to potential development with its noise, effluent, etc.,

Some specific comments on the proposals: (I shall send a supplement at an early date as I do not have time to list all comments now. I hope they can be included as part of my commentary.)

On page 5 of the general management plan it is stated that the RRU zone mining and grazing are to be allowed to the extent possible. Why "to the extent possible"? It certainly makes me feel that as little land as possible should be so included. Even without this I prefer management alternative A. Grazing in parts of the area would not bother me, but mining should not be allowed in the areas described as wilderness under management alternative A, especially in the areas described above. 357

On page 27 of the management plan it is observed that the carrying capacity of the region, though unknown, is being approached in some areas. For this reason development of roadhead facilities in the Escalante region, particularly near Coyote Creek, paving the road to Hole-in-the-Rock, adding more marinas, etc., should be kept to a bare minimum or, as in the case of the paving, eliminated. 358

On page 30, referring to wildlife, predatory birds are mentioned, including the perregrine falcon.. This bird needs extensive wilderness that Management Alternative A provides. I was fortunate to see two of these birds when I was there in 1970. Also, in Willow Canyon, I saw the nest of a prairie falcon, and a young nestling prairie falcon, too young to be able to fly, who had fallen from the nest, being fed by its mother. (In one of the appendices it is stated that nesting of this species is suspected but not confirmed. I should like to confirm it for you.) 359

(and p 88)

Also on page 30/is reference to the bighorn sheep, whose habitats would be disturbed by development in the Orange Cliffs area if that part is lost from the GCNRA. Another reason for keeping this section in the wilderness area.

On page 42 is a candid appraisao of what is known of the archaeological and anthropological history of the region. I find the comments on pages 111-112 not quite comforting about the potential loss of some of this historic treasure. Having hiked through the country and having discovered some of the cave sites myself, sites now perhaps suffering from the effects of overvisitation, I hope the observations made on page 129 of the impact of the Management Alternative A will persuade you to adopt that alternative. 360

Robert Z Norman

GCNRA November 25, 1977

Comment on Volume 1 - Text Robert Z. Norman
A continuation of comments sent November 15

Page 59: Natural ar as in the management plan consist of only 50 per cent of the area, while the recreation and resource utilization, in which, as it is said earlier, mining and grazing will be carried out to the extent possible on nearly all the rest. There are so few areas, particul.rly in the desert southwest, wherenatural areas are primary that in this land of superb scenery and greatly varied topography, geologic and biotic zones, natural areas should be the dominant part. 50 per cent is entirely insufficient. Let us protect this area from mining. Management alternative A does so.

Page 66, item 1a. admirably observes that wilderness lands adjacent to proposed wilderness areas of Capitol Reef and Canyonlands have been recommended for status as Natural or Wilderness in the GCNRA. But some nearby parts in the GCNRA have not been given wilderness protection in the general manatement plan. It is not just the Waterpocket Fold and the Needles that need protection, but the adjacent areas as well that give the complete picture of the varied landscape. Management Plan A does this.

Page 67, item 2b. I sincerely hope that the different recommendations for the adjacent areas of the Grand Canyon National Park and those of the GCNRA will not lead to changes in the wilderness plans for the Park. I urge that nothing in the plan for the GCNRA be permitted to change the plans for wilderness designation in the Grand Canyon National Park.

Page 67, item 3. These are indeed outstanding natural areas and should be protected.

Page 75, first paragraph. The proposal for more extensive development should be underta with great care. Some of these areas are already at or in excess of their carrying capacity. Elsewhere in the document you mention the fact that carrying capacities have not been determined, but that exceeding the capacity on heavy summer weekends is a definite possibility. The Escalante area is certainly one for which this danger is quite real. For this reason further development in the Escalante area should be quite limited and carried out with a view to protecting the scenic and cultural (anthropological) treasures that are in the area. One way of doing this would be to eliminate motorboats in the arm of Lake Powell that fills the former Escalante Canyon.

Page 77. The paragraph beginning "Opportunities for backcountry recreation..." in 57 per cent natural areas makes it clear how much more opportunities there would be if instead 95 per cent were zoned natural or wilderness. The general management plan has too many incursions of RRU land into what could be a real haven for such backcountry recreation.

Page 79. The establishment of an Escalante Operations Center could indeed help control misuse and overuse of the Escalante area. I hope it will do so. Likewise the ranger station at Mexican Hat has potential benefit for protection of the area.

Page 80. The degredation of downstream areas from mining in the Purple Hills and other Escalante watershed areas should be sufficient reason for keeping these areas natural. The entire Escalante watershed should be protected, as the downstream Escalante Canyon area is one of the top scenic areas in the entire United States, even

though its best features have been lost under the waters of Lake Powell. Cf. top complete paragraph on page 89, where the potential serious erosional damage of mining in the Purple Hills is reiterated. These comments apply to the area north and east of the part of the Purple Hills region in the GCNRA. This area, west of Capitol Reef and north of GCNRA should be added to the GCNRA and put in the natural or wilderness zone, as mentioned in my comments on the DEIS on the GCNRA, paragraph under Additions and Deletions, page 1. (My DEIS statement was sent November 15.)

Page 81. The first full paragraph comments on the damage caused by vehicular use and other activity such as mining on the desert big-horn sheep. All the more reason for adopting Management Plan Alternative A.

Page 92. The recognized increase in air pollution caused by motorized boating would undoubtedly be most noticeable in the more heavily-visited narrow canyons such as the Escalante and its tributaries. Because of this and because of the potential for overuse I should like to see motorboats prohibited in the Escalante arm of Lake Powell. 3

pp 94-95. The impact of overvisitation on the archaeological resources is a serious one. The amount of deterioration of the pictographs in Davis Canyon between 1964 and 1970 was astonishing and depressing. Paragraph 2 under section 10 (page 94) says that "the general management plan will not result in ... substantial alteration of any of these [archaeological] resources listed on or qualified for the National Register." While I welcome the concern expressed for these treasures, I wonder how they can possibly be protected, particularly if motorboats can bring so many irresponsible people to them. Could the National Park Service perhaps be the only agency allowed to run motorboats in the Escalante Canyon, thereby providing for the needed control? The questions about related desecration by backpackers, top complete paragraph page 85, are of great concern to me, and are one of the reasons why I favor not paving the road brom Escalante to Hole-in-the-Rock. The last complete paragraph page 95 observes threats to the archaeological remains in the Orange Cliffs area (keep as much of it wilderness as possible) and comments on the water damaged pictographs in Davis Gulch. Perhaps they are now being damaged by water, but in 1970 those in the large overhanging ledge were being damaged by people touching them (for rubbings or otherwise).

Page 111 mentions, in the first paragraph, concern with designing facilities and development to avoid desecration and degredation of the area. This is laudable, but those working on the development will be aided if the size of the visitation to the most sensitive areas, such as Escalante, can be kept down by not making it as accessible as possible. See suggestions above.

Page 112, middle of first paragraph. I strongly recommend that the suggestion of having an archaeologist present during construction and development be made part of the general management plan rather than have the presence of an archaeologist only if the Regional Director deems it necessary. There are enough unknown archaeological resources in the area to warrant mandating such an assignment. 3

Page 126 (in the discussion of Management Alternative A) under b(1). The projected decrease in the number of isitors (in comparison with the general mangement plan) is stated to be about 10 per cent, but principally after 10 to 15 years. By that time the most sensitive areas will have reached or passed their carrying capacity, so the reduction can only be deemed beneficial to the preservation of the scenic and archaeological qualities that cause us to want to visit, explore, and protect it.

Page 129 details some of the advantages of the protection afforded by Management Plan A. The assertion that the restriction on motorized vehicles might hinder inventory and research is undoubtedly correct, though the area is so intriguing that it should be possible to find people who would happily backpack into the area, thus partly offsetting the disadvantage of not having motorized access. The claim that long-term adverse impact might occur is made presumably because of a decrease in protecion may be valid, but the short-term damage already in progress and continuing through overuse would probably outweigh it. The advantages of no motorized access are clear.

Page 134-5 (in the discussion of Management Alternative B). The overuse that would occur as a result of shrinking the Escalante Wilderness to its minimum, the completion of the road between Bullfrog Basin and Grand Canyon City, the extensive enlargement of the marinas (esp. Warm Creek) and tine completion of new marinas, the emphasis on vehicular access, etc., would make the whole area less attractive to visit now and much less attractive in the near future. The resultant effect on wildlife and archaeological remains would be severe, and the effect in scenic resources through siltation and overuse would substantially diminish their attractiveness. The calculations of the number of visitors seems to have ignored the decrease in the number of backpackers in the diminished area, but perhaps that is because in the short run there might be an increase (over the general management plan) from those following the advice of people like me who have loved the area so much, "Go see it now before it is ruined completely." (cf p 139, last paragraph)

Page 137. The addition of Coyote Arch to the protected area is a good idea, of course, but that is a feature of all of the plans as I understand them.

Page 145, last paragraph (extending onto page 146). The administrative simplicity claimed here as an advantage is so small compared with the advantages of protection offered by extending the protected part of the GCNRA to Mexican Hat as to be not worth mentioning. That isn't to deny that some way of simplifying any supervision or permit grants isn't a good idea -- a one-stop permit system does not depend on having the entire San Juan watershed under the jurisdiction of the BLM. 363

Page 170, first paragraph. While I am convinced from wilderness, scenic, and wildlife reasons that the Waterpocket Fold should be intact, the potential damage to archaeological and historic resources is perhaps the most compelling. That the archaeological sites are not yet in the National Register is typical of the area, since it has not been explored in detail by people compiling information for the register, as I know since I have been fortunate enough to find some apparently not previously recorded (though undoubtedly seen by others like myself). But, getting back to scenic 364

and wilderness values. I consider the Waterpocket Fold one of the prime wilderness areas in the GCNRA. It is one I have seen only from a low flying aircraft, and one I should like to visit on foot. I am no longer a spring chicken. Now in my 50's after knee and foot surgery I may not be able to visit as much of it as I would if the D-1 road were built. But I gladly forego such visiting, cheering for those who are able to get further into it than I shall. I know that I shall see some of it, and knowing that the rest is protected for the younger and sprier hikers is part of the pleasure I shall get from its protection.

Page 170, second paragraph. I disagree that paving the Hole-in-the Rock road will have no impact on the archaeological resources of the Escalante region. While much of the damage may be caused by those who come by sea (I mean Lake Powell), damage by land is by no means as difficult as the statement in the DEIS suggests. The Davis Gulch pictograph panels certainly can be reached by land even though the 3.5 mile trip is not the easiest. And if the recommendation (see above) that motorboats be prohibited from the Escalante arm of Lake Powell is put into effect the proportion of potential damage by land will be greater. But perhaps more important is the threat of damage to sites in other canyons than Davis, some of which may well be suitable for inclusion in the National Register. One of them, in Forty-mile Canyon, is easily accessible on foot from Willow Canyon. I know, because I have hiked it. There must be many others. Paving of the road to Hole-in-the-Wall would have a very significant effect on usage in general in the Escalante area. It would probably result in the speedy removal of shards, concretions, etc. except at areas that are guarded or difficult of access, and in the rapid deterioration of the unknown or lesser-known pictographs. The DEIS does not adequately assess this damage (on page 170 or elsewhere. 365

GCNRA
Comments on Appendices Robert Z. Norman

Appendix 3 Will there be opportunity for public review at the completion of Phase II? A number of nonprofessional people really know the area's archaeological treasures quite well and could make a worthwhile review at or before the conclusion of phase II. 366

Appendix 12 The description of wildlife, unlike that of plantlife in another appendix, is not complete. As an amateur interested in birds I should like to add the following: At the north end of the GCNRA along the Colorado River can be found yellow-breasted chats (1965), and probably in other locations too. In several canyons, particularly Forty-mile, are a number of olive-sided flycatchers (1965). These were seen in May, and may have been in migration. Dates, approximately May 15 (chat) and May 25 (olive-sided fly catcher). The appendix states that among birds believed to nest in the area though no definite observations are known to support it is the peregrine falcon. I saw the nest of the prarie fl in lower Willow Canyon, and a very fluffy young baby prarie which must have just tumbled from the next. It cried loudly for its mother, who eventually came and fed it. 367

Appendix 26 I think the story of the young man who built a small structure labeled with the word Nemo in Davis Canyon should be included in the history. Any of the local guides will be glad to help fill in the details. To suggest one, consult, P. O. box 338, Green River, Utah 84525. 368

In general the appendices were very well done and helpful supplements to the DEIS.

Comments on maps: These too are well done, in fact excellent. The outline of the GCNRA on the maps that are bound and on tne overlays differs from that shown on the 1969 topographic map. This caused me some problems in identifying areas on the maps with the more familiar (but probably less accurate) topo map. I also notice that the titles of the arches are those imposed by the National Geographic Society rather than those used by the local residents, alas.

The overlay maps were a graat aid

Most of my comments relative to the maps were made in the main body of my remarks that I sent on November 15. I should only like to add at this point that using overlay 3 on Map 8 and 38 shows Management Plan B plans to eliminate from the GCNRA two areas that are adjacent to BLM regions that are primitive or outstanding natural areas or areas having such outstanding values recognized by BLM. These are at the northwest tip of the Escalante region and the southeast tip of the Kaiparowitz. I certainly want to see these regions given wilderness protection.

Responses to R. Z. Norman Comments

356. The NPS has no authority over the treatment of roads outside of the parks you mentioned. A general management plan is scheduled for Capitol Reef in the future, and the roads you described will be examined during that planning effort.

357. The text has been changed to remove a misunderstanding.

358. Refer to response 224. The development of trailhead facilities will serve to disburse travel through the Escalante rather than concentrate it on the better known existing access points such as Coyote Creek. It has been well demonstrated that pressures on marina and lake access facilities determine the carrying capacity of those sites rather than an overall carrying capacity determination for the lake and its surrounding beach campsites. Modification to, or addition of marinas will consider the cumulative effect of increased visitation funneling through these access points.

359. The NRA bird list will be amended to include your information.

360. The NPS has begun the first of a six year archeological rehabilitation and inventory project on Lake Powell and its surrounding environs. As a part of this, the extensive cultural resources in Lake and Moqui Canyon have been surveyed, as well as additional sites throughout the NRA on an opportunity basis.

361. This concept was debated in the development of the alternatives presented in the DES, and ultimately decided against even in the most restrictive alternative for the following reasons: (1) The intensity of use by motorboats is acceptable now even during the busiest part of the season. (2) The distance from marina facilities (32 miles from Bullfrog-Halls Crossing and 64 miles from Wahweap) has been a constraining factor in boat trips to the Escalante arm of the reservoir. Escalating gasoline prices are expected to perpetuate that constraint on boat travel to that area. (3) The elimination of powerboats on the Escalante arm would, because of the distances from water access points, effectively eliminate public access to, and

enjoyment of, the many exciting recreational values found on the arm and its tributaries.

362. Prior to any construction activities a site survey is conducted. If that site survey indicates the potential presence of cultural resources which may be distrubed during construction activities, an archeologist will be present.

363. The NPS and the BLM are cooperating in the development of a joint permit, which either agency could issue for all or part of the San Juan River float trip.

364. We acknowledge that the area is inadequately surveyed for archeological and other cultural resources. Additional surveys would be required for any surface disturbing activities. The criteria for National Register nomination would be applied to all sites discovered through such surveys.

365. The majority of that road corridor lies exterior to the NPS boundary and we have no influence over whether or not, or at what time it may become paved. While this may have some impact on portable artifacts, that impact is not readily quantifiable. Refer also to response 224.

366. There are no plans for public review of the plan, however, during Phase I, it is hoped that both professional and lay persons will provide background information on cultural resources.

367. Thank you for your sightings. They are now incorporated in the NRA records.

368. The NEMO site in Davis Gulch has been attributed to Everett Ruess, a young canyon explorer who disappeared while stock-packing in the Excalante region. This sidelight, while interesting, is a small piece in the mosaic constructed from the history of man's historic relationship with Glen Canyon and its tributaries.

Mr. Temple Reynolds
Superintendent, Glen Canyon RA
Page, Arizona 86040

November 14th 1977

Dear Sir,

First let me thank the people of the National Park Service for all the effort they have put into the Management Plan, Wilderness Proposal, and Road Study and the accompanying D.E.I.S. Although I disagree with much in the plan and proposal, the NPS has done an excellent job of presenting its ideas. The accompanying information is well organized and understandable.

I hope this letter has reached your office by the November 15 deadline. I had a very difficult time finding a copy of the D.E.I.S. and I hope my efforts have not been in vain. Next time around,please print more copies. You could even require deposits from individuals, like myself, who requested but did not receive a copy and who live far from any of the publicly available copies.

I have restricted my specific comments to the areas with which I am familiar, which is much of the N.R.A. south of Hite.

COMMENTS ON THE GLENN CANYON GENERAL MANAGEMENT PLAN, WILDERNESS PROPOSAL

ROAD STUDY, AND ACCOMPANYING DRAFT E.I.S.

I) Road Study Alternatives
I agree with the N.P.S. that no road should be constructed from Glen Canyon City to Bullfrog Basin As you pointed out, there already exists a paved, highly-scenic route only 278 miles long which would be even shorter if the ferry at Hall's Crossing was repaired.

II) General Management Plan
I strongly disagree with the proposed Management Plan, I generally favor the Management Zoning Alternative "A" - Preservation Emphasis. Specific comments:

p.5,paragraph 2, lines 1-5.
Wrong! The Natural Zone only contains those "outstanding scenic resources" designated on the Scenic Values Map (#15), which appears to have been drawn to match your Management Plan. Llewellyn Gulch (designated Class II on your map) is more scenic than Fifty Mile Creek or Fence Creek (both Class I). Also, Slickrock Canyon, Moki Canyon and North Gulch (all Class III) are as scenic as much of the Escalante (I will address the whole concept behind Map #15 later).

In the same sentence it states that the Natural Zone includes the "relatively undisturbed areas, isolated and remote from the activities of man". Not true. Refering to Map 12 concerning roads (which is a good indicator of isolated and remote areas): The area south of Hall's Crossing (Lake Canyon and Iceberg Canyon) has no roads but is still left out of the Natural Area, Wilson Mesa has only the historic Hole-in-the-Rock Road and a jeep spur to the Rincon and is one of the most isolated parts of the R.A. (also left out of the Natural Area). Similar areas left out are Hall's Mesa, the north bank of the San Juan River on either side of the Clay Hills 369

Crossing Road, the shore of Lake Powell from Bullfrog to Ticaboo Creek (no roads), Scorup Canyon and the Horn (no roads). 369

In short, the proposed Natural Area falls far short of including what it should. I have listed only some of the areas that should not have been omitted and these areas do qualify under the Park Service criteria.

p.5, paragraph 3.
There is a great deal of discussion in this D.E.I.S. over where to draw the Lakeside boundary of the Natural Zone. The best solution, which you outlined but did not choose, is the actual reservoir shoreline, wherever it happens to be. major defect of this document is that no consideration whatsoever has been given to designating the surface of the Lake as "natural" or "closed to motorized traffic". You often mention canoeing. So why not set aside portions of the Lake for nonmotorized recreation? I recommend the Escalante Arm, Moki Canyon, Last Chance Bay, the San Juan Arm and Navajo Creek.

Two years ago, I canoed from Rainbow Bridge to the head of the Escalante Arm. While on the Escalante Arm I neither saw nor heard any motor boats. The trip was a quiet, enjoyable, inexpensive, and energy conserving way to see Lake Powell and the surrounding country. The reason we were not disturbed was because it was the middle of January. This form of recreation should be encouraged and protected by appropriate regulations. 370

p.7, Deletions.
Purple Hills "a mineralized area of relatively low scenic value". This area is at least as high in scenic value as in mineralization. The Chinle Formation, from which the name Purple Hills is derived, according to your own study "is perhaps one of the most scenic and most colorful red-bed deposits on the Colorado PLateau" (volume 4, page 52). The proposed deletion of this area seems to be based on the Uranium potential and to ignore the obvious and significant scenic values.

Also, the recreational values have been ignored. This is the headwaters of the Moody Canyons, an excellent hiking area. When hiking into or out of the Middle Moody Canyon, one travels through the Purple Hills. The contrast of the broken hills and the confining canyon is spectacular. The petrified logs in the Purple Hills are also spectacular.

Please omit the Purple Hills deletion proposal. It is inconsistent with your own information and your own Natural Area and recreational objectives.

Volume 1, p.8, Section E.
The utilities planning corridor should be reduced in size. On Map35 the 'note' states that the Kaiparowits lines should be "ignored". Then the corridor's western boundary should be re-drawn midway between the Navajo-McCullough and the Kairparowits-Moenkopi lines. 371

Volume 1, p.9
The Preliminary Wilderness Proposal. As I stated before, significant areas were omitted from the Natural Zones; these areas should be reclassified as Natural and therefore automatically fall within the Wilderness Proposal.
Exclusions: The State lands, State mineral rights, federal oil-gas leases and boundary additions should be included in the wilderness proposal. All valid and existing rights are protected by law, and therefore all inholdings will be protected until traded for of bought out.

page 28.
You correctly state that Coyote Gulch now receives more hikers than it can handle. This was not true five years ago. The Paria River is also used past capacity at certain times of the year. These are the first signs of a major influx of hikers into the canyon country, and should alert the NPS that in this area wilderness is the most important recreational resource, possiblv excepting the reservoir.

page 28 Scenery (and Map 15).
This is probably the most inaccurate section of the whole document. While five maps are used to explain the grazing situation in the R.A. (and it is explained fairly well) only one(#15) covers scenic values. Considering that this is a Recreation Area, you have made a completely inadequate study of the scenic resources. The scenic resources should be analysed from at least the following different perspectives:
a. from the Lake surface
b. from the canyon floors
c. from the benchland above the canyons
d. from promotories (eg. Muley Point, Fiftymile Point, Navajo Mountain).

Specifically:
1) The slickrock domes and tableland between North Gulch and Moki Canyon (Class IV). This is spectacular landscape, almost barren of vegetation, and contrasts vividly with the verdure of Moki Canyon when viewed from Bernhiemer Alcove.
2) The Purple Hills which I have already described. 372
3) The tip of the Kaiparowits Plateau: This near-level, open forest (Class IV) is only appreciated when one walks or rides through it. The gentle, hospitable scenery let's one appreciate the surreal lanscape that unfolds below in all directions.
4) The cliffs and slickrock at the 'corner' of Lake Powell between Hole-in-the-Rock and the mouth of the Escalante (Class III). If one hikes up the old stock trail from the Lake to the plateau, what appears at first as only "rolling slickrock benchlands", becomes an intricate system of drainages, cul-de-sacs, domes, ravines and ridges, all carved from the Navajo Sandstone with desert gardens hidden in the sand-filled pockets. At the top, one can view accross the Escalante or back accross Lake Powell at seemingly endless slickrock (which only rates Class III according to N.P.S.).

