FINAL

GENERAL MANAGEMENT PLAN

ENVIRONMENTAL IMPACT STATEMENT



ISLE ROYALE

NATIONAL PARK • MICHIGAN

RECOMMENDED:

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August 17, 1998

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August 17, 1998

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FINAL
GENERAL MANAGEMENT PLAN
ENVIRONMENTAL IMPACT STATEMENT

ISLE ROYALE NATIONAL PARK
KEWEENAW COUNTY, MICHIGAN

The five alternatives that were developed in the course of preparing this *General Management Plan / Environmental Impact Statement* were based on park purpose, significance, and emphasis statements, which in turn were based on the park's legislation and legislative history, other special designations, and NPS policies. The plan is intended to provide a foundation for park management and use and to serve as a guide for park programs and for priority setting over at least the next 15–20 years.

Alternative A is the no-action, or status quo, alternative and provides a baseline for comparison of the other four alternatives. **The proposed action** has been revised from the proposal in the *Draft General Management Plan / Environmental Impact Statement*. It is intended to meet the diverse expectations and needs of Isle Royale visitors while emphasizing the natural quiet that is fundamental to wilderness experiences. All park areas would be available to all visitors as long as users participate in ways that are consistent with the access, facilities, and opportunities provided. **Alternative B** would expand facilities and services at the ends of the island and create a more primitive experience toward the center. Cultural resources would be preserved only at the ends of the island. Use limits would be imposed in some zones. Some facilities in developed areas would be expanded to serve visitors preparing to enter the backcountry. **Alternative C** would scale back all development to create a more primitive park. No interpretive media or formal programs would be offered on the island. All cultural resources would be documented and allowed to deteriorate. A narrower range of experiences would be available. Visitor numbers would be lowered and use limits would be instituted islandwide. All concessions and related facilities would be removed. **Alternative D** was modified to become the proposed action. **Alternative E** would allow park management to continue as it is now, but visitor numbers would be controlled and would be low. Historic structures would be preserved according to significance. A variety of uses would continue across the island.

The potential consequences of the actions in the alternatives on natural resources, cultural resources, visitor use and experiences, park operations, and the socioeconomic environment have been evaluated. In general, all alternatives would better protect the park's natural resources than the current management direction (alternative A). Alternative C would provide the greatest benefit to natural resources, but would have the most negative effects on cultural resources and on visitor use. The proposed action and alternative E would best protect cultural resources. Impacts on park operations from the alternatives would be mixed; the workload would remain roughly the same (except in alternative C, where it would be reduced), but the emphasis would change depending on the alternative. The alternatives would not appreciably affect the socioeconomic environment.

HOW TO USE THIS DOCUMENT

This document has four main sections. The first, called "Purpose of and Need for the Plan," introduces the plan, describes why it is necessary, and explains what it will accomplish. It provides background information about Isle Royale National Park, including park purpose and significance, and describes the establishing legislation for the park.

The "Description of the Proposed Action and Alternatives" section presents alternatives for the management of the park. Alternative A (no action) describes what would happen without an approved general management plan. Some actions are common to all but the no-action alternative; these are discussed in a section titled "Actions Common to the Proposed Action and Alternatives B, C, and E." The proposed action (based on a revised version of Alternative D from *Newsletter 6*) presents the National Park Service's preferred approach for managing the park. Alternatives B, C, and E present other options for management of Isle Royale

The third major section is called the "Affected Environment" and describes the park's cultural and natural resources, visitor use patterns, and park operations. This section also describes the socioeconomic conditions in the surrounding region. The information in the Affected Environment section provides the context for analyzing the impacts of the actions in the alternatives.

The last major section,"Environmental Consequences," describes the effects that implementing each alternative would have on the resources as described in the "Affected Environment" section.

SUMMARY

INTRODUCTION

Five alternatives were developed in the course of preparing this *Final General Management Plan / Environmental Impact Statement*. The alternatives grew out of park purpose, significance, and emphasis statements. Park purpose statements were based on the park's legislation and legislative history, other special designations, and NPS policies; they reaffirm the reasons for which Isle Royale was set aside as part of the national park system and provide a foundation for park management and use. Significance statements capture the essence of the park's importance to the country's natural and cultural heritage. Emphasis statements were also written and incorporate key resources and stories that characterize Isle Royale National Park. They serve as broad guiding principles for park programs and for priority setting.

Before and during preparation of the alternatives several newsletters were sent out and public meetings were held to gather input. The original alternative D was revised and became the proposed action, which was reviewed as part of the *Draft General Management Plan / Environmental Impact Statement.* It has been further modified as a result of comments received. The *Final General Management Plan / Environmental Impact Statement* is intended to guide the management of Isle Royale National Park over at least the next 15–20 years.

ALTERNATIVES

Alternative A is the no-action, or status quo, alternative and provides a baseline for comparison of the other four alternatives. **The proposed action** is intended to meet the diverse expectations and needs of Isle Royale visitors while emphasizing the natural quiet that is fundamental to wilderness experiences. All park areas would be available to all visitors as long as users participate in ways that are consistent with the access, facilities, and opportunities provided. **Alternative B** would expand facilities and services at the ends of the island and create a more primitive experience toward the center. Cultural resources would be preserved only in areas at the ends of the island. Use limits would be imposed in some zones. Some facilities in developed areas would be expanded to serve visitors preparing to enter the backcountry. **Alternative C** would scale back all development to create a more primitive park. No interpretive media or formal programs would be offered on the island. All cultural resources would be documented and allowed to deteriorate. A narrower range of experiences would be available. Visitor numbers would be lowered and use limits would be instituted islandwide. Concessions and related facilities would be removed. **Alternative D** was modified to become the proposed action, above. **Alternative E** would allow management of the park to continue as it is now, but visitor numbers would be controlled and would be low. Historic structures would be preserved according to significance. A variety of uses would continue and would take place across the island.

ENVIRONMENTAL CONSEQUENCES

The potential impacts of the actions in the alternatives on natural resources, cultural resources, visitor use and experiences, park operations, and the socioeconomic environment have been evaluated. In general, all alternatives would better protect the park's natural resources than the current management direction (alternative A). Alternative C would provide the most benefit to natural resources, but would have the most negative effects on cultural resources and on visitor use. The proposed action and alternative E would best protect cultural resources. Impacts on park operations from the alternatives would be mixed; the workload would remain roughly the same (except in alternative C, where it would be reduced), but the emphasis would change depending on the alternative. The alternatives would not appreciably affect the socioeconomic environment.

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INTRODUCTION

This *General Management Plan / Environmental Impact Statement* (GMP/EIS) presents and analyzes five alternative future directions for management and use of Isle Royale National Park. One of the alternatives has been identified as the National Park Service's preferred future direction. Potential consequences and environmental impacts of all alternatives have been identified and assessed.

General management plans are intended to be conceptual documents that establish and articulate a management philosophy and framework for decision making and problem solving in parks. General management plans usually provide guidance over a 15–20 year period. Actions called for in general management plans or in subsequent implementation plans are accomplished over time. Budget restrictions, requirements for additional data or legal compliance, and competing park priorities prevent immediate implementation of many actions. Major or especially costly actions could be implemented ten or more years into the future.

The plan has been developed by a core team of professionals including representatives of the Isle Royale National Park staff and technical specialists from the NPS Denver Service Center (the planning and facility development center for the national park system). The entire park staff has been involved in scoping meetings and briefings and has provided feedback to the core planning team. There has been extensive public involvement throughout the planning process.

PURPOSE OF AND NEED FOR THE PLAN

OVERVIEW

Isle Royale National Park is operating under a master plan that was written in 1963. Because the master plan is outdated, the park does not have a comprehensive plan to direct its decision-making processes. Current park planning efforts are fragmented into individual projects. A new plan is needed to provide an overall guide for the future use of resources and facilities, to clarify research and resource management needs and priorities, and to address changing levels of park visitation and use.

There are many issues or problems that the National Park Service is facing or may face in the future at Isle Royale National Park. The general management plan will provide a framework or strategy for addressing these issues within the context of the park's purpose, significance, and emphasis statements. The issues were identified and refined through discussions with park staff, park visitors, interested agencies and organizations, and the general public.

ISSUES

The natural resource program at Isle Royale is committed to developing a basic understanding of the park's resources and ecosystem and monitoring the health of those resources and processes. The gene pool of the fish, wildlife, and plants in the park must be preserved and protected. The park staff has been able to track some wildlife, such as moose, wolves, and beaver, but there is incomplete information on the status of small mammals, reptiles, amphibians, neo-tropical migrant birds, insects, and other resources. Information on air and water quality is also incomplete.

Inventory and monitoring of cultural resources are also needed. The majority of the known archeological sites are near campgrounds and developed areas or along shorelines because surveys have been conducted in those areas on an as-needed basis. Little of the remainder of the island has been surveyed. The park has prepared cultural landscape information only for Rock Harbor Lighthouse and Edisen fishery. Other areas with culturally significant landscapes may exist. Information about current and historic use of the island by groups such as Native Americans is needed.

No strategies are in place for the long-term management of historic structures, including shipwrecks, in the park. Many of these resources are deteriorating. The current list of classified structures for the park is outdated; historic structures have become eligible for the National Register of Historic Places (national register) or have reverted to the park through the life lease process. It is anticipated that the park will assume responsibility for the structures at three U.S. Coast Guard light stations; long-term preservation goals are not in place.

One of the most noteworthy ongoing research projects in the park is the wolf/moose study. The classic predator/prey relationship can be studied at Isle Royale in a relatively closed environment with minimal influence from humans. During the last four decades, populations of both species have fluctuated dramatically. In recent years the moose population has fluctuated from a high of 2,400 animals to a low of about 500; wolf numbers have risen from a low of 12 animals to the mid-20s. The likelihood of island extinction of the wolves has lessened in recent years but remains a concern.

In order to accommodate property owners when the park was established, a life lease program was established at Isle Royale. Under this program the National Park Service purchased the properties, but allows owners to use them during their lifetimes. When the owners die, the property is turned over to the National Park Service. A systematic evaluation of these

structures is underway to determine their significance and national register eligibility. There is no clear policy for the disposition of structures, grounds, and docks on the island following the expiration of life leases.

The outstanding fishery is a significant resource that provides recreation for visitors to Isle Royale. Scientific information is incomplete and no long-term monitoring or management strategy exists to ensure the perpetuation of the fishery.

During the last decade, airborne pollutants have been identified in the park from as far away as agricultural fields on the Great Plains and waterborne pollutants from industrial areas around the Great Lakes. These pollutants are probably having an effect on vegetation and fish in the park and thus on the visitor experience. There is also the potential for short-term water pollution due to spills of toxic materials around Lake Superior and inside park boundaries. Regional or national strategies are needed to ensure that the quality of air and water at Isle Royale remains high.

Common visitor activities at Isle Royale include hiking, backpacking, motorboating, sailing, canoeing, kayaking, and fishing. While Isle Royale's visitation is low compared to other national parks, it ranks ninth in total number of backcountry user nights. When land area is considered, Isle Royale has the highest number of overnight stays in the backcountry per acre of any national park. Some visitors complain that their wilderness experiences are being compromised by visual intrusions and noise from park developments, jets and other aircraft, boats, and the behavior and activities of other visitors, such as having loud parties and playing stereos. Some visitors to the island have expectations for a certain kind of experience, and the actions of others may interfere with those expectations. The problem may not be evident to all, but park managers hear about visitors' disappointments in letters and through verbal complaints. With Isle Royale's density of backcountry use, differing preferences and expectations are especially evident. The federal wilderness designation also carries with it certain expectations for visitors, such as solitude and quiet.

Increasing visitation is resulting in resource impacts and in crowding of some campgrounds, docks, and trails. While visitation is highest in July and August, some visitors' expectations for uncrowded experiences are not being met even during the spring and fall seasons. The number of backcountry permits issued has risen each year from 1985–1995. There was a slight drop in 1996, but the general upward trend is projected to continue. Some visitors complain that there are too few backcountry campsites on the island, and they are concerned about having to share campsites. Many campgrounds are filled beyond capacity in July and August. While most backcountry areas are in good condition, in some areas visitors are inadvertently damaging natural and archeological resources by widening trails, creating social trails and overflow campsites outside designated campgrounds, and trampling areas along trails and around campsites. Trails and campgrounds are especially susceptible to damage in the spring, when wet soils quickly turn muddy underfoot.

Because of advances in motorboat size, power, and navigation technology, many boaters who once would not have made the trip across Lake Superior to Isle Royale now are able to do so. For this reason, and perhaps because of changes in demographics and the popularity of motorboating, motorboat use at the park has increased over the past 20 years, and this trend is likely to continue. Many boaters believe that the park does not provide adequately for them (number and size of docks, fuel availability, pumpouts, campsites, mooring buoys).

For many years the waters around Isle Royale have supported a small-scale commercial fishing industry. Commercial fishing has gradually all but disappeared. It has been suggested that historic commercial fishing should be restored for interpretation purposes and for the perpetuation of this traditional lifestyle.

Visitor information facilities are not effectively serving visitors. There is insufficient room in the Rock Harbor contact station to house a visitor contact desk, book sales, and exhibits. Interpretive media are inadequate — some exhibits are outdated or do not cover needed topics. Educational outreach (which would include general information about the park and park themes) to schools and other groups is limited.

Very few facilities on the island (docks, trails, shelters, lodge accommodations, visitor contact stations) are accessible to people with disabilities. As a result, opportunities for people with disabilities are limited; some potential visitors may be discouraged from visiting the island at all.

Many commercial services at Isle Royale are provided through incidental business permits (IBPs), which are based outside the park. These include guided backpacking, charter fishing, sea kayaking, scuba diving, and other activities. If the National Park Service issues an incidental business permit, all qualified commercial interests are entitled to receive one. There is no limit on the number that can be issued. Requests for permits have been steadily increasing over the past few years. There is concern from the public and the Park Service that there will be resource impacts and competition among commercial and private parties for facilities and space unless controls are initiated. A moratorium has been placed on new permits until better direction is established in the general management plan.

Difficult and potentially costly decisions must be made about the future of concessions services on Isle Royale. Opinions on the types and number of visitor services that should be offered differ greatly. Some feel that the lodge and restaurant are inappropriate in a wilderness setting, are too resource-consumptive, and too expensive. Others feel that these services are traditional and should be offered for visitors with various needs and abilities.

Concession operations at Isle Royale have been heavily subsidized by the National Park Service for many years. Continuation of this subsidy has become increasingly problematic because of tighter government budgets and increasing requirements of safety and health regulations. Maintenance needs have been increasingly deferred (affecting docks, buildings, and utilities), staff has been reduced (for example, smaller trail crew, no wilderness rangers, and fewer maintenance specialists such as plumbers and electricians). Other park program needs have remained unfunded, such as basic resource inventories and monitoring, environmental education programs, and preservation programs for cultural resources.

With static budgets and declining staff, the Park Service cannot maintain the existing levels of facilities and services on Isle Royale. The island's docks, signs, buildings, campgrounds, and trails are deteriorating. Administrative and support facilities are also deteriorating and are not in compliance with health and safety standards. There are also backlogs in preventative and cyclic maintenance, specialized training, and equipment replacement.

The mainland headquarters facilities and parking in Houghton are too small to serve park operations and respond to visitor needs. Additional rental space is used to provide offices and work space in the winter. The main headquarters structure was built in 1939–40 by Works Project Administration work crews as a temporary office and workshop and has been remodeled extensively to house administrative offices. Office, work, and storage space is limited; working conditions are cramped. There are no meeting rooms or areas for breaks. The crowded and hectic atmosphere affects staff productivity and morale. Portions of the administrative part of the facility are not accessible to people with disabilities.

SUMMARY OF PUBLIC INVOLVEMENT

Public involvement for the general management plan at Isle Royale began with a workshop for representatives of key park stakeholders that was held in February 1994. The GMP effort formally began in July 1995. The planning team met on the island to familiarize team members from outside the park with the resources and to discuss the scope and issues of the plan. During that trip the planning team spoke about the project at two public programs. In November 1995 the public was formally notified of the planning effort and introduced to the planning process by means of *Newsletter #1*. The rest of the park staff (those not on the planning team) were introduced to the process and their comments were solicited as part of public involvement.

Part of the framework for the plan (and the first task for the planning team) was to define the purpose and significance of the park using the input from the 1994 workshop. In *Newsletter #2* the public was asked to review the planning team's purpose and significance statements and a list of 26 preliminary issues. Nearly 300 responses were received and 50–60 people attended each public meeting in Duluth, Minnesota, and Houghton and Lansing, Michigan, to provide additional comments. The original mailing list of 1,000 quickly rose to nearly 2,500 people, which indicated intense interest in Isle Royale even at the early stages of planning.

The results of the public input from *Newsletter #2* were presented in June 1996 via *Newsletter #3.* The revised purpose and significance statements, park emphasis statements, revised issues statements, potential management zones, and possible alternative concepts were presented. There were again a large number of responses and the results were reported in November 1996 in *Newsletter #4*.

Using the public input, the planning team developed the alternative concepts in more detail and presented them with maps in *Newsletter #5* in February 1997. Public meetings were held in Ann Arbor and Houghton, Michigan, and Duluth, Minnesota, to present the management alternatives for public comment in March 1997. There was significant response to the newsletter and each meeting was attended by 75 to 150 people. Using that input the planning team developed a preliminary preferred alternative, which was presented in *Newsletter #6* in July 1997.

A *Draft General Management Plan* was produced and distributed for public review in March 1998. Public meetings were held in April 1998 at St. Paul and Duluth, Minnesota, and Houghton and Ann Arbor, Michigan. Approximately 75–150 people attended each of the meetings. Additionally, nearly 600 responses were received by mail or on the internet. The preferred alternative was subsequently revised and is presented in this *Final General Management Plan / Environmental Impact Statement.*

DESCRIPTION OF THE PARK

Isle Royale National Park, in the northwestern section of Lake Superior, is a remote island archipelago with a northeast/southwest orientation (see Region and Vicinity maps). The archipelago consists of one large island about 45 miles long and 9 miles wide that is surrounded by about 400 small islands. It includes many inland lakes and streams. The park is about 60 miles from Michigan's Keweenaw Peninsula, 22 miles from Grand Portage, Minnesota, and 35 miles from Thunder Bay, Ontario, Canada. The year-around headquarters for the park is in Houghton, Michigan.

The park was authorized by act of Congress on March 3, 1931. The intent of Congress was further defined by wilderness legislation in October 1976 that designated 98% of the park's land area as federal wilderness. Later additions brought the total to 99% (see Wilderness Status map). The park extends 4.5 miles out into Lake Superior from the outer islands or to the international boundary. In 1980 the park was designated as a U. S. Biosphere Reserve under the United Nations' Man and the Biosphere Programme.

Isle Royale is primarily a northwoods wilderness and maritime park. There is one overnight lodge at the east end of the main island. Visitors come to the island to hike, backpack, motorboat, canoe, kayak, sail, scuba dive, or fish.

The primary means of access to the park are via ferry and seaplane from Houghton, Michigan, and via ferry from Copper Harbor, Michigan and Grand Portage, Minnesota. About 30% of visitors travel to the park in private boats. The park is open from mid-April through the end of October; it is closed the rest of the year due to extreme winter weather conditions and for protection of wildlife and for the safety and protection of visitors.

Isle Royale is comprised of a series of parallel ridges and valleys oriented along the same axis. Many of the park's 165 miles of hiking trails follow ridge lines. Swamps and other wetlands are common throughout the park.

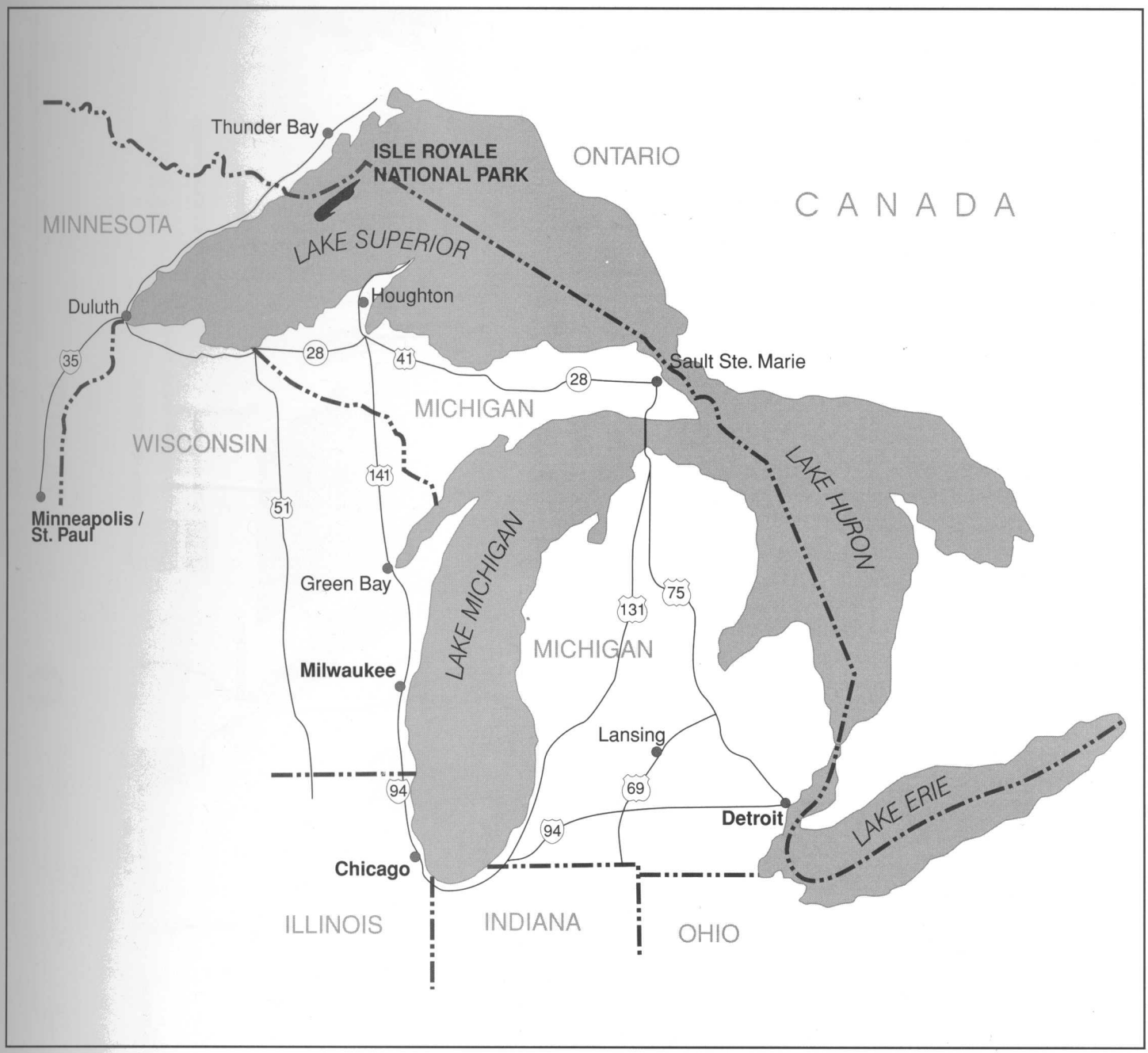
Isle Royale is densely forested. The waters of Lake Superior remain cool year-round, creating cool, moist conditions near the shoreline where northern boreal spruce-fir forests are found. The warmer and drier interior of the island is covered, especially at the southwestern end of the island, in sugar maple, yellow birch, and other northern hardwoods.

