

**DRAFT COLORADO RIVER MANAGEMENT PLAN**

october 1977

**GRAND CANYON  
NATIONAL PARK**



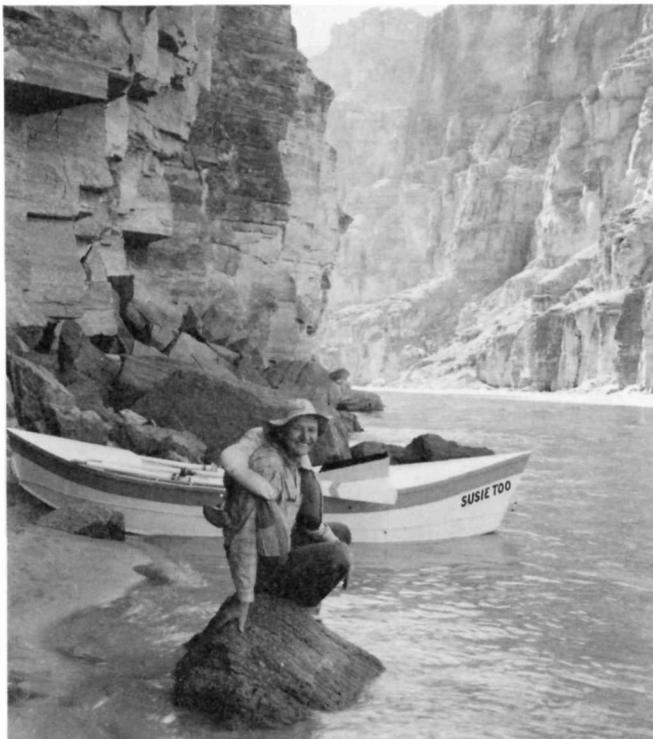
**ARIZONA**

This planning publication has neither been approved nor disapproved. Its purpose is to provide information for further consideration and discussion, and it may undergo considerable revision.

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



Draft  
Colorado River  
Management Plan



Grand Canyon National Park  
Arizona

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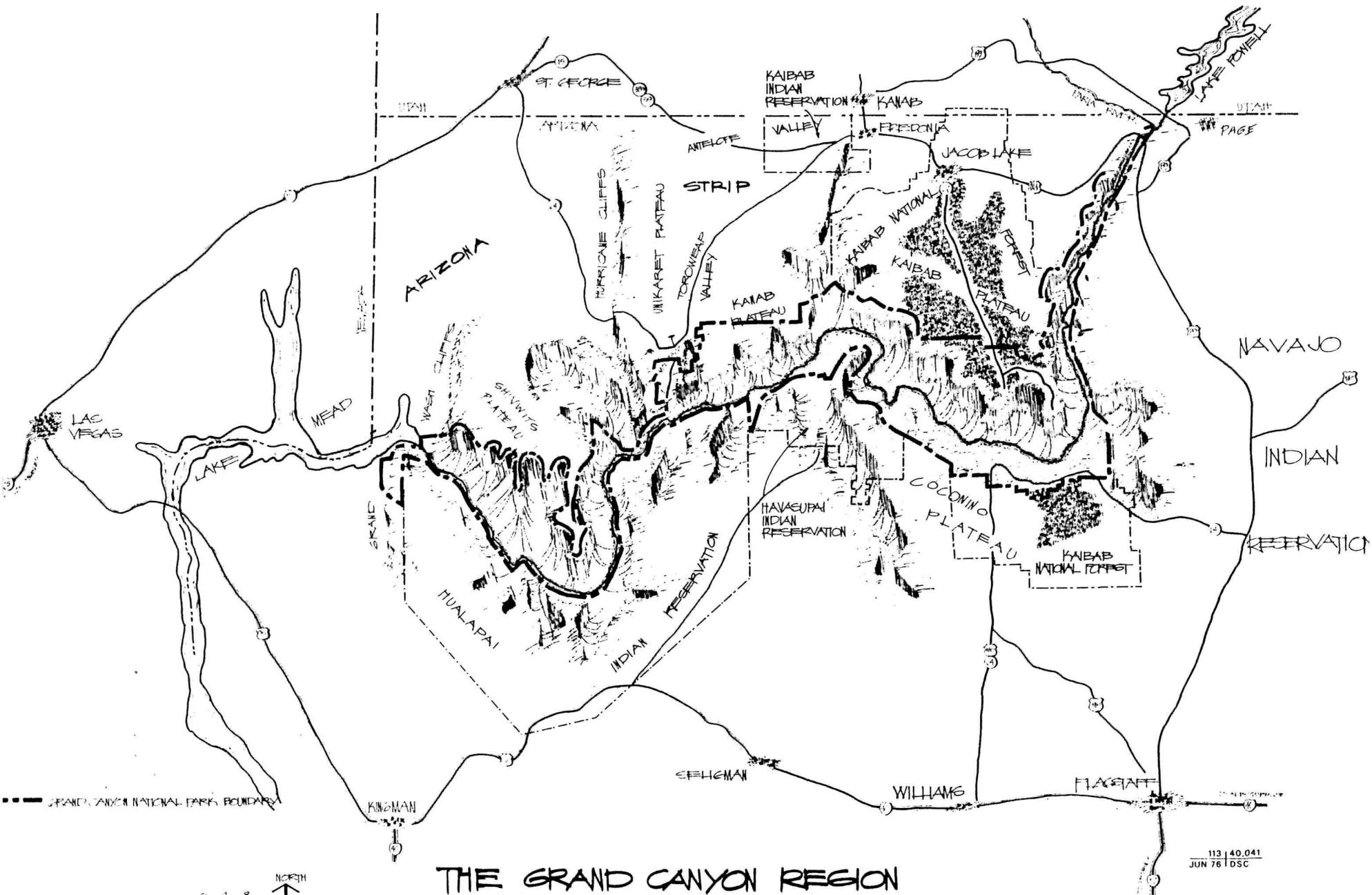
- 1 The **Edith**, a cataract boat named for Emery Kolb's daughter, was built in 1911 from plans furnished by Julius Stone, and was used by the Kolb brothers on their Grand Canyon photographic expedition.
- 2 The **Wen**, an improved cataract boat, was designed by Norman Nevills, who pioneered commercial river running in the Grand Canyon. Used until 1949 in twelve river trips, this boat travelled 4,500 miles on the Colorado River.
- 3 First named the **Susie Too**, this boat was renamed the **Music Temple** for the great vaulted alcove in Glen Canyon now beneath the waters of Lake Powell. Used for ten years after its launching in 1963, the **Music Temple** was replaced with larger, more efficient dories.

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**THE GRAND CANYON REGION**  
 GRAND CANYON NATIONAL PARK

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## INTRODUCTION

The Grand Canyon of the Colorado River is located in northern Arizona at the southwest corner of the Colorado Plateau Province. The plateau is a vast, semiarid land of raised plains and basins typical of the Southwestern United States, except for the dramatic slash of the Grand Canyon across northwestern Arizona. To the south lies the Phoenix/Tucson metropolitan area. The higher elevations of the plateau are forested; the lower elevations are a series of desert basins. This is Indian Country--the home of the Havasupai, Hopi, Hualapai, Navajo, and Paiute. It is a land rich in scenic and recreational appeal.

The Colorado River of the Grand Canyon today is vastly different from the river John W. Powell explored in the mid-1800s. Powell's Colorado remained fundamentally unchanged until Hoover Dam was completed in 1935. The Hoover Dam Reservoir, Lake Mead, extended into the lower reaches of the Grand Canyon; however, the upper reaches of the canyon remained in a natural state until the Glen Canyon Dam was completed in 1963. Since then, the flow of the Colorado through the Grand Canyon has been completely altered. Rather than a river charged with mud and sand, "too thick to drink and too thin to plow," it is now clear, cold, tidal flow completely dependent upon the release of water from Lake Powell. The environmental responses have been rapid and significant.

Prior to the Glen Canyon Dam, resource management of the Colorado River and the riparian ecosystems was not an issue of major importance to the National Park Service. The area was a true wilderness. It is also fair to say that the environmental changes occurring today would elicit only limited interest if man's use of the river were to continue as it was prior to Glen Canyon Dam. However, the number of people making Colorado River boat trips has increased dramatically in recent years. The lure of whitewater drew 2 thousand river enthusiasts in 1967; by 1972, 15 thousand made their way through the 277 miles of canyon corridor. The popularity of the river trips, the expansion of the river running industry, and the ever increasing number of fast, large motorized watercraft clashed with the growing public interest in wilderness preservation and protection of natural values within the park. Expansion was abruptly halted in 1973; limits were set at 1972 use levels. Time was needed to assess the environmental changes taking place within the river corridor. A research program was initiated in 1973 to evaluate the effects of the altered river regime, increased visitation, and the nature and quality of the river running experience.

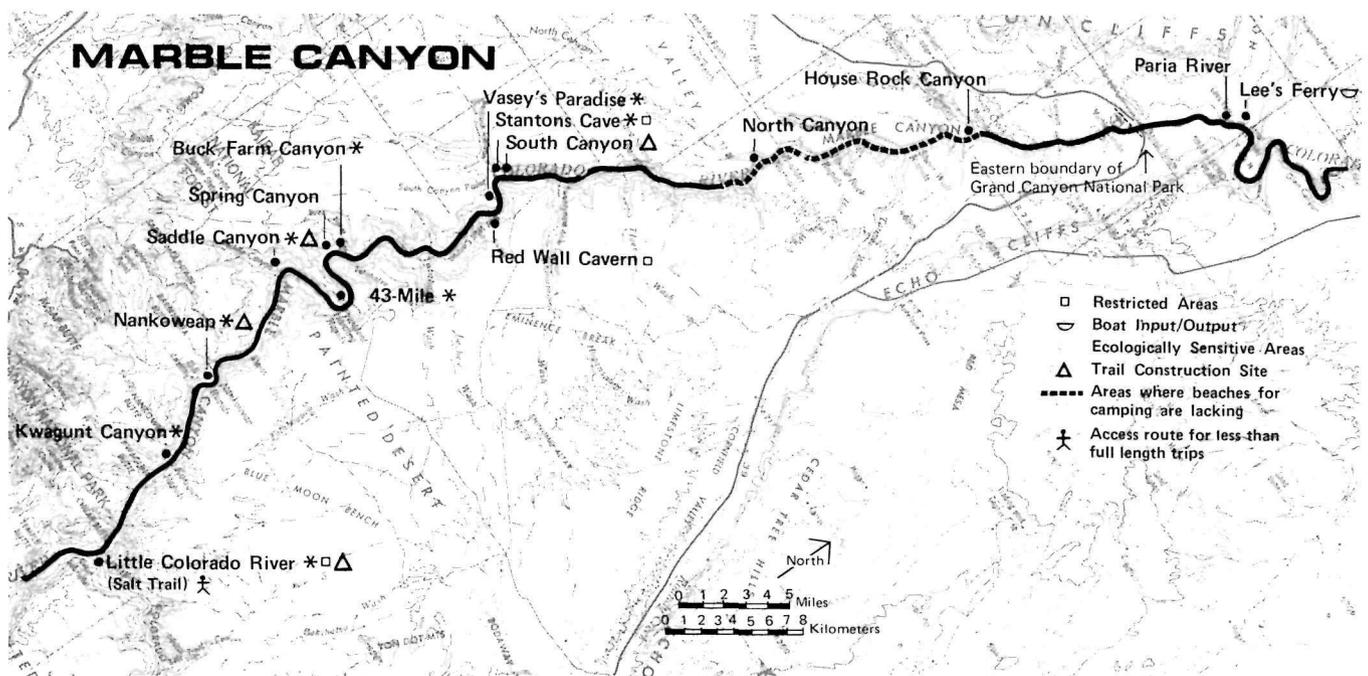
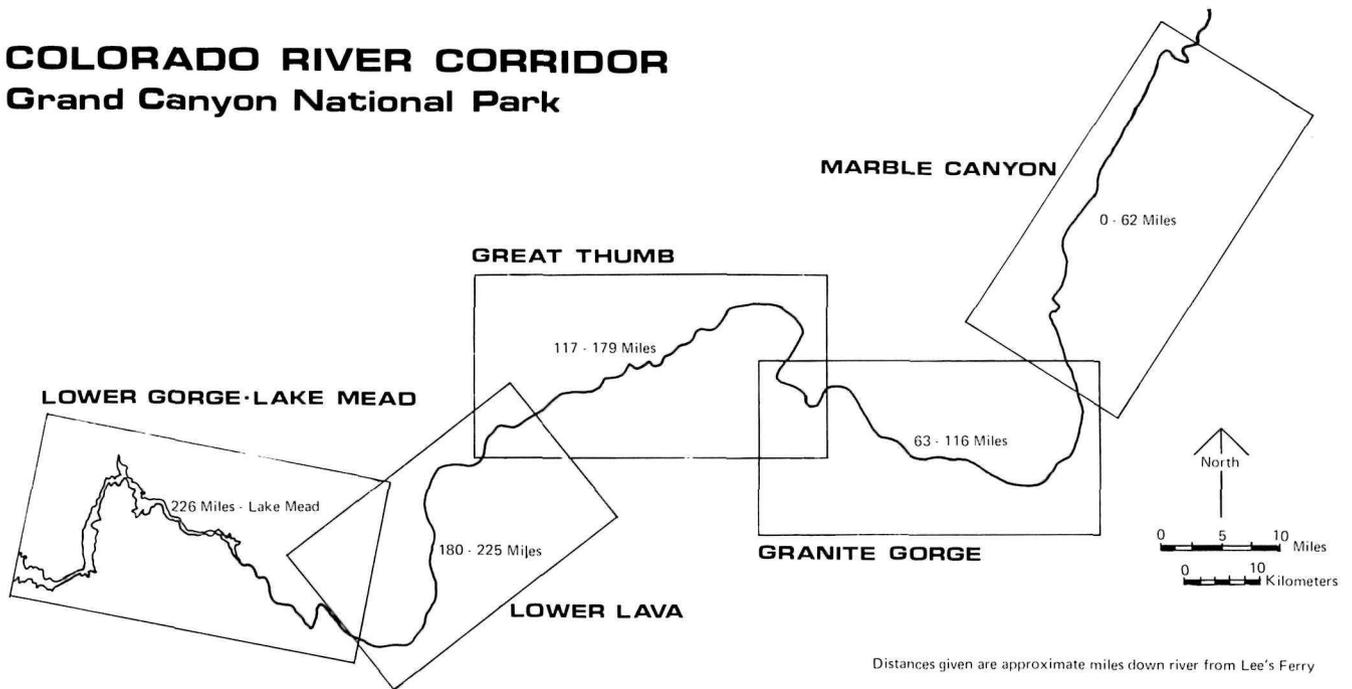
Since 1973, dissatisfaction has been voiced by river operators, private river runners, and members of various interest groups. Status quo management of river activities and resources was clearly in need of