In summary, the recreation area is all highly scenic, one must only find the right perspective. These scenic resources should be protected by Natural Area designation.

page 30.
After stating that Red, White, and Gypsum Canyons are among the few viable Bighorn Sheep areas in Utah and that they contain known calving grounds, the White and Red Canyon area has been left out of the Natural Area prposal. Whereas you state (p.128) that the preservation emphasis alternative would protect all lambing grounds. The Desert Bighorn alone is reason enough to include Red and White Canyons in the Natural Area.

page 42 Archeological Resources (and Map#20). These should be protected by additional natural area-wilderness designation and nonmotorized restrictions on certain parts of Lake POwell. Natural Area designation for Lake Canyon and the south side of Moki Canyon, and nonmotorized designation for Lake, Moki, Escalante, and Navajo Canyons.

For instance, the Davis Gulch pictographs have been severely vandalized by tourists and the three roof ruin has been regularly used as a latrine. (Photos taken of the pictographs by the salvage survey show that the damage is as recent as the reservoir). Restricting the Escalante Arm to nonmotorized use would limit the number

of visitors ot the area. Also, canoeists are less likely to deface prehistoric sites than motorboaters, the former tend to respect their surroundings more, having worked harder to get there.

page 43.
Lee's Ferry (and please spell it 'Lee's' not 'Lees', no matter what the map says) is the single most historic spot on the length of the Colorado River. It should be treated as such. Unfortunately, it is also the only reasonable boat launch for the Grand Canyon. These two conflicting values can coexist, but the historic values are irretrievable and should be protected first. In Table 3, the proposed scope of development is inappropriate, i.e. the motel/restaurant complex should be excluded. This need can be handled by private concerns at the Town of Marble Canyon.

page 75 Impacts on recreational use.
"...will enhance the safety of backcountry recreationists in the Escalante Canyon." I do not consider this a positive impact. The value of wilderness recreation decreases as the safety increases. I agree that the numbers should be controlledtto protect the resource, but please do not protect the people. 373

page 77, paragraph 3.
Part of the experience of hiking the Escalante Canyons is driving out on a dirt road (albeit, a well graded one). Paving it would encourage over use of the area and would degrade the present recreational experience. The Escalante Operations Center should be located in the Town of Escalante, not out on the desert. 374

page 77, paragraph 4.
The canyons are a "major backcountry resource." so are the benches and plateaus. There are very few desert flatlands in the United States that are closed to motorized vehicles and reserved for wilderness recreation. One outstanding possible exception could be Wilson Mesa. If it were closed, it would promote hiking in a unique and isolated area of scenic, geological, archeological and historic interest.

page 77, paragraph 5.
"No major, new recreational activities will be established." This would not be true if portions of the Lake were closed to motorized vehicles. You could encourage canoe camping on the Lake which is now almost nonexistent.

page 80, para. 3.
"In particular, the proposed deletion of the Purple Hills area (11,410 acres) from the Recreation Area will make erosion-susceptible rocks vulnerable to uranium mining. This activity would result in severe erosion, and the sediments that might accumulate in the drainage feeding the Escalante River could seriously impair the scenic quality of these Class I (outstanding) areas." I couldn't have said it better. Do not delete the Purple Hills!

page 92, sect. 9, para. 1.
"The air quality of the southern part of the Recreation Area is seriously impaired by the stack emissions from the Navajo Power Plant." This is the same area that had the cleanest, clearest, air in America ten years ago. The N.P.S. should recommend Air Quality Designation Class I for the N.R.A. and insist that the pollutants be controlled.

On a rare, clear day two years ago (when the wind was blowing the smog to the south into the Grand Canyon). I was able to pick out Bryce Canyon from Navajo Mt. Only four days later, from the same spot (after a wind change) the high plateaus were completely obscured.
The canyon country is an area of spectacular, long range vistas. This outstanding and rare resource, dependent on clean, dry air, should be protected at all costs.

page 125.
I strongly support Management Zoning Alternative A: Preservation Emphasis, with the following exceptions:

Portions of Lake Powell (as listed before) should be in the Natural Zone or designated as "closed to motorized traffic. "

The last eight miles of the Hole-in-the-Rock road should be included in the Natural Zone and closed to motorized vehicles. After all, they didn't use motors in 1880. The same applies to the continuation of the road accross Wilson Mesa. The historic values are even better appreciated if one has to walk where the pioneers walked, instead of riding along in a truck. 375

I am not familiar with the Flint Trail and the road to Last Chance Creek, so I will not comment on them, one way or another.

The Clay Hills Crossing road is needed, but it should not be improved.

The development area at Lee's Ferry should be decreased in size to the minimum area necessary to provide boat access to the Colorado River. The rest of the area should be zoned Natural or Cultural.

page 126 Impacts on Recreational Use.
"8 to 12 percent fewer people would beable to use and enjoy the recreation area". ..."manifested principally in the long term." This prediction is based on an increase in motorized over nonmotorized recreation. It maynot come true. Hiking and canoeing are growing rapidly in popularity. Also, they are much less energy consumptive than windshield tourism (whether in a motorboat, four-wheeler, or whatever) and should be encouraged as a conservation measure.

page 144
I strongly support Wilderness Alternative "A" with the corresponding changes in detail as outlined for the Management Alternative "A".

Map 8
This map only shows designated natural areas. It ignores all defacto wilderness surrounding the N.R.A. This omission should be corrected.

I hope my criticism has been helpful (or at least intelligible). Thank you for your time and effort.

Sincerely,

Bill Resor
Snake River Ranch
Wilson, Wyoming 83014

PS If you have any copies of any of the volumes of the DEIS, I would still appreciate receiving them. Thankyou.

369. The Natural Zone has been enlarged by almost 50,000 acres to include some of the areas you mentioned.

370. The surface of Lake Powell was not exclusively considered for motorless travel. However, it remains open for non-motorized use such as canoeing, kayaking or sailing. Your trip points out the relative ease by which this activity can be pursued under the existing conditions. Refer to response 222.

371. The utility planning corridor has been retained in its entirety in order not to preclude future utilities right-of-way which may require crossing of the Colorado River. Refer to response 278.

372. The Natural Zone (Wilderness Recommendation) in the proposal includes considerable acreage in all four of the scenic types, which would give these maximum protection. Refer to responses 196 and 246.

373. There is an implied responsibility with the NPS to respond to emergency situations which may occur in lands under our jurisdiction. Establishment of administrative facilities in an Escalante Operations Center will make ranger personnel more visible and reduce response time to emergency situations.

374. Refer to responses 224 and 243. The future Escalante Operations Center site has not been selected; however, three alternatives have been identified through the review of the DES.

375. The existing Hole-in-the-Rock road does not completely follow the historical alignment or in such instances where it does, historical alignment has been incorporated in the existing county maintained road. We see, therefore, little advantage in closing the road to motorized vehicles. The Wilson Mesa road corridor is in the Cultural Zone because it includes a portion of the Morman Trail and is also non-wilderness. The historic resources here will be examined during a future Cultural Resources Management Plan. That study should provide sufficient information upon which to make management decisions as to the most appropriate means of access in this area.

E. R. DUMKE JR.
2285 COTTONWOOD CIRCLE
SALT LAKE CITY, UTAH

November 15, 1977

Mr. Jim Isenogle
National Park Service
125 South State
2208 Federal Building
Salt Lake City, Utah 84138

RE: Glen Canyon Management Plan

Dear Mr. Isenogle:

I support the original State proposal. For the record I am enclosing my review of the 1975 governor's committee on Glen Canyon and also my letter dated October 20, 1977 to Governor Scott Matheson on the five major issues and fourteen major problems with roads.

In responding to the Park Serice proposal on Glen Canyon I can only say you have done a terrible job of analyzing the needs of the public, particularly on the following parts.

1. The lengthy study of the governor's committee and its recommendations which you requested was largely ignored.

2. On wilderness and natural areas where the committee tried to eliminate major conflicts and came up with a meaningful natural area of 14.7 percent. Park Service seems more interested in an acceptable political figure of 49.7 percent. If your own records and recommendations from the field are examined, it will likely point out that several top people on your staff arrived at this plan and size of natural areas just because that is what they wanted and not based on facts. The governor's committee had already given most of the scenic class 1 and 2 areas shown on Scenic Values, Map #15.

3. The Glen Canyon to Moab road corridor and perimeter land exchange is most important. The Park Service natural and wilderness areas have been placed at critical points at the Kaiparowits Plateau, Orange Cliffs, and on both sides of the Green River would permanently block this road. Park Service is not only trying to block new development or improvements within the park but also trying to influence outside the perimeter by control of vital sections. Land exchange to place the road outside of the Park Service jurisdiction would allow development. Most critical is removal of the wilderness at the end of the Kaiparowits and the right to complete the road to Hole-in-the-Rock. Without this point the west side road system is dead. The road would give another alternative method for people to see the lower lake area by car thus reducing congestion on the lake and the overcrowded Wahweap area which is already handling 85% of the visitations. The Utah towns and marinas would then be more accessible and able to carry a greater part of the business.

4. The Glen Canyon to Bullfrog road, already agreed on by Congress, has been cut out by the natural area at the Escalante and also at the Kaiparowits. These corridors must be kept open. While the first is very expensive and might not be built for many years the latter is expected to develop with mining on Kaiparowits thus opening the road as far as Hole-in-the-Rock. Elimination of that natural area is important.

5. Considering long delays on a Trans-Escalante road it becomes even more important to delete the Harris Wash - Silver Falls area for better access to Burr Trail.

6. Your Plan "B" did not show the State's request that the area from Burr Trail - Swap Canyon south be deleted from Capitol Reef, the areas south being added to Glen Canyon leaving a road corridor for road development. This would also eliminate the wilderness blocking access to Swap Mesa which is out of Capitol Reef and to Halls Creek in Glen Canyon. Being close to the Utah concessions, Halls Creek will get more use with growth. It also will furnish better access to hikers going to the natural areas and is a good but restricted four-wheel drive area.

7. The Moab - Hite Road has been ignored in your study. The preferred route was inside Canyonlands below the Orange Cliffs. From the area crossing the Green River the road should be transferred from Canyonlands to Glen Canyon to eliminate the continued cross-over in both parks. You show that the road would join the Hans Flat Road but then block its decent near Flint Trail (Page 64, Volume I). 376

8. In-park roads should not be closed when closing access to other areas as found in lower Halls Creek and near Mexican Hat. 377

9. State lands which become land locked within the recreation areas because of surrounding wilderness, inaccessibility, or restrictive policies for access and resource development become worthless to the State and should be covered by an early exchange agreement. The use of wilderness or natural areas to block future perimeter roads which must pass within the park and control development outside of the perimeter of the park must be eliminated. 378

10. Map #34 shows roads to remain open but does not permit additional roads for utilization of State sections, mining and grazing leases, and multiple use. It shows 80 miles to be closed but does not show roads closed in Halls Creek because of the Capitol Reef closure to Halls divide. It does not make note of improvisions for new roads under multiple use to service State lands and mineral development. 379

11. Compared to the development area assigned at Wahweap the area at Bullfrog and Halls Crossing are too small and should be expanded to the area shown on Map #11. Halls Creek should be included as it is a heavily used area and could be serviced by the lower Halls Creek Road. The future marina at Dangling Rope should be connected to road to allow servicing and reduce water traffic.

12. Resource development policy should be maximized but this can only be done where easy access can be developed to the state and federal lands in question within the recreation area.

Sincerely,

E. R. Dumke Jr.

ERD/wl

enclosures

380

E. R. DUMKE JR.
2285 COTTONWOOD CIRCLE
SALT LAKE CITY, UTAH

October 20, 1977

Governor Scott Matheson
Governor State of Utah
State Capitol
Salt Lake City, Utah 84114

Dear Governor Matheson:

I have been asked for my opinion on simplifying the issue on Glen Canyon, Canyonlands, and the Capitol Reef areas on which legislation will soon be pending. I see five major issues which would cover the most important problems and which I hope will be of use to you.

1) A consolidated review of the total impact of these three parks including total acres withdrawn, the affect of closures on perimeter lands, and the restrictive points of the Glen Canyon to Moab road system.

2) Control of perimeter roads (preferably through land exchange) to insure development and maintenance.

3) Guarantee for use and improvement of interior roads.

4) Maximize multiple use areas in the recreation area except for highly scenic withdrawn areas.

5) Guarantee exchange of non-useable state sections for perimeter development.

The major issue is the Park Service policy of not only discouraging access and development within the parks but also restricting development in the perimeter areas through closures of existing access routes.

A review of the above five points should demonstrate the collective impact of the total acreage proposed to be withdrawn in the three parks. It should bring into focus the use of the recreation area (and multiple use) versus a national park area.

It will also point out the attempts to cut the Moab to Glen Canyon road system through Park Service controlled areas, wilderness areas, or withdrawn areas. Cutting this system at any one part reduces the need for other sections. If corridors are left open the road can develop and through helping the areas, still more demands will come for better roads. Roads in the park will be difficult to develop because of Park Service attitude and critical funding problems.

Major problems on the Glen Canyon to Moab road are as follows:

(* designates most critical)

	LOCATION	OPTION
1)	South Kaiparowits	Delete from park
* 2)	Kaiparowits	Delete from park or eliminate wilderness and get road agreement
3)	Harris Wash & Silver Falls	Same as above
* 4)	Burr Trail	Road corridor between parks with south area transferred to Glen Canyon
5)	Bullfrog Creek Crossing	Delete from park
* 6)	Orange Cliffs - Middle Bench (preferred route) or alternate High Bench via Hans Flat	Transfer Canyonland sections to Glen Canyon. Get road agreement and delete wilderness
* 7)	Green River Crossing	Delete from park or delete wilderness and get road agreement
8)	Hans Flat	Delete from park
9)	San Juan new extension	Delete from park
10)	Wilson Mesa near Halls Crossing	Delete from park
11)	Lower Halls Creek	Transfer from Capitol Reef to Glen Canyon and eliminate that wilderness area in both parks

Guarantee for use and improvement of interior roads. Many of the above roads would fall under the section if not deleted from the park otherwise the main interior roads would be:

12) Bullfrog to Hole-In-The-Rock (Trans-Escalante)

13) Hole-In-The-Rock

14) Road North from Hite

Maximize multiple use areas in the recreation area except for highly scenic withdrawn areas. Natural use areas of scenic quality were set forth in the state's alternative "B" based on Map 15 of Scenic Values excluding major conflicts designated on Maps 21 through 34.

Guarantee exchange of non-useable state sections for perimeter development. Park Service proposal includes 27,620 acres of state land and 1,260 acres of state mineral rights (Map 4). Unless this acreage is accessible by road and allowed to be used the state should require a specific agreement allowing exchange for sections outside of the park for perimeter development and natural resources.

For simplification, a number of items have not been discussed including the need for larger development areas in Utah's section of the park as is found at Wahweap (Map 11). Also not discussed is the need for perimeter development areas outside of the Utah's concessions. These would give the same support as the town of Page gives the Arizona concession at Wahweap and will be essential to increase Utah's share of the Glen Canyon visitations which are now running about 15 percent.

I hope the above information will be of help to you.

Sincerely,

E. R. Dumke Jr.

ERD/wl

attachment

cc Dell LeFevre
Blaine Kay
Gordon Harmston

REVIEW OF THE 1975
GOVERNOR'S COMMITTEE ON GLEN CANYON

1. In the Wilderness Review Hearing for our Parks in 1974 and 1975, the people of Utah expressed a desire for development and concern on assignment of land to wilderness status versus the conservation stand for nearly total assignment to wilderness with phase out of many roads and facilities. Tourism and resource development is extremely important to the struggling communities of Southern Utah.

2. REASON FOR THE COMMITTEE. With the start of the Glen Canyon hearing, Park Service changed their procedure and did not recommend any particular proposal. Instead they invited public comment and requested the Governor's committee to establish the State's position. It was stated if such a committee would make a conscientious assessment of lands available for wilderness versus other uses, their study would be given serious consideration in drafting the Park Service recommendation and legislation for Glen Canyon.

3. WILDERNESS - NATURAL AREAS. The committee tried to establish a substantial and meaningful wilderness area. This would include the most scenic areas set forth, in red, on Map 15 of the study, which were away from established roads and areas of use, on Map 34. The areas of potential mineral values (Maps 21 through 29), areas around marinas and development sites (Map 11) would not be included in natural areas. Land areas around the marinas such as Halls Creek are getting increasingly heavier recreational use. Numerous conflicts were found in the upper Escalante which were partially resolved by leaving most river beds of scenic canyons (Map 15) in natural areas but the high areas for multiple use. All of the area south of the Bullfrog to Hole-in-the-Rock road and north of the old river channel, would be in the natural area.

4. ROADS. A criteria for protecting the roads in and around the perimeters of the area was a major concern since the Park Service had neither the desire or funds to build and maintain the roads planned for that area. A plan was worked out, where land would be exchanged so that the perimeter roads would remain outside of the Park to aid construction and maintenance. The important perimeter roads running in and out of the recreation area were: The Glen Canyon City to the Hole-in-the-Rock road; Harris Wash Cross-Over; Burr Trail to Bullfrog Road; and Wilson Mesa Trail, south of Halls Crossing. The lower Halls Creek area, south of Burr Trail with its pioneer trail access to Lake Powell should be transferred to Glen Canyon. The south boundary of the Capitol Reef Park should end just north of the Burr Trail, Swap Canyon line establishing a corridor for the development of the Burr Trail and opening of Swap Canyon. The use of small strips of wilderness and closed areas to block roads and control areas outside of the Park Service jurisdiction was severely criticized. Examples are the closures at the Harris Wash Crossing, Lower Halls Creek, Kaiparowits, and Swap Canyon. This type of administrative action was a major reason for desiring roads to be outside Park areas.

5. The Bullfrog to Hole-in-the-Rock Road was to be protected by a corridor. Senator Moss had stated that this road was established in the original legislation by the Congress and was not subject to Park Service review.

6. The Moab to Hite road is also threatened where it passes through the Orange Cliffs. The natural area designation on both sides of the possible road alignment blocks any flexibility as well as conflicting with the coal, petroleum, and uranium resources in the area. Here again there should be an exchange of lands to keep the road corridors in the Glen Canyon Recreation Area rather than leaving small sections in the Canyonlands National Park. Certain roads in the Hans Flat area near the west boundary, should be left out of the Recreation Area.

7. Resource development is critical to our State and communities around Glen Canyon. Utah's position required that special efforts be made to accomodate such development. Where there is activities in areas away from the "highest scenic value", on Map 15 such areas should be deleted from Glen Canyon. Such examples could be found on the Kaiparowits Plateau, Upper Moody Canyons and Orange Cliffs. Resource areas in "highest scenic areas", where possible, should be allowed to develop under the multiple use concept and not be included in wilderness areas. It was hoped the attitude of Park Service would not hinder such development. The transfer of Lower Halls Creek to Glen Canyon would aid development and transportation of oil and gas (Map 23), tar sands (Map 26), uranium (27), and access to potential Halls Creek development sites.

8. Development areas were requested to be established outside of the concession areas to allow greater development than desired by Park Service, restrictions in the concession areas. It was decided that Utah's operations needed support areas in the same way that Page, Arizona supports the Arizona concession at Wahweap. Although 90 percent of Lake Powell is in Utah, approximately 85 percent of the visitations to Glen Canyon are made to the Arizona area.

The Park Service in their managing proposal has almost totally ignored the Utah's proposal and Alternate "B" does not completely show that proposal.

a. NATURAL AREAS. Where Utah had requested 163,000 acres for the natural area, the Park Service proposal assigns 620,000 acres versus 1,155,000 acres in Alternate Plan "A". Once Utah in good faith had conceeded 13 percent compared to 86 percent of Plan "A", Park Service just happened to arrive at 50 percent or half way between with apparently no consideration to the Utah study.

b. ROADS. The request to exchange lands, leaving the roads outside of the perimeter of the Park was ignored. The Park Service is apparently again trying to influence control over activities outside of the Park, beyond their jurisdiction, as they have in the Capitol Reef and other Parks. The Harris Wash Cross-Over will stay closed and was not shown on Utah's Plan "B".