Many mammals common to the continental mainland are not found on Isle Royale because of the island's isolation in Lake Superior. The island's best known species are the timber wolf and moose, but at least twelve others, including beaver, red fox, and snowshoe hare, can also be found. Birds on Isle Royale are similar to those on the mainland. Relatively little is known about the island's reptile and amphibian populations. The fish of Isle Royale are one of the park's most significant natural resources.

Human activity on Isle Royale can be traced back at least 4,500 years, when Native American groups first began using the island's copper and other natural resources. Fur trapping, the island's first historic commercial activity, was followed by copper mining, commercial fishing, logging, and vacationing. Evidence of most of these activities remains on the island today.

PARK PURPOSE AND SIGNIFICANCE

Park purpose statements are based on park legislation and legislative history, other special designations, and NPS policies. The statements reaffirm the reasons for which Isle Royale was set aside as part of the national park system. Purpose statements provide the foundation for park management and use.

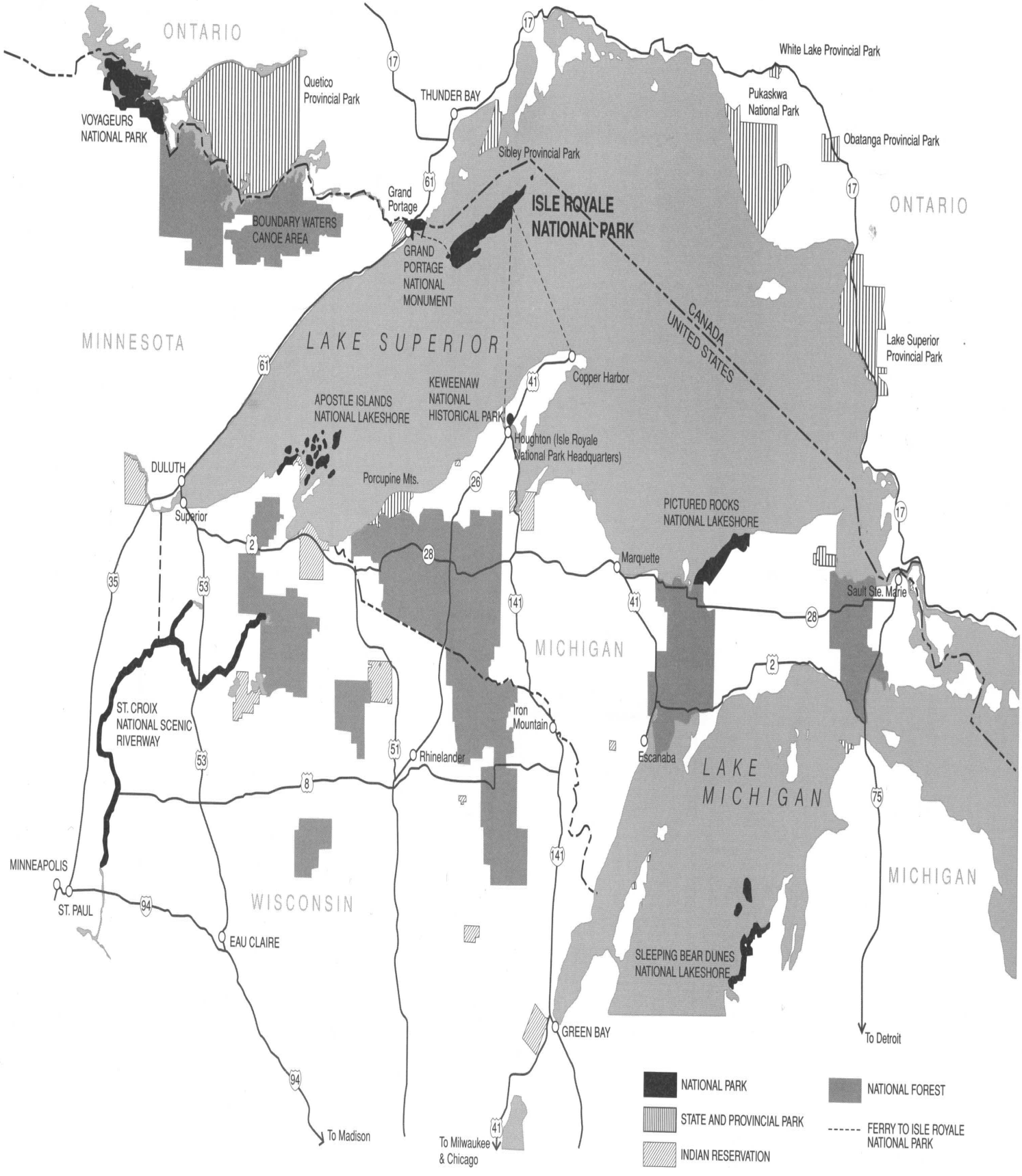


0 50 100 200 MILES

REGION

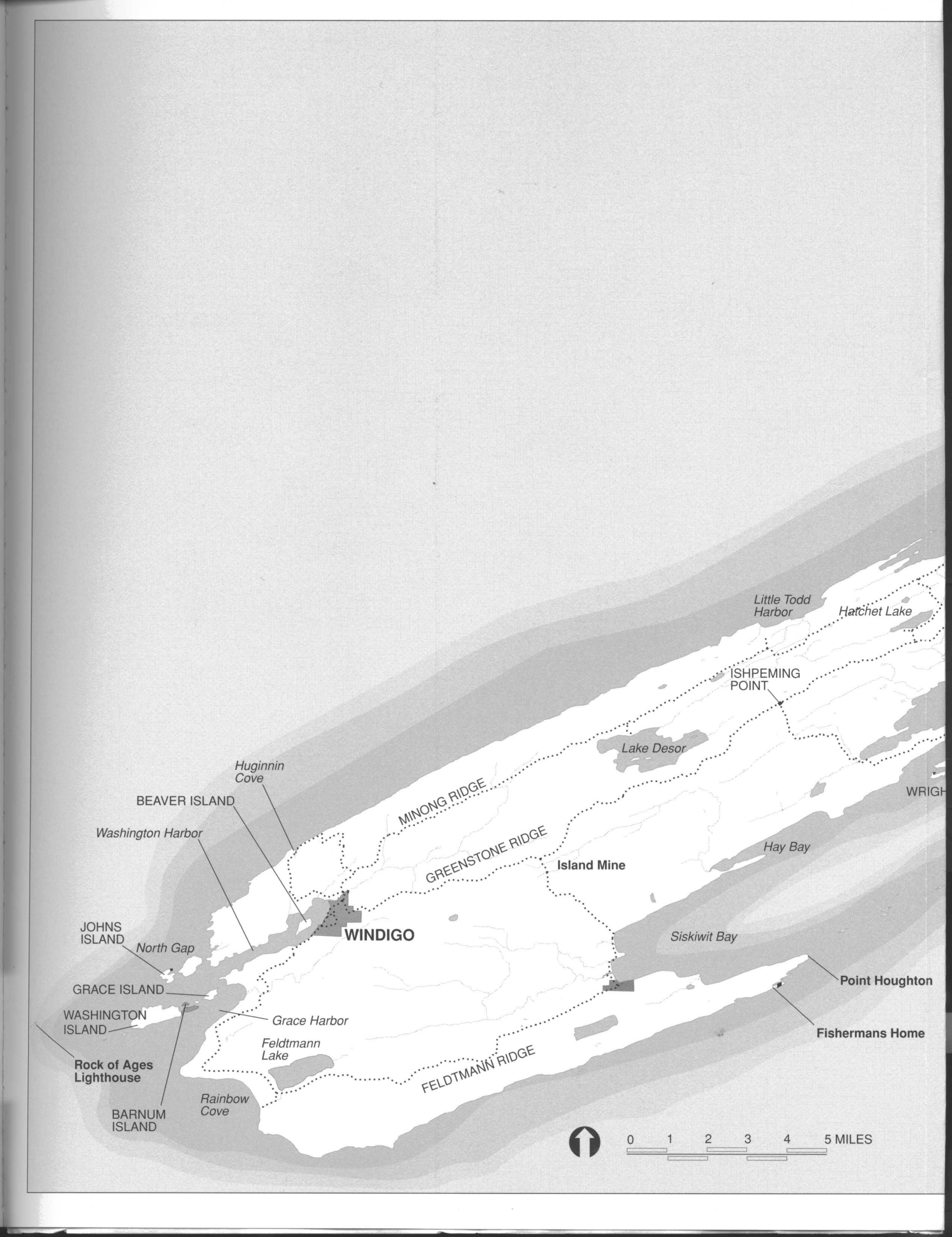
Isle Royale National Park • Michigan

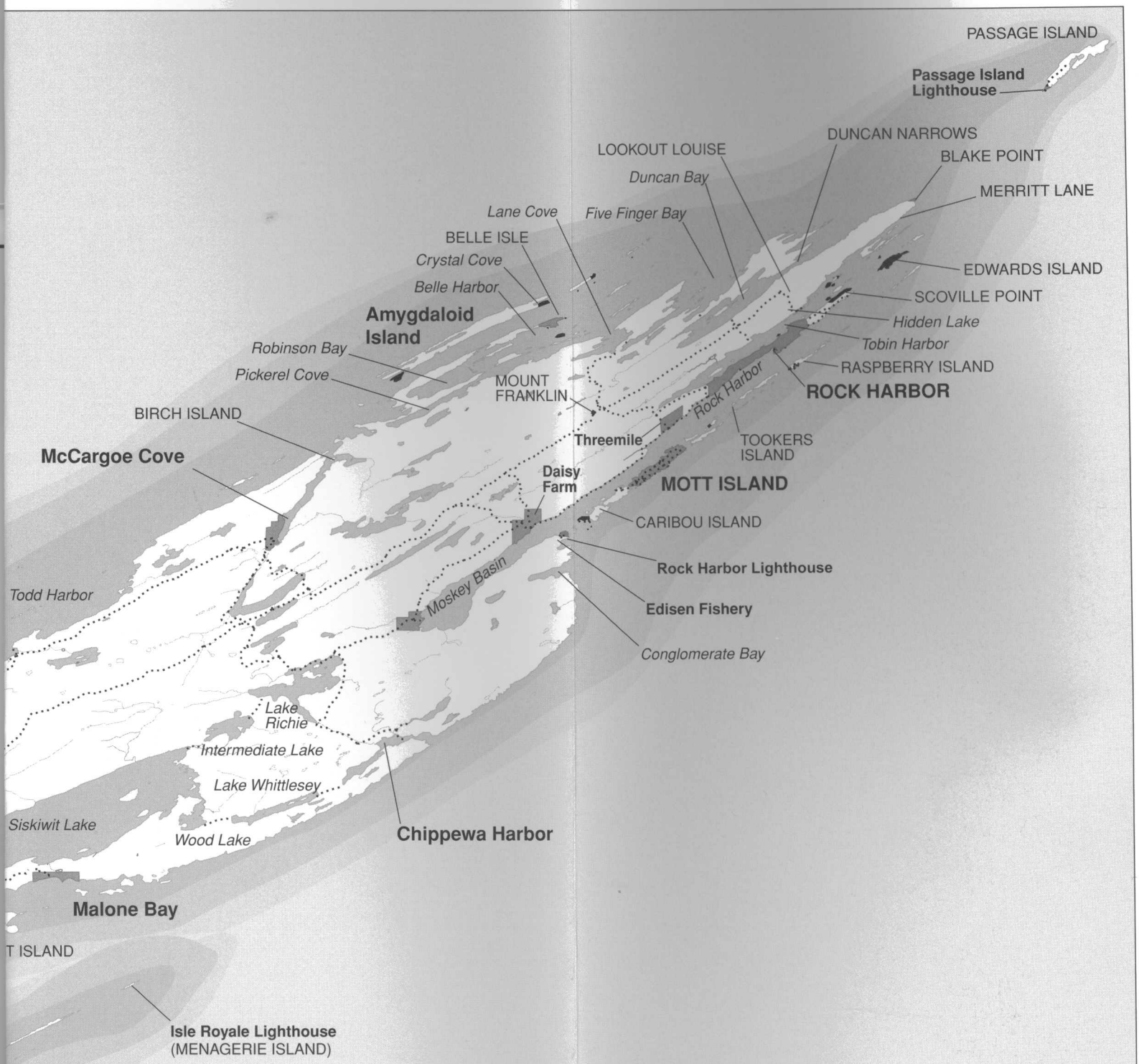
United States Department of the Interior • National Park Service
DSC • FEB 98 • 139 • 20023



VICINITY

Isle Royale National Park • Michigan


Little Todd Harbor
Hatchet Lake
ISHPEMING POINT
Lake Desor
Huginnin Cove
BEAVER ISLAND
MINONG RIDGE
WRIGH
Washington Harbor
GREENSTONE RIDGE
Hay Bay
Island Mine
JOHNS ISLAND
WINDIGO
North Gap
Siskiwit Bay
Point Houghton
GRACE ISLAND
WASHINGTON ISLAND
Grace Harbor
Fishermans Home
Feldtmann Lake
Rock of Ages Lighthouse
FELDTMANN RIDGE
Rainbow Cove
BARNUM ISLAND
0 1 2 3 4 5 MILES



WILDERNESS STATUS

Isle Royale National Park • Michigan

United States Department of the Interior • National Park Service
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Draft purpose statements were reviewed by the park staff and the public. The following statements reflect changes in response to comments.

- preserve and protect the park's wilderness character for use and enjoyment by present and future generations
- preserve and protect the park's cultural and natural resources and ecological processes
- provide opportunities for recreational uses and experiences that are compatible with the preservation of the park's wilderness character and park resources
- provide park-related educational and interpretive opportunities for the public
- provide opportunities for scientific study of ecosystem components and processes, including human influences and use, and share the findings with the public

Park significance statements capture the essence of the park's importance to the nation's natural and cultural heritage. Significance statements do not inventory park resources; rather, they describe the park's distinctiveness and help to place the park in its regional, national, and international contexts. Understanding park significance helps managers make decisions that preserve the resources and values necessary to accomplish the park's purposes.

The following significance statements were developed for Isle Royale National Park and were refined based on park staff and public comments.

- This maritime park, a U. S. biosphere reserve, encompasses a remote and primitive wilderness archipelago isolated by the size and power of Lake Superior.
- Isle Royale is world renowned for its long-term wolf/moose predator/prey study. The park offers outstanding possibilities for research in a remote, relatively simple ecosystem where overt human influences are limited.
- Park waters contain the most productive native fishery and genetically diverse lake trout populations in Lake Superior.

PARK EMPHASIS STATEMENTS

Park emphasis statements flow out of the park significance statements and incorporate key resources and stories that characterize Isle Royale National Park. These statements are emphasized in the park's education and interpretation programs. They also serve as broad guiding principles for other park programs and for priority setting. More specific statements for interpretation, resource management, and park operations may be developed from the park emphasis statements.

The park staff developed the following set of park emphasis statements that incorporate ideas expressed by the public.

- Self-sufficiency is a way of life on Isle Royale. Self-sufficiency is as important today for park backpackers, canoeists, and boaters as it was for those who first used and settled the island — Native Americans, European miners, lighthouse keepers, commercial fishermen, and island summer residents.
- Wilderness has many meanings to many people. For Isle Royale National Park, the meaning is defined by the Wilderness Act of 1964, which states a wilderness is an area ". . . affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable, [and] has outstanding opportunities for solitude or a primitive and unconfined type of recreation . . ."

- Isle Royale rose from the depths of Lake Superior some 11,000 years ago and remains ecologically connected to the lake; the forces of the lake still shape and nurture the landscape. The park offers visitors a chance to experience wildness, seclusion, solitude, and recreation. It restores the human spirit. It is a wilderness to be entered on its own terms. It is an adventure.

- Adventure, simple living, and solitude are important parts of an Isle Royale visit. In order to ensure these kinds of experiences, park users must have the skills and habits that foster an ethic of "leave no trace" on the island.

- Isle Royale is a living laboratory where plant and animal life can be studied in a relatively simple ecosystem. The theory of island biogeography is illustrated by both the limited number and variety of species to be found in the park.

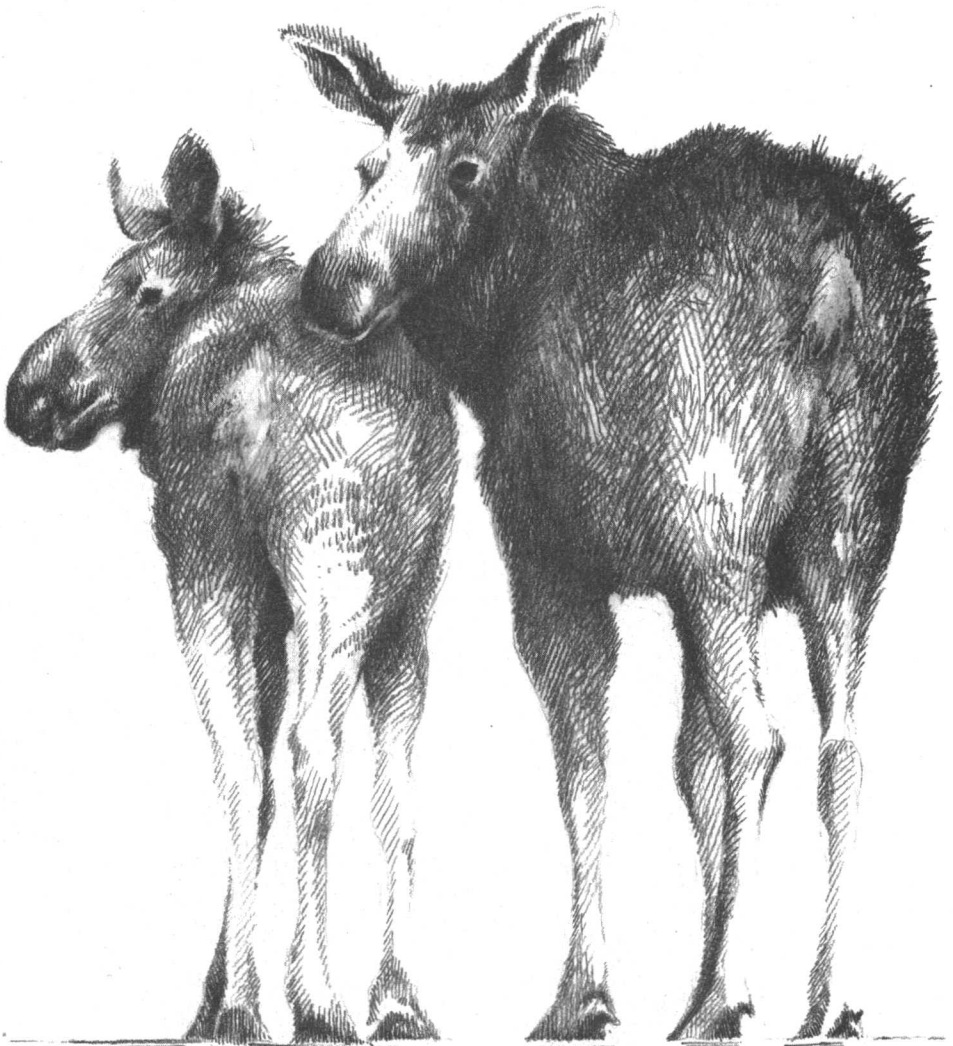
- Because of Isle Royale's generally undisturbed setting, it is an important source of information about the world around us — how the world evolved, how the impacts of civilization have altered natural systems, and what the unmodified environment holds.

- Isle Royale, as a U. S. biosphere reserve, is a valuable asset as a natural baseline that reveals the extent of impacts elsewhere, as a site where scientists and students can study natural processes, as a gene pool helping to maintain the diversity of a northern boreal forest and Lake Superior, and as a sanctuary for certain plants and animals that cannot survive outside of isolated wilderness.

- For thousands of years people have lived an episodic existence on Isle Royale. For centuries the presence of pure copper has drawn people to the island. Similarly, people have been drawn by the island's spectacular scenery and wilderness opportunities to establish resorts and summer housing on the island. An abundant fishery attracted many. Although the remnants of mining activity, commercial fishing, and the resort era are melding into the landscape, wilderness visitors may still find traces of the park's rich history.

- Isle Royale has a rich maritime heritage. The island serves as a significant navigational reference point, a refuge from storms, and a treacherous obstacle to mariners. For well over a century its lighthouses have guided ships safely through passages. The park's waters are the final resting place for an array of shipwrecks that provide an underwater museum that includes many types and stages of maritime technology.

- The National Park Service is striving to sustain the native fishery of Isle Royale National Park — perhaps the most exceptional fishery in the Great Lakes region. For centuries Isle Royale's waters have drawn fishermen — prehistoric people, immigrant commercial fishermen, and today's sports fishermen. A relic of the past adaptive fishing lifestyle and technology still remains as a reminder of this significant island culture.



THE PROPOSED ACTION AND ALTERNATIVES

INTRODUCTION

In this section a proposed future direction for Isle Royale National Park (the proposed action) is described along with four alternatives (including one that would not substantially change existing conditions).