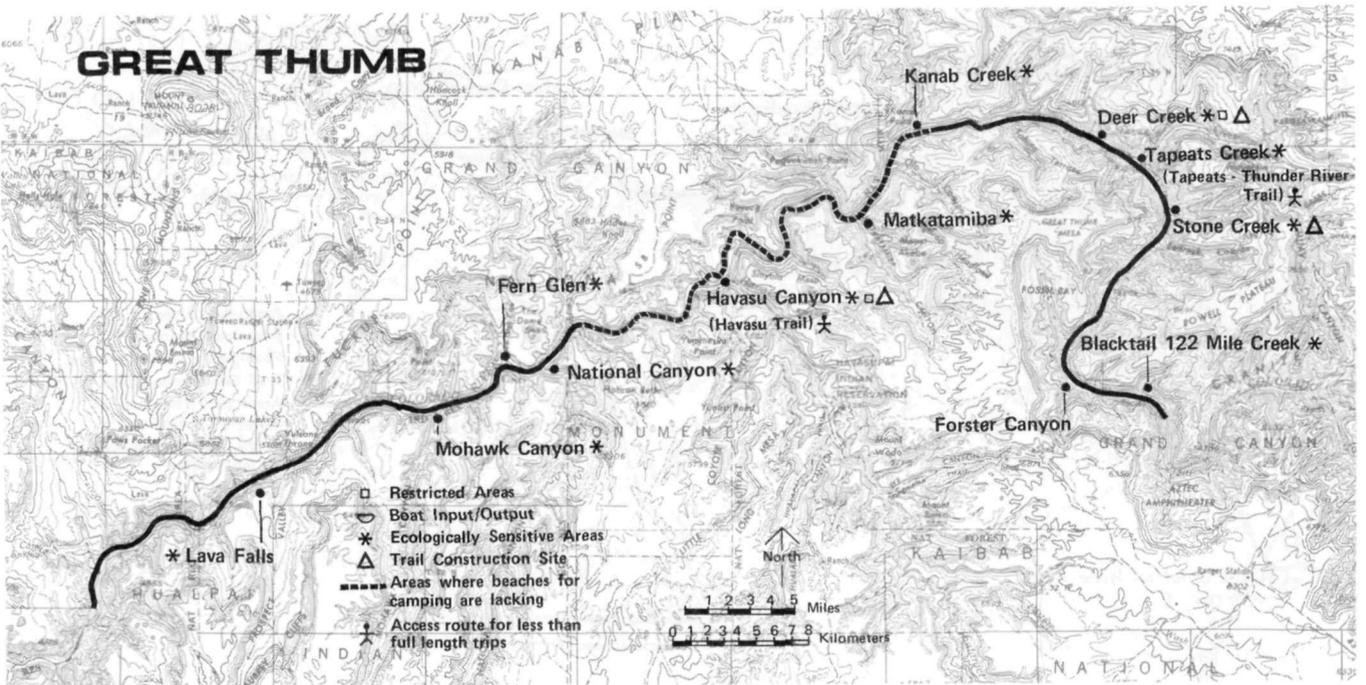
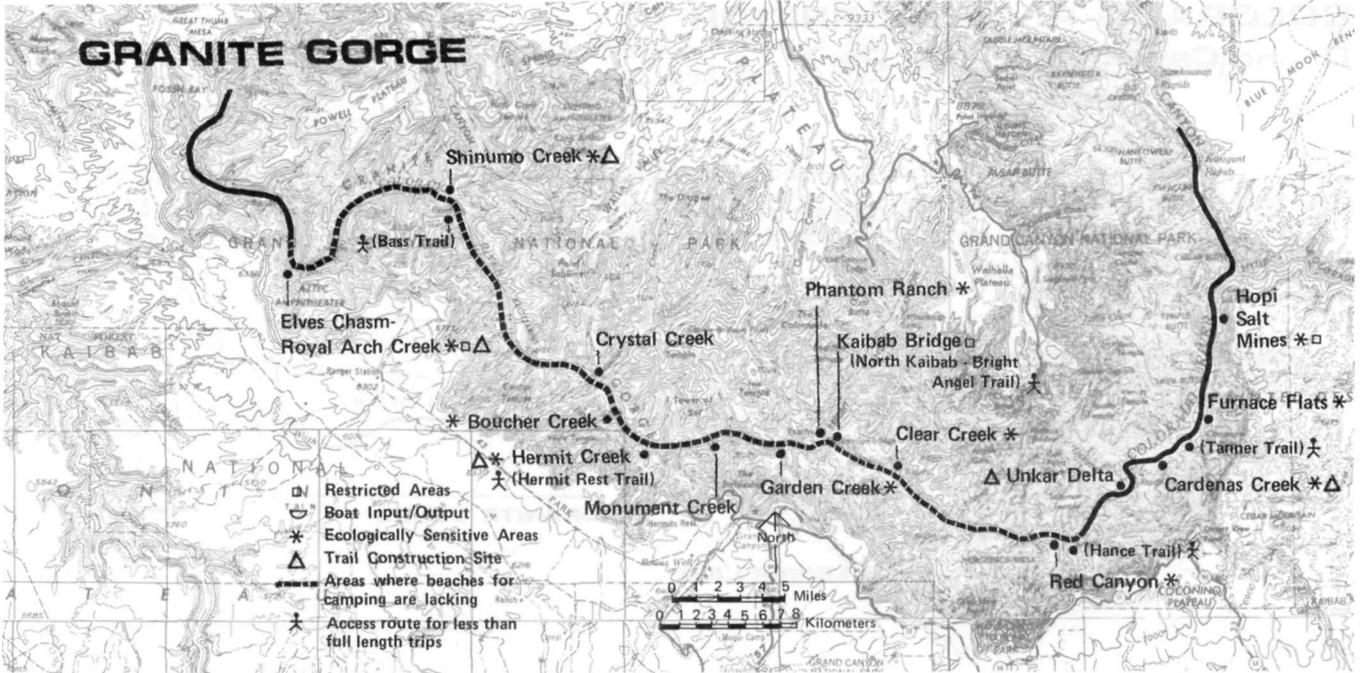
modification. Major issues began to emerge during public workshops, and research results further defined the directions management should pursue.

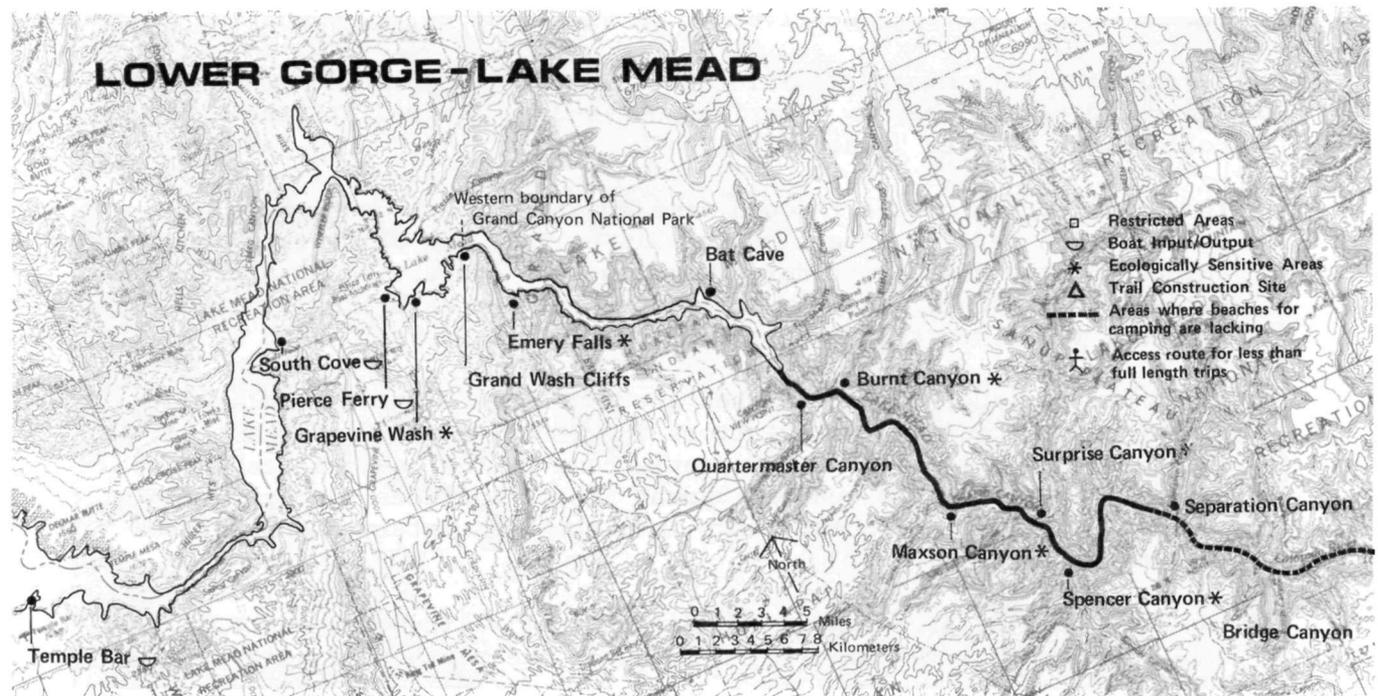
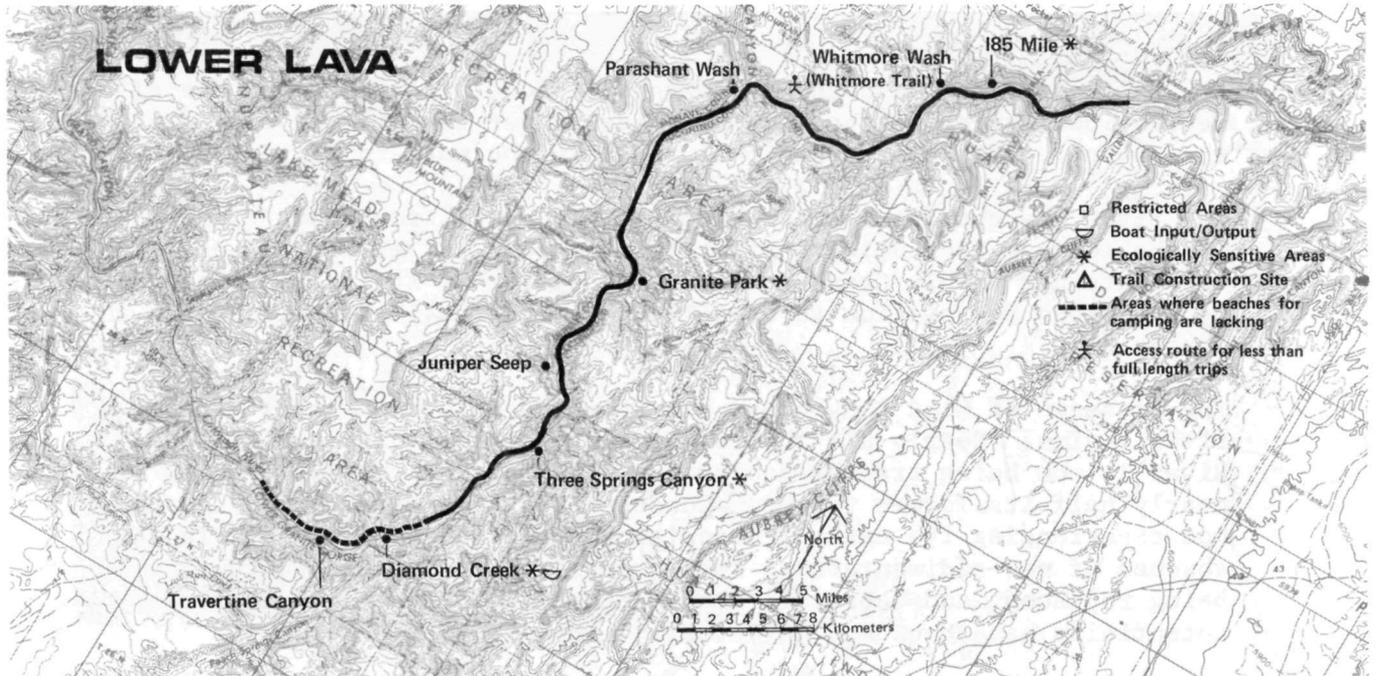
The river management plan attempts to address and resolve the major issues surrounding the resource, the activity, and the purpose of river running operations within Grand Canyon National Park.