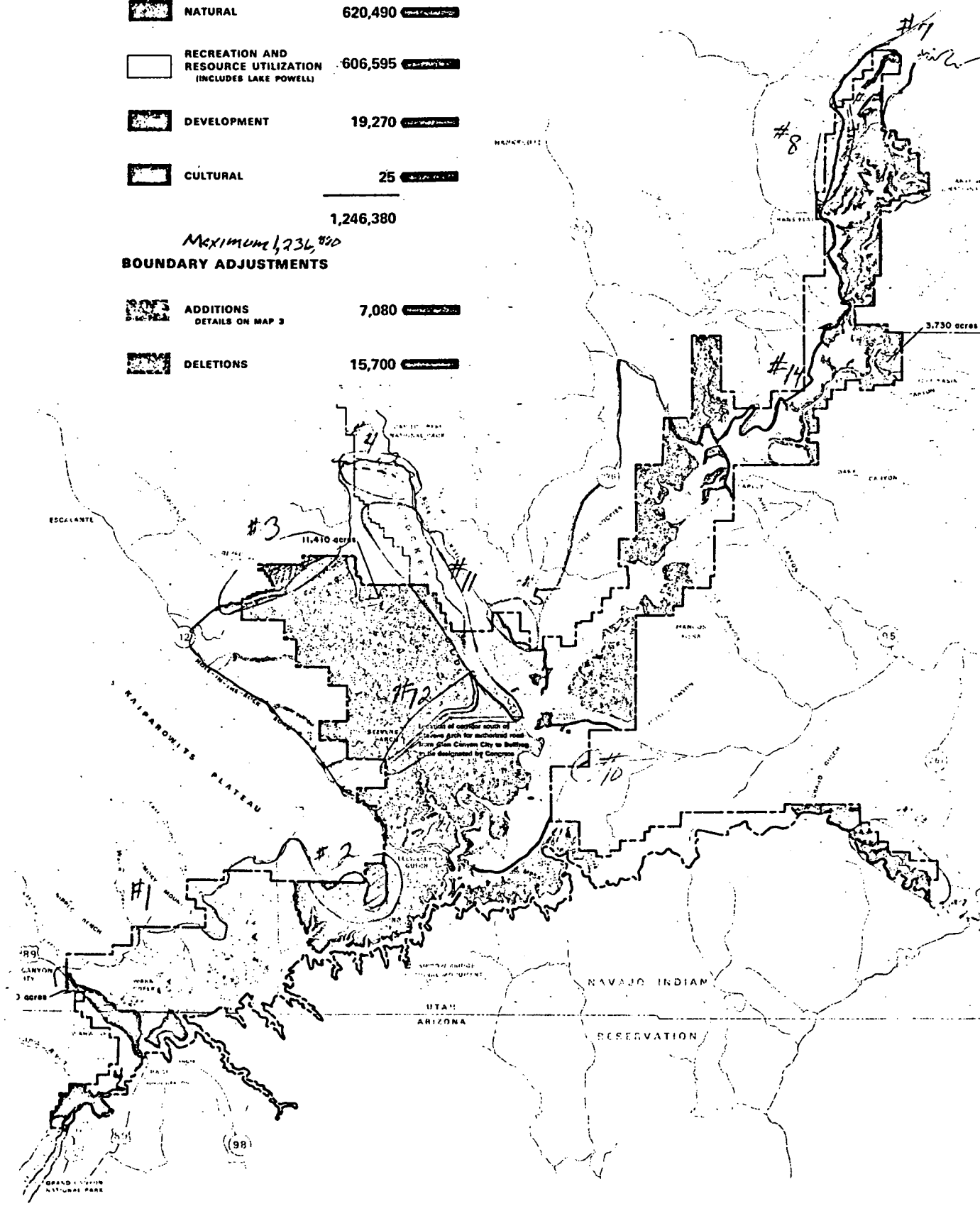
c. RESOURCES. The attempts to protect multiple use and energy fuels in the Escalante was almost completely ignored by establishing a solid natural area, excluding the high lands. However, on the additions west of the Escalante area it may be seen that the Park Service was willing to accept the principle of canyon beds only (Map 3) leaving the high areas outside of the Park. The maximum allowed area of 1,236,880 acres for Glen Canyon was exceeded by almost 20,000 acres.

d. The request to transfer Lower Halls Creek to Glen Canyon and open the old pioneer trail to Lake Powell, was also not even shown on Utah's Alternative "B". The closure of roads in Lower Halls Creek are not counted in the 80 miles of closures, since that was already completed administratively and therefore doesn't count.

e. Effect on roads for Alternative "A", Map 40, shows the way that control over small segments allows closure and access in such areas as the Wilson Mesa Trail south of Halls Crossing, the Harris Wash Cross-Over, Mooney Creek (both in the northern Escalante), Red Canyon, Little Rockies and Orange Cliffs. These represent pressures which are probably responsible for the restrictive Park Service stand on roads as well as increased natural areas and eliminating of resource development in their management proposal.

f. The request for development areas outside the Utah concessions was ignored and not shown on Plan "B".

In summary, the Park Service could have minimized natural area acreage, controlled the land by administrative action and still left options open for future development. Instead they have closed out half of the lands to natural areas and eliminated virtually all our options for future road and mineral development. The Park Service has made it clear that it plans to influence development even beyond the Park boundaries by control of small segments of boundary roads. The assignment to natural area would also permanently block the Glen Canyon roads around the Kaiparowits to Hole-in-the-Rock, Harris Wash Cross-Over, and Halls Creek. Improvements could be stopped in the Orange Cliffs, Bullfrog, Burr Trail, and many other places. It has become obvious that the National Park Service is engaged in a plan to block development within Utah's parks and also influence control outside park boundaries. The lack of good faith in dealing on the Utah plan is now very apparent. Only a concerted action on behalf of our elected officials and other interested parties can hope to change the long term disastrous effects which would result from the government proposal.



PRELIMINARY
MANAGEMENT ZONING PROPOSAL
GLEN CANYON
NATIONAL RECREATION AREA
ARIZONA AND UTAH

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

MAP 2

Responses to E. R. Dumke Jr. Comments

376. The Moab-Hite Road was shown on DES Map 6 as a proposal of the Utah State Department of Highways from information provided by them.

377. The Halls Creek road closure is consistent with the closure of the upper end of the same road within Capitol Reef National Park. The road below Muley Point along the San Juan River has been placed in a corridor to insure its continued accessibility as far as John's Canyon. Additional roads to State sections and existing mineral rights will be considered on a case by case basis. It must be remembered that the minimum tool for access into wilderness for the purpose of servicing non-Federal rights could be ruled as helicopter access. There is no guarantee of favorable consideration for additional roads in an area managed as wilderness. All new park construction undergoes a review for both design and aesthetic qualities. The NPS hopes that true consideration for aesthetids can thus be rendered.

378. The NPS is extremely desirous of exchanging, through the BLM, those State lands remaining within the NRA. It is our understanding that steps are now being pursued which would accomplish this at an early date.

379. DES Map 34 has been revised and is now Map 7. It shows existing roads only. The road you mentioned in Capitol Reef was closed several years ago and is not a part of this FES.

380. Development Concept Plans for Bullfrog and Halls Crossing have been prepared and Map 1 shows the area considered under those plans. Both visitation patterns and topography vary significantly between the three developed areas. We reject the idea of Halls Creek remaining open via the Halls Creek road, as this would conflict with the final Wilderness Recommendation made for Capitol Reef National Park. Dangling Rope Marina will become a land based but water accessible development only, as opposed to developed road access which would not only be extremely cost expensive but, environmentally expensive as well.

William J. Lockhart
3616 Hermes Drive
Salt Lake City, Utah 84117

18 November 1977

James L. Isenogle
Assistant to the Regional Director,
Utah
United States Department of the Interior
National Park Service
Utah State Office
125 South State Street
Salt Lake City, Utah 84138

Dear Mr. Isenogle:

If possible, I would appreciate your substituting the enclosed letter for my letter of 15 November 1977 commenting on the Glen Canyon draft EIS. This form of the letter is intended to be a more accurate and precise statement of the positions advanced in the former letter. For that reason, I trust that it may be treated as a substitute for the original timely comment.

Very truly yours,

Bill

William J. Lockhart

WJL/dlh

Enc.

William J. Lockhart
3616 Hermes Drive
Salt Lake City, Utah 84117

18 November 1977

James L. Isenogle
Assistant to the Regional Director,
Utah
United States Department of the Interior
National Park Service
Utah State Office
125 South State Street
Salt Lake City, Utah 84138

Re: Draft Environmental Statement for the General Management Plan, Wilderness Proposal and Road Study Alternatives for Glen Canyon National Recreation Area

Dear Mr. Isenogle:

The main purpose of this letter is to endorse and urge the Park Service's serious consideration of adopting its proposed Alternative "A" Management Plan and Alternative "A" Wilderness Proposal, and to raise certain questions which suggest an obligation to expand significantly the area managed to preserve wilderness values.

Of all your proposed alternatives, Alternatives "A" promise protection of a greater proportion of lands which are now de facto wilderness and thereby comply most closely with the requirements of the Wilderness Act. As I understand the requirements of that act, de facto wilderness which has been proposed for consideration as wilderness must be preserved in a fashion consistent with that designation until action on the proposal. And as I understand Parker v. United States, adjacent areas which meet wilderness criteria and which could be included in an enlarged wilderness proposal must also be preserved. That certainly describes major portions of the recreational area beyond the bounds of the formally proposed Escalante Wilderness Area. In addition, your draft statement emphasizes that significant portions of roadless BLM lands adjacent to Recreation Area lands are now managed under actual or de facto "natural" or "primitive" designations. Since all of those areas and other roadless areas under BLM management are required by the new Federal Land Policy Management Act to be protected until final designation as wilderness, there is the probability of substantial expansion of the areas finally designated as wilderness by presidential or congressional action. These possibilities suggest:

(1) An obligation to broaden the management plan to protect all areas adjacent to (a) pending wilderness proposal areas, or (b) areas adjacent to all wilderness study obligation areas which may be identified in compliance with the new Federal Land Policy Management Act; and 381

(2) An obligation to review the management criteria to be established under your proposed "Natural Zone" and "Recreation and Resource Utilization (RRU) Zone" to be sure that those criteria will preserve all areas as potential wilderness which may later qualify for and be designated as wilderness. 382

(3) Although the new Federal Land Policy Management Act requirement for review and protective management of roadless areas applies only to BLM-managed lands, it seems clear that that provision must be read with 16 U.S.C.A. § 1132(c) to require that all roadless and potential wilderness areas which lie within adjacent areas administered by BLM and the Park Service must be protected by management criteria which will assure protection of the entire area for wilderness designation. It is inconceiveable that Congress intended to permit roadless areas of appropriate size and quality to be foreclosed from protection and designation as wilderness merely because neither Interior agency has sole control over the whole area. 383

(4) In making these judgments, you must consider the effect that your management designation may have on the later feasibility of designating adjacent BLM roadless areas, or overlapping areas, as wilderness. If, for example, RRU designation would create intrusion adjacent to BLM roadless areas which otherwise would later qualify for wilderness, or which would qualify if joined with adjacent Park Service lands, the RRU designation should be re-considered. 384

With respect to the assessment of the various road study alternatives, I strongly urge your serious consideration of the "no road construction alternative." Any road construction through the Escalante drainage would fundamentally alter its natural and wilderness characteristics; the area is not so large that it can easily absorb the intrusion of road construction and traffic. In addition, I find nothing in your draft environmental impact statement that deals with the fundamental obligation under 49 U.S.C. § 1653(f), as interpreted in Citizens to Preserve Overton Park, Inc. v. Volpe, to make findings and determine whether any of the proposed routes could ever meet the requirement that there be no feasible and prudent alternative to the use of the Recreation Area lands adjacent to Escalante. In addition, your analysis ought to give consideration to the further requirement of § 1653(f) that planning agencies provide "all possible planning" necessary to minimize harm from the road development. In my judgment, these standards require the most sophisticated investigation and would inevitably demonstrate the impropriety of any road which would cross the heart of the Escalante drainage. 385

Very truly yours,

William J. Lockhart

William J. Lochart

WJL/dlh

Responses to William J. Lockhart Comments

381. The roadless study areas described in DES Appendix 4 will be protected whether in the Wilderness Recommendation or not until after the President and Congress have had an ample apportunity to evaluate them. The only way development on federal land could take place is with authorization and appropriation of construction funds by Congress. The NPS has no authority over BLM lands and therefore is not included in the Federal Land Policy Management Act.

382. The Wilderness Recommendation is but one step toward realization of legislated Wilderness in the NRA. Only Congress can establish Wilderness. Refer to DES Appendix 38.

383. We do not disagree with your premise. Both our roadless study areas, as well as the Wilderness Studies being undertaken by the BLM have taken or will take your comments into consideration.

384. The Wilderness Study for the NRA was completed prior to the passage of the Federal Land Policy Management Act of 1976. However, the BLM did participate in this Wilderness Study effort and we feel that there will be few, if any, conflicts of the nature which you presume.

385. The Establishment Act for the NRA authorized the study of a road from Glen Canyon City to Bullfrog Basin. The NPS has completed that study and submitted it to the Congress. It would be inappropriate for the NPS to proceed with more indepth studies such as those you referenced until Congress has appropriated construction funds. At such time as money is appropriated for the construction of any of the studied alignments, then additional environmental documentation will be required.

James Catlin
67 Q Street
Salt Lake City,Utah 84103

October 16, 1977

Regional Director
National Park Service
125 S. State
Salt Lake City, Utah 84111

Dear Sir,

This letter is in response to the Blen Canyon General Management Plan, Wilderness Proposal, Road Study Alternatives, and Draft Environmental Statement. I have read the publication and thought it one of the best assessments I have read concerning Utah. I feel I now know much more about the area than I did before. It is good to see that efforts are being made to keep the main text under one hundred pages. Communication seems to be lost in larger documents.

I favor Alternative A. In brief this alternative will offer the largest number of high quality recreation opportunities, lead to the least ammount of deterioration of the area, and promote national goals toward wiser use of rapidly depleting natural resources.

A serious short coming of this study seems to be in the area of the evaluation of the relationship between different forms of recreation, in particular between motorized recreation and nonmotorized recreation. The management plan seems to develop each form of recreation without fully evaluating whether other forms of recreation can also mee the same recreational experience with reduced environmental costs. Much of the experience saught by mechanized recreaters is the same as that saught by nonmotorized recreaters. Additional mechanized recreational experiences such as those found in competition and machine trials don't belong in a national recreational area such as Glen Canyon. The conflict with other users and the large environmental damage caused by some of the vehicles makes these activities unsuited for this area. Most of the recreational demands can be met by either motorized or nonmotorized recreation. Many additional factors would favor promoting nonmotorized recreation. The primary purpose of the motor vehicle is to transport the recreater. Several alternate methods will be offered other than just private motor vehicles, boats and land vehicles.

Several factors seem to favor the promotion of muscle and wind powered sports and not promoting motor powered sports. The first reason is the damage each motorized recreator causes per mile of travel. In addition since the mechanized recreater travels faster more miles of travel result for the same time period further adding to more damage. The carrying capacity of the land is larger in terms of recreaters for muscle/wind sports over motorized sports.

A second factor which would favor promoting muscle powered recreation over mechanized recreation is the conflict between the motor and muscle sports. Many people seek areas such as the Glen Canyon in order to be away from the noise, smell, and sight of motor vehicles and industry. After spending considerable effort to try and leave this behind, the presense of a mechanized recreater can cause great annoyance. I enjoy canoeing but would never consider going to Glen Canyon and canoe on Lake Powell because of the annoyance caused by motor boats. I will choose to go some where else. In time as mechanized recreation demand increases and more areas open to their use fewer areas are left for muscle powered sports. While the hiker or canoer is annoyed by motors it seems mechanized recreaters are seldom troubled by the presence of nonmotorized recreaters. If continued growth of private motor vehicles, both on land and water, is promoted, the areas left for high quality recreation with muscle power will be fewer indicating a decline in those sports.

Often economic growth considerations will be used to support programs which promote mechanized recreation. It seems larger profits can be shown if motor powered sports are promoted. In my opinion, there is strong reason to believe that economic considerations presently used in assessing the total net benefits from management programs don't fully consider the full environmental costs. Until economic analysis can catch up and provide valid representation of nonrenewable resource use and other nonmonetary values, little concrete conclusions can be made.

Much of the remote parts of Glen Canyon National Recreation Area can't be reached by short muscle powered trips. This has been used as a basis for justification of opwning large areas to private motor vehicles. An alternate method of moving people could use public transportation. Buses, and high speed boats specially suited to minimize noise and environmental damage could be linked into a network. This network of public transportation could offer the recreater who doesn't have a power boat access to the area. Public transportation would offer less conflict with muscle powered sports since the vehicles could be of special design and fewer in number than present private vehicles.

The management proposal failed to evaluate the relate merits of public transportation verses private motor vehicles. A public transportation system could be formed which could offer opportunities which now don't exist. Special boats could haul canoes and kayaks to more remost areas where people could begin their trips. Buses and perhaps even high speed hydrofoils could allow hikers to make one direction trips instead of loop trips. Long automobile shuttles could be avoided by the use of public transportation. Bicyclists could be carried on buses for part of their trip. This would allow them to travel sections of road or bicycle trail which has few motor vehicles and ride in the bus when large vehicle traffic volumes made the journey no longer pleasant. No mention of facilities for bicyclists were mentioned. Bicycles can't just share the road with cars and still have high quality bicycling with adequate safety. 386

Over night facilities have tended recently more towards camper trucks and mobile homes or trailers. In terms of the use of nonrenewable resources the moving of large machines with few people inside is wasteful. The appearance of these machines is incongruent with the Glen Canyon area. Another approach to overnight accomidation might try to use the hostel approach. With hostels the overnighter does most of the work in taking care of meals and the room. England is now experimenting with family facilities on the hostel. Information could be acquired from the Youth Hostel Association. 387

Youth Hostels in Europe are spaced within one day's journey by muscle power. Usually these hostels are served by public transportation but occasionally they can only be reached by a days journey from the nearest road. I suggest that alternate methods for accommodation be studied and that the total benefits be assessed relative to the present reliance on campers and moble homes. 387

In general public buildings in parks and national recreation areas tend to have the appearance of plywood, conderblock, and surplus military paint. While being no doubt cost effective these buildings often don't visually fit into the natural landscape. The new management plan should produce guidelines for buildings which utilize local materals such as wood and stone and cause the building to integrate with the surroundings. 388

Certain parks such as the Tetons and Zion have been plagued by outrageous development adjacent to the park. I hope the National Park Service will develop coordination with nearby planning agencies to prevent such development at Glen Canyon.

Little has bben mentioned in this letter about the natural environment and the changes the different proposals will cause. I all cases the management plan must develop a program which guarantees the stability of the natural environment from the largest preditor to the bottom of the food chain. This must take precident over any human recreation demands. No justification exists for recreation activities endangering the stability of the natural habitat. Policies which favor muscle powered recreation best protect the diversity and long term survival of the area's environment. Proposal A best serves to protect this area.

Sincerely Yours,

James Catlin

James Catlin

Responses to James Catlin Comments

386. The NPS does not propose, in this plan, any type of comprehensive transportation or circulation studies. However, a lake ferry study is to be prepared and your comments will provide input into that study. Bicycles have met with little favor because of the hot, arid desert environment, and the existing sandy and uncompacted desert trails and roads.

387. The NRA shares a phenomenon with most recreation areas nation wide. Visitation to destination "viewing" parks is decreasing but visitation to destination "activity" parks and recreation areas is increasing. We, of course, are unable to project what impact future constraints on energy consumption may have but feel that visitation to the national park units, such as Glen Canyon, will continue to be in highly mobile campers, vans and other energy consumptive vehicles. Most visitors drive directly to a developed area and then proceed in their recreational pursuit overwater, either in their own boat or one rented from the concessioner. It is not our intent to formalize any type of backcountry camping use either along the lakeshore or in the remoter portions of the NRA where access is by vehicle.

388. Your point is well taken. The NPS tries, although sometimes unsuccessfully, to blend its development tastefully with the surroundings.

Comments on Proposals for the Glen Canyon National Recreation Area, submitted by Mrs. George C. Hatch, 1537 Chandler Drive, Salt Lake City, Utah 84103

Nov. 14, 1977

I appreciated receiving the material prepared by the National Park Service outlining the management plans, proposed wilderness areas, and alternative road plans for the Area. The proposal advanced by the Park Service seems to me a reasonable balance between the "no-development" and "minimum regulation" groups. My views result in part from first-hand experience with the legislative struggle that preceded congressional approval of this area as part of the national park system.

I was concerned then, as I am now, that there be no "Havasu City" on Lake Powell, particularly since some of the same voices are now asking for "communities" on the Lake. I would urge that exchange of State land sections within the NRA for BLM land outside the boundaries be expedited as rapidly as possible. There has been talk in the past of "blocking up" these traded sections outside, but near the Recreation Area. To prevent future management problems, I think the traded sections should be well away from this Area and any National Park or Monument. I am not worried about equivalent values, since it is hardly possible to equate the value of an Escalante canyon with a potential uranium find or oil well.

I notice rather large areas near Llewellyn Gulch, Halls Crossing, Bullfrog, and Hite are in the RRU designation. Since these are commercial areas, I think the management plans for these areas should be more specific regarding, how much construction, what size permanent population, what kinds of services (including airports) will be permitted at these locations. 389

The management "natural" zone and the wilderness proposal appear to incorporate the most spectacular scenery and areas of archeological interest that I am familiar with--the canyons of the Escalante, the lower Dirty Devil river, and the Orange Cliffs..I concur in these areas and also the suggested boundary adjustments. However, there is one place where I would like to see these zones enlarged. The south tip of Capitol Reef National Park includes a very scenic narrow canyon--Halls Creek Divide. It is difficult for the Park to patrol this area and keep out vehicles --many from the Bullfrog Area. If the adjacent NRA land were in the "natural" or "wilderness" designation instead of RRU (as if appears on the map),this would provide a needed buffer zone for this isolated section of the National Park. 390

To counter the argument that these large areas designated "natural" or "wilderness" are only available to a small number of backpackers, I would like to make a suggestion. To enable more people to sample the magnificent sdenery of the Escalante Canyon, why not place the trail head

part way down some of the side canyons, where it would be possible to walk to the Escalante River and back in a day? One area which lends itself to this proposal is Silver Falls canyon, for example. An existing road now comes into the NRA for about five miles. It is not too scenic and ends at the junction of Dry Fork and Silver Falls Creek. From there, the scenery becomes more and more magnificent until it reaches the Escalante River, about five miles from the road end. This is a very enjoyable and easy one day hike--which would not be possible if the present road were closed off (as shown on the map) and the hike became a total of 20 miles. If trailheads could be placed in other side canyons, so that more people could enjoy some of the beauty of the area, even if they only walked a mile or two, then the wilderness concept might become more widely accepted. I can see a problem with motorcycles, but that will be present no matter where the trailhead is and will require more patrolling.

Regarding closing 40 miles of existing jeep roads in the Orange Cliffs area, the proposal recognizes these are very important for the grazing of cattle. I was disturbed by the casual statement in the report that cattle grazing could be expected to diminish greatly, because--without these roads--it would be difficult to manage the animals. The hearing record has many statements by members of Congress, governmental officials that grazing is a "permitted" right in national recreation areas and wilderness areas, and that this right would be protected if the Glen Canyon NRA were established. Therefore, it does not seem fair to jeopardize this "right" by virtue of closing the jeep roads that make it possible to graze, the area. If the Park Service feels it is necessary to closesome of the roads, than they should notify the allotment holders affected and agree on a phase-out period as was done in nearby National Parks. 391

Of course, the most controversial environmental issue is the road from Glen Canyon City to Bullfrog Marina, which crosses the Escalante River in the scenic heart of the proposed wilderness area. However, the fate of this road will probably be decided in the Appropriations Committee of the Congress.

However, the main access roads to Glen Canyon Recreation Area also need to be determined.I am not convinced that a boater would want to be able to pull his boat behind a car to travel between Wahweap and Bullfrog Marinas. Most of the boaters that I have questioned say they either "put in" at Wahweap or Bullfrog and don't plan or want to go to both marinas in one trip. Assuming a tourist would want to go to both marinas (I don't know why they would), the most scenic and pleasant trip would be the D-3 alternative--from Glen Canyon City to Escalante via Henrieville (where they could turn off to Bryce or Zion), then over Boulder Mountain to Torrey and Capitol Reef National Park to Bullfrog. This route would escape the hot summer heat and affords magnificent panoramas along the way.