Before the proposal and alternatives were developed, information on park resources, visitor use, and visitor preferences was gathered and analyzed. Information was solicited about the issues and the scope of the project from the public, government agencies, and special interest groups through newsletters, meetings, and personal contacts, which helped with the development of five preliminary concepts for the park's future. All the concepts were intended to support the park's purpose and significance, address issues, avoid unacceptable resource impacts, and respond to public desires and concerns. (More information about the analysis is presented in Appendix A.)

Five draft alternatives were developed from the preliminary concepts. Following public review of the alternatives, an evaluation process called "Choosing By Advantages" was used to evaluate and compare the alternatives and to develop a preliminary preferred alternative. A summary of this analysis is also presented in Appendix A. The preliminary preferred alternative was then shared with the public. The draft proposed action, resulting from public review and adjustment of the preliminary preferred alternative, was presented to the public in a *Draft General Management Plan / Environmental Impact Statement*.

Alternative A (existing conditions) is presented first. Next are actions that are common to the proposal and alternatives B–E. Descriptions of the proposed action and the alternatives follow. Then, the proposal and alternatives are summarized in three tables: the first compares the proposal and each alternative; the second lists each campground and shows the means of access under the proposal and each alternative; the third summarizes the expected impacts of each action.

Potential environmental impacts of the proposed action and alternatives are presented in the subsequent environmental consequences section.

While a general management plan provides the analysis and justification for future funding, the plan in no way guarantees that the money will be forthcoming. The plan will establish a vision of the future that will guide year-to-year management of the park, but full implementation of a plan could take a number of years.

ALTERNATIVE A (EXISTING CONDITIONS)

OVERALL CONCEPT

This alternative (the status quo or no-action alternative) would continue current management at Isle Royale National Park. It provides a baseline for evaluating the changes and related environmental effects of the other alternatives. Park managers would continue to provide for visitor use and would respond to natural and cultural resource management concerns according to current policy and legal requirements and as funding allowed. There would be no change in management direction.

PARK MANAGEMENT

The Rock Harbor and Windigo areas would remain the focal points for visitor orientation and visitor services. The campgrounds, docks, and trails would remain (see Alternative A map). Portions of the backcountry would continue to be available for cross-country (off-trail) hiking and camping; other areas would remain closed to these uses for resource protection. No-wake zones would be continued. Designated wilderness areas (99% of the park's land) would be managed according to the Wilderness Act of 1964 and NPS policies. The park would remain largely unzoned otherwise, although more remote areas would be wilder and more primitive than those near developed areas and ferry stops. No limits would be placed on visitor use, so visitation could continue to increase.

Visitor orientation and interpretation programs would continue at the Houghton headquarters, at Rock Harbor, and at Windigo. Natural or cultural features of special interest such as scenic viewpoints, lighthouses, and mining sites would also be interpreted.

Cultural resources would be managed as funding allowed according to the park's *Resources Management Plan*. The park would continue to protect and maintain known archeological sites and restore or adaptively use certain historic structures. An update of the List of Classified Structures and completion of a cultural landscape report would, in consultation with the Michigan historic preservation office, determine eligibility for listing on the national register (including for structures under life lease) as funding allowed. Such resources would then be maintained, stabilized, or documented and allowed to decay.

Park staff would encourage and support research efforts that would add to the available information about the park's history and prehistory. The park would consider potential partners interested in stabilizing shipwrecks. When the National Park Service receives title to the lighthouses owned by the U.S. Coast Guard (such as Passage Island Lighthouse), partners interested in preserving the structures would be considered. (Current funding levels would not permit the park to improve or even stabilize the lighthouses.)

Inventories for archeological sites would continue on a site-by-site basis following compliance procedures established by the September 1995 programmatic agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.

Natural resources would be managed as time and funding allowed according to the *Resources Management Plan*. The natural resources inventory and monitoring program would be continued and expanded if possible. Park staff would encourage the research that is needed to fill key information gaps. Fisheries and water resources management plans would be developed.

NPS operations at Houghton, Rock Harbor, Windigo, and the Mott Island headquarters would not change. Ranger stations at Amygdaloid Island and Malone Bay would

remain. The park would continue to be closed from November 1 to April 15 for the benefit and protection of wildlife.

CONCESSIONS SERVICES

Ferries would continue to serve Rock Harbor, Windigo, and secondary stops such as McCargoe Cove and Malone Bay. Water taxi service to intermediate stops would also continue as demand warranted. Concession services at Rock Harbor (motel and housekeeping units, restaurant and snack bar, marina, boat rentals, fuel sales, store) and Windigo (store, boat rentals, fuel sales) would remain.

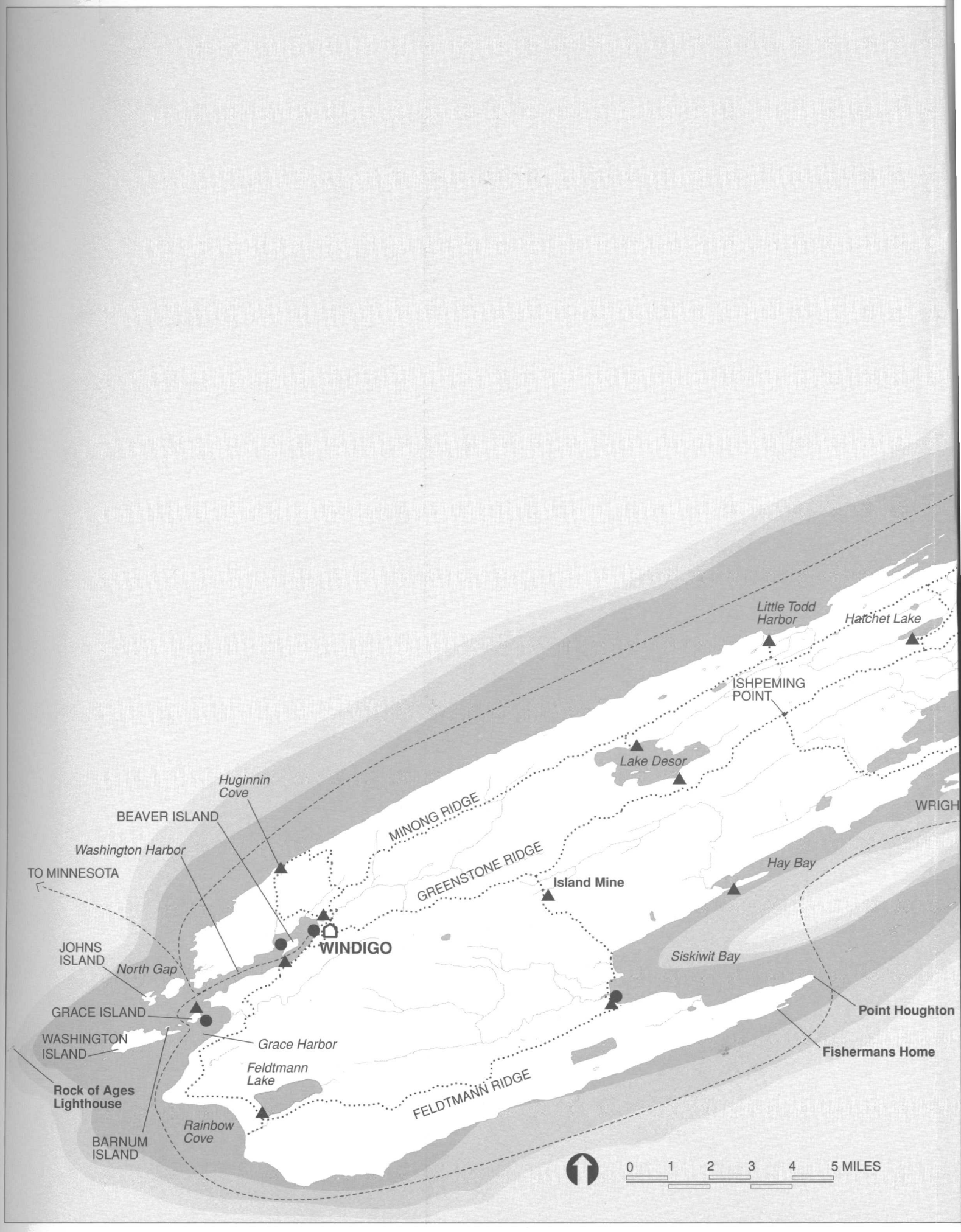
It is not likely that any combination of overnight and food services at Rock Harbor could continue to be offered without a financial subsidy to provide utilities to the concessioner (see Appendix C). This conclusion was based on the *Concession Feasibility Analysis, Isle Royale National Park,* which was prepared for Rock Harbor. The study takes into consideration the high cost of utilities on the island and the relatively low number of visitors using the concession's overnight accommodations. Without subsidy, the cost of providing lodging and food services could drive up visitor costs to a level that few visitors would be willing or able to pay (which already appears to be happening). This could result in the elimination of overnight and food services at Rock Harbor.

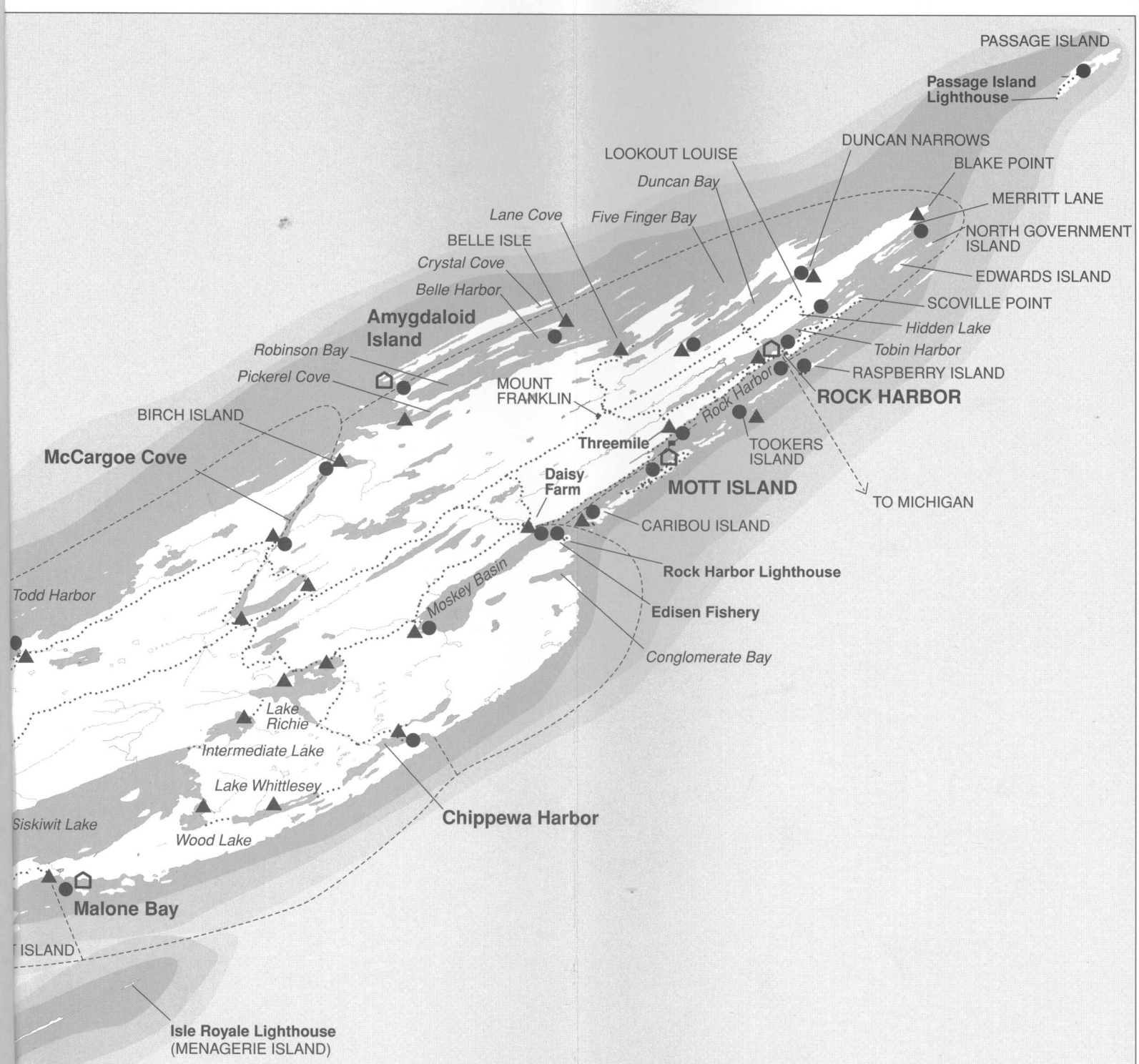
The concessioner would have to be subsidized through a congressional appropriation to the park. This subsidy would have to be adequate for capital costs related to backlogged utility and infrastructure upgrades and the annual operating cost of supplying utilities to the concessioner in excess of the cost of comparables (the difference between utility costs on the mainland and costs at the park). This subsidy is estimated at a minimum of $2.1 million for the backlogged utility and infrastructure capital improvement needs and a minimum of $400,000 per year, plus annual consumer price index increases, to keep the subsidy current. This subsidy would allow a reduction in the prices of rooms, meals, and all other goods and services and would make concessioner services more affordable. If this subsidy is not received, costs for the visitor will continue to escalate, which would result in prices not affordable to most park visitors.

PLAN IMPLEMENTATION

Priorities for programmatic actions have been identified in existing plans. Upgrading utility systems at Rock Harbor would be the highest priority.

Alternative A construction costs (actually costs for backlogged repair and rehabilitation needs) are estimated at $7,247,760. Research, inventory, and monitoring costs (existing backlog) are estimated at $1,440,000 in one-time costs plus $199,000 annually. An additional annual appropriation of approximately $400,000 would be needed to subsidize the concession operation at Rock Harbor. See Appendix B for details.


Little Todd Harbor
Hatchet Lake
ISHPEMING POINT
Lake Desor
Huginnin Cove
BEAVER ISLAND
MINONG RIDGE
WRIGH
Washington Harbor
TO MINNESOTA
GREENSTONE RIDGE
Hay Bay
Island Mine
WINDIGO
JOHNS ISLAND
North Gap
Siskiwit Bay
GRACE ISLAND
Point Houghton
WASHINGTON ISLAND
Grace Harbor
Fishermans Home
Feldtmann Lake
Rock of Ages Lighthouse
FELDTMANN RIDGE
Rainbow Cove
BARNUM ISLAND
0 1 2 3 4 5 MILES



ALTERNATIVE A
EXISTING CONDITIONS

Isle Royale National Park • Michigan

United States Department of the Interior • National Park Service
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ACTIONS COMMON TO THE PROPOSED ACTION AND ALTERNATIVES B, C, AND E

A number of actions supporting the park's stated purpose and significance are proposed in all action alternatives. These common actions are described below and are not repeated in the individual descriptions of the alternatives.

NATURAL RESOURCES

Priorities

Several broad strategies have been identified to help guide and set priorities for managing natural resources at Isle Royale. The primary goal of natural resource management is to preserve the ecological integrity of Isle Royale. This goal requires an understanding of park resources as well as adequate resource protection. General strategies include:

• complete the inventories of natural resources for baseline information. These inventories are necessary for the park to effectively protect the resources and serve as a natural laboratory for research. Highest priorities would include:

Lake Superior fisheries — as part of Isle Royale's significance, the fishery is important as an exceptional natural resource and as part of the island's cultural history

water and air quality — fundamental to the island's research role and the wilderness character of the island, there are suspected threats to both air and water quality that should be understood

reptiles, amphibians, mollusks, and snails — consistent with the park's role as a research baseline, knowledge of these species at Isle Royale could offer insights into the decline of these populations elsewhere in the world

insects — very little is known about the many insect species found in the Isle Royale ecosystem, including the potentially rare species

rare plants — about 70 rare plant species are found in the park, yet extensive areas in the park remain unsurveyed for these fragile populations, including visitor use areas

• retain and expand the park's monitoring of resource trends; systematic, scheduled monitoring would document changes in species or communities and provide direction for research and management

• investigate ways to contribute to and benefit from regional ecosystem management and protection efforts, such as the Binational Program to Protect and Restore the Lake Superior Basin, Great Lakes Regional Air Quality Partnership, and Man and the Biosphere (U. S. Biosphere Reserve) Programme

• support the Canadian Marine Sanctuary Program, which could establish a marine sanctuary abutting the park's northern boundary

• develop a fisheries management program to define the surveys and monitoring required for Lake Superior fisheries as well as management actions for inland fisheries

• establish a research advisory board to identify and set priorities for natural resource research, using the park's significance and emphasis statements and natural resource management goals and strategies for guidance; this could lead to partnerships that would encourage research

• convene a panel of NPS and other subject matter experts to identify and evaluate potential actions for management of the wolf population if viability becomes a concern

• develop a water resource management plan to address water quality concerns in the park, identifying monitoring and research needs, key

habitat areas, development of a contaminants monitoring scheme, and other related projects

• conduct research to determine baseline levels of petroleum hydrocarbons in Lake Superior waters and sediments

Mitigation

Disturbance of vegetation in construction areas would be held to a minimum or would take place in previously disturbed areas. Mitigation would reduce impacts to the minimum necessary to accomplish objectives and would include careful site selection, salvaging topsoil and plant materials, and rehabilitation of disturbed areas. Whenever facilities were removed, the disturbed areas would be rehabilitated and revegetated with native species. Only native plants and seed sources proximate to the disturbed site would be used in rehabilitation and revegetation efforts.

Several sites with existing docks proposed for public use, such as Wright Island and Crystal Cove, may historically have had loon nesting activity. If ongoing research confirms that these locations are potential loon nesting sites, mitigation actions (such as increased educational efforts or temporary dock closures during loon nesting periods) would be implemented.

CULTURAL RESOURCES

General strategies have been identified for management of cultural resources at Isle Royale. The primary goal of cultural resource management is to understand, preserve, and interpret the history of human experience on the island.

Specific strategies for management of certain structures and landscapes are described in the various alternatives. Alternative C would remove all historic structures. In general the other action alternatives would retain historic structures if they were eligible for listing on the national register and a potential use was identified. Priority for adaptive use would be given to structures in nonwilderness areas. Partnerships would be sought for preservation and adaptive use of historic structures. As life-lease properties come under NPS management, the specific actions for each property would be identified on a case-by-case basis. Criteria for selecting specific actions would be based on wilderness status, national register eligibility, condition of structures, importance to cultural landscapes, and the suitability and potential for adaptive uses by the park.

Decisions regarding the identification and treatment of historic properties will follow NPS *Management Policies*. The planning and implementation of preservation treatments, such as rehabilitation for adaptive use, would be undertaken in accordance with section 106 of the National Historic Preservation Act of 1966, as amended, and as set forth in the Advisory Council on Historic Preservation guidelines in 39 CFR 800 and the servicewide programmatic agreement among the National Park Service, the advisory council, and the National Conference of State Historic Preservation Officers. All historic preservation treatments would follow the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.*

Priorities

Strategies would include:

• complete inventory and documentation of cultural resources on the island; areas of particular focus would include:

archeological sites — both terrestrial and underwater sites are of concern and represent the maritime and mining heritage of the island. Inventories would be particularly important in areas of potential disturbance such as campgrounds and busy boating areas.

cultural landscapes — landscapes related to maritime, mining, commercial fishing, and resort era stories are important to understanding and interpreting island history.

ethnographic resources — the island was important to Native American groups. More information is needed about their historic and modern uses.

lighthouses — when the lighthouses come under NPS management, the first priority would be to determine the feasibility of management and preservation options.

shipwrecks — shipwrecks would be open for scuba diving under the current diving permit system. Charter diving services would continue to be available. The park would continue efforts to monitor and protect the shipwrecks and in cooperation with partners such as the Great Lakes Shipwreck Preservation Society would continue shipwreck documentation and would evaluate additional stabilization and restoration projects.

• research specific gaps in Isle Royale's cultural history, including: early use of the island (7000 B.C. – 1000 B.C.); fur trapping and trade; fire history; logging history; fishing; and the park's administrative history (including the reasons for locations of facilities, residential history, and the chronology of visitor uses such as diving and concessions history).

• retain and expand the monitoring program to ensure protection of cultural resources, particularly where they are used (such as at shipwrecks). Because cultural sites, such as mining remains and fishing camps, can be an important part of the wilderness experience, sites would be monitored to ensure perpetuation of that experience.

• cooperate with partners to set standards for and carry out preservation treatment of shipwrecks based on the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.*.

A number of special studies are needed to fill gaps in the knowledge of human use and activity on the island. For example, evidence of various prehistoric cultures using the island during the same time period raises questions. Did the island function as neutral ground? Were resources allocated in different ways for different groups? Was the island's bounty accessible to all equally? Did the island serve as a haven in times of conflict and confusion or starvation on the mainland? The majority of archeological sites have been identified by shovel testing and have not been excavated, so there is potential for much additional information.

The park does not have knowledge or evidence of current use by Ojibwa and has little documentation of their historic use. The modern uses of the island by the native people should be identified so that the park can work with the tribes in managing the resources that they may be using.

Mitigation

For actions that could involve ground disturbance or affect structures and/or landscapes that are either on or eligible for the National Register of Historic Places, the Michigan Historic Preservation Office would be consulted regarding impacts on these cultural resources. In the case of ground disturbance, an archeological survey would be undertaken to determine the extent and significance of the archeological resource before any ground disturbance occurs. Any impacts on cultural resources would be avoided if possible. If this is not possible, mitigation measures would be developed by the park in consultation with the Michigan Historic Preservation Office and the Advisory Council on Historic Preservation.

VISITOR USE

Accessibility

In developed zones all new structures would be accessible to people with disabilities. Existing structures would be modified to meet accessibility standards as funding allowed or as the facilities were replaced or rehabilitated.

Accessibility standards on visitor transportation vessels and aircraft would be met within the limits of marine and aircraft design and safety requirements.

In campgrounds, some outhouses and shelters would be made accessible. However, the terrain and other natural conditions will continue to be challenging. The park would continue to work with organizations that encourage and enable use of wilderness areas by special populations. This sharing of ideas would increase awareness of the needs of these populations and help to ensure that potential visitors with particular needs are aware of the opportunities offered by Isle Royale.