# COLORADO RIVER CORRIDOR

## Grand Canyon National Park







## THE PROBLEM AND THE ISSUES

The Colorado River through Grand Canyon is one of eight stretches of recreational river on the Colorado-Green River system, and one of more than 44 stretches of recreational river in the western United States.

The river has characteristics which set it apart from other rivers. It is the longest recreational river in use, some 277 miles, all of which are contained within Grand Canyon National Park. It is also surrounded by more than one million acres of land that is basically wilderness in character.

The presence of Glen Canyon Dam has resulted in a dramatically changed river regime. Nearly all the former sediment load of the Colorado River is now being trapped behind the dam, and the peak water flow is nearly half its former volume. Consequently, the river below the dam is not experiencing its natural deposition and scouring actions. In the absence of new sedimentation, former terraces are being eroded without being replaced, and debris is accumulating in the rapids, creating potentially hazardous and, eventually, impassable conditions.

The significant reduction in high flood waters in the Colorado River below Glen Canyon Dam has permitted the development of a new riparian community that extends from Lee's Ferry to the backwaters of Lake Mead. Native as well as exotic plant species have rapidly established themselves. Pre-dam biotic communities are no longer viable and where remnants exist, along the river or in side canyons, they must be protected.

Recreational use along the Colorado River in the Grand Canyon is concentrated within the new riparian zone and on the relict stream deposits colloquially called "beaches."

The distribution of use through time and through the canyon is uneven, causing high density levels at certain periods and at certain locations throughout the river corridor. Crowding and congestion at attraction sites have not only caused resource damage, but have impaired, to varying degrees, the river trip experience for many visitors.

Approximately 400 camping beaches are available along the Colorado River, but the majority of visitors use fewer than 100 of them. At the more desirable sites, 30 to 40 people camp on the beaches each night during a 5- to 6-month season. Human impact includes incorporation of charcoal, litter, and human waste into the sedimentary deposits used for campsites.

One of the major problems is the disposal of solid human waste. Over 5,000 human waste burial sites are dug in the beaches annually,



Foot Traffic on Beaches



Charcoal and Debris on Beach

causing resource damage and serious esthetic and sanitary problems. For this reason, the most heavily used campsites are approaching a "sandbox" condition in that artifacts of human use are being incorporated into the "beaches" at rates that exceed the river's natural purging capacities.

Along the 277 miles of river, there are numerous opportunities to view geologic features, to explore side streams or canyons, to visit Indian ruins, or to camp, picnic or hike. Sites of major interest occur in tributary canyons that remain unaffected by the new river regime, on desert slopes above the river, and near areas containing unique or unusual associations of plants and animals. Caves, waterfalls, and sacred Indian sites are also easily accessible from the river.

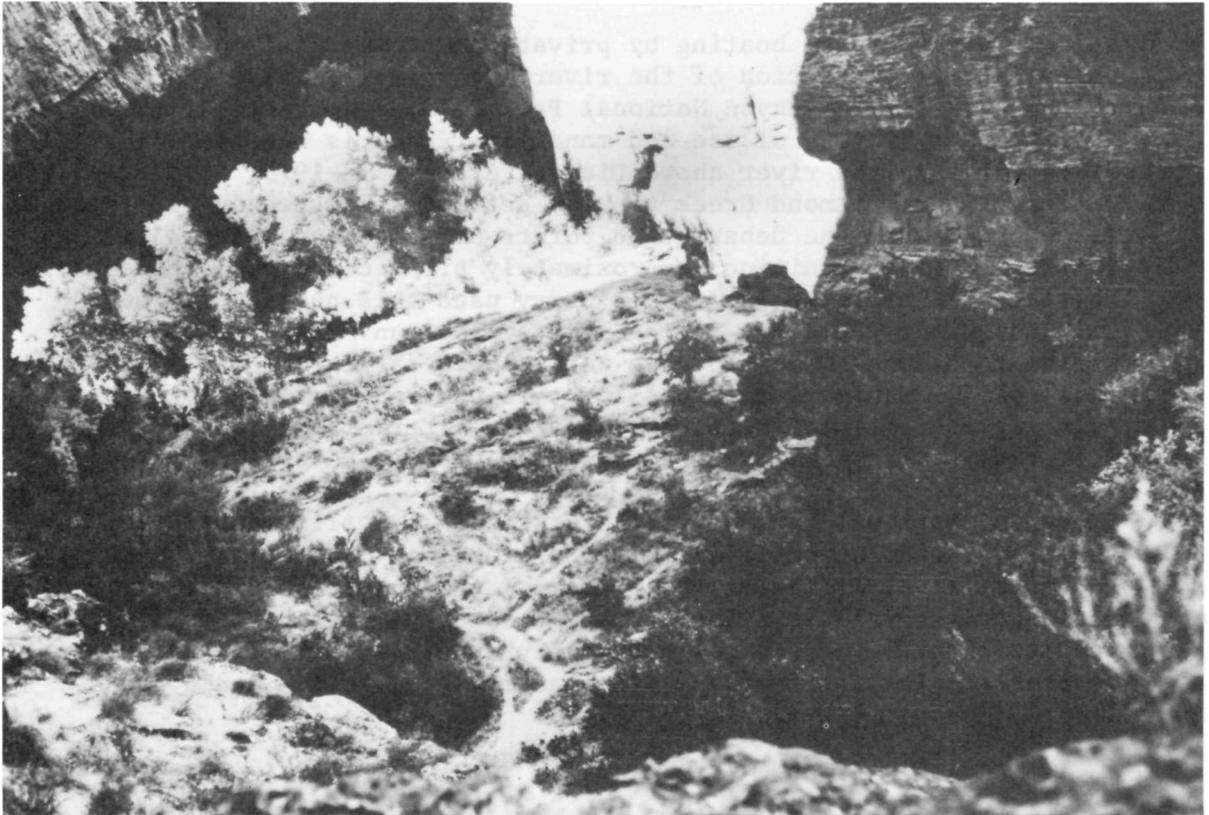
In many of these areas, multiple trails, all with the same ending and beginning, are maintained by large numbers of people trampling the vegetation in ever more pathways. This condition invites accelerated soil erosion and dramatically changes the plant growth of these areas.

In addition to changing the biotic regimen of the Colorado River and its associated habitats, Glen Canyon Dam also resulted in drastically altering the maximum and minimum flow levels of the river. The predictable flows and clear water have resulted in the Colorado River below Glen Canyon Dam becoming one of the most sought-after whitewater recreation rivers in the Western Hemisphere.

By late 1969, the park managers were intensely concerned about the annual increase in river running enthusiasts. Before 1954, fewer than 200 people had run the Colorado River through the Grand Canyon. By 1967, the annual number of river runners had reached 2100, and river running was becoming a thriving business on the Colorado Plateau. Incredibly by 1973, over 21 commercial boating companies and private outfitters carried over 15,000 people down the river, an increase of almost 700 percent in 6 years. Colorado River use in 1972 alone exceeded the 100 years from 1870 through 1969.

The alarming visitor increase forced the National Park Service to initiate a ceiling on the number of available user days (one user day equals one passenger on the river for one day). As an interim measure, the commercial allotment for 1972 was set at 105,000 user days. Of these, only 88,135 were used, thus for 1973, the commercial allotment was adjusted downward to 89,000, an overall reduction of 16 percent. This level has been maintained to the present. The private and noncommercial river runners used 7,600 user days in 1972, and that level has constituted the ceiling on the noncommercial allotments to the present time.

The present total use level on the Colorado River is about 122,600 user days. These user days are appropriated in the following manner: 89,000 commercial passengers; 21,000 commercial crew; 7,600 private river runners; and 5,000 administration and research personnel working on the



Examples of Multiple Trailing

Colorado River research project. The total number of people reflected by the 122,600 user days is approximately 14,000, depending on the lengths of the trips. Of this total, approximately 11,000 are commercial passengers, 475 noncommercial, and 450 are research and administrative personnel.

Visitor use levels on the river are a combination of factors; group size, repeat use, and scheduling. Presently, there are no regulations regarding maximum trip length. However, allowing a float trip only 40 miles per day limits a full-length trip to no less than 6 days.

A maximum of 150 commercial passengers, and one party of up to 15 private users, is permitted to depart from Lee's Ferry on any single day. The maximum number of commercial passengers per type of boat is four to 20, and the maximum number of passengers per commercial trip is 40 (averages 25). Approximately 80 percent of the river trips are on motorized watercraft and 20 percent on non-motorized craft.

Current use levels range from 80 to 940 people leaving Lee's Ferry per week with up to 200 people leaving Lee's Ferry on a single day (includes crew, research and administrative personnel). This use is not dispersed evenly through time. The majority of the weekly use occurs on Monday and Tuesday and the monthly use occurs almost exclusively June through August. Little use occurs between October and March.

Below Diamond Creek, boating by private and commercial outfitters is unlimited. This section of the river has only recently been added to the park (Grand Canyon National Park Enlargement Act, P. L. 93-620), and it has a history of use and management that is substantially different than the river above Diamond Creek. In 1975, commercial trips, originating at Diamond Creek took an estimated 700 passengers from Diamond Creek to the debarkation points on Lake Mead (Pierce Ferry, Temple Bar). In addition, approximately 6,000 commercial passengers continuing their trip from Lee's Ferry used this portion of the Colorado River. Boaters in motorboats also run up the 15 miles of rapids to Diamond Creek but are not allowed to travel upstream beyond this point. Management issues for this portion of river/lake involve existing recreational uses, a completely altered lake riparian environment, and severe visitor impact (wastes, debris, etc.).

Since the National Park Service established a ceiling on visitor use of the Colorado River in 1973, major questions have arisen concerning the total level of use on the river and the balance between commercial and noncommercial use. The carrying capacity of the river is finite. Coupled with the concept of a "quality" river experience, the issue becomes complex and further questions may be asked: Should use be

decreased to maintain quality? Should motors be eliminated to perpetuate a wilderness experience? Does the distribution of user days between commercial (92 percent) and noncommercial users (8 percent) reflect demand? To resolve the many issues concerning use of the river, future management of the river corridor must be guided not only by visitor demands and environmental constraints, but also by the legislative purpose and overall goals established for Grand Canyon National Park.

## LEGISLATIVE AND PLANNING INFLUENCES

Management of the float boating use on the Colorado River in Grand Canyon National Park is influenced directly by legislative mandates. The most significant is the National Park Service Act of 1916 which provides that:

" . . .The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations, hereinafter specified, by such means and measures as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The Act of 1919 created the Grand Canyon National Park, but included only a portion of the impressive canyon and river corridor.