Responses to Mrs. George C. Hatch Comments

389. Site specific management plans for each developed area contained in a planning document are refered to as a development concept plan.

390. Halls Creek from the boundary with Capitol Reef National Park south to Lake Powell is contained within the natural management zone.

391. The area referenced in the Orange Cliffs for termination of road access is not currently a heavy contributor to grazing management efforts.

93 East 1st South
Logan, Utah 84321
November 14, 1977

Dear Sirs:

Please include the following comments in the hearing record for the Draft Environmental Impact Statement for the Management Plan, Wilderness Proposal, and Road Study for the Glen Canyon National Recreation Area.

After reviewing the four volume EIS and giving the matter personal thought and consideration I would urge that Alternative A be adopted. In addition to my support of Alternative A I would like to make the following specific comments on the management of the Glen Canyon National Recreation Area:

1. Scenic Values Map 15
   Rating an area by its scenic values is most certainly open to personal bias and prejudice. No matter what rating one places on an area there will be those who object. However, certain values--long range vistas, grand panoramas, and narrow canyons should receive a Class I rating (red). Giving the Escalante region, and the Waterpocket Fold a Class I rating is commendable, but should be expanded. The following areas should also be given a Class I rating:
   1. The Dirty Devil River (where it has not been inundated)
   2. The Orange Cliffs Region
   and 3. The tabletops and mesas surrounding the Escalante Region and the Waterpocket Fold.
2. Management of the Dirty Devil River
   Anyone who has ever hiked the Dirty Devil drainage will never forget this unique experience. Drinking water so laden with silt that it grinds on ones teeth is an experience to remember. The Dirty Devil River, from a point approximately one mile north of the mouth of Robbers Roose Canyon to Lake Powell should be studied under the National Wild and Scenic Rivers Act. The Park Service should work with the Bureau of land Management and other appropriate state and federal land management agencies in this study. The Dirty Devil region within the National RecreationArea should be managed in its present free and wild state. Wilderness designation for the Dirty Devil is very important. 392
3. Proposed Boundary Additions Map 3
   The inclusion and recommendations for the following additions is encouraged.
   1. Harris Wash 460 acre addition
      Acquiring the lands along the top of Harris Wash as noted in Map 3 is very commendable. However, the Harris Wash zone should be managed as a Natural Zone, not as a Recreation and Resource Utilization Zone. A Natural Zone Management would alleviate present ORV problems, while still allowing for cattle grazing.
   2. Twentyfive Mile Wash 835 acre addition 393
      This entire addition(including the corral) should be managed as a Natural Zone.
   3. Liston Seeps addition 375 acre addition
      In addition to the areas allready proposed for Natural Zone Management should be the lands immediately below the water tank. The Liston Seeps entrance is very scenic and offers an excellent alternative to the already
   1 crowded Hurrican Wash entrance.
   4. Hurricane Wash 265 acre and Dance Hall Rock 560 acre addi

4. Hurricane Wash 265 acre and Dance Hall Rock 560 acre additions. Both of these proposed additions are commendable, and should also be managed as a Natural Zone 393

As noted in Map 5 "all lands zoned as natural" should be placed in the wilderness proposal. This should include the additions as noted above. 394

4. Map 6-Road Proposal of the Arches/Canyonlands Capitol Reef Transportation Study
Any major road construction or reconstruction as noted on this map should be considered only after a complete Environmental Impact Statement has been completed on each individual segment. This includes the Confluence, and Island in the Sky Highways which are briefly, but not adequately covered in the Canyonlands draft general management plan.
5. Trans Escalante Highway
Road building which would cross the Escalante River should be halted completely. The Bullfrog Basin Road Proposal (as noted in map 6) should be terminated immediately.

I thank you for your time and consideration, and hope that we can work together in establishina a 1,030,830 acre wilderness in the Glen Canyon National Recreation Area.

Sincerely,

Brian Beard

Brian Beard

Responses to Brian Beard Comments

392. The Dirty Devil River is contained within the Natural Management Zone proposal for Glen Canyon NRA. Classification of this river under the National Wild and Scenic River Act is not properly a topic under consideration in this document. Close coordination is required with the adjacent land managing agency (BLM) and consideration of existing land uses which have influenced the wild character of the Dirty Devil.

393. The reasoning behind the additions that you mentioned was to provide visitor access from existing roads into the scenic Escalante side canyons, and to provide adequate space from minimum parking and sanitation facilities. Some space was zoned RRU for this with most zoned Natural. The NPS cannot propose as wilderness any areas outside an established boundary.

394. All lands zoned as Natural within the present NRA boundary are included in the wilderness recommendation.

1381 S. 10 E.
Salt Lake City, Utah
84105
November 6, 1977

Mr. James Isenogle
Utah Director
National Park Service
Salt Lake City, Utah 84111

Dear Mr. Isenogle:

Enclosed are my comments and recommendations on the National Park Service Draft EIS for the Management Plan, Wilderness Proposal, and Road Study for Glen Canyon National Recreation Area.

First, I would like to emphasize the critical importance today of recognizing and protecting irreplaceable wilderness areas for the use and enjoyment of future generations of Americans. We can find substitutes for some resources, and we can utilize more plentiful resources first, in order to protect natural areas like the Glen Canyon NRA which are increasingly in demand by the American public today. Decision-making on these desert wilderness lands need to be made in consideration of the wider public whom they will serve forever.

Second, I would like to commend the National Park Service for its conscientious approach to planning for the use, the development, and the care of the fragile desert lands surrounding Lake Powell. The Planning Proposals, in general, indicate the recognition by the Park Service of their obligation to protect unique resources before all else. The Planning Material provided the public the necessary information, and issues,in a graphic and helpful manner.

Third, I have one criticism and that is of the Park Service criteria used for wilderness. In the first place, scenic criteria are not the full justification for classifying wilderness. According to the Wilderness Act, lands qualifying do so for natural features, ecosystems, opportunity for solitude, as well as for educational and scientific purposes. In these desert formations, we do not agree with the Park Service criteria that certain land forms and areas are monotonous. Beauty is in the eye of the beholder! 395

In addition, I see certain inconsistencies in the fact that the Park Service uses Classifications I and II which compare with their proposed wilderness areas, and, in fact, prejudice the land areas of equal or other resource value,for wilderness.

Recommendations:

Wilderness

I support the Conservationists' Wilderness Proposal, Alternative A . I believe that it includes areas which have unique features, provide for the most enduring protection of these, provides important habitat areas for Big Horn sheep, and allows for the inevitable future demand for such lands for these purposes.

Specific Area Comment:

I. San Juan Arm

I believe that designation of the area north of the San Juan River, from the Junction of the San Juan River to Lake Powell, which area includes Wilson Mesa to Mexican Hat, as delineated in the Conservationists' Alternative A proposal, is justified for the following reasons:

1. It makes management of the San Juan River easier for the Park Service.
2. It would protect the portion of the San Juan River from Mexican Hat to Lake Powell, which is important because that portion of the River could qualify as Wild and Scenic River.
3. Wilson Mesa should be included in order to protect Desert Big Horn sheep and endemic plant species.

II. Red Canyon and White Canyon Country should be included in wilderness because of the need to protect a herd of 100 to 200 Big Horn Sheep and their habitat.

III. Orange Cliffs is phenomenal wilderness country which requires protection for its unique features. It cannot be mined economically so should be recognized for its greater resource values.

IV. I oppose deletion of the area of Purple Hills and Moody Creek from wilderness classification. These areas are an integral part of the Waterpocket Fold and the Escalante Wilderness. Within the area are multi-colored bad lands - a sleeping rainbow of multi-colored shales.
If the area is deleted and developed for uraniaum mining, this would be the equivalent of two potential wilderness areas.
The proposed deleted area, in its proximity to Capitol Reef and the Escalante wilderness, is central to protection of potential wilderness lands.

Recommendations, continued

Roads

These proposals are recommended for the purpose of protecting the resources under the jurisdiction of the National Park Service while still offering the public the use of the area for enjoyment.

I. Close the Harris Wash Road to motorized use. The area is an integral part of the Escalante back country.
Keep it as a hiking trail.
Maintain it as a trailhead facility.

II. I oppose the construction of a highway from Hans Flat to Moab for the following reasons:

1. This would impact spectacular wilderness country, such as the Orange Cliffs.
2. An existing road will provide this connection.
3. The area is highly erosional.

III. Close the road to Rincon

1. Wilson Mesa is beautiful wilderness country.
2. Wilson Mesa has existing important Big Horn sheep habitat.

396

IV. Do not pave the Hole in the Rock Road in the NRA under any conditions.
Paving it would significantly increase its use and increase NPS management problems.

Establish an administrative site within the NRA for management of the Escalante Wilderness Area only, and on the basis of the needs of the NRA.

Do not develop a visitor center.

V. Do not develop a new road access at or for another Marina at Warm Creek.

Recommendations, continued

Roads

I oppose

A Trans Escalante Highway (Glen Canyon to Bull Frog Basin) for the following reasons:

1. I oppose any road which will bisect the last remaining Escalante Country.

2. Road access across a wilderness contributes a greater impact than that of cutting the land in half. It opens up areas on each side of the road to increasing and varied human activity.

3. A Trans Escalante Highway road is not needed. The area is accessible from a network of roads.

4. Alternative highways would provide the driving tourist with alternate, yet similar highly scenic opportunities.

5. A Trans Escalante Highway would be expensive and energy consuming to construct.

6. A Trans Escalante Highway would not benefit the State of Utah towns which already exist on alternative roads.(routes).

I oppose

A bridge across the Escalante River

1. It would impact the wilderness isolation, per se, and for hikers on the river bottom below.

2. It would disturb the existing solitude of the river basin.

3. It would provide another opportunity for dumping cans into a beautiful natural area.

I support

Road Alternative D 3

1. It is the most scenic alternative to the Trans Escalante proposed road and provides the driving public similar vistas.

2. It exists and doesn't require construction.

3. It would provide economic benefits into local communities.already existing along the road.

As a last resort, I support any route which doesn't go through the Escalante Wilderness.

Grazing in Wilderness

In supporting the Conservationists' Wilderness Proposal, Alternative A, I believe that grazing needs can be met both for the permittee, the National Park Service and the BLM, and remain in harmony with Wilderness Act requirements (Section 4C), with the following stipulations:

1. Allottment road closures except for permittee use only and if there is no other choice for management.
2. A management/use agreement would be determined between the NPS, the BLM and the permittee.
3. There should be no upgrading of these particular roads.
4. Management options permitted and specific improvements spelled out which do not jeopardize the wilderness resource, i.e., fences, water wells, water systems, salt blocks.
5. The National Park Service determine the amount of grazing allowable in order to adequately protect the wilderness resource.

Additions, Deletions, Special Arrangements

Marinas

Warm Creek Area

1. Keep any additional marina development near the existing marina.
2. Provide no new road access into the area.

Dangling Rope Marina

I support the replacement of the floating Marina at Rainbow Bridge with a fixed, land Marina, subject to the following stipulations:

1. There should be no expansion of Marina area size beyond the 1300 acre area proposed.in the Dangling Rope site.
2. The use, maintenance and access would not conflict with the proposed wilderness (Conservationists' Wilderness Proposal, Alternative A)
3. That no road access would be provided on the basis that this would impact the wilderness.
4. That no ORV use be permitted from the Marina.
5. That an air strip be provided for emergency use only. It could be part of the wilderness but not

Additions, Deletions, Special Arrangements, continued

Dangling Rope Marina

used for general administrative purposes.

I support

the proposed 10 NPS additions on the Escalante section.

I oppose

all Bureau of Reclamation pump storage sites on the grounds that they destroy the land.

I request

that the NPS strongly pursue the purchase of State lands in the NRS.

that all oil and gas leases on Federal and State lands not be kept separate

that all oil and gas leases on Federal and State sections and all sub-surface rights be included in wilderness. The Wilderness Act protects holders of these rights.

the NPS to allow termination of all federal oil/gas leases in the NRA by 1983.

Sincerely,
Dorothy Harvey

Responses to Dorothy Harvey Comments

395. The NPS did not propose only the more scenic areas for wilderness. Considerable acreage within all four scenic categories is contained in the Wilderness recommendation. Refer to Table 11 for acreages within the Natural (Wilderness) Zone.

396. All of Wilson Mesa except for the Morman Trail corridor now is included in the wilderness recommendation. The road to the Rincon will be closed. Bighorn sheep habitat is believed to be adequate for reintroduction or supplemental planting of sheep and additional studies have been recommended to the Utah Division of Wildlife Resources.

GLEN CANYON NATIONAL RECREATION AREA

November 14, 1977 statement of June Viavant

The set of four volumes are an impressive set of documents, containing much valuable information. I disagree with a few of the facts or interpretations set forth, but overall I commend the Park Service for a very thorough job. The map volume, especially was well done. I wish volume IV had included the legislation establishing the recreation area, but I found it to be very useful otherwise. There appeared to be a few discrepances which might easily result if different individuals were preparing different sections of the document. The most glaring contradiction is the attitude towards grazing, where page 5 states that the Natural Zone allows grazing and the Recreation and Resources Utilization Zone allows grazing and mining, as opposed to the statement on page 88, which states: "The likely reduction and potential termination of grazing within the 620,490 acres if the Natural Zone...."

397

My main response to the documents is to protest that not near enough area has been proposed for wilderness. Grand Bench and Gunsight Benches are presently totally unimpacted by man, and certainly deserve Class I scenic designation (as opposed to Class III given them by the Park Service.) I would further ask that the Park Service justify either need or reasons for excluding so much area from wilderness.

The entire top of Wilson Mesa ia also unimpacted and has a great deal of scenic potential. I would have classified it ClassI (Lower levels) and Class I or II for the mesa top. There is a lot of historic value attached to Wilson Mesa, too, by the trek of the Hole in the Rock expedition. This entire section should have been designated wildernes. I have walked from the Chutes nearly to the Lake, and know that walking it is an enjoyable experience.

Likewise, the entire area in the vicinity of the Orange Cliffs, from the north boundary to the Colorado River should have been designated wilderness (except for necessary road corridors.) Much of this area was originally proposed for Canyonlands National Park. They are high caliber public lands and ought to be given the highest caliber preservation-oriented management. The Park Service more than any other government agency carries the mandate of protection for future generations, and it does not appear to me that it is carrying this mantle very well. The management plan seems to be concerned as much or more with a few oil and gas leases and some uranium prospects rather than with its responsibility to preserve for future generations.

This in spite of the quality work done in the minerals section by someone who put these minerals in perspective: the hypothetical oil within GCNRA would supply 3 to 10 days of U.S. needs; and the economically recoverable uranium amounts to .5% of the total U.S supply. Both of these are such insignificant amounts compared to the totally irreplaceable wilderness values that are there and being used, to the scenic values that are there, and to the need (ever-growing) for such scenic resources.

Nor can I understand the Park Service's failure to respond more appropriately to their own information about the importance of Red and White Canyons as a lambing ground for one of the few surviving herds of desert bighorn sheep. Why was this area not automatically put in the proposed wilderness?

All of the north shore of the San Juan arm should also have been designated wilderness, as should all of the area around the Dirty Devil.

I do commend the Park Service for proposing nearly all of the Escalante drainage as wilderness. I have spent a total of at least six months in the area, much out on two day weekends, and I know the area intimately. The hearing records contain pages of my testimony, and I am sure hundreds of other people have responded to the need for protecting the Escalante, so I will not go into any further detail, other than to say that the Purple Hills should not be deleted. In fact, the boundary should be pushed north,

not south. Deer Point and Ruckel Ruch should have been included in Capitol Reef National Park, but since they were not, and since we are diddling around with boundaries, let's move them in the right direction and include these two very special landmarks in the Recreation Area.

The Harris Wash road corridor should not be deleted from wilderness. It is presently closed and should remain so. In fact, it is not a road, just a canyon bottom--but it shoud remained closed to motorized access.

The Hole in the Rock road should not be paved. It serves the need admirably now, with many people using it in regular passenger cars. If one takes the time to read the BLM registers on the dirt roads in southern Utah, one finds a large preponderance of visitors saying over and over again, "Don't pave the road!" "Leave it it like it is." The dirt road experience is one of the things that people come for, as well as the scenic beauty and the sense of remoteness. There are plenty of paved highways through incredibly scenic country already in southern Utah: 163 from Moab to Monticello, the Zion road, from Panguitch to Glen Canyon Dam, just to name a few. For heaven's sakes, keep the National Parks, monuments, and recreation areas different from the rest of the country!

I realize the national park service must present alternatives, but I sincerely hope they are not taking seriously any of the following boundary adjustment deletions on Map 38:

the area north of Harris Wash and Silver Falls Creek

the areas adjacent to Hall's Crossing marina and Bullfrog Bay which (God help us!) are proposed for 20,000 person commu= nities

the top of Fifty Mile Mountain (which is outstanding ccenery and not near as inaccessible as the documents calim. There is a 2-while drive road up onto the bench of Fifty Mile Mountain, from whoch there is a trail--granted a little steep. but no more than one mile long--up to the plateau.)

This writer is fifty years old, and has been those trails three or four times, along with seven or eight year old girls who toed their own packs up there.)

Any one of these deletions would guarantee the perpetrator his own special place in the afterlife.

The road should most assuredly be pulled back from Panoram Point. Deadhorse Point should serve as an example of creeping degradation brought about by roads. Panorama Pont should have been named Point Sublime; it merits being left alone, for man cannot improve on it and God gave everyone two legs if they want to see it.

I most strongly urge that the shoreline of Lake Powell be used as the boundary for various zones and whatever. This will prevent all kinds of administrative headaches.

I also strongly urge that the Escalante arm be classified a motorless arm of Lake Powell and classified as wilderness without the Park Service worrying unduly about how people will use it. A floating marina is unnecessary. People will find ways. They are presently canoeing around into the Escalante from Bullfrog, and a few are also carrying canoes down the Hole in the Rock trail. The Park Service's responsiblity is to keep the possibilities open and people respond to the challenge.

I feel confident that Congress inits wisdom will not feel in n ecessary to appropriate funds for the trans-Escalante road. It is much too expensive and far too little needed. Congress has the two step method (authorize first, apprpriate second) so that it can take half-hearted measures and then let them wither on the vine. Our national needs and priorities are significantly different now then they were when the legislation was passed. I will just reiterate that existing roads serve the traveling public and the small communities in southern Utah better than the proposed road.

Thank you for the opportunity to respond. I'm really fond ot the Park Service or I wouldn't have taken you to task so severely.

Response to June Viavant Comment

397. Grazing will continue to be an allowed use within the Natural Zone. However, due to the change in management practices required under Wilderness management, there will likely be a reduction of grazing use due to lack of interest or economic infeasibility. The text has been changed to correct any misinterpretation in Section III.A.6 of the FES.

309 Central St., #10
Eau Claire, WI 54701
October 29, 1977

Superintendent
Glen Canyon NRA
P. O. Box 1507
Page, AZ 86040

Dear Sir,

I would like to take this opportunity to comment on the "General Management Plan, Wilderness Proposal, etc." issued by your agency at the end of August. I testified at the public hearings held in Salt Lake City two years ago, but have since moved to Wisconsin and consequently I have only recently learned that the report was out. A call to your office was made and I learned that no copies of the report remained for distribution. My comments therefore will have to be based on the summary article I read in High Country News (Oct. 21, 1977, p. 12) and Alternative 2 in the Wilderness Study Alternatives published in March, 1975, which seems to be quite similar to the recent proposal.

I should first state that I am a professional geologist as well as an environmentally concerned citizen and supporter of wilderness. There is a great need in this country for the planned development of our natural resources and I believe that federal agencies have a great managerial responsibility in this area. With proper management of resource exploration and exploitation many areas not officially designated as wilderness can exist as de facto wilderness offering something to both developers and backpackers alike.

With this in mind, I would like to express my general approval with the plan proposed by the NPS. I am particularly pleased with the decisions in the Escalante and Little Rockies areas. I am very familiar with both of these areas and they certainly deserve to be kept in their natural state. I remain strongly opposed to a trans-Escalante highway and am pleased to read that the NPS does not support that concept.

I have mild objections to the rather arbitrary deletion of mesa tops from the natural management category in the areas upstream from the mouth of the Dirty Devil River. The NPS should reconsider some of these areas and ask the following questions: 398

(1) Is the mesa top a relatively narrow projection that will be surrounded to some extent by natural areas? If so, the possibility of development on the mesa should be considered in terms of its effects on the wilderness experience of people in the adjacent natural areas. Noise and air pollution should be particularly considered. 398

(2) Is there access between the areas designated for resource development and the areas to be managed in the natural state? Where access to the proposed wilderness areas along canyon bottoms exists, consideration should be given to protecting the wilderness values by including the access areas in the natural management zone.

I am not sufficiently familiar with specific areas in the Orange Cliffs section to make reccomendations, but I will be satisfied with whatever decision the NPS makes if they take the above questions (or similar arguments) into account rather than simply drawing a line along the rim of the canyons.

Yours truly,

James R. Wilson

James R. Wilson

Response to James R. Wilson Comment

398. These mesa tops were zoned RRU rather than Natural because of grazing and mineral resource (Tar Sand Triangle and uranium) considerations.

October 8, 1977

Superintendent
Glen Canyon NRA
Post Office Box 1507
Page, Arizona 86040

Dear Superintendent:

First let me congratulate you and your planning team on the generally excellect management plan and wilderness proposal for Glen Canyon NRA. I do have a few recommendations and comments.

1. I support the idea of removing Rainbow Marina from Forbidding Canyon. The congestion and inconvenience have made the facility obsolete.

2. I strongly object to the Development zoning corridor at Llewellyn Gulch. This is right in the middle of the natural area and would foster conflicts between the push for expanded development, especially road development, and the wilderness/natural areas all around it. This zoning is a serious mistake.

3. The area due south of the Little Rockies from Good Hope Mesa to Sundog Bar (including Tapestry Wall) should be included in the Natural zone. There are no important roads or mineral reserves in this area and yet it does include prime bighorn sheep habitat.

4. The northern half of Wilson Mesa is also better zoned Natural. Although the pioneer trail road is there, the peninsular nature of Wilson Mesa, its proximity to Natural areas on each side, and its excellent bighorn sheep habitat make it logical to exclude Recreation and Resource Utilization there.