Visitation Levels / Carrying Capacity

The Park Service is required by law to address carrying capacity in planning for parks. Each general management plan must include identification of and implementation commitments for visitor carrying capacities for all areas of the unit. The proposed action and each of the action alternatives assume that managers would take action to keep visitation levels in line with the goals of the alternative and would maintain quality visitor experiences and resource protection.

Interpretation, Information, and Education

Some actions related to interpretation, information, and education programs vary by alternative. In all alternatives, however, programs would emphasize understanding and appreciating the resources of the park.

More detailed planning would be undertaken to improve visitor information facilities and services on the island consistent with the intent of each alternative.

Education outreach efforts would be strengthened to reach local, regional, and national school groups, interested organizations, and park visitors prior to their trips to the island. To help visitors form realistic expectations and to teach them how to conduct themselves compatibly with park purposes, advance trip planning would be emphasized with each user group (such as motorboaters, paddlers, and backpackers) and with organized groups such as the Boy Scouts. Programs would emphasize wilderness and "leave no trace" values and principles, and special advance certification could be granted to individuals completing a park awareness program. The potential of accomplishing these goals through the Internet would be explored.

The park staff would continue to assist writers, publishers, and researchers with park-related materials and would make the products available to the public. The park would assist educational institutions with development of programs that promote and support park emphasis statements and reduce impacts on resources.

The park staff would develop interpretive media supportive of park emphasis statements such as exhibits, publications, videos, interpretive talks, interactive computers, and presentations. On-island programs, if appropriate, would emphasize dialogue between visitors and park staff to encourage understanding and interchange about issues facing the park. For example, information about advances in clean engine technology would be shared with the public. Programs would support park goals and emphasis statements.

The park staff would seek partnerships with other U.S. and Canadian parks on Lake Superior as well as with educational institutions, clubs, and organizations to enrich interpretation and educational opportunities regionwide.

Other Uses

Use of personal watercraft (jet skis) would not be permitted in the park. Such uses are inconsistent with the park purpose, significance, and emphasis statements. If necessary, specific

regulations would be developed. Use of aircraft to access the island would continue to be restricted and present landing zones would not be expanded. The use of aircraft for sightseeing is incompatible with wilderness. Because of the potential demand on the island's limited infrastructure and visitor experience impacts (crowding and noise), cruise ships (defined as commercial vessels carrying more than six paying passengers) are also considered incompatible with park goals.

The park would work to reduce noise from passenger ferry whistles and would encourage the reduction of commercial aircraft overflights to reduce noise and visual impacts. Administrative no-wake areas would continue to be established as needed to protect docked boats and park resources, such as loon nests.

Native American Treaty Rights

Several bands of Lake Superior Chippewa have rights guaranteed by various treaties in the geographic area in which Isle Royale and Isle Royale National Park are located. Treaty rights are beyond the scope of this plan; however, any actions taken to implement the plan must conform to the law regarding these rights. To ensure that it honors legally established rights, the National Park Service would cooperate with those tribes that retain valid hunting, fishing, and gathering rights. The National Park Service would routinely consult with tribes having treaty rights and their designated representatives on a government-to-government basis.

PARK OPERATIONS

Docks to remain (according to each alternative) would be repaired or replaced as needed.

The MV *Ranger III* would continue to provide transportation and freight service to Isle Royale National Park. Its schedule and purpose are designed to support park operations; services to the concessioner and passengers are secondary and increases in these services are not anticipated. The *Ranger III* will be rehabilitated during the winter of 1998-1999. New engines, bow thrusters, electrical panels, and sound dampening will be installed. The main deck restroom will be made accessible to people with disabilities. Other general improvements in appearance will be made.

The park would continue to be closed from November 1 to April 15 for the benefit and protection of wildlife and for visitor and employee safety.

Park management would continue to work toward more sustainable operations, including purchasing water- and energy-conserving systems and machinery. The park would take a leadership role in using less polluting, quieter boats as current equipment was upgraded or replaced.

A separate study would be conducted to develop and evaluate options for improving the Houghton headquarters, which houses such functions as visitor information, ticketing and fee collection, administration, and maintenance. The current facilities are too small to serve park operations and respond to visitor needs. The new study would be guided by the following requirements: headquarters must remain in the Houghton / Hancock area; facilities must be consolidated for efficiency; the site must have a minimum of 500 feet of waterfront deep enough for docking the *Ranger III*, and the site must be visible to and easily accessible for visitors. Primary functions and needed spaces for the headquarters facility would include:

- visitor orientation (including other nearby NPS units); overall park interpretation, education, and orientation, office space, storage
- natural history association office, storage, and sales
- ticketing, fee collection, reservations
- collections storage

- park administration (including Keweenaw National Historical Park) office space, storage
- maintenance warehousing, shops (auto, boat, general), garage
- *Ranger III* dock and support, warehousing, freight handling, baggage, recycling, hazardous waste, solid waste
- concessioner support
- barge support storage, handling (loading/unloading)
- employee support; meeting rooms, lunchroom
- parking
- museum storage

BOUNDARY ADJUSTMENTS

The park boundary is adequate to support park purposes. No boundary adjustments are proposed in any of the GMP alternatives.

CONCESSIONS AND OTHER COMMERCIAL SERVICES

Several companies provide visitor services. The primary concessioner, National Park Concessions, Inc., manages the facilities at Rock Harbor and Windigo. Ferry and float plane services would continue in all alternatives, although some modifications could be made to control island access.

Charter fishing operators, currently authorized under incidental business permits, would be placed on limited concessions permits. This would allow the Park Service to better manage and protect the fishery by limiting the number of operators to current levels or below.

All other commercial activities, such as guided diving, hiking, and paddling trips, would continue under incidental business permits. To avoid resource damage and to ensure adequate opportunities for noncommercial users, the operating requirements of these permits could be adjusted annually to control the number of people that each permittee would be allowed to bring to the island on a single visit or cumulatively during the season.

Commercial activity on Isle Royale would be limited to avoid over-commercialization and excessive demand for use. Future concession contracts would emphasize consistency with Isle Royale's thematic character. For example, merchandise sold at the park and use of packaging and food and beverage containers would be in keeping with wilderness and sustainability concepts, natural and cultural history themes, and the character of Lake Superior.

IMPLEMENTATION PLANS TO FOLLOW THIS GENERAL MANAGEMENT PLAN

Visitor Experience and Resource Protection (VERP) Plan

The VERP program, which is used to address carrying capacity for NPS units, consists of four key elements: (1) a parkwide management zoning scheme (established through evaluation of the alternatives) that defines visitor experience and resource condition goals for each area of the park, (2) selection of indicators that can be monitored to ensure that the goals are being met, (3) a systematic monitoring program, and (4) standards for each monitored indicator that is expected to warn when conditions merit management action. The first element will be accomplished as part of the general management plan. The other elements will be detailed in a VERP implementation plan or incorporated into the wilderness and backcountry management plan described below.

For the *Draft General Management Plan* the status of park resources in visitor use areas was assessed and visitors were surveyed about their expectations and experiences. Concerns related to crowding and use levels in different parts of the island were noted. Ongoing research will identify meaningful indicators and standards that can be used to ensure provision of quality experiences while protecting park resources. The

indicators and standards will be developed, and the public will have an opportunity to comment on them.

Wilderness and Backcountry Management Plan

A wilderness and backcountry management plan is needed. It would guide management of wilderness resources and ensure consistency in such management over time. The plan would identify a process to determine the appropriate tools to use in wilderness, set priorities for campground and trail maintenance projects, and could incorporate the VERP implementation plan to address visitor use limits in wilderness, identify research and monitoring needs, outline how VERP will be implemented, and identify staffing needs.

Several areas on the island were not designated as wilderness in the park's wilderness legislation. Because of changes in park plans and needs, the wilderness and backcountry management plan would evaluate these areas for possible conversion to wilderness.

Resource Management Plan

The *Resource Management Plan* would be revised as needed to incorporate management direction provided by the general management plan. The revised plan would detail the status of the park's natural and cultural resource programs and would affirm and detail needs for research, inventories, monitoring, and other programs. Programs called for by the *General Management Plan* are detailed in Appendix B.

Water Resources Management Plan. Water resources management plans structure and use information about water resources and water-related environments to: (1) identify and analyze water resource issues and management concerns, (2) provide a detailed description of the hydrologic environment and summary of water resource information, and (3) assist management in developing and evaluating alternative actions for addressing water-related resource management issues over a 5–10 year period. Recommended management actions developed in the water resources management plan are then incorporated into the resources management plan.

Fisheries Management Plan. The objective of fisheries management in the National Park Service is to preserve or restore the natural behavior, genetic variability, diversity, and ecological integrity of fish populations. Fisheries management within the waters of Isle Royale National Park is the shared responsibility of the National Park Service and the state of Michigan. The fisheries management plan would provide a framework that the National Park Service and the state could use to enhance formal coordination and cooperation to identify issues and concerns, formulate management objectives, and implement inventory, monitoring, and management actions necessary to protect the fisheries.

Commercial Services Plan

The proposed action and alternatives contain proposals that could affect current or new contracts and permits used to manage commercial activities in the park. A commercial services plan is needed to provide specific guidance regarding these issues. A commercial services plan identifies those services that are necessary and appropriate to support the purpose and significance of the park. It also identifies the appropriate instrument (contract or permit) to be used and procedures to follow when managing the program. The plan would follow the direction provided in the general management plan and be prepared as soon as that direction is available.

Comprehensive Interpretive Plan

This plan would provide detailed guidance on improvements to media, facilities, and education and outreach programs.

PARK MANAGEMENT ZONES

Management zones identify how different areas of the park could be managed to achieve a variety of resource and social conditions and serve recreational needs. Each zone specifies a particular combination of physical, biological, social, and management conditions. Different actions would be taken by the Park Service in different zones with regard to the types and levels of uses and facilities.

Nine possible zones have been described that could be appropriate to various areas on and around Isle Royale. Ideas for the range of zones came from responses to the newsletters and from park staff. In formulating alternatives for future park conditions and management, these zones were placed in different locations or configurations on the ground.

Some zones were applied only to areas outside designated wilderness (such as the developed zone), and some were applied either in or outside of designated wilderness (such as the back-country zone). The characteristics of any zone applied inside wilderness are consistent with specified conditions such as avoidance of manmade intrusions and opportunities for solitude. The different zones illustrate that even in wilderness, experiences vary. The experience on a well-marked, maintained trail where encounters with a few other hikers would be expected is very different from a totally untrailed experience where any encounter might be intrusive. Zoning in wilderness allows for a range of experiences.

Land Zones (Including Inland Lakes)

Developed Zone.

Visitor Experience — In this highly developed zone, facilities would be convenient and accessible; there would be little need for visitors to physically exert themselves, use outdoor skills, or make a long time commitment to see the area. Opportunities for adventure would be relatively unimportant. These areas would provide many social experiences, and the probability of encountering other visitors or NPS staff would be very high.

Resource Condition or Character — The NPS tolerance for resource degradation would be moderate. Resources would be modified for visitor and park operational needs. Visitors and facilities would be intensively managed in this zone for resource protection and visitor safety. Although buildings, structures, and other signs of human activity would be fairly obvious, there would be natural elements present. The zone would not be in designated wilderness nor would it be located near sensitive natural or cultural resources if such resources could not be adequately protected. This zone would be confined to relatively small areas.

Appropriate Kinds of Activities or Facilities — This land-based zone would include visitor and administrative facilities such as visitor centers, lodges, maintenance areas, and residences. Primary ferry landings, large docks, and marinas could be included in this zone. Paved paths and other walkways connecting facilities could be appropriate.

Frontcountry Zone.

Visitor Experience — Compared to most other zones, the frontcountry zone would offer visitors a fairly structured experience with onsite interpretation and education. Visitors would feel that they were in a natural park setting, but they would not be more than a typical day's hike or a short boat ride from developed facilities. To use this area visitors would make a short time commitment and would have to physically exert themselves to some degree. There would be limited challenge or adventure, and there would be little need for outdoor skills. At certain times of day or season there would be opportunities for solitude, but in general the probability of encountering other visitors would be high; use levels at attractions could be limited to ensure quality interpretive experiences. The probability

of encountering NPS staff would be moderate. These areas would provide ample opportunity for social interaction.

Resource Condition or Character — Visitors, sites, and trails would be intensively managed in the frontcountry zone to ensure resource protection and public safety. The areas in this zone would be predominantly natural, but the sights and sounds of people would be evident. The natural environment could be modified for essential visitor and park operation needs, but changes would harmonize with the natural environment. Except for essential changes, NPS tolerance for resource degradation would be low. This land-based zone could be in designated wilderness or in nonwilderness. The zone would not be near sensitive natural or cultural resources if such resources could not be adequately protected.

Appropriate Kinds of Activities or Facilities — This zone would be comprised of heavily used areas adjacent to developed zones and heavily used trail corridors that access prime park features such as cultural sites or scenic areas. Relatively large campgrounds, hardened trails, and interpretive facilities and signs might be present in nonwilderness. Some trails might be accessible to visitors with disabilities.

Wilderness Portal Zone.

Visitor Experience — These portal or gateway areas would provide the access and facilities needed to experience or manage other zones, such as the backcountry and primitive zones. There could be pulses of activity, especially around the times of ferry or water taxi landings. Mixing of different types of users would be common, and solitude and quiet would be available some of the time. Visitors would have some need for self-sufficiency, but adventure or challenge would be relatively unimportant.

Resource Condition or Character — NPS tolerance for resource degradation in this zone would be low. The zone would appear mostly natural, but there would be some evidence of human facilities and use. Resources could be altered for essential visitor and park operational needs, but alterations or facilities would blend with the natural environment. This zone could be located in designated wilderness or in nonwilderness and would be confined to relatively small areas. Like the developed and frontcountry zones, it would not be near sensitive natural or cultural resources if such resources could not be protected.

Appropriate Kinds of Activities or Facilities — Facilities in this zone could include moderate-sized campgrounds with shelters, trailheads, trails, and docks. Secondary ferry landings could be located in this zone. Some interpretive activities could be appropriate when presented with sensitivity to the zone character.

Backcountry Zone.

Visitor Experience — The backcountry zone would provide a sense of being immersed in a natural landscape, and it would feel somewhat distant from most comforts and conveniences. There would be possibilities for challenge and adventure. Visitors would have to commit a block of time, have outdoor skills, and exert themselves. The probability of encountering other hikers would be moderate, and there would be a good chance of solitary experiences. There would be chances for social interaction. Quiet generally would be expected, but occasional noise would be tolerated.

Resource Condition or Character — The backcountry zone could be applied to trail corridors and areas of a somewhat more primitive nature than those in the frontcountry zone. This land-based zone would be appropriate in designated wilderness areas. A relatively high level of management would be provided for resource protection and visitor safety. Some resource modifications would be evident, but they would harmonize with the natural environment. NPS tolerance for resource degradation would be low. Facilities would not be placed near sensitive resources that could not be protected.

Appropriate Kinds of Activities or Facilities — This zone could include moderate to high-use trail corridors. Small campgrounds, small docks, and unpaved but maintained trails would be the only facilities.

Primitive Zone.

Visitor Experience — This zone would provide a sense of being immersed fully in nature and would feel farther away from comforts and conveniences than the frontcountry and backcountry zones. Opportunities for independence, closeness to nature, tranquility, and the application of outdoor skills would be common. The probability of encountering other visitors would be low. Use of this area would require a relatively long time commitment and a high level of physical exertion. The environment would offer a relatively high degree of challenge and adventure. Tolerance for noise, visual intrusions, and social interaction would be low.

Resource Condition or Character — The primitive zone could be applied to lightly used trail corridors and associated areas. It would be located in designated wilderness. A moderate level of management would be provided for resource protection and visitor safety. Subtle onsite controls and restrictions could be present, such as placing downed trees near trail edges, restricting off-trail use, and requiring that visitors demonstrate knowledge of environmental sensitivity before entering the zone. A few resource modifications could be evident, but they would harmonize with the natural environment. NPS tolerance for resource degradation due to visitor use in this zone would be very low. Any facilities in the zone would avoid sensitive resources.

Appropriate Kinds of Activities or Facilities — Facilities would be limited to primitive trails and small campsites with minimal facilities. Docks would not be located in this zone.

Pristine Zone.

Visitor Experience — Visitors to the pristine zone would experience a pure wilderness setting, free of development. There would be no facilities or trails. Little or no sign of humans would be evident. Use of this zone would require a relatively high degree of physical exertion and a long time commitment. The environment would offer challenge and adventure. Opportunities for independence, closeness to nature, tranquility, and the application of outdoor skills would be common. There would be a very low probability of encountering other visitors and little or no evidence of visitor impacts.

Resource Condition or Character — This zone would be the most natural of the land zones. It would be in designated wilderness and would encompass large areas. It could include areas where very low use is desirable to protect certain resources and areas of the park that are difficult to access. Management for resource protection and safety in the pristine zone would be very limited; the area would be managed in such a way that onsite controls and restrictions would be minimized and those that were present would be subtle. However, offsite management of visitors could be intensive and could include eligibility requirements before entering the zone and limits on length of stay in the area. NPS tolerance for resource modifications or degradation would be very low.

Appropriate Kinds of Activities or Facilities — No facilities would be appropriate in this zone, including trails and docks. Cross-country hiking and camping would be permitted but regulated to protect resources.

Zones for Lake Superior Waters

Open Water Motorized Zone.

Visitor Experience — This zone would appear predominantly natural, but there would be evidence of human use and activity. There would be few restrictions on visitor activities. The

probability of encountering other visitors could be high. There would be ample social contact and limited solitude. Visitors would expect to hear noise. The zone could be dangerous under certain conditions. Visitors traveling independently would have to be self-sufficient and would need marine skills because of the unpredictable nature of Lake Superior.

Resource Condition or Character — The mood and character of this zone would tend to change according to Lake Superior fog, rain, wind, and wave conditions. The zone could include most Lake Superior waters inside the park. It would be located away from resources that are sensitive to intense human activity or noise. Management would be the minimum necessary to ensure safety and resource protection.

Appropriate Kinds of Activities or Facilities — Boating of all types, fishing, and scuba diving could be common.

Quiet/No-Wake Zone.

Visitor Experience — Motorboaters and others could find relatively tranquil, natural marine surroundings. The probability of encountering other visitors would be moderate, and solitude would be possible. Tolerance for noise would be very low. Any challenge would probably relate to navigating in difficult conditions. Visitors would have to be relatively self-sufficient.

Resource Condition or Character — This zone could be in sheltered Lake Superior harbors and bays where calm water and relative quiet are desirable for safety, resource, or visitor experience reasons. It might be appropriate in harbors or bays where waterbirds nest or where there are visitor centers or campgrounds. A moderate level of management would be provided for resource protection and visitor safety. NPS tolerance for resource degradation would be low.

Appropriate Kinds of Activities or Facilities — Human-powered and motor-powered watercraft could be found in this zone. Boats would travel at idling speed on flat water and leave no wake larger than prevailing sea conditions.

Nonmotorized Waters Zone.

Visitor Experience — This zone would provide visitors with an experience similar to that provided by the primitive land zone but in a water setting. Tolerance for noise and visual intrusions on the natural scene would be low. Few other visitors would be encountered.

Opportunities for independence, closeness to nature, tranquility, and application of outdoor skills would be common. Visitors would have to be self-sufficient.

Resource Condition or Character — This zone might include logical, secluded, protected routes for travel by human-powered watercraft only. It also might be applied to shallow water and sensitive resource areas. Narrow bays that are naturally buffered from outside noise could be candidates for this zone. There would be few restrictions, but access might be limited. NPS tolerance for resource impacts in this zone would be very low.

Appropriate Kinds of Activities or Facilities — There would be few, if any, facilities in this zone. Kayaking and canoeing would be the most common activities. Boats with motors would not be permitted (not even NPS maintenance or patrol boats) except in emergency situations or when necessary for safe harbor in a storm.

THE PROPOSED ACTION

OVERALL CONCEPT

The goal of this proposed action, revised from the proposal in the *Draft General Management Plan / Environmental Impact Statement*, is to meet the diverse expectations and needs of Isle Royale visitors while emphasizing the natural quiet that is fundamental to wilderness experiences. All park areas would be available to all visitors, so long as users participate in ways that are consistent with the access, facilities, and opportunities provided.

PARK MANAGEMENT ZONING

Campgrounds would be designed and access provided to separate motorized and nonmotorized uses in some areas. For example, some shoreline campgrounds would have docks and some would not. A variety of uses would continue to be available that would be fairly evenly distributed across the island. Use limits would probably become necessary in some zones in order to prevent overcrowding and maintain the quiet and solitude that are fundamental to wilderness experiences.

Docks would be removed from a few campgrounds to reduce noise and better meet the expectations of hikers and paddlers in these areas. Similarly, several new campgrounds with docks for motorboats and paddlers are proposed in areas that are not accessible by trail. Docks would not be removed until the new docks in the vicinity were available for public use.

Quiet/no-wake water zones would be established to reduce noise and wake impacts in numerous areas. Operation of electronic and motorized devices such as stereos, televisions, radios tuned to commercial stations, and portable generators would not be permitted except in developed and open-water motorized zones. Use of marine band radios and other emergency communication devices would be allowed in quiet/no-wake zones if they are used at reasonably low volumes. The use of on-board generators would only be permitted at docks in developed zones and at approximately half of the docks associated with campgrounds on Lake Superior (see table 1). Use of air compressors to fill scuba tanks would be permitted only at designated locations and times; compressor use (either portable or onboard) would not be permitted at any dock outside of the developed zones. Sound insulated facilities would be established in developed zones so that divers could fill scuba tanks using their own portable compressors. To protect the natural quiet and wilderness values sought by most visitors, additional administrative actions would be taken, such as expanding quiet hours and prohibiting on-board generator use in certain sensitive locations or during specific hours.

Because all new campgrounds would lie within designated or potential wilderness areas, no shelters would be constructed. If a structure is needed for resource protection, tent platforms would be constructed rather than shelters.

Park orientation would be provided to visitors at the Houghton, Copper Harbor, and Grand Portage ferry staging areas. On the island, orientation, interpretation, and education programs would be concentrated in developed and frontcountry zones such as Rock Harbor and Windigo, Rock Harbor Lighthouse, and Edisen Fishery. No interpretive media would be placed in backcountry, primitive, or pristine zones.