The Grand Canyon Enlargement Act of 1975 changed the status of Grand Canyon and Marble Canyon National Monuments, as well as certain adjacent lands. All of the Colorado River within Grand Canyon, except adjacent Indian Tribal lands, is now within the national park; therefore, administrative policies affording the highest protection apply uniformly throughout the river corridor.

The Grand Canyon National Park Master Plan contains some specific statements concerning management of the Colorado River which have a direct influence on the development of the river plan.

" . . .preservation of the Grand Canyon natural environment is the fundamental requirement for its continued use and enjoyment as an unimpaired natural area. Park management therefore looks first to the preservation and management of the natural resources of the park. The management concept is the preservation of total environments, as contrasted with the protection of only a single feature or species.

The goals for management of the Colorado River in Grand Canyon will be to perpetuate the wilderness river-running experience and to attempt to mitigate the influences of man's manipulation of the river."

## RESEARCH AND PUBLIC INVOLVEMENT

### THE COLORADO RIVER RESEARCH PROGRAM

In order to achieve the goals as set out in the enabling legislation of the National Park Service and the master plan for Grand Canyon National Park, the resource managers must have solid information quantifying the rates and magnitudes of environmental change. Since the riparian zone of the Colorado did not represent a significant management problem prior to Glen Canyon Dam, there was little encouragement or support for scientific investigations, and thus little baseline information was gathered. For this reason, when management decisions concerning visitor use levels were called for in the 1960's and early 1970's, the information base was soon seen to be inadequate. Therefore, in 1973, the National Park Service initiated a comprehensive research program including 29 research studies that ranged from the ecology of the riparian zone and visitor interaction with plants and wildlife to socioeconomic concerns involving campsites, waste disposal, human carrying capacity, economic analysis of river operations, and visitor preference.

The results of 3 years of data accumulation and analysis demonstrated that the presence of Glen Canyon Dam has resulted in dramatic environmental changes, that physical and biological changes are occurring as a result of current use levels and patterns, and that these changes are not necessarily a direct function of visitor use levels, but more importantly, of visitor use patterns and activities. Based upon this research, the measures necessary to mitigate or eliminate the impacts at present use levels would require the following:

- . The cessation of human waste disposal at beach campsites.
- . The elimination of wood camp and cooking fires.
- . The control of chaotic patterns of foot traffic to side canyons, attraction sites, and beach terraces.
- . Elimination of congestion and more even dispersal of visitor densities at attraction and camping sites.
- . The establishment of an NPS sponsored education/licensing program for both private and commercial guides.
- . Research directed toward assessing the value and need of motorized traffic on the Colorado River indicates that the presence of motors is inconsistent with the guidelines for the management of the park resources as outlined in the Grand Canyon National Park Master Plan.

## PUBLIC INPUT

Public hearings on the preliminary wilderness proposal for lands within Grand Canyon began in May 1971. The most recent public review of a revised wilderness classification for the expanded park entailed both pre-planning public meetings in September and October 1975, and the distribution of the draft environmental statement (DES 76-28) in July 1976. The river corridor was an important issue during the 1971 hearings and the 1975 workshops, as well as in letters of comment responding to the draft statement. Over this 5-year period, there was not a significant fluctuation in public sentiment. Their input strongly favored the inclusion of the river and the surrounding land into a wilderness system, as well as the elimination of motorized river craft, control of aircraft noise and preservation of the canyon's natural ecosystems.

Six river management workshops were held in March 1976 in the following cities; Phoenix, Arizona; Grand Canyon, Arizona; Los Angeles, California; San Francisco, California; Salt Lake City, Utah; and Denver, Colorado. The workshops were attended by 365 participants. Over 100 clubs and organizations were represented as well as many concerned individuals. About 27 percent each came from Arizona, California, and Colorado; 14 percent from Utah; and 5 percent from eight other states. Ages of the participants ranged from 12 to 69, of which 66 percent were between 20 and 34.

The following is a list of issues raised and primary points of view taken in order of mentioning:

Allocation of Use: Most people were concerned with establishing a fair ratio or balance between private, commercial, and educational groups, basing it on demand figures. Most people recommended increasing private allocations. Other suggestions included giving priority use to the private sector, allowing an allocation for educational use, and staying with the status quo.

Environment: Protection and conservation were the key words here. Issues included the impact of people on the environment, especially campfires, stopping aircraft flights over the canyon, sanitation, and maintaining the water quality in the canyon.

Motors v. Oars: This concerned many people, but views were mixed both for and against motors. A suggestion was presented to have motorless periods of the year, thus allowing for both experiences.

Permit Systems: Exactly how permits were to be issued brought varying responses. Some ideas were: issue all permits to individuals, then the permittee could decide whether to go privately or commercially (this was termed "hunting system"); keep the lottery system for private permittees as it is; eliminate the lottery system and give priority to experienced private people.

Wilderness Designation: The majority were for designation of the river and surrounding areas as wilderness. The use of motors on boats in this designated wilderness was controversial. Some were for and some were against this use.

Disposal of Human Waste: The real answer here was left for research to determine. If disposal of human waste is determined to be a health hazard, dumping stations and carrying waste out of the canyon were suggested.

Total Use: The ceiling on use was again controversial. Most agreed to limit use to protect the canyon and "wilderness experience." It was suggested that by encouraging off-season use, less crowding might occur, with the possibility of increasing the overall use ceilings.

Commercial Use: Concern was expressed about the amount of commercial advertising. Many people were concerned that this advertising is creating an unnecessary demand. The desire was also voiced to increase boatman standards and interpretive programs.

Limitations: Smaller maximum limits on group size for commercial parties and longer minimum lengths for commercial parties were suggested. Equality of limits for private and commercial use was also discussed.

Regulations: More enforcement of existing regulations and education of all users, rather than establishing more regulations, seemed to be a consensus.

Dams: Some would like to get rid of the dams now on the river. Almost all were against additional dams.

Private Trips: This was a major concern. Increased group size, the definition of private user, equipment criteria, criteria for private guides, the necessity of support boats for kayaks, policy on equipment rental, and posting monetary bonds to insure compliance with rules were all discussed.

Education: A need for better and more interpretive and training programs was discussed.

Wildlife: Control of burros was a dominant concern. The protection of all other wildlife was also stressed.

Research: The establishment of an ongoing monitoring program was considered important to evaluate changes or problems as they occur.

## THE PLAN

The plan will encompass the river corridor from Lee's Ferry to Grand Wash Cliffs, including beaches, immediate attraction sites and hiking routes. Although management of visitor use and activities is the major purpose of the plan, protection of natural and cultural resources must also be addressed. In addition to resolving major issues and resource problems, the plan will also delineate such standards and requirements as boat types and capacities, boatman standards, safety equipment and procedures, and food handling.

### MANAGEMENT OBJECTIVES

In order to adhere to National Park Service legislative mandates and to achieve the management goals set forth in the master plan, specific objectives must be established to further define the nature and extent of resource protection and what a quality river running experience consists of. Objectives for the river management plan have been developed through consideration of the management framework stated previously, public input and research data provided by the 29 research projects recently completed.

- . Allow only non-motorized watercraft
- . Establish a total use capacity and related limitations on use of the river
- . Allocate use between commercial and noncommercial users
- . Provide commercially guided trips consistent with a quality wilderness river running experience
- . Establish an equitable and efficient method of handling noncommercial permits
- . Protect and preserve the river riparian environment within the National Park Service's ability to do so considering uncontrollable effects of Glen Canyon Dam
- . Reduce high visitor density and congestion at attraction sites
- . Preserve water quality in side streams and the river
- . Maintain public health and safety standards
- . Increase interpretive opportunities on the river

- . Increase education and information for all river runners regarding protection and use of river environment
- . Establish research monitoring programs to assess resource management and visitor use of the Colorado River

#### MOTORS VS. OARS

Only non-motorized watercraft will be allowed between Lee's Ferry and Separation Canyon. The preponderance of research data strongly supports elimination of motorized watercraft. Public input to date heavily favors elimination of motorized watercraft from the river in accord with the wilderness proposals and goals from Grand Canyon National Park Master Plan for the river. Motorized traffic will be allowed to continue below Separation Canyon and on to Lake Mead.

Data from research reports show that motorized craft are much larger in size, have more people per boat, have more passengers per guide, have more contact with other river parties per day, spend less time in the canyon, make fewer and shorter side stops, and make more adjustments for crowding than non-motorized craft. Also, it has been demonstrated that motor noise is a detriment to normal, relaxed conversation and has a great negative effect on the ability of the guide to interpret the resource. National Park Service data on frequency of injury shows no significant difference between motorized and non-motorized river craft.

People on motorized trips spend an average of 7.3 days in the canyon and those on non-motorized craft, 12.3 days. People described their motorized trips as, speedy, hurried, rushed, noisy, loud, crowded, big, wet, but fun and exciting. Non-motorized river travelers used leisurely, slow, lazy, relaxing, peaceful, quiet, silent, natural, friendly, individualized, intimate and, again, fun and exciting as descriptive words of their trip.

There is no significant difference in background characteristics of river travelers taking motorized or non-motorized trips. Therefore, eliminating either mode of travel would not exclude any specific group. Significantly, passengers on combination trips, who had experience with both motor and oar travel in the canyon, preferred the oar trip. In response to four different items, 79 to 91 percent chose oar and 4 to 6 chose motor.

Through the elimination of motors, interpretation and the visitors' experience will be maximized. The wilderness experience will be

improved, yet no exclusion of a present user group will occur. To ensure commercial outfitters adequate time for replacement of motorized rafting equipment, the following phase-out schedule is proposed:

1978 - Status Quo

1979 - 30 percent reduction of 1977 motorized trips by company

1980 - 60 percent reduction of 1977 motorized trips by company

1981 - 100 percent of trips on Colorado River non-motorized

#### LEVEL AND DISTRIBUTION OF USE

The goals established by the park master plan call for wilderness management of the Colorado River in Grand Canyon. The proposed capacity provides for levels of use that according to studies would be within most visitors preferred contact (3 or less per day), and at the same time allow for longer trips and more interpretation. This strategy will distribute use more evenly over the season and throughout the year. It will be within levels that proper resource protection can be effected through education, training, and patrol to control use patterns and activities. It will also allow economic stability of concessioner operations. This will include a 2-year no-repeat rule for commercial passengers in order to allow for use by more people.

Public input on total use strongly favors keeping use levels low enough to protect the canyon's resources and prevent the need for rigid scheduling. Also mentioned was opening the winter season and to allow for the perpetuation of the canyon as a wilderness. The workshops held on river management also revealed an interest in reducing the allowable size of commercial trips, as well as lengthening the minimum allowable trip length.

A study on physical carrying capacity of the canyon determined the maximum reasonable use level at 323,232 user days, during a 6-month season. Constraints included in this system would include: nightly assignment of campsites or areas to camp; launch limits of 148 people in five groups, three of 40, one of 20 and one of eight for a 182-day season; all trips would be 11 nights and 12 days long, with only 1 to 3 hours spent at the major attraction sites and only 2 hours spent in camp in the mornings and evenings.

However, to provide a wilderness experience without campsite assignment and to allow for flexibility in trip length and attraction site

selection, research has indicated that launches should not exceed 400 persons per week. To allow for the perception of the canyon as a wilderness, free from crowding, it was determined that contacts on the river should not exceed 3 per day.

To insure that the proposed system does, in fact, maintain the standards of a wilderness experience, monitoring of the visitor experience will be undertaken. Reductions of use levels or implementation of minor scheduling procedures will occur if determined necessary. Any reductions will occur as a percentage of both user groups (commercial and noncommercial).

Visitor use has been computed as outlined below, based on two separate use seasons each year, group size, trip launches per day and trip length.

Summer season - April 1 to September 30. 183 days.

Winter season - October 1 to March 31. 182 days

Commercial

<u>Summer</u>	<u>Winter</u>	<u>Total</u>
25 passengers/trip	25 passengers/trip	
12-, 14-, and 16-day trips	21-day trip	
2 trips/day	1 trip/company/ winter season	
366 trips/season	21 trips/season	387 trips/year
9,150 passengers/ season	525 passengers/ season	9,675 passengers/ year
123,525 user days/ season	11,025 user days/ season	134,550 user days/ year

Noncommercial

<u>Summer</u>	<u>Winter</u>	<u>Total</u>
15 participants	15 participants	
18-day trip	24-day trip	
1 trip/day	1 trip/week	

Noncommercial (con't)

<u>Summer</u>	<u>Winter</u>	<u>Total</u>
183 trips/season	26 trips/season	209 trips/year
2,745 participants/ season	390 participants/ season	3,135 participants/ year
49,410 user days/ season	9,360 user days/ season	58,770 user days/ year
	Total	193,320 User Days 12,810 passenger/ participants

A specific breakdown of the important user level components in this section can be found in Appendix A.