5. The Development zones, with the exception of Llewellyn Gulch, seem to be well chosen to protest natural and historic resources. The development at Lee's Ferry should be very limited due to the impact that any development will have in such an enclosed area. My feeling is that more development at Lee's Ferry will tend to promote ever more overuse and congestion. 399

(continued)

6. The low-key and informal development at Warm Creek is a great idea. This can serve as an overflow area for Wahweap on busy weekends and holidays.

7. And finally, I want to commend the National Park Service for making no proposals for any of the road study alternatives. The paving of a road from Glen Canyon City to Bullfrog via Navajo Point would be a devastating blow to the unique character of this beautiful region.

Thank you for considering my comments.

Sincerely,

Robert Kvaas

Mr. Robert Kvaas
120 Magnolia #K
Goleta, Calif. 93017

Response to Robert Kvaas Comment

399. The Lees Ferry development will be oriented to interpreting the historical scene and providing access for the down river Colorado trips. It will remain popular for fishing, and access will be accommodated for boaters traveling upstream towards Glen Canyon Dam. The NPS is presently studying the de-emphasis of concessioner activities at Lees Ferry.

Comments on National Park Service General Management Plan,
Wilderness Proposal, Road Study Alternatives,
& Draft Environmental Statement on Glen Canyon NRA

Ruth A. Frear
15 November 1977

The National Park Service is to be commended for a basically good proposal which recognizes some of the vitally important wilderness values of the Glen Canyon area. Considering the pressure which must have been applied from various interests, the NPS did a fairly good job --but the plan is quite deficient in the amount of wilderness classification proposed. This proposal is a good starting point, but Alternative A is a much more reasonable one in that it recommends more wilderness designation and more suitable management for this very special place called the Glen Canyon National Recreation Area.

General Management Zoning Proposal

I am disturbed that the Park Service proposes to place 48% of the Recreation Area into the Recreation and Resource Utilization zone simply to allow mining, which is actually not compatible with recreation. Most of the lands proposed for RRU zoning (including, but not limited to, the entire Orange Cliffs region, Andy Miller Flats, Red Canyon, Good Hope Mesa, Halls Mesa, Wilson Mesa, and the entire San Juan arm) are prime recreation and wilderness areas, quite unsuitable for the destructive effects of mining. Another problem with the RRU zoning is that it allows such off-road vehicles as trail bikes and dune buggies. No off-road vehicle use should be allowed anywhere in the entire NRA. The desert ecosystem is too fragile to take such destructive activity. Vehicles should be allowed only on roads. Period.

Development Proposals

I have grave misgivings about any development proposed by the Park Service, after what was done at Hans Flat. The Maze area is, as it should be, the least-developed part of Canyonlands--and definitely not the place for such a poorly-planned, aesthetically intrusive, permanent development. If the NPS has no more sense than to do such a thing, I fear for the future of Proposed Park Service development areas.

A marina in Dangling Rope Canyon might be acceptable, if plans for the airport are dropped and access is by water only; there should be no

access by land. I am opposed to development in the Llewellyn Bench area; that's no place for a marina. And the Warm Creek marina should be as close to Highway 89 as feasible.

If an operations center along the Hole-in-the-Rock road is established, it should be at the intersection of that road and Highway 12. It should be an administrative, contact point only--not a visitor center--and should be staffed on weekends for maximum visitor contact. 400

The Park Service seems to be leaning towards too much development in the GCNRA. Tables 3 and 29 show much more development proposed than is wise in this special land. Examples of proposed developments which are neither necessary nor wise include paving of the Burr Trail, improvement of Bullfrog airstrip, a motel/restaurant complex at Lees Ferry, facilities in Dangling Rope Canyon and Llewellyn Gulch. Alternative B is totally ridiculous in terms of its proposals for development and management zones.

Proposed Boundary Adjustments

I am totally opposed to the proposed deletion of 11,410 acres in the Purple Hills area. Your document (v.1, p. 7) calls this "a mineralized area of relatively low scenic value." It may be mineralized, but it most certainly is not of "low scenic value". The Purple Hills-Circle Cliffs-Moody Canyons area is a beautiful, rugged, desolate wilderness, and it should be given wilderness classification. It is an integral part of the scenic and geological unit joining the Escalante and Capitol Reef. In fact, rather than deletion of the Purple Hills area, the GCNRA boundary should be extended to include the rest of T30S, R8E and T30S, R9E to the boundary of Capitol Reef. This would take in Deer Point area, which should have been included in Capitol Reef National Park. The Purple Hills should be included in wilderness even if it were underlain by immense quantities of valuable minerals. The draft environmental statement (p.98) points out that the U.S.G.S. estimates that the entire Recreation Area's total speculative petroleum resources may constitute "enough to supply this country's needs for 3 to 10 days." (emphasis mine, except for "total".) And, regarding uranium (p.99): the area's resources are "hypothetical". None of the NRA should be ripped up for minimal, speculative, hypothetical, unproven mineral resources. The real resources that are proven and most valuable are the natural, scenic, wild ones.

I also oppose the proposed deletion of 3,130 acres of fine wilderness quality land in the Imperial-Hall Valley area, unless adequate arrangements

are made for wilderness protection of the area by BLM.

The proposed boundary additions seem fine. If trailheads are established along the Hole-in-the-Rock road, they should be in the natural management zone, not RMU.

The Road Study Alternatives

The National Park Service has wisely and properly left the decision about a Glen Canyon City-to-Bullfrog Basin road to Congress. The legislative history of Section 8 of the GCNRA enabling act shows that there is really no mandate to build any such road, and indeed none should be built. Environmentally it would be a gross obscenity; economically it's a completely foolish idea. Routes D-1 and D-2 bypass all existing towns, thus depriving the local people of significant tourist money. Considering the terrain and distances involved, any of the proposed new roads would be astronomically expensive. The only sensible alternative is to construct no new roads at all.

The Hole-in-the-Rock road definitely should not be paved. It is just fine and dandy the way it is now. It is passable most of the time by passenger car, and it is part of the history of this historical region.

The Preliminary Wilderness Proposal

All of the lands proposed for wilderness classification without doubt certainly qualify as such. But so does most of the rest of the Recreation Area. There is little explanation for what is proposed, and no justification for what is not proposed as wilderness.

The entire Escalante River drainage, of course, is the crown jewel of the GCNRA. Your description of it in Appendix 11 (p.26) only begins to tell of the splendid beauty found there. From the soft, mellow trill of a canyon wren in the cottonwoods to the roar of a thunderstorm over the broad, rolling sandstone mesas, the total Escalante Experience is something which has gained the area a national reputation and a nationwide legion of staunch defenders.

Maps 2, 4, 5, 10, and 12 show a road corridor in Harris Wash. This corridor is also referred to on page 127 of the DES and in Table 32. Either this is an error, or else the National Park Service is out of its collective mind. This is not an existing road, although it is a creek bed which is sometimes passable by four-wheel-drive vehicles. The Park Service closed this "road" some time ago, and it should remain closed. Vehicles in the Escalante are an abomination, and the NPS must do every-

thing possible to keep them out. Escalante arm of the lake should be motorless.

The entire Orange Cliffs area is also magnificent wilderness, but the NPS has classified only part of it as such in this proposal. From Panorama Point and North Point are some of the most glorious vistas on earth. Views from the Cliffs of the Land of Standing Rocks, the Maze, the Needles, the Green and Colorado Canyons, the Book Cliffs, the Manti-LaSals, the Henrys, and the Abajos are breathtaking. From hills above Gordon Flats and from countless other places in the Orange Cliffs region, the visitor is moved by sweeping panoramas of vari-colored landforms. This is wilderness, and the entire area should be so classified. There are a number of trails, some of which are called roads, which ought to be closed, including the road to Panorama Point. And I would not mind a bit if the Park Service would get rid of that gross development at Hans Flat. The rangers' trailers were enough.

The area east of the reservoir between Red Canyon and highway 95 should be designated as wilderness, both to protect the desert bighorn and also to complement the wilderness west of the reservoir in the highly scenic Dirty Devil-Little Rockies area.

As mentioned previously, the Purple Hills area should be placed in the wilderness category, as should all of Wilson Mesa and the entire San Juan arm, as well as the area between Rock Creek and Warm Creek

Having hiked and camped on top of the southern end of Fifty-Mile Mountain, I am pleased to see it in the wilderness proposal. It is a beautiful wilderness, sometimes thick with such vegetation as pinyon-juniper, aspen, Indian paintbrush, Cryptantha, wallflower, globemallow, and numerous other species, while aerobatic swallows soar by. And the panoramic views from the top of the cliffs are absolutely majestic.

There is no need to exclude from wilderness classification oil and gas leases and state lands. The Wilderness Act protects the rights of the state and the lesse-holders until the Department of Interior acquires those lands. In short, all of the lands in the GCNRA which qualify as wilderness should be classified as wilderness. And that includes much more land than the Park Service proposes.

Scenery

Map 15, showing four classifications of scenery within the NRA, is absurd. There is certainly more "Class I" scenery in the Recreation Area

in the Escalante and Little Rockies canyons and the Waterpocket Fold. Calling the Escalante's rolling slickrock benchlands only "interesting" (Class III) in ludicrous. And how anyone who has ever been on the Kaiparowits Plateau, the Spur, the Orange Cliffs, Halls Mesa, or in the Purple Hills, Gordon Flats, Lands End, or Bull Valley can call those places "unremarkable" (Class IV) is completely beyond my comprehension. Either this "value classification" system is so subjective as to be totally unworkable, or else it is merely an excuse to propose mineral exploitation and other development rather than the wilderness designation these areas deserve.

Minerals

I have already commented on the unproven, hypothetical, estimated oil, gas, and uranium resources thought to be within the GCNRA. Now we have the Tar Sands Triangle, which was originally part of the Canyonlands National Park proposal, but was deleted from the Park boundaries when existence of the tar sands was brought to the attention of decision-makers. The GCNRA proposed wilderness boundary carefully skirts the tar sands area. According to the DES (pp.44-46), these deposits are a "sub-economic resource", and "no proven method exists for economic recovery." The Park Service should have courage enough to recognize that these are wilderness lands, and classify them as such, no matter what mineral resources might lie beneath the surface.

Grazing

In this sensitive desert environment, grazing should be allowed only where the range will not deteriorate. The number of AUMs that has been used exceeds the capacity of the land. As land outside the NRA improves and additional capacity becomes available, that capacity should be made available on a priority basis to those displaced in the NRA. Water sources should be protected for human use. The Draft Environmental Statement properly notes (p. 103) that "The closing of roads is not in itself likely to have a major adverse effect on livestock management."

Management Zoning Alternatives and Wilderness Alternatives

Alternatives A are definitely the preferred alternatives. Lake Powell destroyed Glen Canyon; what is left in the area is a unique wilderness and should be preserved as such. Alternative B is total nonsense, calling for gross overdevelopment, minimal token wilderness, and a general blatant disregard for the unequaled natural quality and scenic

beauty of the wild Glen Canyon country. The Alternative's proposed deletion of 7,140 acres north of the non-existent Harris Wash "road" looks like an excuse for a dam on the Escalante River--an unacceptaole idea whose time will never come. This over-roaded, over-developed alternative proposal "would allow the establishment of privately owned service communities with populations (at least next to Bullfrog and Halls Crossing) as high as 20,000"! (p. 136) This is totally preposterous. Communities the size of Logan in this fragile desert country? This is a recreation area, not a sacrifice area, not a development area, not a money-making ripoff area for entrepreneurs and business people. Glen Canyon is wilderness; let's leave it that way.

All things considered, the National Park Service has made a good start with this proposal. I hope those who make the decisions will have the wisdom, good sense, and courage to continue from this basis and go with Alternative A, with such modifications as mentioned herein, including the addition of the Deer Point area. The mandate given in the act creating the Park Service still holds: "The fundamental purpose of the National Park Service is to conserve the scenery and the natural and historic objects and wildlife therein, and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations."

Response to Ruth A. Frear Comment

400. The final location of the Escalante Operations Center will be chosen at a later date. Your ideas, as well as those of other respondents will be considered in the eventual siting process. Three potential locations have been identified, that being the intersection of the Hole-in-the-Rock Road and Highway 12, a location within the town of Escalante, and a site along the Hole-in-the-Rock Road closer to some of the major trailheads. Refer to response 374.

4147 South 2700 West #3B
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October 3, 1977

James L. Isenogle
Assist. to the Regional Director
National Park Service
Utah State Office
125 S. State Street
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Dear Mr. Isenogle:

First I wish to express my sincere thanks for the opportunity to comment on the Glen Canyon proposal.

I wish to express my personal preference for Management Alternative A with a few changes, i.e. inclusion of Dangling Rope Marina, etc.

Now I wish to come out in general support of the Preliminary Management Proposal as I feel it is this proposal that has the greatest chance of general acceptance, with the least amount of environmental damage to this incredably scenic and delicate area.

Let me express my concern about Proposal B. I feel the protections offered in this proposal are incredably inadequate. It must be kept in mind that any of the natural features that are destroyed cannot be replaced.

Back to the Preliminary Management Proposal. There are some portions of the proposal that I have concerns about. Number one is the White Canyon area and my concern is for the bighorn sheep in the area. I feel that provision should be made to minimize the impact of development on the sheep. Perhaps a joint plan, NPS and BLM, could be developed which would manage the whole canyon with the sheeps' interest in mind. I feel that such delicate environmental concerns and development can be compatible, a compromise at best, but only with a great amount of effort on the part of the developer. In this case I believe the effort is warrented.

The deletion of a portion of Beef Basin also concerns me. As you are no doublt aware, Beef Basin is next to an area of outstanding archeological sights in Beef Basin, Ruin Park, Ruin Canyon, and the surrounding areas. Beef Basin is also next to the Dark Canyon Primitive Area. I am concerned that if this area is removed from GCNRA future activities in the area could endanger the adjacent areas.

As to the roads within the proposal, I would prefer the roads be left as is and no new roads be paved. I believe this wish to be unrealistic so will state what I could live with in the proposed roads. The proposal D3 is the only road plan in the area that I feel has any merit whatsoever and is an acceptable compromise.

I would also support the paving of the Hole in the Rock road after a visitors center is built to control the use of the canyons by backpackers. Let me encourage a quota system to spread out the use in the Escalante Canyons.

Let me state my revulsion at Route D-1. On this route I feel there can be no compromise! This proposal is an environmental disaster and does not deserve serious consideration. As far as Route D-1 is concerned, I feel so strongly on this issue that I will support any group that will fight the proposal in court should D-1 or any portion thereof, i.e. D-2 or D-4, be approved. I don't like proposal D-1!

I am also very concerned about the proposal to pave the Flint Trail. This area is extremely scenic and would be difficult to protect. It seems to me the major purpose of this road is to provide the boaters in Moab a shorter route to Hite. I am not sure the huge expense, money and environment, is worth the gains. Please leave the Maze alone. 401

Finally I was extremely gratified to see such a responsible proposal as the Preliminary Proposal come as the plan supported by NPS. I am hopeful that future proposals will be as responsive and responsible as this one.

Again, I feel that the Preliminary Proposal is a compromise but is is a compromise with the needed protections and additions to the area.

Sincerely,

Bob Bowdey

Response to Bob Bowdey Comment

401. The FES in Section I. A. 1 and 2 discusses the possible paving of the County maintained road between Hanksville and the head of the Flint Trail. This is not a unilateral proposal on behalf of the NPS but reflects the stated intention of the local government agency exercising jurisdiction over the road within the NRA. There is no intent to pave the Flint Trail itself or the road from the Flint Trail to Hite.

MEMBER A.I.A. / ARCHITECTURE AND PLANNING / P.O. BOX 452, LOGAN, UTAH 84321 / 801-753-0987

PAUL G SALISBURY

November 15, 1977

Mr. James L. Isenogle
Assistant to the Regional Director, Utah
National Park Service
Utah State Office
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Salt Lake City, UT 84138

Dear Mr. Isenogle:

The following comments are in response to the General Management Plan, Wilderness Proposal Road Study Alternative and Draft Environmental Statement for the Glen Canyon National Recreational Area and I wish them to be formally entered as a response to that proposal.

The Park Service should be congratulated for their thorough and exhaustive efforts in developing the plan. The amount of field work and the diversity of the studies undertaken is, I think, exemplary. The prelimiary Management Zoning Proposal (MAP 2) obviously takes in to consideration the diverse user groups and conflicting management needs of the Area. There are, however, some particular strengths and weaknesses of the plan which I would like to address specifically.

The proposed additions outlined in MAP 3 are particularly commendable and are critical for the proper management of the major natural zones. The additions to the Escalante Drainage are necessary to protect the drainage as an entity of the highest scenic and recreational value. The proposed addition of 2,670 acres of river bottom on the upper San Juan River are also important to protect the scenic values of the Goose Neck State Park as well as for the proper management of the San Juan River downstream from U.S. 163.

The proposed management of the canyons and benches in the Escalante complex is, to anyone familiar with the region, the only logical way to proceed. The fragile canyon bottoms are already a very popular recreational resource. The confined nature of the canyon makes any use that competes with backpacking or wilderness use highly uncompatible. Maintaining this area as a Natural Zone is laudable, particularly with the conditions indicated. The greatest weakness with the plan is, in my mind, in the limited acreage included in the Natural Zone. Though Warm Creek Bench may provide a natural area for further tourist development, topography and access make the development further north and west impractical. For this reason the benches between Warm Creek and Dangling Rope should all be included in the Natural Zone. The inclusion of a development zone at Llewellyn Gulch I believe is a mistake because of the impact it will bring to the zone particularly 402

because of its location near the most important drainage of the Escalante complex. Designating this Natural Zone will almost guarantee a more fully developed road where the Hole in the Rock now exists. This would greatly increase the number of people using Escalante Drainage and most important the ease of access would change the type of people that would use the area. The rugged nature of the Hole in the Rock continues to be one of the best ways of protecting the Escalante complex. To rightly designate Hole in the Rock and the Pioneer Trail out of Wilcon Mesa as a cultural resource, I think it is important to include all of Wilson Mesa in the Natural Zone. Development for cultural use at a later time would not be precluded by placing the area under the management category which will assure it's protection. Perhaps the most serious omission, in my mind, of the Preliminary Management Zoning Proposal occurs at the north end of GCNRA. The scenic value of the Orange Cliff areas or area above the Maze is very important. I have spent a considerable amount of time in an integral part of the whole west bank complex including the Maze, the Orange Cliffs, and Gunsite View. I believe the Natural Zone should extend at least from Cover Canyon north to include everything on the west bank of the Colorado and Green Rivers. Views of this area from Canyonlands National Park are critical and the Maze and Cliffs themselves are an important scenic area within GCNRA. I urge you to include all of this area in the Natural Management Zone.

Wilderness Alternative B (MAP 42) cannot be given serious credence by those who know the significance of the natural and recreational resources of the GCNRA. Those who propose such limited wilderness or natural area designation can only be taking a parochial view of the importance of the Colorado, Escalante, and San Juan river drainage. The Alternative A obviously comes most closely in my mind to giving proper protection to the meritorious areas.

The proposed road closures in the plan receive my support. They have been the source of more emotional than rational response particularly by elected officials in the state of Utah. The proposed closures will not affect in any measurable way access to the area but will allow better management and protection of critical zones. Were the roads in the area they are proposing of a substantial nature or were important to real commercial or mineral development, their reactions might be more justified. The road study alternatives (MAP 44) which are aimed at assuring proper access to and through the region are of particular concern.

Route D1 would be unreasonably expensive, would greatly impact the most important natural zone of the GCNRA, would be difficult to maintain, and finds its only justification in the hope of luring some boaters from Wauweep all the way up to Bullfrog Basin. The whole premise on which the proposal is faulty. There is no reason to believe out-of-state boaters will travel that extra distance. If additional tourist

facilities are desired, they should be provided in the Warm Creek Basin area or even Gunsite Bench. Any effort to extend a road north and east of Grand Bench should be resisted because of costs and adverse impacts.

Route D2 would be almost as expensive, would not impact the Escalante Natural Zone as severely but would greatly increase the access to the Escalante Canyons and withit the impacts and management problems.

Route D4 is perhaps the most curious proposal because it seems to take the longest route to get between the two desired points.

Route D3 offers the obvious advantages of taking previously existing routes and improving them while leaving unimpacted the important Natural Zone of the Escalante. The foolish cost of extending a road around the Kaiparowitz project and 50 Mile Mountain and across the desolate plain of the Escalante Canyon should be wholly avoided. Existing communities (Cannonville, Henriville, Escalante, and Boulder) would all benefit from the increased traffic and communications through southern Utah would be improved. The National Park Service has an obligation, I believe, to resist the local hysteria and special interests of a few local business interests and make a rational choice of road access routes to and around this region.

Thank you for the opportunity to comment on the proposal.

Sincerely,

Paul G. Salisbury, [redacted]

PGS:mec

Response to Paul G. Salisbury Comment

402. The bench lands between Warm Creek and Dangling Rope contain a major road corridor as well as several secondary jeep roads. These roads contribute heavily to the windshield recreation experience, grazing use and provide access to adjacent public lands. Therefore these lands are proposed as RRU.

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FRANK E. (TED) MOSS
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GEORGE FRANKLIN

October 18, 1977

Mr. Temple Reynolds
Superintendent
Glen Canyon National Recreation Area
Post Office Box 1507
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Dear Temp:

The Park Service Director sent me a copy of the general management plan, wilderness proposal and road study alternatives for Glen Canyon Recreation Area and suggested I might wish to send written comments to you before the 22nd of October.

I've not had much time to study the documents. However, I would like to comment on one particular thing, which is the road from Glen Canyon City to Bullfrog Basin.

Wilderness Alternative A completely eliminates the road from Bullfrog Basin to Glen Canyon City. I do not believe that this can be eliminated because of the mandatory provision of the legislation which created the recreation area.

The Congress endeavored to draft the language so that a road study and a road alinement were mandatory and the building of the road was specifically authorized in the same bill. In this way Congress clearly expressed its will that there be a low speed scenic road between those two points which would enable all citizens to traverse that part of the recreation area. Congress was fully aware of the wilderness nature of the Escalante drainage, which had been added in Committee in order to provide a roadless area for backpackers, but it was the intention of Congress that there be a road across the lower part of the wilderness area for the reason stated above. If you observe, Congress even mandated the place where the road should cross the Escalante River. 403

Mr. Temple Reynolds
Page, Arizona 86040

Page 2
October 18, 1977

I cannot stress too strongly the intense feelings of the Congressional Committee and the Members of Congress that this road be built and it is my opinion that the recreation area bill would not have passed at that time if we had not accepted this road authorization with an assurance that the Park Service would proceed with its building. I am aware of course that there are strong feelings by those in favor of enlarged wilderness to prohibit the building of the road but I am convinced that this would fly in the face of the Congressional mandate. 403

I believe in wilderness and agree that we should have areas that will not be disturbed by roads or buildings or wheeled vehicles but I believe also that there must be a balance which enables the average citizen to enjoy our scenic public lands such as parks and recreation areas. For that reason I did then and still now, support the building of the scenic road to enable all of our citizens to see this part of the recreation area.