Most NPS operations at Mott Island, Rock Harbor, and Windigo would not change. Ranger stations at Amygdaloid Island and Malone Bay would remain; some structures would be used to interpret park resources. Because of interest in preserving historic structures at Barnum and Washington Islands, park management would seek partnerships (including use and occupancy arrangements) to maintain the docks and cultural resources. Potential adaptive uses would be considered that would further interpretation,

TABLE 1. CAMPGROUNDS WITH DOCKS

Campgrounds with Docks on Lake Superior (Existing)			**Campgrounds with Docks on Lake Superior (Proposed Action)**		
Dock	**Number of Shelters**	**Onboard Generator Use**	**Dock**	**Number of Shelters**	**Onboard Generator Use**
Windigo	10	yes	Windigo	10	yes
Grace Island	2	yes	Grace Island	2	yes
Beaver Island	3	yes	Beaver Island	3	yes
Todd Harbor	1	yes	Washington Island[1]		no
McCargoe Cove	6	yes	Johns Island	0	no
Birch Island	1	yes	Todd Harbor	1	no
Belle Isle	6	yes	McCargoe Cove[2]	0	yes[3]
Duncan Bay	2	yes	Birch Island	1	no
Duncan Narrows Bay	2	yes	Belle Isle	6	yes
Merritt Lane	1	yes	Crystal Cove[1]		no
Tobin/Rock Harbor	9	yes	Duncan Narrows	2	no
Tookers	2	yes	Merritt Lane	1	no
Three Mile	8	yes	Tobin /Rock Harbor	9	yes
Caribou Island	2	yes	Tookers	2	no
Daisy Farm	16	yes	Caribou Island	2	yes
Moskey Basin	6	yes	Daisy Farm	16	no
Chippewa Harbor	4	yes	Moskey Basin	6	no
Malone Bay	5	yes	Chippewa Harbor	4	no
Siskiwit Bay	2	yes	Malone Bay	5	yes
			Wright Island	0	no
			Hay Bay	0	yes
			Fishermans Home[1]		yes
TOTALS					
Docks	**Number of Shelters**	**Onboard Generator Use**	**Docks**	**Number of Shelters**	**Onboard Generator Use**
20	88	all	22	70 (and 3 with footnote 1)	10 yes 12 no

[1] Adaptive use of historic structures for public accommodations (exact numbers to be determined).

[2] Location to be determined based on wilderness land status of new dock location.

[3] Onboard generators allowed at new dock only.

education, or research programs. One example could be a retreat for creative and innovative conservation study, similar to the artist-in-residence program but directed toward consideration of environmental problems. Results could supplement the park's environmental education program. Maintenance of the sites would be dependent on the establishment of partnerships.

The Edisen Fishery and Rock Harbor Lighthouse would continue to be maintained and interpreted. At Crystal Cove (east end of Amygdaloid Island), Wright Island, and Fishermans Home, which are former commercial fishing sites, the structures and other features would be evaluated for adaptive use. Depending on the outcome of historic structure and cultural landscape inventories for these areas, the park would seek partnerships (including use and occupancy arrangements) to maintain docks and structures. When the Passage Island, Isle Royale, and Rock of Ages Lighthouses are transferred to the National Park Service, partners would be sought to help stabilize, maintain, and interpret them and their surroundings.

Rock Harbor, Windigo, and the Mott Island headquarters and administrative site would be in the **developed zones** and would remain much as they are now, except that overnight accommodations at Rock Harbor would be more rustic, and some services would be reduced or eliminated (see Concessions Services section).

Frontcountry zones would be near developed areas and where there are natural or cultural features of special interest, such as bogs, scenic views, and historic lighthouses. Day use, interpretation, and educational opportunities would be emphasized. To provide maximum access for day users, and to protect sensitive resources, no overnight use would be permitted except in established campgrounds or at designated docks (for example, there would be no overnight use at Raspberry Island or Edisen Fishery). The only new action needed to implement this concept would be to use disturbed areas and historic structures at Barnum Island and the east end of Washington Island for an interpretive and/or research facility. Docks would be available at both islands, and a new campground would be developed at Washington Island if it could be added in a way that would not detract from other uses. Long-term maintenance of these areas could be dependent on funding from private sources/partners.

Five sites would serve as **wilderness portal zones**. These areas would continue to serve as water taxi and secondary ferry stops and would allow for continued access to wilderness areas. To help control numbers of visitors entering the wilderness at these points, pickups and dropoffs could be limited. Actions to implement this concept would include:

- The McCargoe Cove dock would be relocated somewhat closer to the mouth of the cove, and a new boater campground would be added. This would reduce noise and vessel traffic at the head of the cove. The campground at the head of the cove would remain for use by hikers and paddlers.

- The Chippewa Harbor hiking trail access from the campground to the south end of Lake Richie, including the Lake Mason spur, would be retained. The Indian Portage trail between the south end of Lake Richie and the east end of Lake Richie would be eliminated in order to relieve use pressure in the area, separate uses, and protect area archeological resources. A few campsites would be added near the campground at Chippewa Harbor if the need to separate uses in the Chippewa Harbor area continues after the trail closure.

- A new group campsite at Belle Isle would be established.

Most trails would be zoned as **backcountry**, indicating that they can accommodate moderate levels of use and that group use would continue at current levels. Where campgrounds or docks are in sensitive resource areas, potential resource impacts would be mitigated by allowing camping only at docks or by directing use to

specific areas. To provide maximum access for day users and to protect sensitive resources, no overnight use would be permitted at the docks at Passage Island or Hidden Lake (these areas are currently managed for day use only). Actions to implement this concept would include:

• The dock and breakwater at Siskiwit Bay campground would be removed. Removal of these structures would permit separation of uses and allow for the reestablishment of the natural current and distribution of sediment along the shoreline. Campground shelters would be removed.

• A new trail from old McCargoe to new McCargoe campground would be provided to allow hikers and paddlers to be picked up and dropped off by ferry and for boaters to hike from the new campground.

• A new campground with a dock would be developed on Johns Island (upon expiration of the life lease) to provide needed docking and camping opportunities in the Windigo area.

• At Crystal Cove (east end of Amygdaloid Island), Fishermans Home, and Wright Island, the park would seek partners to maintain docks and adaptively use cultural resources. Campgrounds would be provided if resource concerns could be addressed; alternatively, overnight use could be restricted to boat camping at the docks. Campground hosts and tent platforms could reduce camping impacts on archeological sites and historic structures in these areas. Public use of certain historic structures would be considered.

• One or two additional tent sites would be provided at the Merritt Lane campground to improve opportunities for paddlers to camp in that area.

• The public dock at Threemile campground would be removed to help ease use pressure, separate uses, and eliminate the need to maintain a public dock in this very exposed location.

• The dock at Hay Bay would be replaced.

• Following engineering studies park management would consider strengthening the breakwater at Malone Bay.

Some other campgrounds and trails would be **zoned primitive**, indicating that visitors could expect to find fewer people and more primitive campgrounds. These areas would include a portion of the Minong Trail, the Ishpeming Trail (the trail from the Greenstone Ridge to Malone Bay), the Lane Cove trail, the trail from Mount Franklin to Lookout Louise, and the southern portage loop (see map). Off-trail cross-country experiences would continue to be available in the **pristine zones**. Actions to implement this concept would include:

• The dock at Duncan Bay campground would be removed. Shelters would eventually be removed as well.

• The removed segment of the Chippewa Harbor trail (south end of Lake Richie to the east end of Lake Richie) would become part of the pristine zone.

• Commercial kayak trips would be eliminated from the west end of the island between Todd Harbor on the north and Point Houghton on the south. This action would help to prevent the establishment of undesignated campgrounds by repeated use in sensitive resource areas and would help maintain isolated shorelines with outstanding opportunities for solitude.

Numerous Lake Superior bays and harbors would be **zoned quiet/no-wake** to reduce noise and wake effects (see map). If goals for quiet are not met in the quiet/no-wake zone, and substantial compliance with noise regulations cannot be achieved, creation of some nonmotorized areas would be considered through an amendment to the *General Management Plan*.

CONCESSION SERVICES

Rock Harbor

Primary goals of the proposed action at Rock Harbor include making the scale and visual impact of the Rock Harbor development more consistent with the purposes and significance of the park, providing more diversity in the types and prices of accommodations, reducing consumption of resources such as water and electricity, making the Rock Harbor operations as efficient as possible, and ensuring that all facilities are safe and high quality. An additional goal is to eliminate the need for Isle Royale National Park to subsidize the services of the concessioner out of existing base funds at the expense of other park responsibilities such as maintenance of trails, docks, and other facilities, interpretation, backcountry patrols, and basic resource management. Services considered necessary and appropriate in this proposal include lodging, food services, transportation services (such as ferries, water taxis, and guided day trips), sales of basic supplies and emergency items, and visitor and marina services (gas, slip rentals, pumpouts, water taxi, and boat/canoe rentals).

Necessary actions that would be taken to accomplish park goals would include:

• Retain limited restaurant/cafe service, grocery store, showers, marina, docks, gasoline sales, boat/canoe rentals, water taxis, and guided day trips.

• Replace, repair, and/or upgrade utility systems and other concession infrastructure (such as docks) to bring them into compliance with state and federal standards.

• Discontinue dining room, concession laundry, and public laundry (they create a major demand for sewer, water, and electrical service and are staff-intensive to maintain and operate).

•Reconfigure overnight accommodations:

retain housekeeping cabins

add a minimal number of low maintenance, sustainable, rustic accommodations with a separate, common restroom facility (the exact number of units will be determined by a concession economic feasibility study prior to negotiating a new concession contract in 2002; new units will accommodate a maximum of 24 people)

remove or renovate motel units (they require a great deal of water and electricity, have a significant visual impact on Rock Harbor, and are underutilized; see table 6)

The motel buildings at Rock Harbor would be evaluated to determine if:

• the building exteriors could be modified to blend with the surrounding landscape
• the interiors could be modified for a variety of room sizes and types of accommodations
• they could meet accessibility requirements
• goals for energy and water conservation could be met.

A decrease in the number of rooms would be allowed in the final design to recognize the historically low occupancy rate. To serve approximately the same number of people as are now served, accommodations for no more than 80 people would be provided in the shoreline buildings.

Simultaneously, the National Park Service would develop cost estimates for 10 duplex units with occupancy for no more than 80 people.

The options of renovating the buildings or removing them and constructing new units would be evaluated according to:

• exterior aesthetic appearance
• construction/demolition costs
• feasibility of retrofitting existing structures
• economic feasibility for the concessioner
• overall resource impact
• long-term maintenance and operations

If the motel units can be modified and mechanically upgraded to present an archi-

tecturally integrated appearance and meet the other criteria and the cost estimates are less than the estimates for demolition of the motel units and construction of new duplex units, the shoreline buildings may be retained. Including the new rustic units described above, no more than 14 new buildings would be constructed if the motel units are removed. If the shoreline buildings are retained and modified, accommodations and services would include cost and resource saving measures such as low-flow fixtures and minimum maid and linen service. The evaluation of the two options must be completed prior to negotiating a new concessions contract in 2002.

It is not likely that any combination of overnight and food services could continue to be offered without financial subsidy to provide utilities to the concessioner (see Appendix C). This conclusion was based on the *Concession Feasibility Analysis, Isle Royale National Park,* that was prepared for Rock Harbor. The study takes into consideration the high cost of utilities on the island, the short operating season, and the relatively low number of visitors using the concession's overnight accommodations. Without subsidy, the cost of providing lodging and food services could continue to drive prices to a level that few visitors would be willing or able to pay (which already appears to be happening). This could result in the elimination of overnight and food services at Rock Harbor.

The concessioner would have to be subsidized through a congressional appropriation to the park. The subsidy would have to be sufficient to cover capital costs related to backlogged utility and infrastructure upgrades and annual operating costs of supplying utilities to the concessioner in excess of the cost of comparables (the difference between utility costs on the mainland and costs at the park). This subsidy is estimated at a minimum of $2.1 million for the backlogged utility and infrastructure capital improvements and a minimum of $400,000 per year, plus annual consumer price index increases, to stay current. This subsidy would allow a reduction in prices of rooms, meals, and all other goods and services, which would make concessioner services more affordable. If this subsidy was not received, prices would continue to escalate, which would result in services not being affordable for most park visitors.

If the appropriation for a subsidy is received, the concessioner would initially be charged for utility services based on comparable mainland rates. However, utility costs to the park would probably continue to increase over time due to inflation and other factors. If additional funds are not received to pay for these anticipated cost increases, they would be passed on to the concessioner so as not to impact other important park programs.

If a special appropriation is not provided for this subsidy, and overnight and food services cannot be continued at Rock Harbor, lodging and dining on a ship-based operation, such as a small, single-destination commercial tour boat (see Actions Eliminated from Detailed Study), could be reconsidered. The economic feasibility of such an operation would have to be analyzed.

Windigo

- retain all commercial services except the public laundry

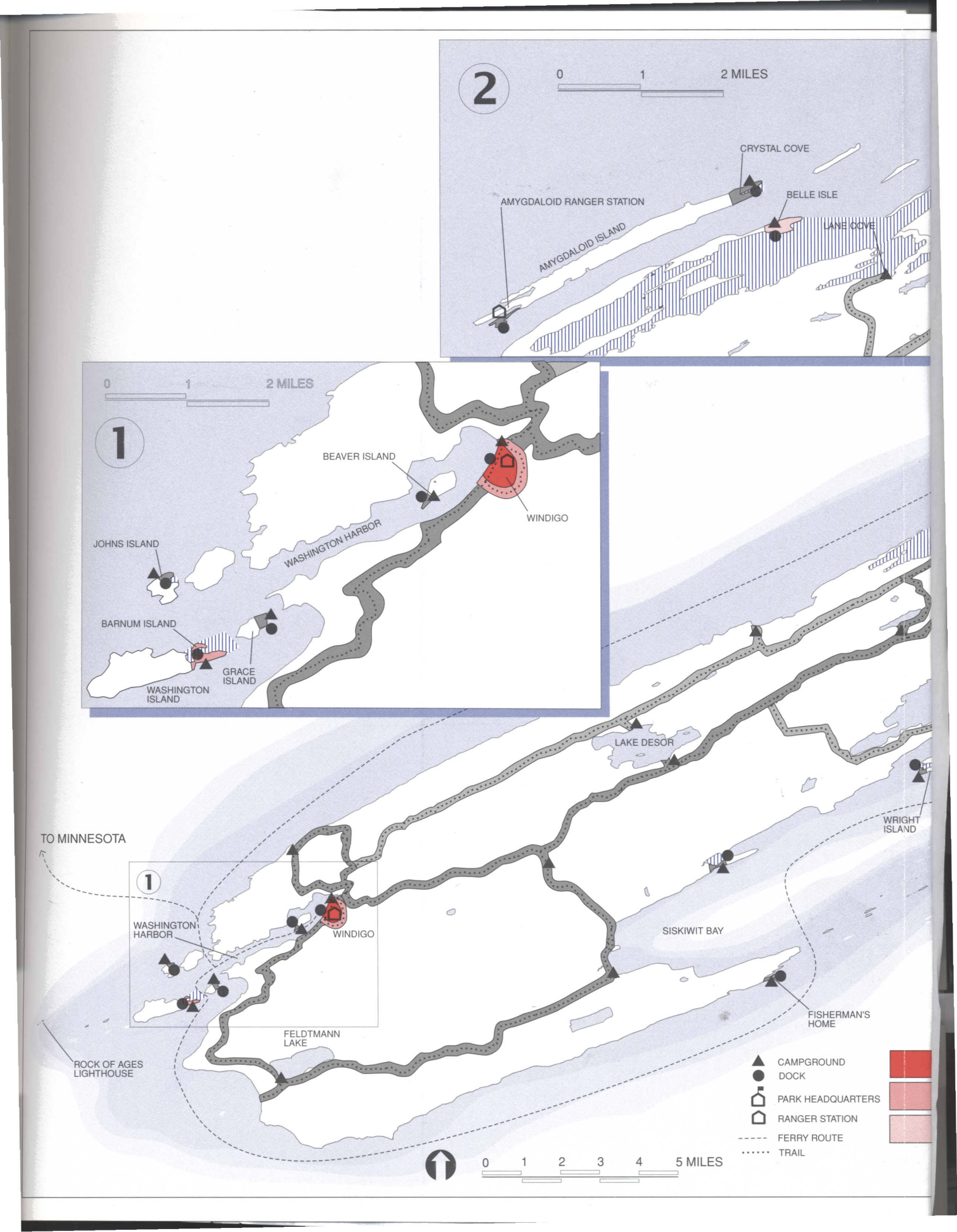
Transportation Services

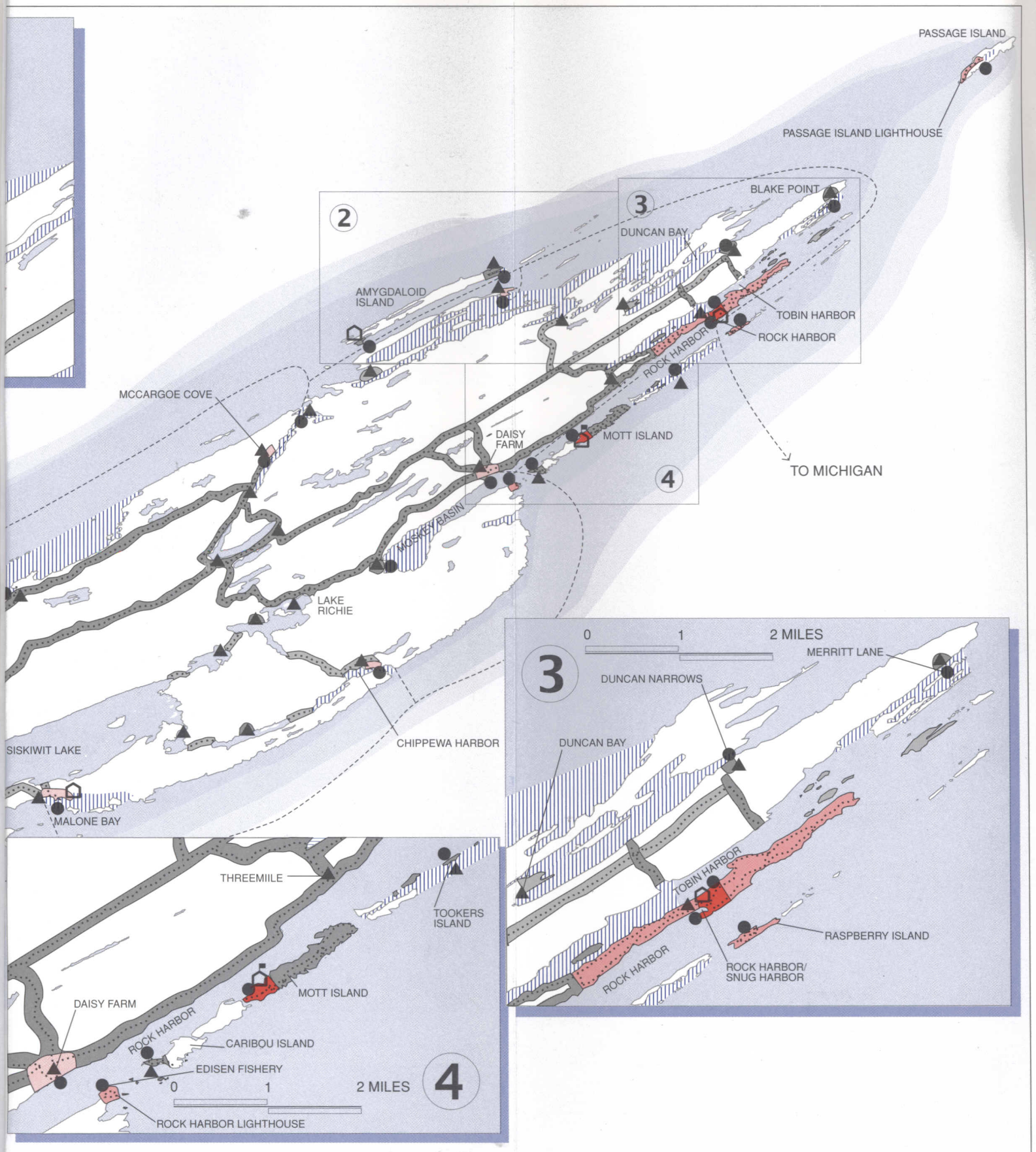
- retain ferry services, including the seaplane and water taxi; no expansion would be allowed

The number of people permitted to disembark or be picked up at specific locations could be limited if necessary to prevent crowding or resource damage. Because dock space is in short supply at peak visitation times, dock use by commercially operated boats such as dive and fishing charters would continue to be restricted as needed to preserve docking opportunities for noncommercial boating visitors.

PLAN IMPLEMENTATION

The proposed action would be implemented over the next 15–20 years in three phases (see Appendix B). Over and above alternative A (no action) costs, proposed action construction costs are estimated at $5,733,000. Additional research, inventory, and monitoring costs are estimated at $2,130,000 (one-time) and $10,000 annually. An additional $400,000 would be needed annually to subsidize the concession at Rock Harbor (see Appendix B for details).


2
0 1 2 MILES
CRYSTAL COVE
BELLE ISLE
AMYGDALOID RANGER STATION
AMYGDALOID ISLAND
LANE COVE
1
0 1 2 MILES
BEAVER ISLAND
WINDIGO
WASHINGTON HARBOR
JOHNS ISLAND
BARNUM ISLAND
GRACE ISLAND
WASHINGTON ISLAND
LAKE DESOR
WRIGHT ISLAND
TO MINNESOTA
1
WASHINGTON HARBOR
WINDIGO
SISKIWIT BAY
FISHERMAN'S HOME
FELDTMANN LAKE
ROCK OF AGES LIGHTHOUSE
CAMPGROUND
DOCK
PARK HEADQUARTERS
RANGER STATION
FERRY ROUTE
TRAIL
0 1 2 3 4 5 MILES



NOTE: WATER ZONES APPLY TO LAKE SUPERIOR ONLY.