COMMERCIAL AND NONCOMMERCIAL ALLOCATION OF USE

Public workshops held on river management and correspondence in National Park Service files show a surplus in the demand for noncommercial river trips. The intensity of this demand was shown in two recent law suits against the National Park Service by proponents of the non-commercial sector. Commercial river companies also indicate a surplus of demand for their services despite low levels of advertisement.

Research indicates both commercial and noncommercial river trip participants have similar socioeconomic demographic characteristics. The major variances are that noncommercial participants are younger, more predominantly male and showed a slightly lower average income.

Researchers indicated that the potential was greater for the non-commercial sector to misuse the river resources. This was attributed to the fact that noncommercial participants do not have the opportunity to develop the knowledge, skills and equipment that the commercial guides do. During patrol trips on the Colorado River in 1977, National Park Service personnel recorded a higher incidence of noncompliance with regulations, percentage-wise, on noncommercial trips.

To establish a better balance between commercial and noncommercial use, the following breakdown of use by percentage is proposed.

Commercial - 70 percent (134,550 user days)

Noncommercial - 30 percent (58,770 user days)

Amount of use allocation to commercial passengers appears to be less when looking at the percentage figures. User days are increased by 50 percent even though annual number of passengers will be 12 percent (1325) less. Noncommercial user days will be increased by 673 percent from 7600 to 58,770. Commercial crew days will increase from 21,000 to 27,000. (Refer to Appendix B for the summary of use changes.)

The proposed allocations will increase the number of people allowed to run the river on an annual basis. They will spend a longer time in the canyon as all travel will be in non-motorized craft which takes more time. For this reason, more user days will be necessary. This use will be spread more evenly throughout the season and, in fact, daily use will be reduced by half. Therefore, crowding and congestion will be reduced significantly at camp and attraction sites. Research clearly indicates that an increase in user days will not impact the natural resources provided that river runners comply with prescribed protection requirements. In comparing past use against proposed, there appears to be a reduction in total number of commercial passengers. However, the proposed use level does not include the number of commercial passengers that may be taking less than full-length trips. Trips ranging from one to the full 12 days are possible with a hike or mule ride into and/or out of the canyon. Although user days allocated will not exceed those proposed, the total number of individual commercial passengers could well exceed previous levels through these less than full-length trips.

Allocations will be made in number of trip launches. Specific launch days will be assigned upon granting of permits and will fluctuate with the size of operation. Assigned launch days will be the same for each year of the permit for the summer season but may fluctuate for the winter season.

This strategy will allow for a significant increase in noncommercial trips, from 37 to 209 trips annually. This amounts to nearly six times the present amount of use and should satisfy a large portion of the intense demand for such trips. A portion of this increase is possible through opening previously unused parts of the year.

Because of the increased potential for resource damage, close monitoring of the resource will be necessary by patrol rangers. The commercial allotments were increased with only a moderate decrease in numbers of people because of their broad appeal to age groups. No special skills are necessary in allowing the public to see the river and minimal resource impact will occur. Surplus user days from each group will be reallocated for the next year, if it is determined that these surpluses show a lack of demand. No reallocation will be done for last-minute trip calculations or other minor booking problems.

This shift in user days will allow information on user demand to be gathered for both the commercial and noncommercial sector. The late appearance of noncommercial use on the river scene and the present method of permit assignment have not been conducive to determining demand. No accurate figures are known on the number of trips that will be used by either sector under the new management scheme. Close monitoring of demand should allow for better figures to be developed.

#### COMMERCIAL ALLOCATION MANAGEMENT

Use will be allocated by giving consideration to all interested prospective concessioners responding to a fact sheet. The following criteria will be used in granting permits: amount of use requested, trip pricing, managerial abilities, safety and health programs, etc. The number of concessioners and their respective allocations will be based upon responses to the fact sheet (see Appendix C).

For most concessioners compliance with the objectives and requirements of the river management plan will require significant changes from current operations. While preference in granting concession permits may be given to previous permit holders who have provided satisfactory public service, the changes proposed in this plan warrant serious consideration of a company's ability to provide the type of service established by the plan. Economic studies indicate most small companies need additional use in order to become more economically stable and that some larger companies would remain economically viable with reduced allocations. Therefore, maximum and minimum use levels will be established to provide economic stability, especially among smaller concessioners. Pricing structure among commercial companies will be regulated by the National Park Service.

Concession permits will be for a 5-year period. Permits will be non-transferrable either by direct sale or by change of major stockholder, without approval of the National Park Service. Franchise fees will be established and could fluctuate during the term of the contract.

#### NONCOMMERCIAL PERMIT MANAGEMENT

Noncommercial permit applications will be handled on a first-come-first-served basis and will incorporate a two-year, no-repeat rule. As there will be more applications at the time the plan is initiated than can be accommodated for any given launch date, computer technology will be used initially to select applicants and assign launch dates. After initial applications are selected and permits and dates established, further applications will be accepted at any time, and placed next on

the list for the date requested. The computer will also be used to check for duplicate applications and repeat names. Details of application procedures may be found in Appendix D.

#### COOKING AND RECREATIONAL FIRES

Wood fires will be prohibited during the summer season except for the use of charcoal briquets within leak-proof fire pans. Artificial fuel stoves such as white gas, propane, etc., will be required for cooking. Driftwood from along the river (or wood hauled into the canyon) may be used for fires during the winter season, but must be contained in fire pans and any excess charcoal carried out of the canyon. Charcoal may not be deposited in the river.

Basic reasons for this are that wood is scarce, and during the summer months much living vegetation is used for fires and resulting charcoal degrades the beaches. The use of gas stoves leaves little or no resource impact. During winter, the volume of use is considerably less. Fires are important for prevention of hypothermia. Natural driftwood replenishment processes should meet the demands of winter fires.

#### HUMAN WASTE DISPOSAL

Each river trip party will be required to haul out all human waste generated by their group. This procedure is selected due to the potential health hazard to the park visitor, damage to natural resources and the potential destruction of irreplaceable archeological resources from continued burial in the canyon. National Park Service information indicates that human waste can be removed at an acceptable cost and with little inconvenience to the visitor.

#### TRAILS

Single trails will be formally designated or constructed at attraction sites and other sensitive areas. To continue the present haphazard multiple trail system is unacceptable. Closure of existing trails and areas presently visited would not be feasible as it would require more effort to effectively patrol the closures than is reasonably possible. Reduction of visitor use would not accomplish desired goals as this, along with other trampling damage, is not a function of numbers of people as much as where they walk. For instance, a few people not staying on trails would be more detrimental than many people confined to a specific trail.

A total of 12.1 miles of trail will be either designated or constructed, if needed, and maintained at the following specific locations.

<u>Area</u>	<u>Corridor Section</u>	<u>River Mile</u>	<u>Miles of New Trail</u>	<u>Total Miles of Trail Maintenance</u>
South Canyon	Marble	32 (N)	0.5	1.5
Saddle Canyon	Canyon	47 (N)	1.0	2.5
Nankoweap		52 (N)	1.5	2.0
Little Colorado		61.8 (S)	1.5	3.0
Cardenas Creek	Granite	72 (S)	1.0	2.0
Unkar Delta	Gorge	72.5 (N)	0.5	2.0
Hermit Creek		95 (S)	2.6	4.0
Shinumo Creek		108 (N)	0.5	0.5
Elves Chasm		116 (S)	0.5	0.5
Stone Creek	Great	132 (N)	0.5	2.0
Tapeats Creek	Thumb	134 (N)	0.5	3.0
Deer Creek		136 (N)	1.0	7.0
Havasus Creek		157 (S)	0.5	1.5
			<u>12.1</u>	<u>31.5</u>

#### HISTORICAL AND ARCHEOLOGICAL RESOURCES

The following archeological sites subject to heavy visitation will be monitored, evaluated, stabilized, and protected as determined necessary to preserve their values.

<u>Site Number</u>	<u>Type of Site</u>	<u>Work Needed</u>
1. C:5:1	Pueblo Ruins	Stabilization
2. C:5:3	Stanton's Cave*	Repair Fence
3. C:9:1	Pueblo Ruins	Stabilization
4. C:13:4	Prehistoric Midden*	Test Excavation
5. C:13:66	Rock Shelter*	Full Excavation
6. C:13:2	Pueblo Ruins	Stabilization
7. C:13:10	Pueblo Ruins*	Test Excavations
8. C:13:11	Masonry Granary	Stabilization
9. B:16:3	Pueblo Ruins	Stabilization
10. B:15:1	Pueblo Ruins	Stabilization
11. B:10:4	Pueblo Ruins	Stabilization
12. B:10:1	Pueblo Ruins	Stabilization
13. A:16:1	Pictographs*	Test Excavations
14. G:3:3	Rock Shelter*	Test Excavations

\* Regular inspection of sites with research potential may show that active preservation or data recovery measures (stabilization or excavation) may be necessary.

#### CONTINUED MONITORING AND RESEARCH

Research data from recently completed projects have been used in evaluating impacts of current use levels and patterns and those set by this management plan as well. While these data have been very valuable for this purpose, it is recognized that much additional data are needed to further substantiate information already collected. Additional data and continued efforts are needed in two basic areas.

##### Sociological

Further refinement of information regarding relative demand by the public for noncommercial and concessioner guided trips is essential. Existing data has provided groundwork for setting basic allocations. However, a reliable process is needed to accurately assess the demand for commercially guided trips eg., through numbers of turn aways, inflation demand and through advertising.

Analysis of noncommercial permit demand is needed in such areas as duplicate applications, false names, and number of people that do not apply due to the tremendous competition for permits. The relative data can then be compared and a more responsive allocation set.

It must be recognized that demand for trips in the sense of non-commercial vs. commercial is not static. Continual analysis will be necessary along with flexible system of adjusting the allocation when significant changes in demand occur.

Monitoring of contacts and crowding under the new management scheme is absolutely essential. Also important is continued assessment of visitor perception of the trip experience.

##### Biological

In addition, there is need for further baseline data and the monitoring of ecological changes to ensure the resource is being protected. The areas for study are:

- . Monitor environmental health of campsites and attraction sites. This will provide data relative to use levels and patterns and longer term impacts incurred by the change in water flow from Glen Canyon Dam.

- . Monitor economic impacts on concessioners and visitors resulting from the restrictions, limitations, and requirements established by this plan.
- . To comply with Executive Order 11593, it will be imperative to inventory cultural and historic resources within the river corridor and related use areas that are or may be affected by river travelers, and monitoring impacts on these resources resulting from river runners. Protective measures will be taken as required.
- . Inventory aquatic and terrestrial species of fish, birds, and mammals with particular emphasis on rare, threatened, or endangered species and monitor any impacts that may occur as a result of use allowed by this management plan.

#### Plan Modification

In order for the plan to remain effective, it will be necessary that it be modified periodically as new information becomes available through the monitoring process.

Modification of on-river operating procedures to protect natural resources will take place as needed. This may mean a change in mid-season or only every 5 years depending on needs. Changes that include use allocations will take place over a longer period to provide concessioners time to adjust their operations and, thereby, provide the public satisfactory service. The procedure for modification will be:

- . Gather and evaluate monitoring data.
- . Determine the kind and amount of change needed, keeping in mind the objectives of the river management plan and master plan.
- . Allow opportunity for public review and input and adjust changes based on such input, if necessary.
- . Finalize modification by notice to the public and all permit holders and concessioners involved.

#### EDUCATION OF COMMERCIAL GUIDES, NONCOMMERCIAL TRIP LEADERS AND VISITORS

In order to insure that the plan objectives are implemented, it is essential that commercial guides, noncommercial trip leaders, and visitors are fully educated to river management requirements. The methods of, and vehicles for, this education are outlined below:

- . Provide written guidelines for every guide/trip leader.
- . Provide an audio/visual education program on resource protection at Lee's Ferry; this will be designed for viewing by all commercial and noncommercial passengers.
- . Provide guide/trip leader training programs in resource protection/safety/sanitation at a National Park Service facility. A minimum of two 1-week boatman training sessions per year will be held. All commercial guides and trip leaders will be required to attend at least one of the 1-week sessions during the first year of employment.