Sincerely,

Ted

Frank E. Moss

FEM/ar

Response to Frank E. Moss Comment

403. The NPS does not at this time make a recommendation either for or against the construction of this road. It will be built if and when Congress appropriates construction funds.

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XI. THE PLANNING TEAM AND CONSULTANTS

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APPENDIX 1

Public Law 92-593

An Act to establish the Glen Canyon National Recreation Area in the States of Arizona and Utah. (86 Stat. 1311)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto in the States of Arizona and Utah and to preserve scenic, scientific, and historic features contributing to public enjoyment of the area, there is established the Glen Canyon National Recreation Area (hereafter referred to as the "recreation area") to comprise the area generally depicted on the drawing entitled "Boundary Map Glen Canyon National Recreation Area," numbered GLC–91,006 and dated August 1972, which is on file and available for public inspection in the office of the National Park Service, Department of the Interior. The Secretary of the Interior (hereafter referred to as the "Secretary") may revise the boundaries of the recreation area from time to time by publication in the Federal Register of a revised drawing or other boundary description, but the total acreage of the national recreation area may not exceed one million two hundred and thirty-six thousand eight hundred and eighty acres.

SEC. 2. (a) Within the boundaries of the recreation area, the Secretary may acquire lands and interests in lands by donation, purchase, or exchange. Any lands owned by the States of Utah or Arizona, or any State, political subdivisions thereof, may be acquired only by donation or exchange. No lands held in trust for any Indian tribe may be acquired except with the concurrence of the tribal council.

(b) Nothing in this Act shall be construed to affect the mineral rights reserved to the Navajo Indian Tribe under section 2 of the Act of September 2, 1958 (72 Stat. 1686), or the rights reserved to the Navajo Indian Tribal Council in said section 2 with respect to the use of the lands there decsribed under the heading "PARCEL B".

SEC. 3. (a) The lands within the recreation area, subject to valid existing rights, are withdrawn from location, entry, and patent under the United States mining laws. Under such regulations as he deems appropriate, the Secretary shall permit the removal of the nonleasable minerals from lands or interests in lands within the national recreation area in the manner prescribed by section 10 of the Act of August 4, 1939, as amended (53 Stat. 1196; 43 U.S.C. 387 et seq.), and he shall permit the removal of leasable minerals from lands or interests in lands within the recreation area in accordance with the Mineral Leasing Act of February 25, 1920, as amended (30 U.S.C. 181 et seq.), or the Acquired Lands Mineral Leasing Act of August 7, 1947 (30 U.S.C. 351 et seq.). if he finds that such disposition would not have significant adverse effects on the Glen Canyon project or on the administration of the national recreation area pursuant to this Act.

(b) All receipts derived from permits and leases issued on lands in the recreation area under the Mineral Leasing Act of Februray 25, 1920, as amended, or the Act of August 7, 1947, shall be disposed of as provided in the applicable Act; and receipts from the disposition on nonleasable minerals within the recreation area shall be disposed of in the same manner as moneys received from the sale of public lands.

SEC. 4. The Secretary shall administer, protect, and develop the recreation area in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1 et seq.), as amended and supplemented, and with any other statutory authority available to him for the conservation and management of natural resources to the extent he finds such authority will further the purpose of this Act: *Provided, however*, That nothing in this Act shall affect or interfere with the authority of the Secretary granted by Public Law 485, Eighty-fourth Congress, second session, to operate Glen Canyon Dam and reservoir in accordance with the purposes of the Colorado River Storage Project Act for river regulation, irrigation, flood control, and generation of hydroelectric power.

SEC. 5. The Secretary shall permit hunting, fishing, and trapping on lands and waters under his jurisdiction within the boundaries of the recreation area in accordance with applicable laws of the United States and the States of Utah and Arizona, except that the Secretary may designate zones where, and establish periods when, no hunting, fishing, or trapping shall be permitted for reasons of public safety, administration, or public use and enjoyment. Except in emergencies, any regulation of the Secretary pursuant to this section shall be put into effect only after consultation with the appropriate State fish and game department.

SEC. 6. The administration of mineral and grazing leases within the recreation area shall be by the Bureau of Land Management. The same policies followed by the Bureau of Land Management in issuing and administering mineral and grazing leases on other lands under its jurisdiction shall be followed in regard to the lands within the boundaries of the recreation area, subject to the provisions of sections 3(a) and 4 of this Act.

SEC. 7. The Secretary shall grant easements and rights-of-way on a nondiscriminatory basis upon, over, under, across, or along any component of the recreation area unless he finds that the route of such easements and rights-of-way would have significant adverse effects on the administration of the recreation area.

SEC.8. (a) The Secretary together with the Highway Department of the State of Utah, shall conduct a study of proposed road alinements within and adjacent to the recreation area. Such study shall locate the specific route of a scenic, low-speed road, hereby authorized, from Glen Canyon City to Bullfrog Basin, crossing the Escalante River south of the point where the river has entered Lake Powell when the lake is at the three thousand seven hundred-foot level. In determining the route for this road, special care shall be taken to minimize any adverse environmental impact and said road is not required to meet ordinary secondary road standards as to grade, alinement, and curvature. Turnouts, overlooks, and scenic vistas may be included in the road plan. In no event shall said route cross the Escalante River north of Stephens Arch.

(b) The study shall include a reasonable timetable for the engineering, planning, and constuction of the road authorized in section 8(a) and the Secretary of the Interior shall adhere to said timetable in every way feasible to him.

(c) The Secretary is authorized to construct and maintain markers and other interpretive devices consistent with highway safety standards.

(d) The study specified in section 8(a) hereof shall designate what additional roads are appropriate and necessary for full utilization of the area for the purposes of this Act and to connect with all roads of ingress to, and egress from the recreation area.

(e) The findings and conclusions of the Secretary and the Highway Department of the State of Utah, specified in section 8(a), shall be submitted to Congress within two years of the date of enactment of this Act, and shall include recommendations for any further legislation necessary to implement the findings and conclusions. It shall specify the funds necessary for appropriation in order to meet the timetable fixed in section 8(b).

SEC. 9. Within two years from the date of enactment of this Act, the Secretary shall report to the President, in accordance with subsections 3(c) and 3(d) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132 (c) and (d)), his recommendations as to the suitability or nonsuitability of any area within the recreation area for preservation as wilderness, and any designation of any such area as wilderness shall be in accordance with said Wilderness Act.

SEC. 10. There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act, not to exceed, however, $400,000 for the acquisition of lands and interests in lands and not to exceed $37,325,400 for development. The sums authorized in this section shall be available for acquisition and development undertaken subsequent to the approval of this Act.

Approved October 27, 1972.

Legislative History

House Report No. 92–1446 accompanying H.R. 15716 (Committee on Interior and Insular Affairs).
Senate Report No. 92–156 (Committee on Interior and Insular Affairs).
Congressional Record:
Vol. 117 (1971): June 21, considered and passed Senate.
Vol. 118 (1972):
Oct. 13, considered and passed House, amended, in lieu of H.R. 15716.
Oct. 14, Senate concurred in House amendment, with amendments; House concurred in Senate amendment.
Weekly Compilation of Presidential Documents: Vol. 8, No. 44 (1972): Oct. 28, Presidential statement.

APPENDIX 2

EXCERPTS FROM MEMORANDA OF AGREEMENT

The National Park Service maintains some 26 Memoranda of Agreement with various agencies and organizations whose jurisdictions or interests lie in or around the recreation area. These memoranda specify procedures, objectives, and activities for cooperatively managing and using the structures, lands, and water of the region. Aspects of these agreements relevant to the proposals are concerns of this planning effort are:

MEMORANDUM OF AGREEMENT OF SEPTEMBER 17, 1965
BETWEEN THE BUREAU OF RECLAMATION AND THE NATIONAL PARK SERVICE RELATING TO THE ADMINISTRATION AND DEVELOPMENT OF LANDS AND FACILITIES AT THE GLEN CANYON UNIT OF THE COLORADO RIVER STORAGE PROJECT

MEMORANDUM OF AGREEMENT, entered into this 17th day of September, 1965, between the Bureau of Reclamation, Department of the Interior, hereinafter referred to as the "Bureau," and the National Park Service, Department of the Interior, hereinafter referred to as the "Service".

WHEREAS, the Bureau of Reclamation, acting pursuant to the authority contained in the Act of Congress of June 17, 1902 (32 Stat. 388; 43 U.S.C. 391, et seq.), and acts amendatory thereof or supplementary thereto, in particular the Colorado River Storage Project Act of April 11, 1956 (70 Stat. 105), has substantially completed construction of the Glen Canyon Reservoir, which reservoir is a feature of the Glen Canyon Unit, Colorado River Storage Project; and

WHEREAS, construction and operation of the Glen Canyon Unit was authorized for the purposes of conservation storage, power generation, silt retention, recreation and fish and wildlife conservation; and

WHEREAS, Section 8 of the aforesaid Act of April 11, 1956, authorizes and directs the Secretary of the Interior to investigate, plan, construct, operate and maintain public recreation facilities in connection with projects developed pursuant to that Act; and

WHEREAS, the Secretary has designated the National Park Service as the agency responsible for carrying out the Department's obligations for recreation under Section 8 of the aforesaid Act of April 11, 1956; and

WHEREAS, the National Park Service, acting pursuant to the authority of the Act of August 7, 1946 (60 Stat. 885), is prepared to assume responsibility for the planning and public recreation use of the Glen Canyon Reservoir area;

NOW, THEREFORE, the Bureau and the Service mutually agree that the following conditions, terms and principles shall govern the administration, use, planning and development of lands and facilities at the Glen Canyon Reservoir area for recreation, wildlife and other correlative purposes.

1. For the purpose of permitting the Service to develop and manage the Glen Canyon Reservoir area for recreational purposes, the Bureau hereby transfers to the Service the use and administration of reclamation withdrawn and acquired lands of the reservoir area, as shown on the map marked Exhibit "A", attached,1/ and by this reference made a part hereof. Also such transfer does not include project lands for the town of Page, Arizona and Glen Canyon Dam and appurtenant works as shown in the enlarged detail on Exhibit "A".1/ Such transfer is subject, however, to (a) any prior valid existing rights which have attached before the date of this agreement, and (b) the provisions of this agreement.

2. In the development and administration of the area, the Service shall follow a Reservoir Management Plan prepared by the Service in cooperation with the Bureau and reflecting the interests of other agencies concerned. The Management Plan shall include or be in accordance with an approved National Park Service Master Plan and shall facilitate realization of the highest public benefit through development of the recreation and fish and wildlife conservation potential of the area covered by this agreement.

3. The Bureau shall have the right to make such use of the reservoir area or any portion thereof as may be required in carrying out the purposes of the Glen Canyon Unit: Provided, however, that the Service receives written notification of such use.

4. Inasmuch as the reservoir is constructed and operated primarily for power and water conservation purposes, and the fulfillment of such purposes will require that the level of the reservoir be fluctuated to meet use demand, the Bureau reserves the right to vary the water level to the extent deemed necessary or desirable for the operation of the Glen Canyon Unit. However, to the extent consistent with the authorized primary purposes of said unit, the Bureau shall operate the dams and reservoirs in keeping with the Secretary's policy which provides for full consideration of public recreation and conservation on reservoir projects undertaken by the Federal Government.

5. In the event applications are received for the removal of oil, gas or other minerals from the transferred lands and the recommendation of the Bureau is requested concerning issuance of such leases, the Bureau will in turn consult with and be guided by the recommendations of the service in commenting or reporting on the applications.

6. The Service shall permit free and ready access to the area by the public consistent with its administration of the area. However, such requirement shall not preclude the Service from establishing entrance, admission and user fees upon determination that the recreation benefits of the area warrant the collection of such fees pursuant to provisions of the Land and Water Conservation Fund Act of 1965.

7. The Service may issue and administer licenses, leases, permits and concession contracts to persons or associations for the purpose of providing services to the public in the area and to provide a basis for regulating the privileges to be exercised by the licensee, lessee, permittee or contractor. Any such agreements which, because of their nature or the location of the proposed activity, will affect the primary purposes of the reservoir area which are the responsibility of the Bureau, shall be submitted to the Bureau for approval before issuance. All agreements utilized for such purposes throughout the area shall be subject to the applicable terms of this agreement and shall contain necessary language recognizing the purposes of the Glen Canyon Unit and effecting releases and indemnifications to and for the United States, its successors and assigns, and its officers, agents and employees engaged in the construction, operation and maintenance of the Glen Canyon Unit.

8. The Service may construct in the area or contract for the construction therein of roads, trails, docks, sanitation facilities, water supplies, camp and picnic grounds, bathing beaches, employee residences, and any other facilities and services incidental to recreation use. All general development plans and significant changes and revisions thereof which, because of their nature or location of the activity may affect the Bureau's activities, shall be forwarded for review and concurrence of the Bureau before construction begins.

9. The Service shall, within the limits of its administration, make and enforce such rules and regulations for the conservation and use of the area as are necessary and desirable to protect the health and safety of the public, for the protection of property, and for the maintenance of good order.

10. The Service shall prepare and forward to the Bureau at the close of each calendar year a report as to the extent of public use and the nature of facilities developed within the area administered pursuant to this agreement.

11. The Service shall be responsible for the negotiation of agreements and the coordination of activities with State and Federal wildlife agencies as desirable for the conservation and protection of wildlife in the area consistent with applicable law. The Service will consult with the Bureau during negotiation of any such agreements and, when so prescribed by the Bureau, shall include restrictions or stipulations necessary to prevent any adverse effect on the Bureau's operation of the Colorado River Storage Project.

12. Revenues obtained by the Service from operation of the area shall be disposed of in accordance with applicable law.

Any provisions of this agreement may be revised by subsequent agreement of the parties and approval of the Secretary.

This agreement shall become effective upon approval by the Secretary of the Interior and shall remain in force until otherwise directed by the Secretary of the Interior or until enactment by the Congress of legislation superseding it. Fulfillment of the undertakings expressed in this

agreement is contingent upon the appropriation of funds for these purposes.

IN WITNESS WHEREOF, the parties hereto have executed this memorandum as of the day and year first above written.

BUREAU OF RECLAMATION

(SGD) N. B. BENNETT, Jr.
Acting Commissioner

Date: SEP 13 1965

NATIONAL PARK SERVICE

(SGD) JACKSON E. PRICE
Acting Director

Date: SEP 17 1965

Approved

Date: SEP 24 1965

(SGD) STEWART L. UDALL
Secretary of the Interior

1/ Map on file in the Washington Office.

2. Memorandum of Understanding between the National Park Service and Bureau of Land Management in Utah: Identification and delineation of geographic areas of common concern; identification of interrelationships and areas of conflict of respective programs, joint development of basic management plans for carrying out agency responsibilities; establishment of priorities for accomplishment of development programs; and coordination of annual operating programs for implementation of approval plans. Development, maintenance and planning of access roads, designation of roadless areas, management of vehicle use, protection and management of antiquities and historical values, and granting of permission for utility rights-of-way and special land-use permits are to be jointly coordinated. In addition, the two agencies agree to continually review overall land-use management plans in terms of possible adjustments in boundaries or management responsibilities in the interest of promoting efficiency of operations and effective service to the public. All environmental analysis of projects or activities required by the National Environmental Policy Act are to be jointly conducted. Joint plans and programs are to be developed and implemented for the management of wild animals and their habitat, for consolidating federal ownership of lands within the National Park System and within areas of critical concern under BLM management jurisdiction, for grazing management and mineral leasing, and for watershed management in terms of protection of the natural scenery and minimization of flood problems, soil loss, and unnatural watershed deterioration.

With respect to grazing, the two agencies agree to identify areas where domestic livestock will be permitted and excluded, respectively. Other aspects of this part of the agreement deal with the preparation of allotment management plans, granting of grazing permits, development of livestock-use facilities, supervision of livestock use, and certain other administrative details for facilitating cooperation in the area.

3. Memorandum of Understanding between the National Park Service and the Bureau of Land Management in Arizona: Within the Arizona portion of the recreation area the two agencies will jointly determine zones that are not to be used for grazing and define procedures for issuing and administering permits for grazing developments and improvements.

4. Memorandum of Agreement between the National Park Service and the Navajo Tribe: The Tribe and the Service agree to jointly administer and develop "Parcel B" lands and lands below elevation 3,720 feet lying northeast of Antelope Creek and within the recreation area contiguous to the Navajo Indian Reservation. This joint administration is to include construction of all recreation facilities and utilities. Navajo Reservation lands within one mile of "Parcel B" lands may be developed as "Navajo Sites," with the Service agreeing to furnish technical advice and assistance in planning, developing, and maintenance of non-income producing facilities. All development of these Navajo Sites is to be in accordance with a long-range management and development plan for the recreation area, to be mutually agreed upon by the Tribe and the Service.

APPENDIX 3

EXCERPT FROM THE WILDERNESS MANAGEMENT POLICIES OF THE NATIONAL PARK SERVICE

WILDERNESS MANAGEMENT (p. VI.-6.)

"In the management of wilderness resources and of wilderness use, the Service will use the minimum tool necessary to successfullly, safely and economically accomplish its management objectives. When establishing the minimum tool, economic factors should be considered the least important of the three criteria. The chosen tool or equipment should be the one that least degrades wilderness values temporarily or permanently. Accepted tools, equipment, structures and practices may include but are not limited to: fire towers, patrol cabins, pit toilets, temporary roads, spraying equipment, hand tools, fire-fighting equipment, caches, fencing and controlled burning. The specifics of wilderness management for a given park will be included in the park's resources management plan."

Appendix 4
Socio-economic Statistical Profile of the Four-county Region Surrounding Glen Canyon National Recreation Area[a]

Socio-economic Attribute	Place					
Population	U.S.	Utah	Garfield	Kane	San Juan	Wayne
Estimated Population per Square Mile 1975[b,c]	60.7	14.6	0.6	0.8	1.5	0.7
Percent Urban 1970	73.5	80.6	–	–	–	–
Percent Rural Non-farm, 1970	22.4	16.9	94.0	98.0	86.2	86.5
Percent Rural 1970	4.0	2.4	5.9	1.9	13.7	13.4
Percent Change in Population 1960-70	13.3	18.9	−11.7	−9.2	6.3	−14.2
Percent Change in Population 1970 Count to 1976 Estimate[d,e]	5.3	15.9	3.6	39.4	27.3	16.4
Percent Change in Population 1970-76 Net Migration[d,e]	1.4	3.3	−3.7	26.8	11.3	10.7
Youth-Dependency Ratio 1970[f]	46.2	56.0	57.3	59.5	82.5	50.0
Aged-Dependency Ratio 1970[f]	16.0	12.3	17.1	17.6	8.7	20.8
Median Age 1970	28.3	23.0	26.4	27.3	18.0	27.3
1970 Population	–	–	3,157	2,421	9,606	1,483
1976 Population Estimate[d]	–	–	3,300	3,400	12,200	1,700
1977 Population Estimate[g]	–	–	3,600	3,800	13,000	1,800
1980 Population Estimate[h]	–	–	3,855	5,004	16,861	2,590
1985 Population Estimate[h]	–	–	4,267	6,345	20,512	3,106

[a]Unless otherwise noted, all figures are derived from the *County and City Data Book: 1972*, U.S. Department of Commerce, Social and Economic Statistics Administration, Bureau of the Census.

[b]U.S. Department of Commerce, Bureau of the Census, Current Population Reports, *Population Estimates and Projections*, Series P-25, No. 692 (April 1977).

[c]Bureau of Economic and Business Research, *Utah! Facts*, An Introductory Handbook to the Industrial Development Information System, Utah Industrial Promotion Division, 165 Southwest Temple, Salt Lake City, Utah 84101.

[d]U.S. Department of Commerce, Bureau of the Census, Current Population Reports, *Population Estimates*, Series P-26, Nos. 76-44 (August, 1977).

[e]U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1977.

[f]Lee Everett S., Martin L. Levin, William W. Pendleton, Patricia D. Postma, *Demographic Profiles of the United States*, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 1972, Volume 1 and VIII.

[g]Brockert, John E., "1977 Population Estimates for Utah," *Utah Economic and Business Review*, Vol. 37, Nos. 11-12 (December, 1977).

[h]Kim, Yun, *Population Projections by Age and Sex for Utah Counties, 1970-2000, Vol. II*, Research Report No. 28, Utah Agricultural Experiment Station, Utah State University, December, 1976.