PROPOSED ACTION

Isle Royale National Park • Michigan

United States Department of the Interior • National Park Service
DSC • JUL 98 • 139 • 20021B

ALTERNATIVE B

OVERALL CONCEPT

This alternative would separate uses by concentrating facilities and services at the ends of the island and by creating an increasingly primitive wilderness experience toward the middle of the island. Visitors would find a full range of facilities and services and a more structured experience at Rock Harbor and Windigo, the primary access points to the island, which would both require some increased development. A more primitive wilderness experience with quiet and solitude would be found toward the center of the island, where most facilities and amenities would be removed. Limits on the number of visitors there would probably be necessary.

In addition to orientation and interpretation offered at the Houghton headquarters, a broad range of services would be available at both ends of the island. Rock Harbor and Windigo would offer a full range of orientation information and services. No formal interpretation would be provided in the middle of the island.

Some cultural resources in developed and frontcountry zones could be preserved through adaptive use for lodging, interpretation, or operations. Cultural resources toward the middle of the island would be documented and allowed to deteriorate.

Additional staff (and housing) might be needed at Windigo to operate expanded sewer and water treatment facilities. The Amygdaloid Island ranger station would remain, but the Malone Bay station in the middle of the island would be removed.

PARK MANAGEMENT ZONING

Zoning would be used to separate uses and provide the differing degrees of wilderness experience desired by various user groups. The current range of uses would continue, but the experiences would be separated by zones. Hikers, boaters, and paddlers who desire solitude and a primitive wilderness experience would find it in the primitive and pristine zones in the center of the island. A more structured day use experience would be possible in the developed and frontcountry zones at either end. A back-country zone would provide a transition between the two.

All visitors to the island would enter through the two **developed zones** at Rock Harbor and Windigo (see Alternative B map). Some facilities and services would be expanded to accommodate visitors preparing to go into the interior and visitors using the developed areas as a base for day use activities. The increased use in the developed areas would result in increased traffic on trails, which would be maintained to a higher standard. Ferries would serve Rock Harbor and Windigo, and water taxis would serve only the developed and frontcountry zones. Actions to implement this concept in the developed zone would be:

- Retain the marina in Snug Harbor and provide new dock slips (no utilities) in Tobin Harbor and new docks and/or mooring at Windigo. Parkwide actions would result in no net loss in overnight docking. Docks would not be removed until replacements in new areas became operational.

- Provide a greater proportion of lower-cost housekeeping units at Rock Harbor.

- Expand water and sewer treatment capacity at Rock Harbor and Windigo. This would require a new sewage treatment plant and additional staff housing at Windigo.

The **frontcountry zone**, particularly at the east end of the island, would be relatively large to accommodate the anticipated concentration of day use. Frontcountry zones would be located near developed zones and in areas where there

are natural or cultural features of special interest. In the frontcountry zone, day use and interpretation/educational opportunities would be emphasized in nonwilderness areas and a relatively high use level would be expected. Actions to implement this concept would include:

- retaining interpretive facilities at Edisen Fishery, Rock Harbor Lighthouse, and Raspberry Island

- maintaining selected day hike trails to a higher standard for increased use

- converting Daisy Farm to a hiker/paddler campground (convert dock to day use only), which would reserve the campground for those who need another option within a day's travel of Rock Harbor

- considering adaptive use of historic structures on Washington, Barnum, and Passage Islands for rustic lodging for visitors or housing for volunteers or park staff

The **backcountry zone** would provide a transition between the developed and frontcountry zones and the more primitive zones. Day use, higher standard trails, campgrounds, and docks would be appropriate. This zone would offer more opportunities for day users from the developed areas and would disperse hikers into the more remote zones. It would also allow for better access to popular trails and interpretive sites. Some docks would be removed and new campgrounds with docks would be provided, which would serve to separate user groups. Implementation actions would include:

- providing new campgrounds for motorboaters and paddlers at Tobin Harbor (adaptively use docks), on one of the islands on the south side of the Rock Harbor channel, on the south side of Moskey Basin, Crystal Cove, and on Johns Island

- converting Duncan Bay, McCargoe Cove, and Siskiwit Bay to hiker/paddler campgrounds by removing docks

The **primitive zone** would primarily be used to provide more primitive trail corridors through the middle of the island. Most facilities along the trails or in campgrounds at the shoreline would be removed. To enhance solitude, no groups of more than six people would be allowed. The actions to implement this concept would be:

- removing docks at Birch Island, Malone Bay, and Todd Harbor

- providing a new paddler campground at Washington Harbor

- providing a new paddler campground on the Lake Superior shoreline between Duncan Narrows and the mouth of McCargoe Cove

The experience in the **pristine zone** would be the most remote available on the island with the most opportunities for solitude. To enhance the experience there would be virtually no facilities. There would be no docks, but primitive, anchor-out boat camping would be encouraged. The actions to implement this concept would be:

- removing docks at Wright Island, Fishermans Home, and Hay Bay

- allowing structures to decay at Wright Island and Fishermans Home

Quiet/no-wake zone designations were used in this alternative to expand primitive wilderness opportunities for boaters (see the Alternative B map).

The **nonmotorized waters zone** would be used to improve the wilderness character of the adjacent land and provide a better experience for paddlers. This could also protect sensitive resource areas. For the most part, these are not primary motorboat corridors (see the Alternative B map).

CONCESSIONS SERVICES

Subsidies of the concession would continue at the expense of other park programs such as trail and dock maintenance and interpretation. Renovation of the Rock Harbor utility systems would be necessary to bring the systems up to state and federal standards. The concessioner would be assessed an annual utility charge that would be passed on to the public in higher rates for lodging and other services.

Ferries would continue to serve Rock Harbor and Windigo, but there would be no secondary stops toward the center of the island. Water taxi service would be offered only in the developed and front country zones. The seaplane operation would remain unchanged. Given the concept of this alternative, expanded concession facilities would be necessary and appropriate to achieve desired future conditions. Other actions to implement this alternative would include:

- retaining the marina in Snug Harbor and providing new dock slips, without utilities, in Tobin Harbor

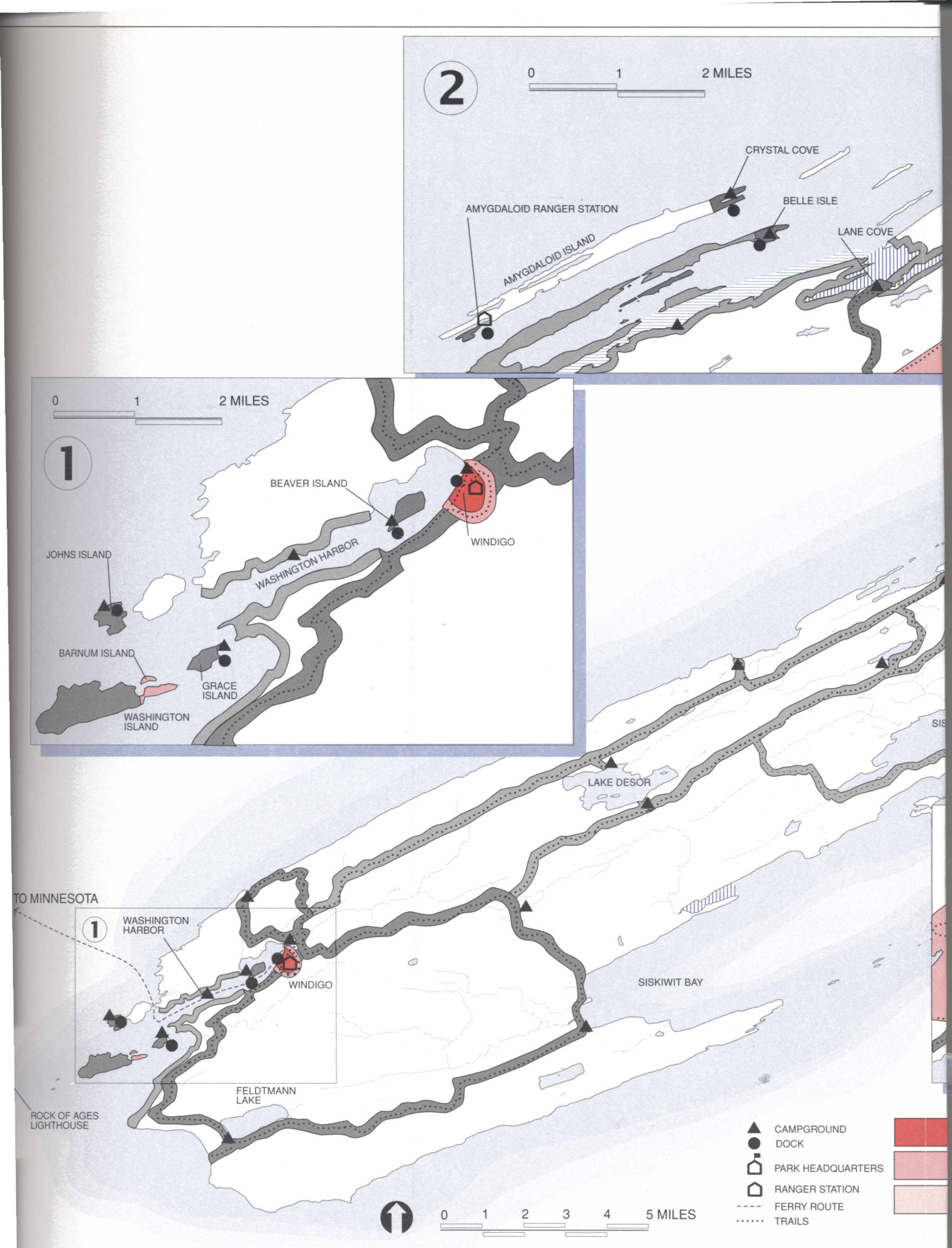
- retaining the motel and adding more housekeeping cabins at Rock Harbor

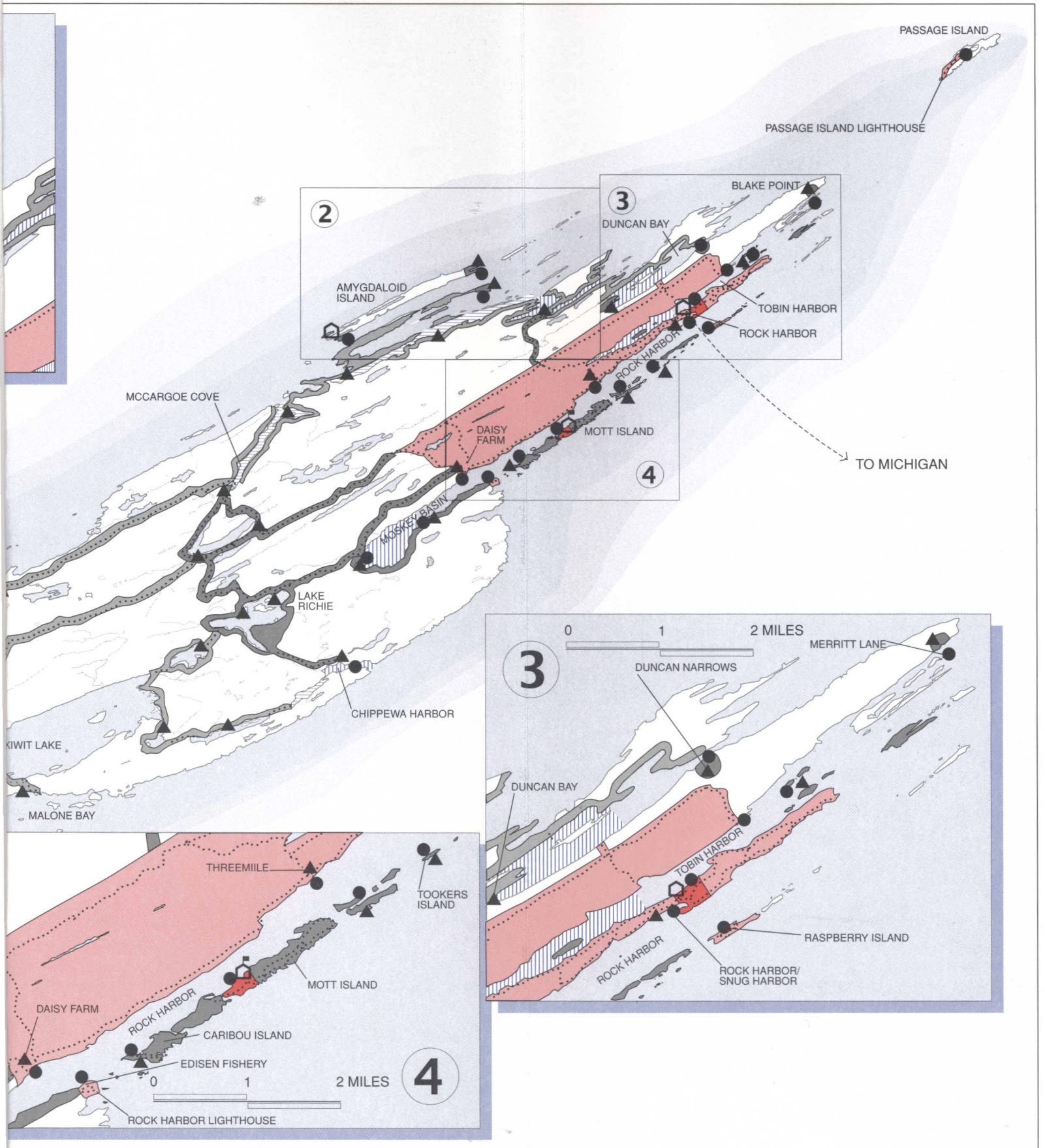
- expanding water and sewer capacity at Rock Harbor and Windigo, which would require a new sewage treatment plant and additional staff housing at Windigo

PLAN IMPLEMENTATION

Phasing for alternative B would be similar to the proposed action. The first phase would include upgrading the utility systems at Rock Harbor and installing campgrounds and rehabilitating or constructing docks. In general, facilities would be added at the ends of the island before facilities toward the middle of the island would be removed. As facilities were removed from the middle of the island, adjacent nonmotorized water zones would be established.

Over and above alternative A (no action) costs, alternative B construction costs are estimated at $16,107,000. Additional research, inventory, and monitoring costs are estimated at $2,130,000 (one-time) and $10,000 annually. See Appendix B for details.


2
0 1 2 MILES
CRYSTAL COVE
BELLE ISLE
LANE COVE
AMYGDALOID RANGER STATION
AMYGDALOID ISLAND
1
0 1 2 MILES
BEAVER ISLAND
WINDIGO
JOHNS ISLAND
WASHINGTON HARBOR
BARNUM ISLAND
GRACE ISLAND
WASHINGTON ISLAND
LAKE DESOR
TO MINNESOTA
1
WASHINGTON HARBOR
WINDIGO
SISKIWIT BAY
FELDTMANN LAKE
ROCK OF AGES LIGHTHOUSE
CAMPGROUND
DOCK
PARK HEADQUARTERS
RANGER STATION
FERRY ROUTE
TRAILS
0 1 2 3 4 5 MILES



DEVELOPED
FRONTCOUNTRY
WILDERNESS PORTAL (none)

BACKCOUNTRY
PRIMITIVE
PRISTINE

OPEN WATER MOTORIZED
QUIET / NO WAKE WATERS
NONMOTORIZED WATERS

NOTE: WATER ZONES APPLY TO LAKE SUPERIOR ONLY.

ALTERNATIVE B

Isle Royale National Park • Michigan

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ALTERNATIVE C

OVERALL CONCEPT

In this alternative, most of the island would be truly primitive. Emphasis would be placed on providing superlative wilderness experiences, solitude, and escape from the intrusions of the modern world. Facilities and development would be scaled back and evidence of management activities would be minimal. Party size would be limited to a maximum of six people for overnight use on the island.

Visitation would be managed through a reservation system. Permits could be issued on a first-come, first-served basis, or a lottery system could be used. Various systems would be carefully evaluated before one was chosen.

Emphasis would be placed on providing orientation and interpretation at the Houghton headquarters and other ferry staging areas. Additional information would be provided in written materials. No interpretive media or formal programs would be offered on the island because they could intrude on the wilderness character.

Ferry service would be provided to Rock Harbor and Windigo only. Water taxi service would be eliminated.

Consistent with the concept of this alternative, all cultural resources would be documented and allowed to decay. No stabilization or preservation of these resources would be attempted. The Coast Guard would continue to maintain navigational aids, and the National Park Service would continue to maintain access to these areas; however, when the lighthouses are turned over to the National Park Service, they would be documented and allowed to decay. Lighthouses could be maintained, however, by the Coast Guard or some other entity.

PARK MANAGEMENT ZONES

Only those facilities necessary for island management and maintenance support would remain on the island. The ranger station and ferry dock would remain at the Windigo developed zone, but staff housing would be reduced. Ranger stations at Amygdaloid Island and Malone Bay would be removed.

Developed zones would be retained only at Rock Harbor and Windigo. All concessions and related facilities would be removed. There would be less need for NPS maintenance and support, so crucial functions would be relocated from Mott Island to Rock Harbor to consolidate operations. Actions necessary to implement this concept would be:

- removing all NPS facilities (headquarters, maintenance, housing) from Mott Island

- moving any absolutely necessary operations functions (such as the fire cache) to Rock Harbor

- removing all concessions (lodging, food service, store, fuel sales, boat rental) from Rock Harbor and Windigo

- removing any unnecessary NPS facilities (including housing) from Rock Harbor and Windigo

The **frontcountry zone** would not be used because more intensive use and structured interpretive experiences are not consistent with the concept of this alternative.

Wilderness portal zones at Rock Harbor and Windigo would serve as staging areas for entry to the wilderness for visitors. To compensate for the elimination of lodging, campgrounds at these sites could be made larger if demand warranted.

Backcountry zones in a few areas would provide day hiking opportunities, moderate use

trails, and camping sites for motorized and nonmotorized users. Removal or relocation of docks and campgrounds would separate and disperse users. Particularly at campgrounds within a day's hike of Rock Harbor, where use would be concentrated, docks would be removed to reduce use pressure. To compensate, docks and campgrounds accessible by motorboat would be added in locations not accessible by trail. With removal of park facilities from Mott Island, additional camping and hiking for motorboaters could be offered. Actions to implement this alternative would include:

• constructing a new dock and a motorboat campground at Wright Island

• adding motorboat campgrounds at Mott Island, the west end of Amygdaloid Island, and at the east end of Washington Island or on Barnum Island

• removing docks at Daisy Farm and Threemile campgrounds

• adding a hiker/paddler campground between Rock Harbor and Scoville Point

Several trails that are difficult to maintain, duplicative, or little used would be eliminated to decrease the need for trail maintenance and increase cross-country hiking and camping opportunities. Most other trails would be in **primitive zones** and managed for low use levels to ensure solitude. Shelters would be removed except where necessary for resource protection. In several areas individual camping sites would be dispersed to increase opportunities to camp out of sight and sound of other users. Actions to implement this concept would include:

• providing dispersed individual campsites at Richie, Intermediate, and Whittlesey Lakes and at McCargoe Cove

• removing the Minong Trail from the Huginnin loop to Hatchet Lake junction, the trail from Malone Bay to Ishpeming Point, the eastern portion of the Chickenbone loop, the trail from Lake Richie to Chippewa Harbor (excluding the portage trail), the western portion of Daisy Farm to Greenstone Ridge loop, and the Greenstone Trail from Mount Franklin to Lookout Louise and Hidden Lake

• removing docks at Todd Harbor, Siskiwit Bay, Birch Island, Malone Bay, Duncan Bay, and Moskey Basin campgrounds to convert to paddler or paddler/hiker campgrounds

• removing Wood Lake and North Lake Desor campgrounds

• removing the dock and campground at Chippewa Harbor

• removing trail and interpretive signs at Raspberry Island and Rock Harbor Lighthouse

In order to increase wilderness experiences for paddlers and to reduce noise in primitive and pristine zones, several bays and coves would be in the **nonmotorized zone** (see Alternative C map).

Low-speed **quiet/no-wake zones** would be designated in many other bays, coves, and harbors, further reducing noise impacts and wake-related disruption of waterfowl nesting areas (see Alternative C map).

CONCESSIONS SERVICES

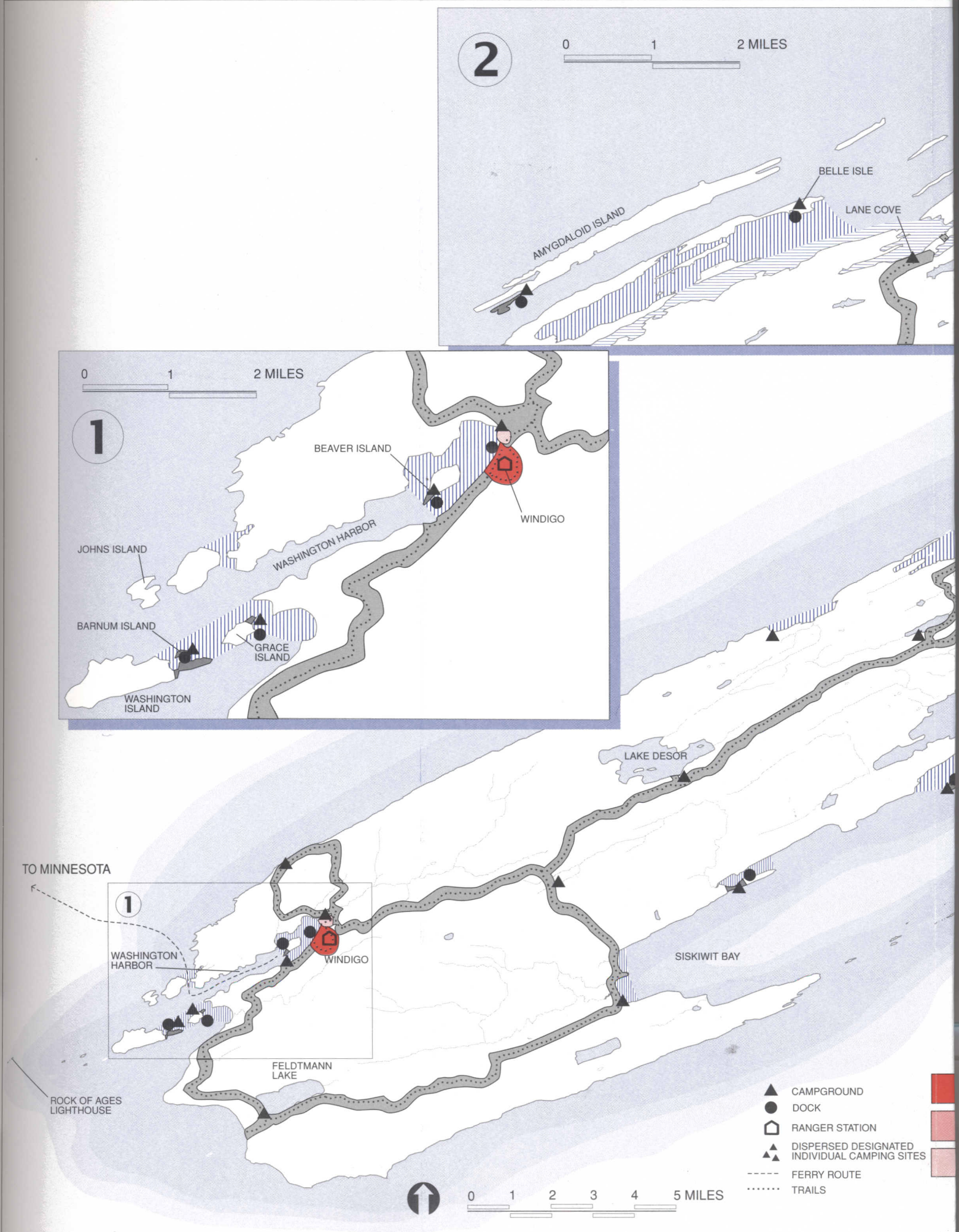
Concessions-operated ferries would serve only Rock Harbor and Windigo. Water taxi service, lodging, food service, the store, fuel sales, and boat rentals would be removed or discontinued. The associated structures would be removed except those needed to support the operational functions that would be relocated to Rock Harbor from Mott Island.