In addition, it is the responsibility of the commercial guide or the noncommercial trip leader to insure that members of his or her group follow the National Park Service guidelines on resource protection. It is the responsibility of the National Park Service that these guidelines are clearly and precisely stated and that each guide/trip leader is well versed in these regulations.

#### OTHER STANDARDS AND REQUIREMENTS

##### Resource Standards

Certain resource protection standards that have been required in the past have been found by the various research projects to be vital to maintenance of resource quality in the canyon. These standards are accepted practice and will not place any increased burden on the river runners. A summary of those standards are outlined below and complete details are found in Appendix E.

- . No soaps are allowed in side streams.
- . All trash and litter will be carried out of the canyon.
- . Specific sacred religious Indian sites and environmentally sensitive areas are placed off limits to either hiking and/or camping.
- . No archeological or historic sites may be disturbed, including any artifacts found in the canyon.

##### Boating and Other Safety Requirements

Current boating and safety requirements, developed in the past, have been found to be adequate. Therefore, these standards will be continued. A summary of those standards are outlined below and a description found in Appendix F.

- . Type of watercraft and their respective capacities allowed.
- . Type of life preserver approved for use.
- . First aid kits required.
- . Emergency communications signaling equipment needed, and procedures.
- . Other emergency equipment and spare parts required, such as extra oars, paddles, boat patching kit, pumps, ropes, and canteens, and maps.

### Commercial Guides and Trip Leader and Noncommercial Trip Leader Standards

Minimum standards for commercial trip leaders and guides have been established. These standards include sufficient previous experience on whitewater rivers, including the Grand Canyon, to insure that a person has the skill to successfully negotiate the rapids of the river as well as provide a minimum of interpretation to the passenger, meet and cope with first aid situations, emergency evacuation procedures, boat maintenance and repair, and be especially knowledgeable and actively working to protect the various resources in the canyon.

Standards for noncommercial trip leaders are somewhat less stringent in the areas of previous experience on the river in Grand Canyon, but it is essential that they attend a 1-day seminar at Lee's Ferry in order that they may be educated in proper procedures of resource protection, safety, emergency evacuation, and some interpretation (see Appendix G for details).

### Helicopters

The debarkation of commercial passengers by helicopter from the river is to be discontinued. As a condition of the commercial permits, trips will be allowed to terminate only through the use of livestock and hiking on trails designated for this purpose or through road access at Diamond Creek or Lake Mead. This stipulation will apply to both park lands and adjacent privately owned or tribal lands. Trips from 2 to 18 days will still be available to the public.

Public input raised strong objection to this practice both in correspondence and in the public workshops held on river management.

Elimination of helicopter take-outs as a routine part of a trip would be in concurrence with the approved Grand Canyon Master Plan which

states that mechanized access below the rim should be limited to emergency and administrative situations. This would also aid in achieving the goal of the river management plan which seeks to maintain the wilderness river running experience.

### Health and Sanitation

The current health and sanitation guidelines have proved to be adequate for protection of the visitor. Therefore, the guidelines will be required in the future for all commercially guided trips, and will be recommended and included with all noncommercial permits. These guidelines are subject to change as new and better information is found that would indicate more efficient or improved procedures (see Appendix H for a summary of the health and sanitation guidelines).

### COORDINATION

#### Bureau of Reclamation

Bureau of Reclamation has responsibility for management of Glen Canyon and Hoover Dams including water storage and releases. Water releases from Glen Canyon Dam and water storage in Lake Mead have direct effect on river running in Grand Canyon. When Lake Mead is at maximum capacity, there is only about 5 miles of free flowing river below Diamond Creek, with the remaining 42 miles to the Grand Wash Cliffs being lake waters. Water releases from Glen Canyon Dam fluctuate daily. According to the operating criteria of Glen Canyon Dam (Section 602 of Colorado River Basin Act of 1968, P. L. 90-537) the Bureau of Reclamation is required to release 8.23 million acre feet of water annually from Lake Powell. This flow in terms of daily releases in cubic feet per second (cfs) fluctuates considerably. The daily fluctuations require adjustments in river running schedules as the high and low flows arrive at different times of the day depending upon location in the canyon. Also in years of low precipitation and runoff timing of water release is set to correspond with power demands and when there is no power demand only minimum flows are released to conserve as much water as possible. Low water flow periods make it difficult and sometimes impossible to run the river, especially for the larger motorized boats. During years of excess water, continued high flows are common. High flows are less of a problem for boating than low flows. High flows do erode beaches in the canyon more rapidly. Also, daily fluctuation of water releases has been clearly shown to erode beach sands more rapidly than more stable or consistent flows.

Coordination with Bureau of Reclamation will take the form of keeping as well informed as possible of water releases from Glen Canyon Dam and the level of Lake Mead and transmitting that information to the river running public.

## Glen Canyon National Recreation Area

All river trips through the Grand Canyon originate at Lee's Ferry. Lee's Ferry is located just above the mouth of the Paria River within Glen Canyon National Recreation Area and is administered by the National Park Service. The boundary between Grand Canyon National Park and Glen Canyon National Recreation Area is less than 1 mile below Lee's Ferry at the mouth of the Paria River.

The most significant use at Lee's Ferry is the launching of Colorado River trips through the Grand Canyon. There are, in addition to the commercial boatmen, passengers, and noncommercial river travelers, a considerable number of logistical personnel who drive shuttle car, bus or trucks, and assist with boat launching.

There is a permanent National Park Service ranger stationed at Lee's Ferry with additional seasonal personnel at various times. All Grand Canyon river trips launching at the ferry are checked by the ranger to insure compliance with requirements established by the Superintendent of Grand Canyon National Park. Data gathered includes date of launch, number of passengers, crew, or noncommercial trip participants, length of trip, camp areas to be used, off-river hiking areas and dates. This data is critical to management of river running use. Therefore, it is essential to maintain close coordination with the Lee's Ferry ranger. He must be kept informed of all policy, requirements, and regulations established by Grand Canyon National Park for river runners in order to provide accurate information to the park and to the visitor and be able to conduct a proper check of river running activities.

In order to make this plan function properly, the Lee's Ferry rangers will provide an audio/visual presentation on the canyon environment and how to protect its resources. This presentation will also include distribution of written material about the canyon.

## Navajo Indian Reservation

The 9-million-acre reservation of the Navajo Nation borders the east bank of the Colorado River in the Marble Canyon section of the park from Mile 0 to Mile 61.5 at the confluence of the Little Colorado River. The area from the river to the rim is a tribal park.

The only significant visitor activities in this area are occasional camping above high waterline, side canyon hikes (mostly of Silver Grotto) and hiking into and out of the canyon at the Little Colorado (up the Little Colorado and north out of the canyon via the Salt Trail) onto the Navajo Reservation. The use of this access route is expected

to increase for less than full-length river trips due to the river plan proposals. Information as to the extent of this activity will need to be conveyed to the Navajo Tribe as fees for use of Tribal land may be involved.

#### Havasupai Indian Reservation

The traditional use lands of the Havasupai are located between the south bank of the Colorado River and the canyon rim around Great Thumb mesa from Mile 116 to Mile 165. These lands are within Grand Canyon National Park, but uses to be allowed and management of the resources are subject to traditional uses of the Havasupai Indians. Regulation of camping and hiking and other uses will be handled by the National Park Service. Since many river trips, both noncommercial and commercial involve hiking into or out of Havasu Canyon to meet or leave a trip and include an overnight stay, a hiking permit and reservation is necessary if the camping is within the traditional use lands area. Camping does occur within the Havasupai Reservation Lands for which there is a \$2 fee. In addition, there is a \$5 fee for crossing Havasupai land. The National Park Service will inform the Havasupai of all river trips planning ingress or egress through Havasu Canyon. Encouragement should be given the Supai to maintain visitor use records for their use and for management purposes. Also, an arrangement for patrol of hiking and other activities in the traditional use lands will be established.

#### Hualapai Indian Reservation

The Hualapai Tribe occupies a 992,000-acre reservation bounded on the east by the Havasupai Reservation and on the north by the river from Mile 165 near National Canyon on the south bank to Mile 273. Diamond Creek at Mile 225, located on the reservation, is the first road access to the river below Lee's Ferry. This access is used by a majority of river travelers, especially those using oar-powered watercraft, as a takeout point. It is also the only access for trips running only the Lower Gorge. The Hualapai charge a fee for travel over their Tribal lands.

The Hualapai Tribe depends on the National Park Service and the river operators to provide the dates when river trips will be taking out at Diamond Creek. It is important to maintaining a cooperative relationship with the Tribe that this data be provided accurately and in a timely manner.

#### Lake Mead National Recreation Area

Lake Mead National Recreation Area is located adjacent to the lower end of Grand Canyon and is administered by the National Park Service. When filled to capacity, the lake will back up into the Grand Canyon

about 47 miles. There is considerable boating and fishing on lake waters. Also, many of the river running expeditions continue through the Lower Gorge onto Lake Mead and to Pierce Ferry about 3 miles beyond the Grand Wash Cliffs.

A National Park Service ranger resides at Meadview near Pierce Ferry. The Pierce Ferry ranger patrols the lake near the Lower Gorge, and his duties include resource and visitor protection, law enforcement, and search and rescue. He also maintains use statistics which will be important for the management of this part of the river. The rangers for Lake Mead and Grand Canyon will maintain close liaison and coordinate management efforts.

# **APPENDIXES**

## APPENDIXES

- A. User Level Computation
- B. Summary of Proposed Statistical Use Changes on the Colorado River
- C. Fact Sheet
- D. Details of Noncommercial Permit Processing
- E. Resource Protection Standards
- F. Boating Safety Standards
- G. Noncommercial and Commercial Guide Requirements
- H. Summary of Health and Sanitation Guidelines

## APPENDIX A

### User Level Computation

Visitor use has been computed as outlined below, based on two separate use seasons each year, group size, trip launches per day and average trip length (summer maximum 18 days, winter maximum 30 days). The repeat rule will change from one trip every year to one trip every 2 years.

#### Summer Season - April 1 to September 30 (183 days)

##### Commercial

2 trips per day x 183 days = 366 trips per summer season

366 trips per season x 25 passengers per trip = 9150 passengers per season

9150 passengers per season x 50% - 12 days per trip =	54,900 user days
25% - 14 days per trip =	32,025 user days
25% - 16 days per trip =	<u>36,600 user days</u>
Total	<u>123,525 user days</u>

##### Noncommercial

1 trip per day x 183 days - 183 trips per summer season

183 trips per season x 15 participants per trip = 2745 par. per season

2745 par. per season x 18 (average) days per trip = 49,410 user days per season

#### Winter Season - October 1 to March 31 (182 days)

##### Commercial

1 trip per company per season x 21 companies - 21 trips per winter season

21 trips per season x 25 passengers per trip = 525 passengers per season

525 passengers per season x 21 (average) days per trip = 11,025 user days per season

Noncommercial

1 trip per week x 26 weeks per season = 26 trips per season

26 trips per season x 15 participants per trip = 390 par. per season

390 par. per season x 24 (average) days per trip = 9360 user days per season

Total = 12,810 passenger participants

Total = 193,320 user days

APPENDIX B

Summary of Proposed Statistical Use Changes on Colorado River

<u>Subject</u>	<u>Present Status</u>	<u>Proposed Status</u>	<u>Percent (%) Change</u>
Number of commercial trips launched at Lee's Ferry per year	533	387	-27
Number of noncommercial trips launched at Lee's Ferry per year	36	209	+481
Number of commercial passengers launched at Lee's Ferry per year	11,000	9,675*(1)	-12
Number of noncommercial passengers launched at Lee's Ferry per year	475	3,135*(2)	+560
Number of commercial user-days	89,000	134,550*(3)	+52
Number of noncommercial user-days per year	7,600	58,770*(4)	+673
Research and Administrative Trips	30	26	-13
Research and Administrative Trips - People	450	390	-13
Research and Administrative Trips - User Days	5,000	5,000	- 0 -
Commercial Crew User Days	21,000	27,000	+29
Number of commercial passengers launched per day	150 (crew not included)	50 (crew not included)	-66
Number of noncommercial passengers launched per day	15	15	- 0 -
No repeat rule	1 trip per year (all visitors)	1 trip every other year (all visitors)	

<u>Subject</u>	<u>Present Status</u>	<u>Proposed Status</u>	<u>Percent (%) Change</u>
Total user days	122,600	225,320	+62
Total number of visitors launched at Lee's Ferry per year	11,475	12,800	+12
Commercial % of total user days	92	70	-24
Noncommercial % of total user days per year	8	30	+275
Total Number of Users	14,000	15,000	+7

\*(1) Calculated on 25 passengers per trip.