Economy	U.S.	Utah	Garfield	Kane	San Juan	Wayne
Retail Sales 1972 Food Stores (%)[i]	21.9	19.9	(D)	10.6	24.2	25.5
Retail Sales 1972 Automotive Dealers (%)[i]	19.6	22.4	(D)	(D)	(D)	–
Retail Sales 1972 General Merchandise (%)[i]	14.2	11.8	8.0	(D)	14.0	(D)
Retail Sales 1972 Eating, Drinking Places (%)[i]	8.0	7.1	13.3	20.7	7.1	10.4
Retail Sales 1972 Gasoline Service Stations (%)[i]	7.3	8.0	27.6	29.8	14.0	38.3
Retail Sales 1972 Home Furnishing and Related (%)[i]	4.9	5.4	(D)	(D)	(D)	–
Retail Sales 1972 Building Materials Hardware and Related (%)[i]	5.2	6.9	(D)	(D)	1.8	12.5
Retail Sales 1972 Apparel and Accessory Stores (%)[i]	5.4	4.0	(D)	(D)	0.4	–
Retail Sales 1972 Drug and Proprietary Stores (%)[i]	3.4	6.2	(D)	(D)	(D)	–
Retail Sales 1972 Miscellaneous Retail Stores (%)[i]	10.0	8.3	11.8	6.2	7.4	(D)
Occupation: Professional (% of Total)[j]	15	17	11	9	18	15
Occupation: Managers (% of Total)[j]	8	9	12	19	11	8
Occupation: Sales Workers (% of Total)[j]	7	7	6	3	2	2
Occupation: Clerical (% of Total)[j]	18	18	7	12	14	7
Occupation: Craftsmen (% of Total)[j]	14	15	12	10	13	14
Occupation: Operatives (% of Total)[j]	4	4	8	3	4	1
Occupation: Transport Operators (% of Total)[j]	14	10	10	15	9	2
Occupation: Laborers (% of Total)[j]	4	4	6	6	6	4
Occupation: Farmers (% of Total)[j]	2	2	11	2	4	21
Occupation: Farm Laborers (% of Total)[j]	1	1	3	2	4	8
Occupation: Service Workers (% of Total)[j]	11	12	13	19	14	17
Occupation: Private Household (% of Total)[j]	2	1	1	0	1	1
Family Income: Less than $3,000 (%), 1969	10.3	8.8	11.1	6.5	23.8	16.7
Less than $3,000 (%), 1975 Estimate[k]	(A)	(A)	6.2	3.1	14.1	3.1
Family Income: $3,000-$4,999 (%), 1969	10.0	9.7	17.5	12.3	15.9	21.7
$3,000-$4,999 (%), 1975 Estimate[k]	11.2	8.9	5.3	3.6	14.2	12.5
Family Income: $5,000-$6,999 (%), 1969	11.9	12.6	20.3	23.0	13.8	23.6
$5,000-$6,999 (%), 1975 Estimate[k]	6.2	5.7	10.2	6.4	10.4	11.1
Family Income: $7,000-$9,999 (%), 1969	20.6	24.3	23.9	25.6	18.8	21.7
$7,000-$9,999 (%), 1975 Estimate[k]	10.6	9.7	18.6	18.5	13.0	22.9
Family Income: $10,000-$14,999 (%), 1969	26.6	27.7	20.3	20.4	20.1	12.2
$10,000-$14,999 (%), 1975 Estimate[k]	21.3	23.2	29.1	32.6	21.9	28.4
Family Income: $15,000-$24,999 (%), 1969	16.0	13.7	3.8	11.2	6.3	2.4
$15,000-$24,999 (%), 1975 Estimate[k]	32.8	35.7	23.8	24.1	21.7	17.7
Family Income: $25,000 or more (%), 1969	4.6	3.2	3.2	1.0	1.2	1.7
$25,000 or more (%), 1975 Estimate[k]	17.9	16.7	6.7	11.7	4.6	4.1
Work Outside County of Residence (%)	–	12.8	6.2	20.7	11.7	11.9
1960 Unemployment (%)[l,n]	5.5	4.8	14.6	6.0	2.9	1.4
1970 Unemployment (%)[m,n]	4.9	6.1	19.2	15.5	10.7	8.5
1975 Unemployment (%)[m,n]	8.5	7.2	14.4	7.5	10.6	7.9
1976 Unemployment (%)[m,n]	7.7	6.1	12.2	5.6	8.9	8.8
1977 Unemployment (%)[m,n]	7.0[p]	5.3[p]	7.9[p]	6.5[p]	8.1[p]	7.2[p]

Economy (Continued)	U.S.	Utah	Garfield	Kane	San Juan	Wayne
~~Number of Retail Establishments, 1976[o]~~		–	~~55~~	~~60~~	~~101~~	40
Percent Change, 1967-76[o]	–	–	–2.0	20.0	42.0	74.0
Number of Hotels, Lodges, and Motel Establishments[q,r,s]	–	–	12[r]	21[s]	11[q]	5[s]
Number of Employees	–	–	57[r]	(U)	32[q]	(U)
Number of Eating, Drinking Places[r,i]	–	–	4[r]	5[r]	13[r]	3[i]
Number of Employees[r]	–	–	79[r]	64[r]	153[r]	(U)
Number of Automobile Dealers, Garages and Gasoline Service[q,i]	–	–	26[q]	23[q]	21[i]	9[i]
Number of Employees[q]	–	–	37+[q]	81[q]	(U)	(U)
Land in Farms: 1964-74 Percent Change[a,o]	–4.2[a,B]	–12.1[a,B]	–40.1	–11.3	–17.3	–19.6
Land Distribution: State Owned[t]	–	–	6.7	8.4	6.5	9.2
Land Distribution: Federally Owned[t]	–	–	89.0	85.6	59.8	84.1
Land Distribution: Indian Owned[t]	–	–	–	–	24.9	–
Land Distribution: Privately Owned[t]	–	–	3.9	5.6	8.3	6.2
Land Distribution: Urban Roads, Railroads[t]	–	–	.2	.2	.3	.3
Land: Total County Acres Not in Water[t]	–	–	3.317,440	2,570,204	4,990,363	1,590,907
Transient Visitation: January-March (%)[t]	–	–	4.4	6.9	10.5	4.4
Transient Visitation: April-June (%)[t]	–	–	28.2	30.9	29.9	27.4
Transient Visitation: July-September (%)[t]	–	–	56.7	44.7	38.9	51.3
Transient Visitation: October-December (%)[t]	–	–	10.7	17.5	20.7	16.9
Housing						
Vacancy Rate: Homeowner (%)	1.2	.8	2.7	.9	.7	1.0
Vacancy Rate: Rental (%)	6.6	5.7	22.9	24.7	8.5	23.4
1960-70 Change: Year Round Housing (%)	19.9	21.0	–3.5	27.0	7.2	3.3
Mobile Homes and Trailers, 1970 (% of All Housing Units)[f]	2.7	2.6	5.6	7.0	14.6	5.2

[i]U.S. Bureau of the Census, *U.S. Census of Retail Trade: 1972.*

[j]U.S. Bureau of the Census, *Census of Population, Utah: General, Social and Economic Characteristics, 1970.*

D – Withheld to avoid disclosure from individual establishments.

[k]1975 income distribution estimates were based on the assumption that the Gini coefficient remained constant between 1969-75, i.e., relative income shares among income classes had not changed. Average family size was assumed to have decreased at the same rate as households – a decrease of 5.5 percent.

[l]Utah Department of Employment Security, *Utah Labor Market Information (By Planning District and County), 1950 to 1973.*

[m]Utah Department of Employment Security, *Employment Newsletter* (March, 1978).

[n]U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (January, 1978).

A–Included in next category.

p–Preliminary data.

[o]Bureau of Economic and Business Research, University of Utah, Salt Lake City, Utah, "County Economic Facts, 1977."

[q]U.S. Bureau of the Census, *County Business Patterns,* Utah, 1972.

[r]U.S. Bureau of the Census, *County Business Patterns,* Utah, 1975.

[i]U.S. Bureau of the Census, *U.S. Census of Retail Trade,* 1972.

[s]U.S. Bureau of the Census, *U.S. Census of Selected Services,* 1972.

[t]Nelson Elroy, "The Canyonlands of Utah," Report prepared for the Utah State Department of Highways and National Park Service, June 26, 1974, Six Volumes, Counties and Summary.

[a]U.S. Department of Commerce, Social and Economics Statistics Administration, Bureau of the Census, *County and City Data Book, 1972.*

B–1964-69 data.

U–Unable to determine.

[f]Lee,Everett S., Martin L. Levin, William W. Pendleton, Patricia D. Postma, *Demographic Profiles of the United States,* Oak Ridge National Laboratory, Oak Ridge, Tennessee, 1972, Volumes I and VIII.

Social Services	U.S.	Utah	Garfield	Kane	San Juan	Wayne
Health Care Personnel[o,v]	–	–	12	14	19+	1
Hospital Beds (Not Including Nursing Homes)[o,v]	–	–	20	20	57	0
Zoning Ordinance[o]	–	–	No	Yes	Yes	No
Full-time Fire Department[o]	–	–	No	No	No	No
Volunteer Fire Department[o]	–	–	Yes	No	Yes	Yes
Cooperative Fire Protection, County[o]	–	–	Panguitch	Kanab	Monticello Blanding	Loa Bicknell
No. of Law Enforcement Officers[o]	–	–	2	3	7	3
Planning Commission[o]	–	–	No	Yes	Yes	No
Public Libraries[o]	–	–	Panguitch	Kanab	Monticello Blanding	No
Higher Education (Beyond H.S.)[o]	–	–	No	No	No	No
Other Educational Institutions (Private, Trade, Vocational Schools)[o]	–	–	No	No	Yes	No
Printed Media in County[o]	–	–	Weekly	Weekly	Weekly	None
Electronic Media in County[o]	–	–	None	None	1, Radio	None
Municipal and Private Airports[o]	–	–	3+1	1+3	8+0	1+1
Average Number of Persons on Public Welfare 1976-77[w]	–	48,273	111	114	2,226	36
Percent of Population[w]	–	3.9	3.2	3.2	18.2	2.1
Old Age Assistance Recipients June 1975 (As % of Total Population)[x]	.9[a,C]	0.3	0.5	0.3	0.6	0.4
A.D.C. Assistance 1976-77 Fiscal Year (As % of Total Population)[x]	5.1[a,C]	3.0	1.0	1.7	20.3	1.4
Local Government Finances						
County Revenue: Property Tax (% of Total Revenue)	–	–	36.7	31.6	65.1	19.0
Sales Tax (% of Total)[t]	–	–	2.6	3.6	2.0	1.4
Liquor Profits (% of Total)[t]	–	–	.4	.3	.5	.4
Road Fund (% of Total)[t]	–	–	9.6	8.4	8.9	12.0
Mineral Leasing (% of Total)[t]	–	–	3.1	1.1	1.8	1.5
State Uniform School Fund (% of Total)[t]	–	–	47.7	55.0	21.8	65.7
1967 Local Government Expenditures Education (% of Total)[y]	48.0	66.5	72.1	55.2	41.8	80.0
1967 Local Government Expenditures Highways (% of Total)[y]	7.6	5.2	13.4	10.4	18.5	10.4
1967 Local Government Expenditures Public Welfare (% of Total)[y]	6.6	.2	.6	1.1	.1	–
1967 Local Government Expenditures Health and Hospitals (% of Total)[y]	5.5	3.3	.7	13.8	.8	1.3

[o]Bureau of Economic and Business Research, University of Utah, Salt Lake City, Utah, "County Economic Facts, 1977."

[v]Major communities only. Data obtained from Bureau of Economic and Business Research, University of Utah, Salt Lake City, Utah, "Community Economic Facts, 1977."

[w]Utah Foundation, *Statistical Review of Government in Utah, 1978 Edition.*

[x]Utah Department of Social Services, *Assistance, Medical and Food Stamp Payments,* 1976.

[a]U.S. Department of Commerce, Social and Economic Administration, Bureau of the Census, *County and City Data Book: 1972.*

[t]Nelson, Elroy, "The Canyonlands of Utah," Report Prepared for the Utah State Department of Highways and National Park Service, June 26, 1974, Six Volumes, Counties and Summary.

[y]Percentage of total per capita expenditures, exclusive of capital outlay.

C–1972 data.

PER CAPITA PERSONAL INCOME AND ANNUAL GROWTH RATES
UNITED STATES, SELECTED UTAH COUNTIES
1970-1975, 1965-1975

	1965	1970	1971	1972	1973	1974	1975	Annual Growth Rates (In Percent / Year) 1970-75	1965-75
United States	2,764	3,911	4,149	4,513	5,002	5,443	5,852	8.39	7.79
Utah	2,390	3,227	3,437	3,740	4,185	4,539	4,938	8.88	7.53
Garfield	1,746	2,397	2,709	2,995	3,386	3,616	3,785	9.57	8.04
Kane	1,760	2,644	3,046	3,196	3,325	3,294	3,527	5.93	7.20
San Juan	1,719	1,961	1,981	2,011	2,343	2,557	2,805	7.42	5.02
Wayne	1,374	2,278	2,345	2,502	3,210	3,339	3,568	9.39	10.01

Note: Income data are residence adjusted.

Sources: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System File.

U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1975 and 1977 editions (U.S. data only).

Employment by Industrial Sources, 1975
Full and Part-time Wage and Salary Employment Plus Number of Proprietors
Garfield, Kane, San Juan, and Wayne Counties

	Garfield	Kane	San Juan	Wayne
TOTAL EMPLOYMENT	1,579	1,159	3,353	731
Number of Proprietors	384	284	451	293
Farm Proprietors	204	136	190	163
Non-Farm Proprietors	180	148	261	130
Wage and Salary Employment	1,195	875	2,901	438
Farm	60	40	160	30
Non-Farm	1,135	835	2,742	408
Government	405	320	865	250
Total Federal	122	44	97	74
Federal Civilian	122	44	81	74
Military	--	--	16	--
State and Local	283	276	768	176
Private Non-Farm[1]	730	515	1,877	158
Manufacturing	232	(D)	183	23
Mining	39	(D)	712	(D)
Construction	24	23	122	(D)
Trans., Comm., & Pub. Util.	49	(D)	233	4
Trade	150	243	321	37
Finance, Insurance, & Real Est.	14	31	23	6
Services	222	138	283	42
Other	--	--	--	--

(D) Not shown to avoid disclosure of confidential information. Data are included in totals.

[1]Primary source for private non-farm employment: ES-202 covered employment, Utah Department of Employment Security

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

PERCENT OF TOTAL EMPLOYMENT BY INDUSTRIAL SOURCES, 1975
FULL AND PART-TIME WAGE AND SALARY EMPLOYMENT PLUS NUMBER OF PROPRIETORS
GARFIELD, KANE, SAN JUAN, AND WAYNE COUNTIES

	Garfield	Kane	San Juan	Wayne
Total Employment	100.0	100.0	100.0	100.0
Number of Proprietors	24.3	24.5	13.5	40.1
Farm Proprietors	12.9	11.7	5.7	22.3
Non-Farm Proprietors	11.4	12.8	7.8	17.8
Wage and Salary Employment	75.7	75.5	86.5	59.9
Farm	3.8	3.5	4.8	4.1
Non-Farm	71.9	72.0	81.8	55.8
Government	25.6	27.6	25.8	34.2
Total Federal	7.7	3.8	2.9	10.1
Federal Civilian	7.7	3.8	2.4	10.1
Military	--	--	0.5	--
State and Local	17.9	23.8	22.9	24.1
Private Non-Farm[1]	46.2	44.4	56.0	21.6
Manufacturing	14.7	(D)	5.5	3.1
Mining	2.5	(D)	21.2	(D)
Construction	1.5	2.0	3.6	(D)
Trans., Comm., & Public Util.	3.1	(D)	6.9	0.5
Trade	9.5	21.0	9.6	5.1
Finance, Insurance, & Real Est.	0.9	2.7	0.7	0.8
Services	14.1	11.9	8.4	5.7
Other	--	--	--	--

[1]Primary source for private non-farm employment: ES-202 covered employment, Utah Department of Employment Security

[D]Not shown to avoid disclosure of confidential information. Data are included in totals.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System File.

Note: Detail may not add to totals due to rounding.

EARNINGS BY INDUSTRIAL SOURCE, 1975
GARFIELD, KANE, SAN JUAN, AND WAYNE COUNTIES
(Thousands of Dollars)
(Percent of Total in Parentheses)

Source	Garfield	Kane	San Juan	Wayne
Earnings[a]	8,764 (100)	6,243 (100)	27,880 (100)	3,712 (100)
Farm	-108 (-1.2)	57 (0.9)	1,887 (6.8)	254 (6.8)
Manufacturing	1,855 (21.2)	(D) (D)	1,274 (4.6)	176 (4.7)
Mining	604 (6.9)	(D) (D)	8,729 (31.3)	(D) (D)
Construction	350 (4.0)	375 (6.0)	2,128 (7.6)	(D) (D)
Trade	1,031 (11.8)	1,606 (25.7)	2,368 (8.5)	445 (12.0)
Finance, Insurance and Real Estate	85 (1.0)	221 (3.5)	210 (0.8)	149 (4.0)
Transportation, Communications, and Public Utilities	600 (6.8)	(D) (D)	2,423 (8.7)	141 (3.8)
Services	998 (11.4)	1,080 (17.3)	2,582 (9.3)	200 (5.4)
Federal Government, Civilian	1,185 (13.5)	637 (10.2)	1,114 (4.0)	640 (17.2)
Federal Government, Military	62 (0.7)	66 (1.1)	422 (1.5)	34 (0.9)
State and Local Government	2,014 (23.0)	1,565 (25.1)	4,743 (17.0)	1,093 (29.4)
Other	88 (1.0)	(*) (0.0)	(*) (0.0)	69 (1.9)

[a]Labor and proprietor's income by place of work.

[D]Not shown to avoid disclosure of individual company information.

*Less than $50,000.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System File.

Selected Tax and Construction Statistics
Selected Utah Counties

	1974	1975	1976	1977	Percent Change '77/'
Garfield					
Tax Data:					
Total assessed valuation ($ thousands)	11,422	13,608	13,716	13,881	1.2
Property taxes charged* ($ thousands)	641	782	795	808	1.6
Gross taxable sales ($ thousands)	8,198	10,038	11,030	13,909	26.1
Net local sales tax collections ($ thousands)	40	49	81	102	25.9
Construction: (1973, Panguitch only; 1974, Escalante and Panguitch only)					
New dwelling units (number)	17	41	25	39	56.0
Value of new residential construction ($ thousands)	361	1,093	660	1,226	85.8
Value of new nonresidential construction ($ thousands)	19	501	191	93	−51.4
Value total construction ($ thousands)	393	1,945	1,696	1,520	−10.4
Kane					
Tax Data:					
Total assessed valuation ($ thousands)	7,262	7,380	8,690	10,035	15.5
Property taxes charged* ($ thousands)	440	495	578	667	15.4
Gross taxable sales ($ thousands)	9,079	9,658	12,341	14,191	15.0
Net local sales tax collections ($ thousands)	44	47	90	104	15.6
Construction: (1973 and 1974, Kanab only)					
New dwelling units (number)	34	56	72	39	−45.8
Value of new residential construction ($ thousands)	733	1,073	1,329	1,152	−13.3
Value of new nonresidential construction ($ thousands)	85	154	214	182	−14.9
Value total construction ($ thousands)	901	1,274	1,778	1,347	−24.2
San Juan					
Tax Data:					
Total assessed valuation ($ thousands)	54,829	70,493	80,671	86,875	7.7
Property taxes charged* ($ thousands)	2,870	4,105	4,774	5,149	7.9
Gross taxable sales ($ thousands)	15,914	20,076	21,646	28,444	31.4
Net local sales tax collections ($ thousands)	78	98	158	209	32.3
Construction: (1973 and 1974, Blanding and Monticello only)					
New dwelling units (number)	21	23	40	51	27.5
Value of new residential construction ($ thousands)	414	583	919	1,733	88.6
Value of new nonresidential construction ($ thousands)	866	714	313	850	171.5
Value total construction ($ thousands)	1,298	1,353	1,347	2,666	98.0
Wayne					
Tax Data:					
Total assessed valuation ($ thousands)	2,909	3,119	3,502	3,631	3.7
Property taxes charged* ($ thousands)	149	168	191	214	12.0
Gross taxable sales ($ thousands)	2,144	2,603	3,020	3,093	2.4
Net local sales tax collections ($ thousands)	10	13	22	23	4.5
Construction:					
New dwelling units (number)	5	16	13	13	0.0
Value of new residential construction ($ thousands)	140	528	372	399	7.3
Value of new nonresidential construction ($ thousands)	18	181	233	22	−90.5
Value total construction ($ thousands)	160	790	653	440	−32.6

Source: Ronda Brinkerhoff, "Selected Business Statistics – Utah Counties," *Utah Economic and Business Review*, Vol. 38, No. 3 (March, 1978).

APPENDIX 5

EXPLANATION OF AGE--DEPENDENCY RATIOS AND EXPORT BASE ANALYSIS

The youth dependency ratio is the number of persons aged 0-14 relative to "working-age" persons aged 15-64. The aged-dependency ratio is the number of persons aged 65 and over relative to "working-age" persons aged 15-64. The ratio is expressed as a single value with 100 representing one dependent for each person in the 15-64 age range. Note that some persons in the "dependent" age ranges are "producers", while some persons in the "productive" or working age range are economic dependents, e.g., students, housewives. Age-dependency ratios strongly influence monetary income. Where youth-dependency ratios are high, more personal income is distributed for child support. Where aged-dependency ratios are high, more government revenues and social services are devoted to the support of the aged population.

Export base analysis estimates the number of people employed in the production of goods and services that exceed the needs of the county. These excess commodities are therefore available for export outside the county. The sectors producing these "exportable" goods and services are considered to be the driving force of the economy. Thus, the percent of a county's export employment shows the relative importance of various industrial sectors in motivating economic activity.

APPENDIX 6

DEPARTMENT OF THE INTERIOR DEFINITIONS OF MINERAL RESOURCE TERMS Adopted April 1974

New definitions for such crucial mineral terms as "reserves" and "resources" have been jointly adopted by the Interior Department's Bureau of Mines and Geological Survey.

The new definitions more accurately describe the estimated production potential of mineral deposits, including fuels. Adoption of the nomenclature is expected to clear up the confusion of these terms--especially between "mineral resources" and "mineral reserves." Figure A consists of a classification chart for this.

Resource--A concentration of naturally occurring solid, liquid, or gaseous materials in or on the earth's crust in such form that economic extraction of a commodity is currently or potentially feasible.

Identified resources--Specific bodies of mineral-bearing material whose location, quality, and quantity are known from geologic evidence supported by engineering measurements with respect to the demonstrated category.

Undiscovered resources--Unspecified bodies of mineral-bearing material surmised to exist on the basis of broad geologic knowledge and theory.

Reserve--That portion of the identified resource from which a usable mineral and energy commodity can be economically and legally extracted at the time of determination. The term ore is also used for reserves of some minerals.

The following definitions for measured, indicated, and inferred are applicable to both the Reserve and Identified-Subeconomic resource components.

Measured--Materials for which estimates of the quality and quantity have been computed, within a margin of error of less than 20 percent, from analyses and measurements from closely spaced and geologically well-known sample sites.

Indicated--Material for which estimates of the quality and quantity have been computed partly from sample analyses and

measurements and partly from reasonable geologic projections.

Demonstrated--A collective term for the sum of materials in both measured and indicated resources.

Inferred--Material in unexplored but identified deposits for which estimates of the quality and size are based on geologic evidence and projections.

Identified-Subeconomic resources--Known deposits not now minable economically.

Paramarginal--The portion of subeconomic resources that (a) borders being economically producible or (b) is not commercially available solely because of legal or political circumstances.

Submarginal--The portion of subeconomic resources which would require a substantially higher price (more than 1.5 times the price at the time of determination) or a major cost reducing advance in technology.

Hypothetical resources--Undiscovered materials that may reasonably be expected to exist in a known mining district under known geologic conditions. Exploration that confirms their existence and reveals quantity and quality will permit their reclassification as a reserve or identified-subeconomic resource.