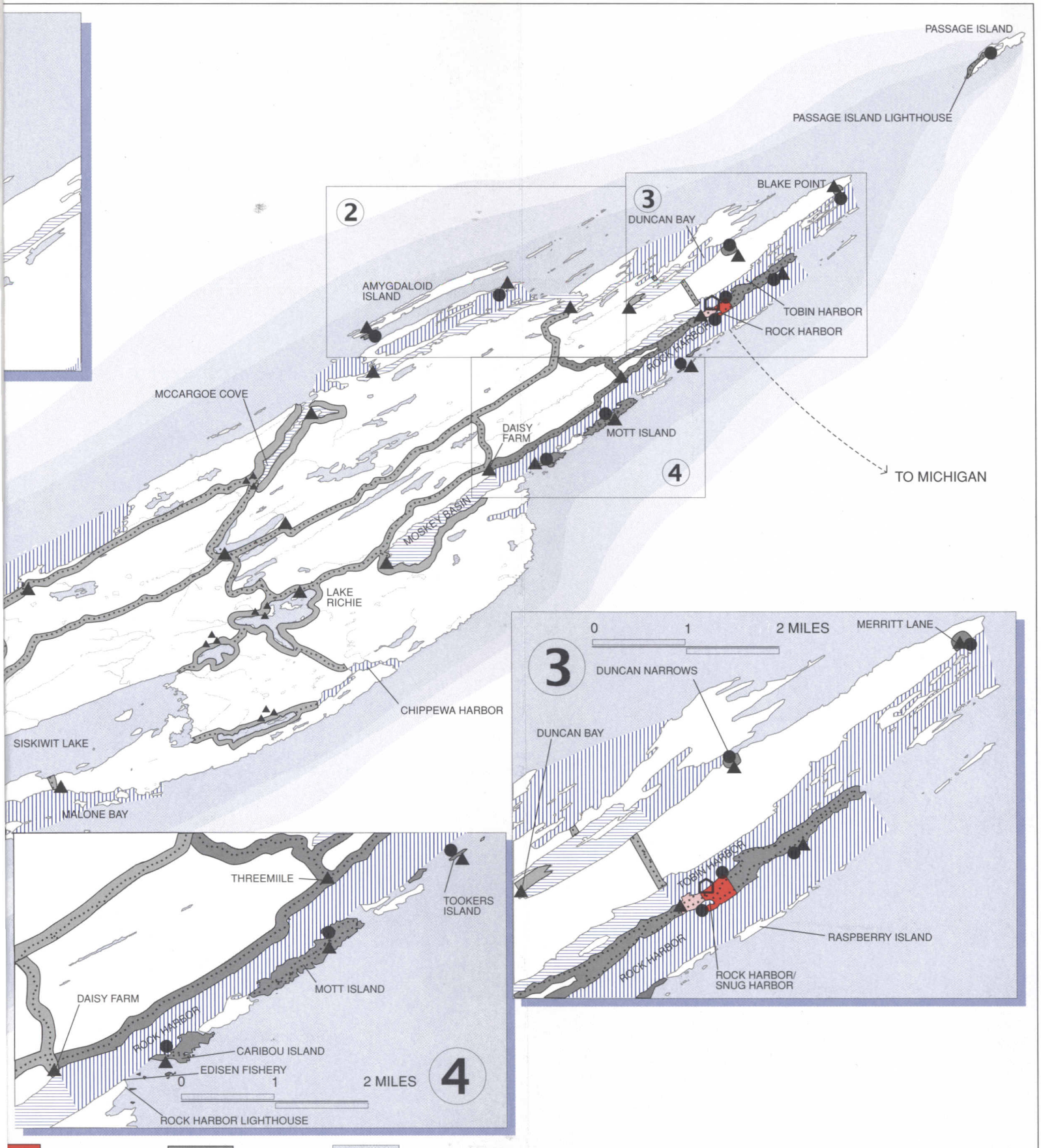
PLAN IMPLEMENTATION

Phasing for alternative C would be similar to the proposed action except that the highest priority would be the removal of concession facilities at Rock Harbor and Windigo. This would eliminate the need for upgrades at Rock Harbor and would allow for removal of housing and other support facilities for the concession.

Docks and trails in poor condition would be removed first. Campgrounds and other facilities would follow before the NPS presence was fully reduced. The facilities at Mott Island would be removed after critical functions were relocated to Rock Harbor. As facilities were removed, adjacent nonmotorized water zones would be established.

Over and above alternative A (no action) costs, alternative C construction costs (which are actually costs for demolition of facilities and removal of materials) are estimated at $13,260,000. Additional research, inventory, and monitoring costs are estimated at $2,130,000 (one-time) and $10,000 annually. See Appendix B for details.


2
0
1
2 MILES
BELLE ISLE
LANE COVE
AMYGDALOID ISLAND
1
0
1
2 MILES
BEAVER ISLAND
WINDIGO
WASHINGTON HARBOR
JOHNS ISLAND
BARNUM ISLAND
GRACE ISLAND
WASHINGTON ISLAND
LAKE DESOR
TO MINNESOTA
1
WASHINGTON HARBOR
WINDIGO
SISKIWIT BAY
FELDTMANN LAKE
ROCK OF AGES LIGHTHOUSE
CAMPGROUND
DOCK
RANGER STATION
DISPERSED DESIGNATED INDIVIDUAL CAMPING SITES
FERRY ROUTE
TRAILS
0
1
2
3
4
5 MILES



NOTE: WATER ZONES APPLY TO LAKE SUPERIOR ONLY.

ALTERNATIVE C

Isle Royale National Park • Michigan

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ALTERNATIVE E

OVERALL CONCEPT

Most facilities would remain and services would continue, but a few changes would be made to better separate uses and increase interpretation. To provide better quality experiences without restricting activities, visitor numbers would be controlled at substantially lower levels than exist now. According to visitor feedback, most congestion and user conflicts take place between late July and late August. Based on preliminary analysis of use levels during these times, visitation would have to be reduced to about 10,000–13,000 people per year in order to avoid most conflicts. This would mean that approximately 5,000–8,000 fewer visitors per year would be accommodated than in recent years.

Visitation to the island would be managed through a reservation system. A limited number of permits could be issued per year on a first-come, first-served basis, or there could be a lottery system or some other method. Various reservation systems would be carefully evaluated before one was chosen.

Interpreted sites would remain, and historic structures at Wright Island, Crystal Cove, and Fishermans Home could be adaptively used for additional interpretation of park cultural themes. Interpretation and environmental education could be provided at the west end of the park at Washington and Barnum Islands. The Rock Harbor and Windigo areas would remain the primary visitor orientation points.

Historic structures and landscapes would be preserved in priority order according to significance. The historic commercial fishery sites at Wright Island, Crystal Cove, and Fishermans Home would be stabilized and adaptive uses would be sought to provide for their continued preservation and interpretation. When the National Park Service receives title to the lighthouses owned by the U.S. Coast Guard (such as Passage Island Lighthouse), partners interested in preserving the structures would be considered.

PARK MANAGEMENT ZONING

NPS operations would remain at Rock Harbor, Mott Island, and Windigo. Ranger stations at Amygdaloid Island and Malone Bay would also remain.

The **developed zones** at Rock Harbor and Windigo would remain as they are. Ferries would continue to serve Rock Harbor, Windigo, and secondary stops such as McCargoe Cove and Malone Bay. Water taxi service to intermediate stops would also continue as demand warranted.

Day hiking and interpretation opportunities would be emphasized in **frontcountry zones**.

The **wilderness portal zones** would include five sites. These areas would continue to serve as secondary ferry stops and would be entryways into the backcountry.

Most trails and campgrounds would be **zoned as backcountry**. Modifications would be made in three backcountry zone areas to help separate motorized and nonmotorized uses at these popular sites. Actions to implement this concept would include:

- relocating the dock to the mouth of McCargoe Cove, where a new boater campground would be added, which would reduce noise and traffic at the head of the cove. The campground at the head of the cove would remain for use by hikers and paddlers.

- relocating hiker campsites away from the dock area at Siskiwit Bay, leaving sites near the dock for motor boaters

• relocating campsites for nonmotorized users at Chippewa Campground further into the cove

Cross-country wilderness experiences would continue to be provided in **pristine zones**.

Consistent with the concept of providing visitors maximum freedom to experience and enjoy the island, there would be no areas **zoned primitive, quiet/no-wake, or nonmotorized waters** in this alternative.

CONCESSIONS SERVICES

Ferries would continue to serve Rock Harbor, Windigo, and secondary stops such as McCargoe Cove and Malone Bay. Water taxi service to intermediate stops would also continue as demand warranted. Concession services at Rock Harbor (motel and housekeeping units, restaurant and snack bar, marina, boat rentals, fuel sales, store) and Windigo (store, boat rentals, fuel sales) would remain.

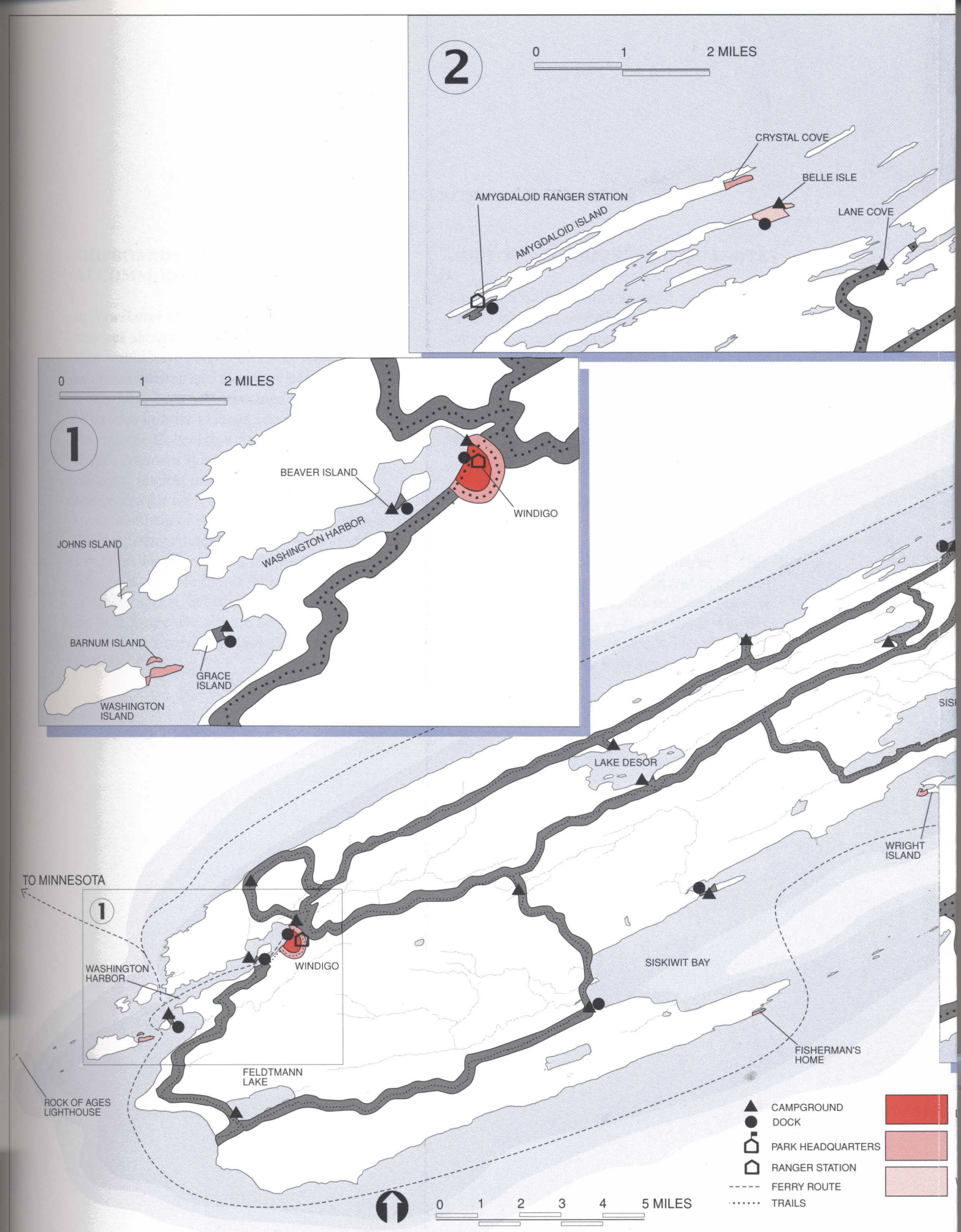
It is not likely that any combination of overnight and food services at Rock Harbor could continue to be offered without financial subsidy to provide utilities to the concessioner (see Appendix C). This conclusion was based on the *Concession Feasibility Analysis, Isle Royale National Park,* that was prepared for Rock Harbor. The study takes into consideration the high cost of utilities on the island and the relatively low number of visitors using the concession's overnight accommodations. Without subsidy, the cost of providing lodging and food services could continue to drive up prices to a level that few visitors would be willing or able to pay (which already appears to be happening). This could result in the elimination of overnight and food services at Rock Harbor.

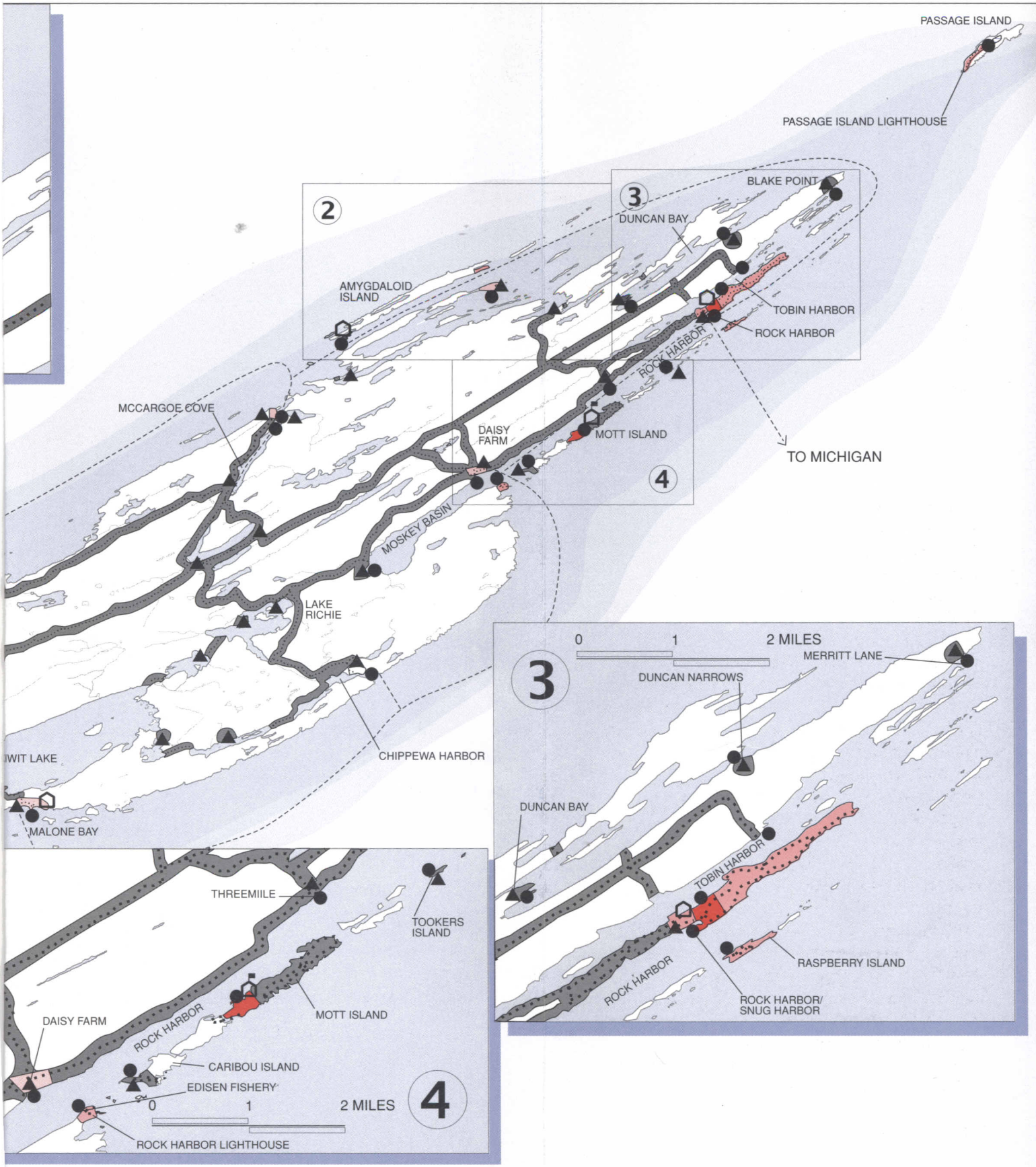
The concessioner would need to be subsidized through a congressional appropriation to the park. It would have to be sufficient to cover both capital costs related to backlogged utility and infrastructure upgrades and annual operating costs of supplying utilities to the concessioner in excess of the cost of comparables (the difference between utility costs on the mainland and costs at the park). This subsidy is estimated at a minimum of $2.1 million for the backlogged utility and infrastructure capital improvement needs and a minimum of $400,000 per year, plus annual consumer price index increases to keep the subsidy current. This subsidy would allow a reduction in costs of rooms, meals, and all other goods and services which would make concessioner services more affordable for the visitor. If this subsidy is not received, costs for the visitor will continue to escalate, resulting in services not being affordable for most park visitors.

PLAN IMPLEMENTATION

Priorities would include limiting use levels through a reservation system and upgrading utilities and infrastructure at Rock Harbor. Other actions would follow.

Over and above alternative A (no action) costs, alternative E construction costs are estimated at $241,800. Additional research, inventory, and monitoring costs are estimated at $2,130,000 (one-time) and $10,000 annually. An additional annual appropriation of approximately $400,000 would be necessary to subsidize the concession operation at Rock Harbor (see Appendix B for details).


2
0 1 2 MILES
CRYSTAL COVE
BELLE ISLE
AMYGDALOID RANGER STATION
AMYGDALOID ISLAND
LANE COVE
1
0 1 2 MILES
BEAVER ISLAND
WINDIGO
WASHINGTON HARBOR
JOHNS ISLAND
BARNUM ISLAND
GRACE ISLAND
WASHINGTON ISLAND
LAKE DESOR
WRIGHT ISLAND
TO MINNESOTA
1
WASHINGTON HARBOR
WINDIGO
SISKIWIT BAY
FISHERMAN'S HOME
FELDTMANN LAKE
ROCK OF AGES LIGHTHOUSE
CAMPGROUND
DOCK
PARK HEADQUARTERS
RANGER STATION
FERRY ROUTE
TRAILS
0 1 2 3 4 5 MILES



EVELOPED — BACKCOUNTRY — OPEN WATER MOTORIZED

RONTCOUNTRY — PRIMITIVE (none) — QUIET NO / WAKE WATERS (none)

ILDERNESS PORTAL — PRISTINE — NONMOTORIZED WATERS (none)

NOTE: WATER ZONES APPLY TO LAKE SUPERIOR ONLY.

ALTERNATIVE E

Isle Royale National Park • Michigan

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ACTIONS ELIMINATED FROM DETAILED STUDY

SHIPBOARD OVERNIGHT ACCOMMODATIONS

In *Newsletter #5* an option to provide concession services aboard a small ship was presented. This ship would have been used for overnight accommodations and food services. The ship would have been self contained and would not have used utilities at Rock Harbor. Initial inquiries through the *Concession Feasibility Analysis, Isle Royale National Park* indicated moderate, if cautious, interest on the part of some cruise companies for such an arrangement. Although some members of the public expressed interest in the idea, others thought that this type of operation would be inappropriate at Isle Royale. The idea remains a possible future fallback option in the proposed action, but it is not considered viable for the near future. Details are available in the *Concession Feasibility Analysis, Isle Royale National Park.*

ADDITIONAL (DISPERSED) CAMPSITES

Construction of additional small campsites was considered but rejected because there were concerns about cumulative effects of additional development. Adding new developments would further fragment available wildlife habitat, undeveloped shorelines, and interior wilderness areas. In general, wildlife would be displaced from the area around any new developments.

ADDITIONAL TRAILS

Early in the planning process the option of creating additional trails was considered. This idea was not included in the alternatives because of concerns about adding to the trail maintenance workload, the need to avoid or bridge wet areas, and wildlife concerns related to introducing and concentrating human activities into new areas of the island.