\*(2) Calculated on 15 passengers per trip.

\*(3) Calculated on 25 passengers for a 12-, 14- and 16-day trips during summer and 21 average day trips during winter.

\*(4) Calculated on 15 passengers for an 18-day trip during summer and 24-day trip during winter.

Summary Chart of Proposed Management Changes on Colorado River

<u>Subject</u>	<u>Present Status</u>	<u>Proposed Status</u>
Use of motor craft	80% of trips	0% of trips
Use of non-motorized craft	20% of trips	100% of trips
Wood fires	Allowed	Not allowed April 1 - September 30
Sewage	Buried in canyon	Hauled from canyon
Patrols	3 patrols per year	Increase to 24 patrols per year
Trails	No designated trails	Trail construction in sensitive areas
Historic sites	Minimal protection	Protect/evaluate/stabilize/interpret

APPENDIX C

Fact Sheet

Colorado River Float Trips

Grand Canyon

National Park

SAMPLE

United States

Department of the Interior

National Park Service

PROPOSED

FACT SHEET

1. The Department of Interior, National Park Service, Grand Canyon National Park proposes to issue concession permits to no more than 20 persons and/or companies to provide guided river trips on the Colorado River through Grand Canyon National Park. Any offer submitted within 30 days of publication date of public notice will be considered and evaluated as to experience, financial capabilities and other criteria. Offers from the existing concessioners listed below will be given preference in renewal as required by Section 5 of the Act of October 9, 1965, (79 Stat. 969; 16 U.S.C. 20).

"SECT. 5. The Secretary shall encourage continuity of operation and facilities and services by giving preference in the renewal of contracts or permits and in the negotiation of new contracts or permits to the concessioners who have performed their obligations under prior contracts or permits to the satisfaction of the Secretary. To this end, the Secretary, at any time in his discretion, may extend or renew a contract or permit, or may grant a new contract or permit to the same concessioner upon the termination or surrender before expiration of a prior contract or permit. Before doing so, however, and before granting extensions, renewals or new contracts\*\*\*, the Secretary shall give reasonable public notice of his intention so to do and shall consider and evaluate all proposals received as a result thereof."

2. A. Names and addresses of current concessioners are:

ARTA (Southwest)-Bob & Jessica Elliott  
c/o American River Touring Ass'n.  
1016 Jackson St., Oakland, CA 94607  
(415) 465-9355

GRAND CANYON DORIES, INC.  
Martin Litton  
P. O. Box 3029  
Stanford, California  
(415) 851-0411

ARIZONA RIVER RUNNERS, INC.  
Fred and Carol Burke  
Box 2021  
Marble Canyon, Arizona 86036  
(602) 355-2223 or 2224

GRAND CANYON EXPEDITIONS, INC.  
Ron and Sheila Smith  
P. O. Box 0, Dept. NPS  
Kanab, Utah 84741  
(801) 644-2691

CANYONEERS, INC.  
Grace Ralston  
P. O. Box 2997  
Flagstaff, AZ 86003  
(602) 626-0924

GRAND CANYON YOUTH EXPEDITIONS  
Dick and Susan McCallum  
Rural Route 4, Box 755  
Flagstaff, AZ 86001  
(602) 774-8176

COLORADO RIVER EXPEDITIONS, INC.  
David J. Mackay  
5058 S. 300 W  
Salt Lake City, Utah 84107  
(801) 261-1789, 485-8572

CROSS TOURS & EXPLORATIONS, INC.  
John L. Gross  
274 W. 1400 S.  
Orem, Utah 84057  
(801) 225-0849

GEORGIE'S ROYAL RIVER RATS  
Georgia Clark  
P. O. Box 12489  
Las Vegas, Nevada 89112  
(702) 451-5588

OUTDOORS, UNLIMITED  
John Vail  
2500 Fifth Avenue  
Sacramento, CA 95818  
(916) 452-1081

SANDERSON RIVER EXPEDITIONS  
Jerry Sanderson-Bill Diamond  
P. O. Box 1535  
Page, Arizona 86040  
(602) 645-2587

TOUR WEST, INC.  
Russell H. Hansen  
P. O. Box 333  
Orem, Utah 84057  
(801) 225-7600 (800) 453-9107

WESTERN RIVER EXPEDITIONS, INC.  
Jack Currey  
P. O. Box 6339  
Salt Lake City, Utah 84106  
(801) 486-2323

HARRIS BOAT TRIPS  
David Kloepfer  
Box 521  
Kanab, Utah 84741  
(801) 644-5635

HATCH RIVER EXPEDITIONS, INC.  
Don & Ted Hatch  
411 E. 2nd N.  
Vernal, Utah 84078  
(801) 789-3813

MOKI MAC RIVER EXPEDITIONS  
Richard Quist  
6829 Bella Vista Drive  
Salt Lake City, Utah 84121  
(801) 943-6707, 564-3361

O.A.R.S., INCORPORATED  
George Wendt  
Box 67,  
Angels Camp, CA 95222  
(209) 736-2924

WHITE WATER RIVER EXPEDITIONS  
Henry Falany  
P. O. Box 1249  
Turlock, CA 95380  
(209) 634-1133

WILDERNESS WORLD  
Vladimir Kovalik  
1342 Jewell Avenue  
Pacific Grove, CA 93950  
(408) 373-5882

WONDERLAND EXPEDITIONS  
Ken Sleight  
P. O. Box 338  
Green River, Utah 84525  
(801) 564-3656

B. Address and telephone number of Superintendent is:

Superintendent  
P. O. Box 129  
Grand Canyon, Arizona 86023  
(602) 638-2411

3. Term of the proposed permit is not to exceed 5 years. Current permits as extended expire December 31, 1979.

4. The only National Park Service government owned facilities to be used by the concessioners are the launch ramp at Lee's Ferry in Glen Canyon National Recreation Area and the take-out at Pierce Ferry in Lake Mead National Recreation Area. The only other take-out at Diamond Creek is governed by the Hualapai Indian Tribe.

5. A description of managerial background and experience of the owner and/or manager should be included. Offers will be evaluated as to previous experience and background in river guiding service comparable to that proposed here. Experience on the Colorado River in Grand Canyon or other comparable rivers is essential. Business references must be included.

The offer should include a statement to show that the offerer is financially capable of entering into such a business and can successfully provide a satisfactory service to the public.

If the applicants are, or are to be, newly formed corporations, the financial statement relating thereto should accompany the offer showing the amount of capital pledged or paid in by the principals, together with personal financial statements and business and personal references of the individual principals. Any changes in the stockholders and in the ratio of stockholdings, after such submission, must be submitted and will be considered as part of the original proposals. In addition, all applicants proposing to finance the concession through borrowed capital must submit a financial plan showing its ability to secure such additional funds.

The concessioner will be required to adhere to the System of Account Classification prescribed by the National Park Service. A copy of the system and instructions for its use are available for review in the Superintendent's Office. The permit will require the concessioner to submit annually a financial report as prescribed by the National Park Service covering all operations conducted pursuant to the permit. The permit will provide that the reports and records of the concessioner will be subject to audit by the Secretary. In addition, pursuant to the Act of October 9, 1965 (79 Stat. 969; 16 U.S.C. 20), the Comptroller General of the United States or his duly authorized representatives shall have access to and the right to examine any pertinent records of the concessioner related to operations under the permit.

6. The franchise fee will be determined at a rate per/user day. The rate will be based upon an amount equal to approximately 3 percent of the estimated gross receipts. Franchise fees will be subject to periodic renegotiation. The offerer must state the amount of franchise fee he is willing to pay.

7. The offerer must agree to comply with all state and Federal laws pertaining to equal employment opportunity and nondiscrimination.

Salaries and hours of work of employees must conform with all Federal and local laws, rules, and regulations now in force or which may hereafter be promulgated. The concessioner shall comply with the requirements of all Federal and state laws and regulations relating to minimum wage, social security, unemployment insurance, and workmen's compensation.

The concessioner will be required to adhere to the equal employment opportunity requirements of Title VII of the Civil Rights Act of 1964 and Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967. The offer must be accompanied by the attached Equal Opportunity Questionnaire.

The concessioner and its employees will also be required to practice nondiscrimination in the furnishing of accommodations and services to the public. He shall require employees to observe all applicable rules and regulations and to exercise courtesy and consideration in their relations with the public. If required by the Secretary, the concessioner shall require its employees, who come in contact with the public, to wear a uniform or badge to show they are its employees. Any person in the employ of the concessioner found objectionable to the Secretary shall be subject to immediate dismissal.

8. Public notice will be made of the intent to renew permits giving the opportunity for anyone interested in providing this service an opportunity to submit a proposal, within 30 days of publication date.

## 9. Selection Criteria

### A. Financial, Managerial and Insurance

1. All offerers must submit evidence of the financial capability to provide the services indicated. Consideration will be given to previous financial management background of existing concessioners and to financial abilities, background, and experience of new offerers in river running or other similar business. Current concessioners will be evaluated on the basis of current financial conditions and on financial statements submitted during the term of the present permit. New offerers will be evaluated from a statement of current financial conditions.

A ratio of one to two equity capital to borrowed capital will be considered as a minimum standard for ability to operate the required services.

2. Managerial ability of existing concessioners will be evaluated on the basis of the records and experience during the term of current permits.

New offerers should submit a statement of managerial background in this or similar business and include references from which they can be evaluated.

3. Offerers must show current insurance status. Current insurance policies or statements of insurability will be necessary. Amount of insurance is not specified but must be sufficient to cover any normal potential liability to the concessioner and must show the United States Department of Interior, National Park Service as co-insured.

Evaluation of insurability will consist of consideration of previous insurance experience and future potential to be insured.

#### B. Services to be Offered

1. Trip length: While it is recognized that most full length trips will be from 12 to 14 days in length, a variety of trip lengths are encouraged through offering less than full length trips. Use of trails such as Tanner, Kaibab, Bright Angel, Hermit, Bass, Tapeats, Havasu, Whitmore, etc., can provide a variety of trip lengths involving a hike in or out or both in and out. Overnight hikes on any of these trails must be approved through the backcountry reservation system, however, day hikes into or out of the canyon do not.

A variety of trip length is desired for the public who wish to take concessioner guided river trips. The river management plan proposes that approximately half of the commercially guided trips be 12 days long, one fourth average, 14 days in length, and the remaining one fourth average 16 days in length. In order to achieve this balance in trip lengths offered, selection of concessioners will be considered as a group.

Offers may be for all 12-day trips, all 14-day trips, all 16-day trips, or a combination thereof. The service will select concessioners so that the above overall approximate percentages are reached. Negotiations with offerers is likely so that this may be achieved. The offer should specify the number of trips requested. Maximum group size will be 25 passengers plus five crew not to exceed 30 total.

2. Menu: A description of the menu to be offered should be included in the offer.
3. Personal Gear: Items of personal gear to be provided such as sleeping bags, mattress pads, small ammo cans, duffel bags, rain coats, etc., should be described.
4. Rates: The offer should show rates to be charged for trips and services offered. A breakdown of trip charges should be included as to food charges, extra gear provided, shuttle service, on river transportation, before or after trip services such as lodging or meals, etc.

Services offered will be evaluated as to length of trip, menu, extra gear, etc., compared to rates proposed for the specific trip described.

#### C. Equipment

1. The offer should include a list and description of boats and related equipment such as oars, frames, coolers, food boxes, river bags, etc. The description should include the age and previous usage of such equipment. Photos of equipment could be included.
2. Safety equipment should be listed and described including number, type, and age of life jackets, number and general contents of first aid equipment, and emergency signaling equipment.
3. Type of stores for cooking should be listed along with other general cooking gear.
4. Human waste haul-out equipment and procedures should be described.

A brief description of previous experience and use of equipment to be used should be included, since evaluations will be made on the basis of apparant quality, care, and experience of the offerer in the use of such equipment. Standards outlined in the river management plan will be the criteria used in selecting successful applicants as to equipment.

#### D. Experience and Expertise

A statement of the experience and expertise of the offerer and personnel to be involved should be included. This should

include experience and background of boatmen and trip leaders who are now working for existing permittees. Also proposed training programs for new boatmen, plus a statement of willingness to participate in NPS training programs should be given.

All personnel must meet the standards outlined in the river management plan as to boatmen and trip leaders.

#### E. Interpretation

Proposed interpretive programs should be described. This should include any special areas that the offerer plans to emphasize, the experience and qualifications of boatmen and trip leaders relative to knowledge of the natural features of the Grand Canyon, and background in interpretation programs.

Evaluation of interpretative programs will be based on previous experience and qualifications of the offerer and its personnel as described above.