Speculative resources--Undiscovered materials that may occur either in known types of deposits in a favorable geologic setting where no discoveries have been made, or in as yet unknown types of deposits that remain to be recognized. Exploration that confirms their existence and reveals quantity and quality will permit their reclassification as reserves or identified-subeconomic resources.

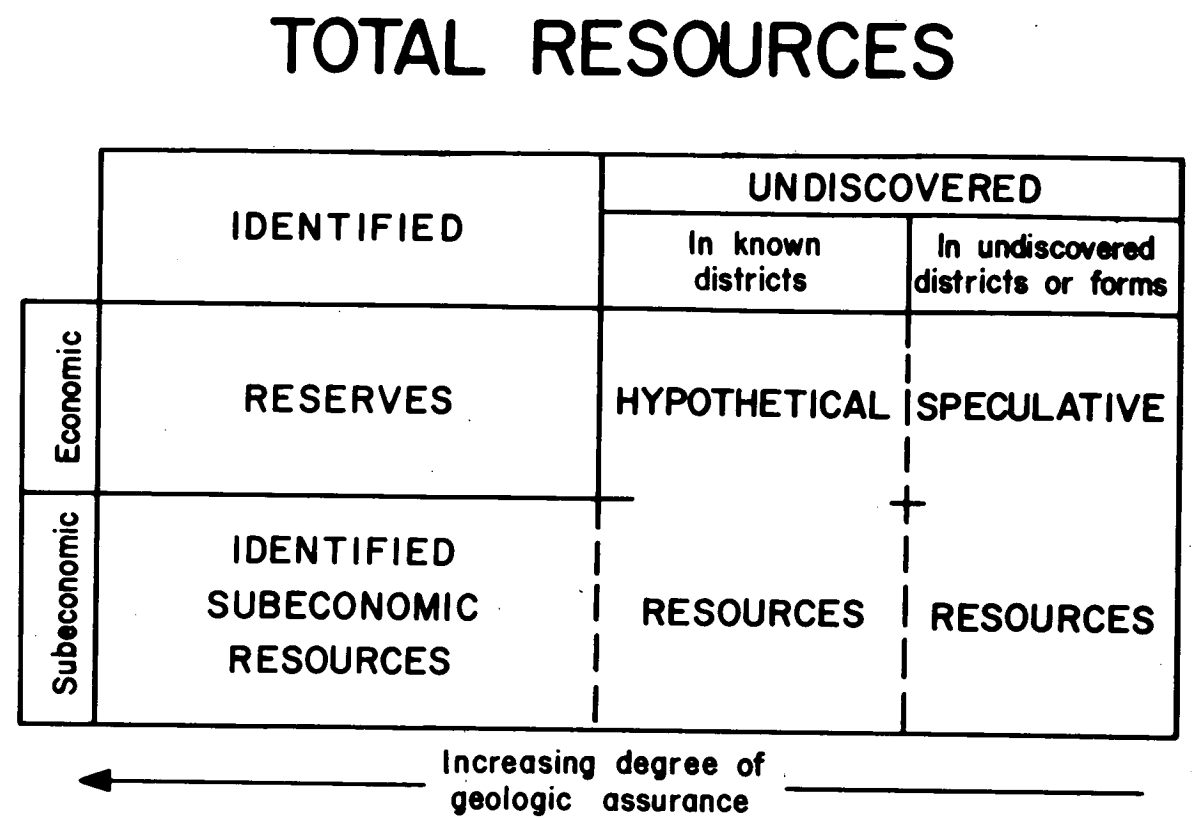

FIGURE A. Classification Chart

APPENDIX 7

OIL AND GAS RESOURCES
FROM A REPORT BY THE U.S. GEOLOGICAL SURVEY (1975)

From the standpoint of hydrocarbon charge and migration routes the recreation area occupies a very favorable position. During the Late Triassic to Early Jurassic time the Glen Canyon area received easterly migrating hydrocarbons that were derived from the Cordilleran geosyncline. Slightly later (Late Jurassic/Early Cretaceous), the area experienced a second phase of hydrocarbon migration, this time from the Paradox Basin situated in southeast Utah. Hydrocarbons generated during both phases were probably initially trapped along permeability barriers and in large paleostructures such as the Emery and Kaibab uplifts. The Circle Cliffs anticline, which trends north-northwest through the Glen Canyon area, is probably akin to these early uplifts and received large quantities of first generation hydrocarbons. Later structural adjustments in the area redistributed some of the oil into other structural and stratigraphic traps.

The Glen Canyon area contains a wide variety of potential reservoirs and traps. The most favorable reservoirs are Paleozoic in age and include the Kaibab formation (Permian), White Rim sandstone (Permian), Hermosa group (Pennsylvanian), Paradox formation (Pennsylvanian), Redwall limestone (Mississippian), and the McCracken sandstone member (Devonian). Major potential traps are of the stratigraphic variety and include regional pinchouts of the Kaibab; White Rim; and McCracken; shelf-margin, intertidal, and supratidal carbonate units of the Hermosa and Paradox; and leached crinoidal and oolitic shelf carbonates of the Redwall. The anticlinal structures, excepting the Circle Cliffs anticline, are not considered to be primary targets because they formed after the major migration events. However, some of the later structures may contain remigrated oil accumulations, and if hydrodynamic conditions exist, they may be offset from the crest of the structure.

Perhaps the most discouraging factor, in terms of oil and gas potential, is the large amount of late Tertiary and Holocene (?) uplift and subsequent erosional dissection that has occurred in the area. The regional uplift has exhumed at least a billion barrel oilfield in the White Rim Sandstone and has subjected numerous formations as old as Pennsylvanian to flushing action by fresh water. Another problem in the area may be "leaky" seals. This problem is particularly evident in the vicinity of the Circle Cliffs anticline where abundant oil-impregnated sandstone and siltstone units of the Triassic Moekopi formation are manifested. It seems that large amounts of first-generation oil migrated into the Kaibab and White Rim along the Circle Cliffs anticline but, owing to erosion and poor sealing quality of the overlying Moenkopi, it has escaped. The large degree of fracturing associated with the Circle Cliffs anticline and the region in general could also facilitate the leakage of hydrocarbons.

SOURCE

U.S. Geological Survey 1975.

APPENDIX 8

COMMENTS ON THE OIL AND GAS RESOURCES
by
Howard R. Ritzma, Assistant Director
Utah Geological and Mineralogical Survey

"In the Colorado Plateau area, the deep cutting of the canyons of the Colorado and its tributaries and extensive joint and fracture systems have completely disrupted the "normal" or expected relationships of gas, oil, and water in potential petroleum reservoirs. In fact, we may have exactly the opposite relationships; large quantities of oil may actually have subsided to low structural positions on the flanks of anticlines or in the bottoms of subclines. Exploration in the area to date suggests that this may be the case, but there is not enough data at hand to identify these areas with any certainty. Exploratory activity in this part of Utah has been very sparse and sporadic since the 1920's. Really concentrated drilling, particularly to the formations below the Pennsylvanian, has not yet taken place.

"There is . . . little known about the deeper formations here--Mississippian, Devonian and Cambrian--about 2,500 to 3,000 feet of sediments. . . Exploration in these formations has had little success to date, but there are always surprises in the business of finding oil.

SOURCE

Letter to Paul Howard, Utah State Director, U.S. Bureau of Land Mangement, March 25, 1974.

APPENDIX 9
GRAZING STATISTICS

Allotment	Map Number	Total Allotment Acreage	Class of Livestock	Season of Use	Dates of Use	5-Year** Average Total Allowable Use (AUM's)	5-Year** Average Actual Use (AUM'S)	WITHIN NRA Acreage	Percentage	5-Year** Average Allowable Use (AUM's)	5-Year** Average Actual Use (AUM's)	Existing Range Condition	Potential Range Condition
Horseshoe	1	39,600	Sheep	F,W,Sp	11/16-5/15	5,943	3,190	15,280	39	720	386	Fair	Good
Robbers Roost	2		Cattle	All year	all year	5,288	4,424			500	418	Poor	Good
		241,905	Sheep		11/16-5/15	1,325	0	23,870	10	125	0		
Flint Trail	3	166,787	Sheep	F,W,Sp	11/16-5/15	4,500	0	83,530	50	2,185	0	Fair	Good
Sewing Machine	4		Cattle	F,W,Sp	1/1-5/31	560	145			491	134	Fair	Good
		128,560	Sheep		11/16-5/15	2,965	455	66,580	52	2,955	453		
Rockies	5	174,330	Cattle	F,W,Sp	10/16-5/31	5,598	3,792	42,460	24	508	344	Fair	Good
Waterpocket	6		Cattle			3,023	1,975			1,667	1,091	Good	Good
		81,679	Sheep	F,W,Sp	10/16-5/31	322	199	32,800	40	33	20		
Bullfrog	7	92,637	Cattle	F,W,Sp	11/1-5/31	3,120	1,756	640	1	13	7	Fair	Good
			Sheep			322	140			0	0		
Moody	8	37,563	Cattle	F,W	11/1-3/31	1,600	1,718	28,314	75	962	778	Fair	Fair
Silver Falls	9	28,534	Cattle	F,W,Sp	11/1-5/31	1,000	239	28,314	99	1,000	240	Fair	Fair
Wagon Box Mesa	10	26,240	Cattle	F,W	11/1-3/31	605	467	910	4	56	43	Fair	Fair
Big Bowns Bench	11	16,388	Cattle	F,W	11/1-3/31	1,500	957	3,030	19	289	185	Fair	Good
Escalante River	12	35,266	Cattle	F,W,Sp	10/16-5/31	1,552	1,115	29,538	84	1,276	923	Fair	Good
Upper Cattle	.	118,168	Cattle	F,W,Sp	11/1-6/15	10,686	7,572	7,501	6	609	431	Fair	Good
Lower Cattle	14	77,632	Cattle	F,W,Sp	10/1-4/15	6,816	5,163	28,223	36	1,723	1,306	Fair	Good
Chimney Rock	15	30,092	Cattle	F,W,Sp	11/1-6/15	4,043	3,397	4,930	16	497	418	Fair	Good
Forty Mile Ridge	16	40,725	Cattle	W,Sp	12/1-5/31	2,376	1,575	16,628	41	895	593	Fair	Fair
Soda	17	65,268	Cattle	F,W,Sp	10/1-5/31	1,600	1,064	51,951	80	1,315	874	Fair	Fair
Lake	18	25,016	Cattle	Su	6/1-9/30	1,308	914	5,080	20	273	191	Fair	Good
Navajo Bench	19	15,289	Cattle		10/1-6/1	832	240	15,289	100	832	240	Non-range	Non-range
Harveys Fear }	20	4,176	Cattle		11/1-6/15	----	0	2,256	54	264 }	0	Non-range	Non-range
Spencer Bench }	21	3,087	Cattle		11/1-6/15	----	0	2,845	92		0	Non-range	Non-range
Rock Creek	22	66,176	Cattle	F,W,Sp	10/1-5/31	1,544	898	43,693	66	1,079	628	Good	Good
Last Chance	23	193,894	Cattle	All year	6/1-10/31	3,090	2,657	21,748	11	157	135	Fair	Fair
					11/16-5/16								
Upper Warm Creek	24	80,863	Cattle	F,W,Sp	11/1-5/31	1,547	1,791	20,557	25	464	464	Fair	Fair
Lower Warm Creek	25	10,896	Cattle	F,W	11/1-3/31	225	158	10,896	100	225	158	Fair	Fair
Nipple Bench	26	29,906	Cattle	F,W	11/1-4/30	948	655	554	2	22	15	Fair	Good
Clark Bench	27	21,584	Cattle	All year	7/1-10/15	2,662	1,406	10,989	51	64	34	Unsuitable	Unsuitable
					11/1-5/31								
Judd Hollow	28	12,321	Cattle	F,W,Sp	11/1-5/31	1,060	273	944	9	72	19	Good	Good
Blue Pools	29	8,555	Cattle	All year	8/1-5/30	486	246	3,592	42	232	179	Fair	Fair
Ferry Swale No. 1	30	1,216	Cattle	F,W,Sp	10/16-5/31	130	44	1,216	100	130	44	Fair	Fair
Ferry Swale No. 2	31	28,965	Cattle	F,W,Sp	10/16-5/31	1,884	1,053	9,200	32	656	367	Fair	Good
Wahweap	32	15,844	Cattle	All year	all year	1,225	777	15,844	100	1,225	777	Fair	Good
Lees Ferry	33	23,203	Cattle	All year	all year	1,042	515	6,830	29	521	257	Poor	Fair
Indian Creek	34	265,030	Cattle	F,W,Sp	10/16-6/15	8,518	5,845	20,930	8	150	103	Good	Good
White Canyon	35	248,757	Cattle	All year	all year	5,544	4,566	34,915	14	600	495	Good	Good
Lake Canyon	36	651,060	Cattle	F,W,Sp	10/15-6/1	4,895	4,889	184,210	28	1,200	1,198	Good	Good
Slickhorn	37	191,600	Cattle	F,W,Sp	10/1-6/15	3,450	3,171	8,690	5	347	320	Good	Good
Perkins Bros.	38	120,526	Cattle	F,W,Sp	11/1-5/31	7,575	5,978	6,855	6	130	103	Fair	Good
TOTALS	**38**	**3,419,338**			Sheep	15,377	Sheep 3,984	**891,632**	Sheep	6,018	859		
					Cattle	97,332	Cattle 71,435		Cattle	20,444	13,512		
						112.709	**75,419**			**26,462**	**14,371**		

* For classification into categories on Map 31 (F=fall, W=winter, Sp=spring, Su=summer).

** 1970-1974

APPENDIX 10

CONSIDERATIONS RELEVANT TO POWERLINES IN THE GLEN CANYON AREA

1. A number of methods are available for increasing power flow without increasing the number of lines. These are:

   a. Increased voltage levels. For instance, the capacity of a 500-kV line is roughly twice that of a 345-kV line over the same distance; however, higher voltages do entail greater phase spacing and thus greater right-of-way width. Also, tower heights must be greater for increased ground clearance.

   b. The use of series capacitor devices in the lines. These, in effect, reduce the voltage drop between two points, and this results in greater load-carrying capacity, since it is usually voltage and not the thermal limit which establishes the capacity of a line.

   c. The use of larger conductors. For short lines in particular where voltage drop is not significant, greater capacity can be obtained with larger conductors which carry more load before becoming overheated.

   d. Adding switching stations at intermediate points in a line results in more effective utilization of capacity when there are two or more transmission lines between two points. For instance, with two lines between two points and a switching station at the midpoint, a fault on either line would result in the loss of only one-fourth of the transmission capacity in terms of distance. The remaining one line to the midpoint could then be overloaded with only half the voltage drop that would result if one line were lost the entire distance.

2. The vulnerability of a power net to interruption depends on large measure upon the physical separation between transmission lines. Landslides, earthquakes, aircraft, floods, firearms, sabotage, vandalism, lightning, and brush fires are all potential events which could cause a line breakage or damage. To obtain adequate reliability during planning studies of the southern Utah area, 2,000 mW of vital, primary transmission capacity was an upper limit for one right-of-way (2-500 kV alternating current lines separated by about 130 feet). When more than 2,000 mW of transmission capacity is needed it was judged that the individual rights-of-way (each containing up to two 500 kV lines) should be separated by about 2,000 feet or more to minimize the amount of capacity likely to be lost following any of the above mentioned events. Other transmission lines not vital to the primary transmission system could be interspersed between the above mentioned lines.

APPENDIX 11. Additional data for calculating the effect of the proposal on livestock grazing within the Natural zone (Table 14)

Allotment[1]	Map Number[2]	Acreage Within Natural Zone	5-Year Average Allowable Use (AUM's)		Estimated Annual Reduction in Allowable Use (AUM's)[3]		New Allowable Use (AUM's)		5-Year Average Actual Use (AUM's)		Reduction (−) or Increase (+) in Actual Use (AUM's)[4]	
Horseshoe	1	2,125	0		*		0					
Flint Trail	3	72,530	0		*		0					
Sewing Machine	4	19,720	1,022		*		109					
Rockies	5	35,435	0		*		0					
Waterpocket	6	2,200	0		*		0					
Moody	8	17,314	588		450		138		476		−338	
Silver Falls	9	28,314	1,000		500		500		240		+260	
Wagon Box Mesa	10	910	56		0		56		43		+13	
Big Bowns Bench	11	3,030	289		100		189		185		+4	
Escalante River	12	29,538	1,276		630		646		923		−277	
Upper Cattle	13	7,451	609		300		309		431		−122	
Lower Cattle	14	28,223	1,723		860		863		1,306		−443	
Chimney Rock	15	4,930	497		240		257		418		−161	
Forty Mile Ridge	16	16,628	895	Total: 10,144	440	Total: 5,926	455	Total: 4,218	593	Total: 6,225	−138	Total: −2,007
Soda	17	51,761	1,312		650		662		872		−210	
Lake	18	5,080	273		130		143		191		−48	
Navajo Bench	19	13;939	832		832		0		0		−240	
Harveys Fear	20	2,256	832		232		0		0			
Spencer Bench	21	2,845	264		264		0		0			
Rock Creek	22	17,477	530		530		0		307		−307	
Ferry Swale No. 2	31	2,355	168		*				94			
Wahweap	32	5,770	446		*				283			
Lees Ferry	33	3,825	292		*				144			
Indian Creek	34	17,200	123		*				84		1,885	
White Canyon	35	1,200	0		*				0			
Lake Canyon	36	124,298	809		*				809			
Slickhorn	37	7,395	295		*				272			
Perkins Bros.	38	5,975	113		*				90			
TOTALS		529,724	13,412		(7,835)[5]		(5,577)[6]		8,110		(−2,533)[7]	

* No estimates available.

1 Some or all of allotment falling within the Natural zone; 28 allotments

2 Map 8

3 On the basis of availability of information (i.e., similar data are not available for the other allotments within the Natural zone.)

4 Amount operators would be either required to reduce or permitted to increase their present actual use.

5 Estimate, based on ratio of estimated annual reduction in allowable use for the 15 allotments to the 5-year average allowable use for the 15 allotments ($\frac{5,926}{10,144} \times 13,412 = 7,835$)

6 (5-year average allowable use for all 28 allotments, 13,412) − (estimated annual reduction in allowable use for the 28 allotments, 7,835 = 5,577)

7 (New allowable use for the 28 allotments, 5,577) − (5-year average actual use for the 28 allotments, 8,110 = -2,533)

APPENDIX 12

EXCERPT FROM THE WILDERNESS ACT OF 1964, P.L. 88-577

DEFINITION OF WILDERNESS

(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, and parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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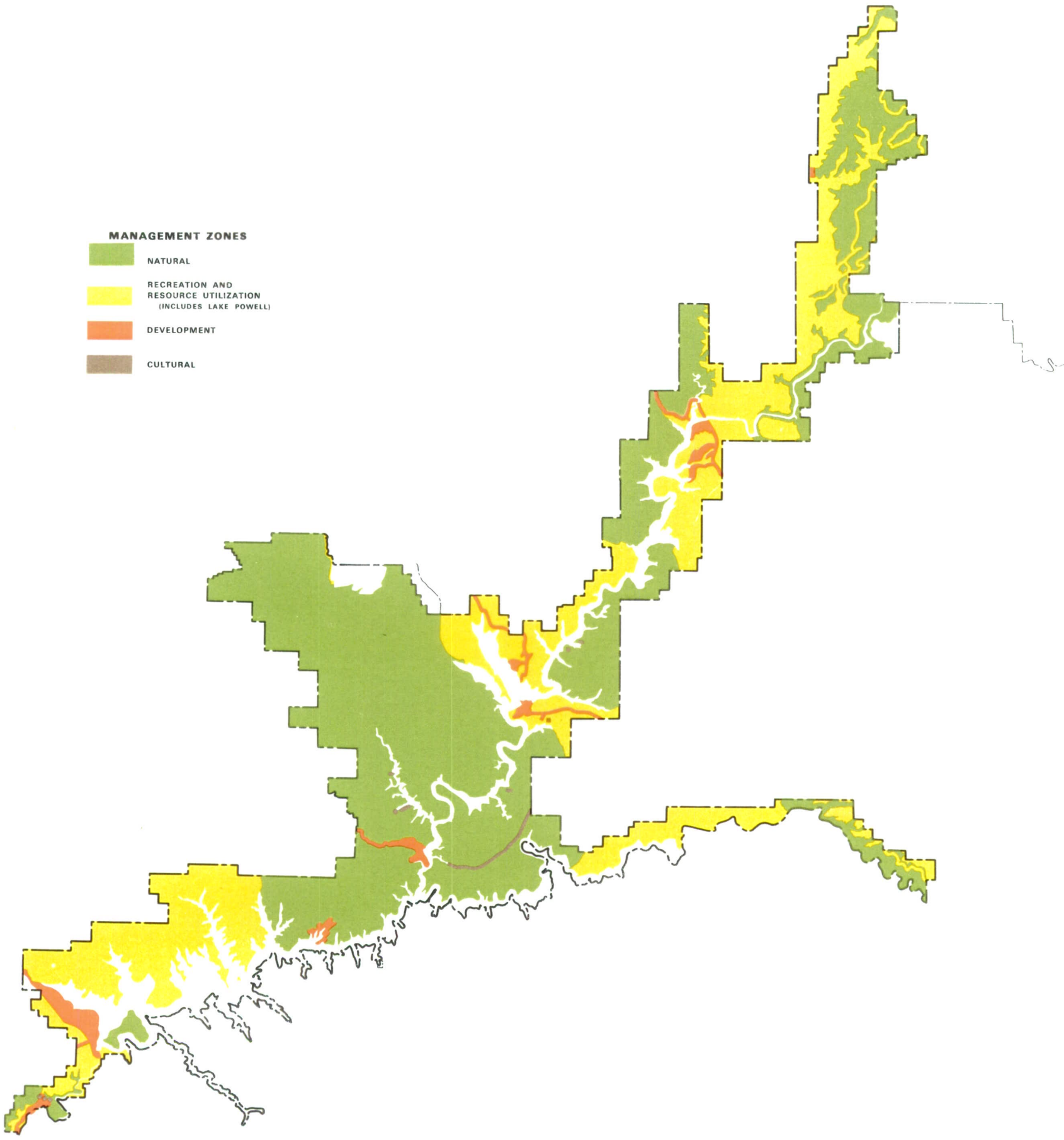

OVERLAY 1

FINAL MANAGEMENT ZONING PROPOSAL

GLEN CANYON NATIONAL RECREATION AREA