10. The National Park Service is interested in providing the public a variety of service as to trip length, price, menu, interpretation, style of boats, etc. In order to meet this objective, offers will be evaluated both individually and as a group.

11. The river management plan is attached to this fact sheet and should be reviewed in detail by all offerers. All proposals must be within the framework of the plan and this fact sheet.

12. The National Park Service reserves the right to seek supplemental information at any time prior to the award of a permit, in clarification or amplification of information furnished by the applicants with its offer. The National Park Service will determine whether the applicants are sufficiently financed to provide the necessary facilities and to operate the concession in a satisfactory manner.

## APPENDIX D

### Details of Noncommercial Permit Processing

1. Application letters sent out from the park will include instructions on filing applications and information on equipment, experience, safety, resource protection, the 1-day training at Lee's Ferry, and any other standards and requirements.
2. Initial applications will include:
  - A. Name, address of all applicants
  - B. First, second, and third preference for launch week
  - C. Whether or not any launch week would be acceptable.
3. For the initial application processing, computer technology will be used to randomly select successful applicants and establish a subsequent priority list, as well as assign launch dates. Thereafter, applications will be accepted at any time and will be placed next on the list for the date(s) requested. The more flexible a person is as to launch date the sooner he or she will get a trip.
4. The no-repeat rule will be for a 2-year period initially; i.e., no more than 1 trip per person in any 2-year period. The no-repeat time must remain flexible so that if requests increase the no-repeat time will lengthen and conversely shorten if requests decrease.
5. Computer technology will be used to check the no-repeats and to screen duplicate applications.
6. Applicants will receive confirmation of application being received and where they stand as to trip possibilities. Confirmation of trip will be given to applicant 90 days prior to trip launch. Applicant must submit not later than 60 days a final participant list along with equipment and experience statements.
7. Final confirmation will be sent to the permittee 45 days prior to the trip.

## APPENDIX E

### Resource Protection Standards

1. Use of soaps in, or at the mouth of side streams is prohibited. This includes the main river for 100 meters in either direction from the respective banks of any side stream. Swimming in side streams is allowed. Soaps are allowed in the main Colorado River.
  
2. Cans, rubbish, and other refuse of any kind MAY NOT BE DISCARDED IN THE WATER, ALONG THE SHORE. ALL REFUSE MUST BE CARRIED OUT OF THE CANYON and placed in an acceptable disposal area. Deposits may not be made at Phantom Ranch, Diamond Creek (unless arrangements are made with the Hualapai Tribe), Pierce Ferry, or South Cove. Any solids such as coffee grounds or food particles from dishwater must be strained and put in garbage containers before such liquid wastes are drained into the main river current (not a back eddy). Wet garbage such as egg shells, leftover food, bones, grapefruit or orange peels, melon rinds, etc., must be placed in garbage containers and carried out. Grease or cooking oil must be put in garbage containers and carried out of the canyon. Particular attention must be given to pop tops from cans and cigarette butts.
  
3. Restricted Areas - Areas along the Colorado River that are closed to either camping or visitation.
  - A. Red Wall Cavern - no camping and no fires.
  
  - B. Little Colorado - no camping within 1/2 mile of stream's confluence. The Sipapu is a sacred Hopi religious site. Please do not disturb.
  
  - C. Hopi Salt Mine - no visitation, east side of river from Mile 63 to Mile 64. Closure necessary due to misuse of this sacred Hopi religious site.
  
  - D. Kaibab Bridge (above Bright Angel Creek) to Pipe Creek - no camping except for emergency use which must be cleared upon arrival with Phantom Ranch ranger. Wood fires will not be allowed even during emergency use. Passengers leaving trip at Phantom and wishing to camp at either Bright Angel Campground or Indian Gardens must have an overnight permit for these areas.
  
  - E. Elves Chasm - no camping within 1 mile of Royal Arch Creek's confluence with river.

- F. Deer Creek Falls (north side of river) - no camping on the beach below the falls.
  
- G. Havasu Creek - no camping within one-half (1/2) mile of Havasu Creek's confluence with river. Overnight use of upper Havasu (within park boundary) requires a backcountry use permit.

## APPENDIX F

### BOATING SAFETY STANDARDS

#### I. Types of Craft

- A. Inflatable boats are well suited for the trip down the Colorado River. Certain recommendations for raft size have been established to insure a safe river trip.
1. Single boat trips must be approved by the Superintendent
  2. For a two-boat trip, rafts must be of the "7-man" size or larger minimum length of 12 feet, minimum width 5½ feet, minimum tube diameter 15 inches.
  3. Trips with more than three boats may travel in any size craft providing they meet all other equipment standards, e.g., toilets, holding tanks, and fire pans, and have a knowledge of the Colorado River through Grand Canyon National Park.
- B. Hard hulled boats, such as dories, may be used if two or more are traveling together or if accompanied by approved rafts or pontoons.
- C. Fiberglass or sturdy plastic whitewater canoes and kayaks are approved craft provided that, the paddler has adequate prior experience in heavy whitewater (6' to 15' waves are common). He or she must have a strong brace on both sides and a reliable roll on at least one side.

#### II. Capacities

Because of the nature of the Colorado River rapids, maneuverability and stability are important factors in safety. Recommended maximum capacities for boat sizes are listed below:

- A. Dories, five persons. 17-18 feet in length.
- B. Inflatable rafts and pontoons (persons and gear):
1. Pontoons between 22' and 27' in length - 9 persons.
  2. "Snouts" (22) - 6 persons.

3. "Green River" (17') - 6 persons.  
Triple operation - 15 persons.
4. "Yampa" and "10-man size" - 5 persons.  
Triple operation - 15 persons.
5. "7 man" and "Selway size" - 3 persons.

### III. Life Preservers and Regulations

Each participant MUST have a U.S. Coast Guard approved life preserver. One extra life preserver for every 10 persons must be carried. They must be maintained in good and serviceable condition in compliance with U.S. Coast Guard Standards, AND **MUST BE WORN AT ALL TIMES WHILE ON THE RIVER.** The permittee will be held accountable. A court appearance is mandatory for failure to comply with this regulation. (36 CFR 7.4(h)(2)). Life jackets are subject to testing prior to departure at Lee's Ferry, and those found to be nonserviceable will be marked and discarded. (All webbing, straps, buckles, clips, kapok envelopes or foam and outer fabric or material will be checked for serviceability.) A throwable device (Type IV) is also required for each watercraft over 16 feet in length. (It is recommended that all trips carry throwable devices).

The use of Type I or V is encouraged, but Type II and III are acceptable for use on noncommercial river trips.

Commercial trip passengers are required to use Type I or V.

### IV. First Aid

A major first-aid kit is required and shall be carried on each trip. A smaller kit should be carried on each boat. A list of recommended first-aid items will be provided to each successful permittee.

### V. Communications and Signalling

- A. Emergency signalling equipment will include a signal mirror of the U.S.A.F. type and a set of signal panels, 3' x 10', one international orange and one white. In the event of an emergency, the symbol "X" marked or placed on the ground by any means will signify that help or emergency aid is necessary. Upon notification by observers, a helicopter will be dispatched by the National Park Service.

- B. Recommended (though not required) equipment is a ground-to air radio transceiver on frequency 122.9 and a personnel distress flare kit.

VI. Other Emergency Items

- A. A minimum of one extra set of oars must be carried on each oar-powered boat or raft (four per boat). An extra set of paddles are acceptable for approved rafts that are paddle-powered.
- B. When inflatable rafts or pontoons are used, each river trip will carry at least one air pump.
- C. Every river trip will carry a boat-patching and repair kit.
- D. A supply of ropes and canteens should be carried.
- E. One or more of the following maps or guides should be carried on each boat: The Les Jones scroll map of the Colorado River; Colorado River Guide, by Buzz Belknap; "Pictorial Color Map of Grand Canyon," Jack Currey; appropriate U.S.G.S. quadrangles; B.Y.U. guidebooks to the Colorado River; "Colorado River Guidebook," Troy L. Pewe.

## APPENDIX G

### Noncommercial and Commercial Guide Requirements

#### I. Noncommercial

Experience on one or more of the other western whitewater rivers or equivalent is mandatory. The trip leader, or another member of the party should be familiar with the Grand Canyon portion of the Colorado River. This is necessary due to the unique nature of this stretch of river. Controlled releases from Glen Canyon Dam result in daily water flow fluctuations averaging between 1,500 and 30,000 cubic feet per second, considerably more than most of the commonly run western rivers.

Heavy hydraulics, the shocking contrast between 50° water and 100° air temperatures and the unusual degree of isolation require that the trip leader and boatmen have a working knowledge of whitewater safety, general first aid and river equipment repair in addition to techniques of whitewater navigation (ability to skillfully interpret or read rapids) and map reading skills.

#### II. Commercial Trip Leader and Guide Requirements

##### A. Registration

All guides and trip leaders must be registered with the Superintendent, Grand Canyon National Park, and companies must provide the following information on each guide/leader.

1. Name, birthdate, mailing address.
2. Experience (motor and/or oar-powered), where, and dates (inclusive).
3. Company(s) with whom previously employed
4. Current status (leader, guide, trainee, etc.)

##### B. Certification

A certification program will be established in cooperation with outfitters and guides, which will include qualification standards, training requirements, etc. Until this program is finalized, the following requirements will remain in effect:

1. Guide: An individual who meets the following qualifications:
  - a. Must be age 18 or older.
  - b. Have made at least three river trips through the portion of the Colorado River to be traversed as a trainee or apprentice under a qualified guide, having run every rapid on the river at least twice.
  - c. Be able to read the river and operate a boat accordingly.
  - d. Be able to operate the emergency communications equipment carried by the outfitter.
  - e. Have a knowledge of State, U.S. Coast Guard, and National Park Service regulations applicable to boats carrying passengers for hire.
  - f. Have a knowledge of Grand Canyon natural and human history and the points of interest, and the ability and willingness to impart this knowledge to passengers.
  - g. Have a working knowledge of safety, sanitation, and equipment repair.
  - h. A standard first-aid certificate equivalent to the Red Cross course is required.
2. Trip Leader: A person whose character, personality, and capabilities qualify him as a responsible leader shall be in charge of each river party. In addition to meeting the guide qualifications, the individual must:
  - a. Have made at least three additional river trips through the portion of the Colorado River to be traversed, all as a guide running the entire trip.
  - b. Hold a current first-aid certificate, indicating the holder has satisfactorily completed the equivalent of an American Red Cross Advanced First Aid or Emergency Medical Technician course.
  - c. Be knowledgeable and capable of giving a suitable orientation talk to all passengers throughout the trip. This required orientation will cover life preservers, boating safety, swimming and hiking safety, drinking water, sanitation, and human and natural history of the Grand Canyon.

## APPENDIX H

### Summary of Health and Sanitation Guidelines

The means by which food becomes contaminated with disease organisms and the subsequent processes through which these organisms pass in order to become dangerous to human health dictate the procedures necessary to interrupt the chain of events leading to an outbreak of human illness. Briefly stated the requirements for sanitation and health procedures are:

1. After going to the toilet or handling raw meat or poultry, wash hands with soap and water before handling and preparing foods.
2. Cooked or other prepared foods should come in contact only with clean and sanitized surfaces, equipment and utensils. Equipment used for raw foods should be washed and sanitized before using them on cooked foods.
3. Persons with communicable diseases, infected wounds on the hands and arms or boils should not be allowed to prepare food.
4. Stored perishable foods should be kept at temperatures below 45 degrees F.
5. Foods such as meat and poultry products should be well-cooked to destroy disease organisms.
6. After preparation and prior to serving, keep hot foods hot and cold foods cold.
7. Leftover perishable food should be discarded or refrigerated immediately in clean and protected containers.
8. Leftover perishable food should be thoroughly reheated before use.

The most effective means of sanitizing dishes and utensils on a river trip is the three bucket system. The system is as follows:

1. Use three buckets, large enough to immerse largest utensils, one bucket heated to near boiling.
2. Add detergent to heated bucket, leave one clear for rinsing, and to the third add chlorine at the rate of two teaspoons per gallon of water for sanitizing.

3. Wash dishes and utensils in first tub to remove grease and food particles. Water temperature should be 120 - 140 degrees.
4. Dip rinse in second tub.
5. Immerse articles in third tub for 60 seconds, double time, if towel-dried. The effectiveness of chlorine for disinfection is directly related to time of exposure. Be sure to allow time for the chlorine to sanitize.
6. Rack for air-drying or wipe dry with fresh paper towels.

Store the articles in clean, dry location and they will be ready for the next meal.