TABLE 2. CAMPGROUNDS ACCESSIBLE BY BOAT, CANOE OR KAYAK, AND HIKING TRAIL
(boat access ◆ canoe or kayak access ■ hiking access ❍)

CAMPGROUNDS WITH NO CHANGES IN ACCESS PROPOSED

Beaver Island ◆ ■
Belle Isle ◆ ■
Caribou Island ◆ ■
Chickenbone Lake East ❍ ■
Chickenbone Lake West ❍ ■
Duncan Narrows ◆ ■
Feldtmann Lake ❍ ■
Grace Island ◆ ■
Hatchet Lake ❍
Huginnin Cove ❍ ■
Intermediate Lake ■
Island Mine ❍
Lake Desor South ❍
Lake Richie ❍ ■
Lake Richie Canoe ■
Lake Whittlesey ■
Lane Cove ❍ ■
Merritt Lane ◆ ■
Pickerel Cove ■
Rock Harbor ◆ ❍ ■
Tookers Island ◆ ■
Washington Creek ❍ ■

TABLE 2. (CONTINUED) CAMPGROUNDS ACCESSIBLE BY BOAT, CANOE OR KAYAK, AND HIKING TRAIL CAMPGROUNDS WITH CHANGES IN ACCESS PROPOSED (SHADING INDICATES A CHANGE)

Campground	Alternative A	Proposed Action	Alternative B	Alternative C	Alternative E
Birch Island	◆ ■	◆ ■	■	■	◆ ■
Chippewa Harbor	◆ ○ ■	◆ ■	◆ ○ ■	Removed	◆ ○ ■
Daisy Farm	◆ ○ ■	◆ ○ ■	○ ■	○ ■	◆ ○ ■
Duncan Bay	◆ ■	■	■	■	◆ ■
Hay Bay	◆ ■	◆ ■	Removed	◆ ■	◆ ■
Lake Desor North	○	○	○	Removed	○
Little Todd Harbor	○ ■	○ ■	○ ■	■	○ ■
Malone Bay	◆ ○ ■	◆ ○ ■	○ ■	■	◆ ○ ■
McCargoe Cove	◆ ○ ■	○ ■	○ ■	○ ■	○ ■
Moskey Basin	◆ ○ ■	◆ ○ ■	◆ ○ ■	○ ■	◆ ○ ■
Siskiwit Bay	◆ ○ ■	○ ■	○ ■	○ ■	◆ ○ ■
Three Mile	◆ ○ ■	○ ■	◆ ○ ■	○ ■	◆ ○ ■
Todd Harbor	◆ ○ ■	◆ ○ ■	○ ■	○ ■	◆ ○ ■
Wood Lake	■	■	■	Removed	■
New Campground					
Amygdaloid	—	—	—	◆ ■	—
Crystal Cove*	—	◆ ■	◆ ■	—	—
Fishermans Home*	—	◆ ■	—	—	—
McCargoe Cove	—	◆ ■	—	—	◆ ■
Wright Island*	—	◆ ■	—	◆ ■	—
Johns Island	—	◆ ■	◆ ■	—	—
Washington Island*	—	◆ ■	—	◆ ■	—
Scoville Point	—	—	—	■ ○	—
Tobin Harbor	—	—	◆ ■	—	—
Rock Harbor Channel South	—	—	◆ ■	—	—
Moskey Basin South	—	—	◆ ■	—	—
Lake Superior Shoreline North	—		■	—	—
Washington Harbor	—	—	■	—	—
Mott Island	—	—	—	◆ ■	—

*Campgrounds would be provided on land if possible; otherwise boat camping at the dock would be permitted.

TABLE 3. SUMMARY (

	Alternative A (No Action)	Proposed Action
Overall Management Direction	Continue to provide for visitor use and respond to natural and cultural resource management concerns according to policy and legal requirements. Continue interpretive sites and programs.	Emphasize diversity of experiences and natural quiet to improve the quality of visitor experiences. Rock Harbor and Windigo continue as focal points for visitor orientation and visitor services. Continue interpretive sites and programs; expand outreach and environmental education programs.
Resource Management	Maintain, stabilize, document cultural resources or allow them to decay, depending on their eligibility for listing on the national register.	Preserve historic structures and landscapes in priority order according to significance. Stabilize and seek adaptive uses for historic commercial fishing sites.
Visitor Experience / Range of Uses	Allow for a variety of uses, distributed fairly evenly across the island.	Provide for a variety of uses, distributed fairly evenly across the island. Emphasize natural quiet. Add numerous quieter water zones.
Access	Ferries serve Rock Harbor, Windigo, and secondary stops such as McCargoe Cove and Malone Bay. Water taxis serve intermediate stops as demand warrants.	Ferries serve Rock Harbor, Windigo, and secondary stops such as McCargoe Cove and Malone Bay. Water taxis serve intermediate stops with limits as needed.
Use Limits	Few limits on visitor numbers.	Moderate visitor numbers. Limit use in some zones.
Concession Services	Continue concession services at Rock Harbor and Windigo.	Reduce lodging and other services at Rock Harbor.

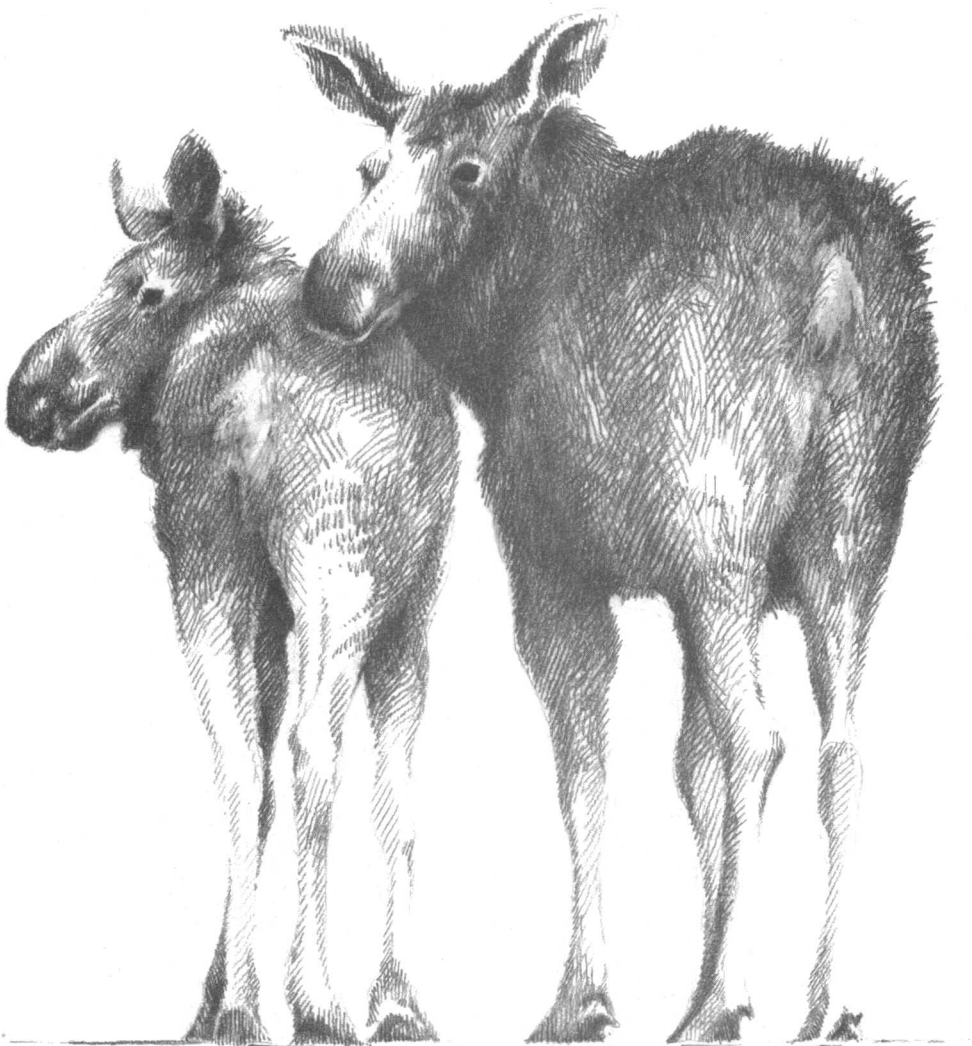
Alternative B	Alternative C
Concentrate facilities and services at the ends of the island and create a primitive wilderness experience toward the middle of the island. Provide a broad range of orientation, interpretation, and other experiences at the ends of island and no services or interpretation in the middle.	Scale back facilities and development to create a more primitive park. Evidence of management activities would be minimal. No interpretive media or formal programs would be offered on the island.
Preserve some cultural resources toward the ends of the island through adaptive use for lodging, interpretation, or operations. Document cultural resources in the middle of the island and allow them to deteriorate.	Document cultural resources and allow them to deteriorate.
Allow for a variety of uses but in different parts of the park. Provide a full range of facilities and services and a more structured experience at Rock Harbor and Windigo and a more primitive wilderness experience with quiet and solitude toward the center of the island, where most facilities and amenities would be removed. Add some quieter water zones.	Allow for a more narrow range of experiences with an emphasis on superlative wilderness, solitude, and escape from the intrusions of the modern world. Limit party size to six people for overnight use. Add some quieter water zones.
Ferries serve Rock Harbor and Windigo only. Water taxis serve only developed and frontcountry zones near ends of island. Ends of island are staging points for entry into wilderness.	Ferries serve Rock Harbor and Windigo only. Water taxi service would be discontinued. Rock Harbor and Windigo would be staging areas for entry to wilderness.
Moderate visitor numbers. Limit use in some zones.	Low visitor numbers. Limit use islandwide.
Expand some facilities and services near Rock Harbor and Windigo for visitors preparing to go into the interior and for visitors using the areas as a base for day use.	Remove all concessions and related facilities.

Alternative E
Manage the park as it is now but control visitor numbers to provide better experiences without restricting activities. Continue interpretive sites and programs; additional interpretation at historic commercial fishing sites possible.
Preserve historic structures and landscapes in priority order according to significance. Stabilize and seek adaptive uses for historic commercial fishing sites.
Provide for a variety of uses distributed fairly evenly across the island. Emphasize maximum freedom to enjoy the island.
Ferries serve Rock Harbor, Windigo, and secondary stops such as McCargoe Cove and Malone Bay. Water taxis serve intermediate stops as demand warrants.
Low visitor numbers. Limit use islandwide.
Continue concession services at Rock Harbor and Windigo.

TABLE 4. SUMMARY

	ALTERNATIVE A	ACTIONS COMMON TO ALL ACTION ALTERNATIVES	PROPOSED ACTION
Natural Resources	Movement of sand and sediment in Siskiwit Bay would continue to be interrupted by the dock and breakwater; unrestricted increases in visitor use could displace wildlife; waterfowl would continue to be disturbed by unrestricted motorboat use. Conversion of 5 potential wilderness areas would be delayed. The risk of environmental harm from a petroleum spill would be low due to spill prevention and response measures.	Inventories, monitoring, and the fisheries and water resources management plans would permit better understanding and management of natural resources.	Displacement or disturbance of wildlife would be minor; managing visitor use would reduce displacement impacts, removing Chippewa trail would have a beneficial effect. Conversion of 7 potential wilderness areas would be delayed. Removal of the Siskiwit dock and breakwater would restore natural processes. The risk of environmental harm from a petroleum spill would be low due to spill prevention and response measures.
Cultural Resources	Historic and archeological sites would continue to deteriorate; lack of surveys would have a negative impact on archeological sites.	Inventories, monitoring, and partnerships would permit better understanding of cultural resources, including shipwrecks. Trail and dock removals would result in less disturbance to archeological resources.	Minor short-term impacts could result from construction and demolition; adaptive use could result in some loss of historic fabric while helping to preserve historic structures.
Visitor Use and Visitor Experience	If use continues to increase, impacts related to noise, crowding, and differing expectations would increase. As facilities deteriorate, potential for safety problems would increase. There would be no loss in flexibility of movement around the island. If all lodging is lost, some visitors would be displaced.	Restrictions on aircraft landings, sightseeing aircraft, and personal watercraft would prevent related noise increases. Limits on visitor use might mean that some people might not be able to visit.	There would be a slight increase in developed shoreline and in activity at some sites, and some areas would be reclaimed. Management of visitation would reduce noise and crowding. Quiet/no-wake zones would reduce noise and improve wilderness values. Visitors would have to be fairly self-sufficient in some isolated areas. There would some reduction in speed of boat travel around the island. If all lodging is lost, some visitors could be displaced.
Socioeconomic Environment	No significant changes in overall social or economic conditions.	None.	If changes to concessions resulted in fewer visitors to the island, small negative effects could occur in gateway communities.
Park Operations	Decisions would continue to be made on a case-by-case basis; growth in visitation would continue to increase the maintenance workload.	Partnerships for cultural resource protection and maintenance would benefit park resources but would also increase the operational workload.	The maintenance and operational workload at Rock Harbor would be reduced. New facilities would increase maintenance, and managing visitor use would increase the operational load.

ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE E
Disturbance of wildlife would increase at the ends of the island and decrease near the middle. Wolves could be displaced from several areas. Decreased use would reduce impacts, as would zoning. Conversion of 6 potential wilderness areas would be delayed. Removal of the Siskiwit dock and breakwater would restore natural processes. The risk of environmental harm from a petroleum spill would be low due to spill prevention and response measures.	Disturbance of wildlife would be reduced by lower visitation levels, fewer facilities, and by zoning. More habitat would be available for wolves, peregrines, and eagles. All 18 potential wilderness areas would be converted. Removal of the Siskiwit dock and breakwater would restore natural processes. The risk of appreciable environmental harm from a petroleum spill would be low due to spill prevention and response measures and fewer boats.	Reduced visitation would reduce impacts on wildlife; waterfowl would continue to be disturbed by unrestricted motorboat use. Minor displacement could result from construction. There would be a delay in the designation of 7 potential wilderness areas. The artificial dock and breakwater would remain at Siskiwit Bay, interrupting the flow of sand and sediment. The risk of environmental harm from a petroleum spill would be low due to spill prevention and response measures.
Development and increased visitor use at the ends of the island would impact archeological sites. Adaptive use would help to protect some historic resources; others would be allowed to decay.	Construction and demolition could damage archeological resources, but reduced visitation would minimize long-term damage. Historic resources and cultural landscapes would be lost.	Relocations and construction could impact archeological resources. Reduction in visitation would reduce impacts. Adaptive use would help to preserve structures, but some historic fabric would be lost.
The ends of the island would appear more developed and would be noisier than now, but the middle would be more natural and quieter. Day use visitors would probably not have a wilderness experience. The range of uses would not change, but use limits would be necessary. Visitors would have to be self-reliant in some isolated areas, and there would be some reduction in flexibility of movement.	Visual quality would be greatly improved with the removal of facilities. Solitude and primitiveness would be enhanced. Noise would be reduced. The range of uses would be reduced and people with disabilities, the elderly, and those who do not camp or hike would be affected. There would be a significant loss of flexibility of movement around the island. Visitors would have to be self-reliant islandwide.	Developed shoreline would increase. Crowding would be reduced, but noise in some areas would not. Separating uses would reduce noise impacts in some areas. The range of uses would not change. Use levels would not be managed by zoning, but significant reductions in visitation would be made. There would be no loss in flexibility of movement around the island. If all lodging is lost, some visitors could be displaced.
No significant changes in overall social or economic conditions would be expected.	Because of reduced visitation, small negative effects would occur in gateway communities.	No significant changes in overall social or economic conditions would be expected.
Park funding would continue to be diverted to support concessions at Rock Harbor. Maintenance would increase at Rock Harbor, Windigo, Tobin Harbor. Emergency response times would be slowed. Management of visitor use would increase the workload.	Initial costs would be high, but over the long-term expenses would be greatly reduced. Management of a reservation system would increase the workload. Maintenance, emergency response, and logistics would be difficult. More emphasis would be placed on natural resource management.	The reservation system would increase the workload as would interpretive services. Fee revenue and *Ranger III* income would be reduced.



Affected Environment

NATURAL RESOURCES

Isle Royale National Park is a forested archipelago surrounded by the cold, deep waters of Lake Superior. The land base is comprised of one large island surrounded by several hundred smaller islands. Boreal and northern hardwood forests dominate the landscape cover. Over 75% of the park acreage is water and includes Lake Superior and many lakes, ponds, bogs, marshes, and streams.

SPECIAL DESIGNATIONS

Wilderness

Public Law 94-567, approved October 26, 1976, designated 131,880 acres of the land base of Isle Royale as wilderness. An additional 231 acres were designated as potential wilderness. Thus, some 99% of the land base is designated as wilderness. This law requires Isle Royale National Park to manage the land in designated wilderness in accordance with the provisions of the Wilderness Act of 1964 (PL 88-577).

The Wilderness Act defined wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." The law further defined wilderness as an area "of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural condition and which . . . generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; . . . has outstanding opportunities for solitude or a primitive and unconfined type of recreation."

These definitions of wilderness have considerable implications for management in NPS units. Most notable is the following from NPS *Management Policies* (chapter 6:3): "Within a designated wilderness area, the preservation of wilderness character and resources while providing for appropriate use is the primary management responsibility (other than activities related to the saving of human life)." For Isle Royale, this wilderness preservation mandate applies to all the designated wilderness. NPS policy stipulates that land currently under potential wilderness designation is to be managed as wilderness.

U. S. Biosphere Reserve

Isle Royale was formally designated as a U.S. biosphere reserve in 1980 through the Man and the Biosphere Programme (MAB) of the United Nations Educational, Scientific, and Cultural Organization. This program is an international effort to protect examples of major ecosystems that provide a baseline of conditions against which human impact can be assessed. Isle Royale is one of almost 50 U.S. reserves, a majority of which are found in NPS units. Isle Royale is in the lake systems biome.

The biosphere reserve model includes a protected core zone where natural ecosystem function is largely protected and intact, a buffer zone surrounding the core in which some landscape manipulation occurs, and an intensively manipulated zone surrounding the buffer zone in which there is considerable development and economic activity. Isle Royale's participation in the MAB program has been limited, largely because only one of the three zones is represented — the protected core area.

Nonetheless, the value of Isle Royale as an ecosystem baseline to monitor natural systems and human impacts has been recognized and documented, thus fulfilling some of the objectives of the MAB program. There are several long-term ecological monitoring efforts underway in the park, and the first widespread recognition of the role of atmospheric transport of contaminants into the natural environment arose from research at Isle Royale.

There are ongoing efforts in the broader Lake Superior basin to extend the biosphere reserve concept to include all or part of Lake Superior. Isle Royale would serve an integral role in such a reserve as a core protected area within a broader managed landscape.

VEGETATION

Approximately 700 species of vascular plants are found at Isle Royale (Slavick and Janke 1993), of which slightly over 100 species (15%) are nonnative (Judziewicz 1995a). Most park land is covered by a continuous forest, broken only by marshlands or open bedrock ridges of brush and grass. Preliminary information from an ongoing vegetation mapping project has identified at least 30 different vegetation alliances on the island. Many examples of forest succession are evident on the island following fire, insect outbreaks, windthrow, and browsing as well as along shorelines.

Two major forest biomes are represented on the island (Linn 1966) — the boreal coniferous forest and the northern hardwoods forest. Lake Superior strongly influences the island climate; this influence in turn largely determines the forest vegetation patterns on the island. The cold Lake Superior water surrounding Isle Royale both cools and moistens the shorelines. Farther inland and upland this influence wanes, and drier, warmer conditions prevail. These two climates have produced two forest types — the boreal forest nearer the shoreline and the northern hardwoods of the interior uplands. Elements of each type are found across the island, but because the east end is narrow (averaging only 3–5 miles wide) and has shallow soils, the boreal forest is widespread there. On the west end, where the island is about 8 miles wide and soils are deeper, the northern hardwoods forest associated with drier, warmer conditions is more widespread.

The boreal forest includes balsam fir, white spruce, white birch, and aspen; mountain ash is also present, but less common. Common understory species are thimbleberry, large-leaved aster, and Canada dogwood.

The northern hardwoods forest, found in the interior uplands, is typified by the sugar maple-yellow birch forest. The large sugar maple forest centered on Greenstone Ridge on the west end is perhaps the largest tract of undisturbed and unaltered forest on Isle Royale. Northern red oak also is found on dry hillsides. Under the sugar maple overstory a dense undergrowth of sugar maple seedlings has developed. Herbaceous species include trillium, yellow clintonia, and twisted stalk.

Other significant forest types include jack pine stands, typically found on dry, open ridges and bluffs with a past history of fire. White and red pine also are found but generally as individuals or in small patches, often along ridges or lake shorelines.

Wetland environments (beaver ponds, bogs, swamps, and marshes) are common on the island and are characterized by specialized vegetation. The ridge/valley topography has created swamp environments in most of the valleys. Beaver ponds can cause standing dead forests, but swamps that have developed without the beaver influence typically include white cedar or black spruce. Tamarack, once more widespread, is restricted today to scattered individuals in some swamps. Speckled alder is common in swamps as well.

There are two major bog types on the island. Sphagnous bogs are dominated by the sedge *Carex limosa*, have little or no drainage, and have sphagnum moss, labrador tea, black spruce, and tamarack as common species. Cyperaceous bogs are dominated by the sedge *Carex lasiocarpa*, often have an active water outlet, have less Labrador tea and sphagnum cover, and have tamarack and white cedar as overstory.

Rare Species — Vegetation

There are no federally listed threatened or endangered plants at Isle Royale, although there are two species of concern, the auricled twayblade (*Listera auriculata*) and the ram's head lady slipper (*Cypripedium arietinum*) (USDI 1996).

Over 60 species of plants on the state of Michigan rare species list occur at Isle Royale (State of Michigan 1992). Locations of 102 rare plant species were documented on the island Judziewicz (1995b), all of which are (1) on the state list, and/or (2) are new findings in the state, and/or (3) are more common regionally but are known to be very rare on Isle Royale. Many of these species are found in the narrow, specialized rock shoreline habitat along Lake Superior.

Arctic-Alpine and Western Disjunct Species

Several plant species found on Isle Royale are far removed from their present range; they are believed to have arrived on Isle Royale during post-glacial times and have survived along the cool, moist rock shorelines (Slavick and Janke 1993). Many of these species are on the state of Michigan rare species list. Perhaps the most visible of these species is thimbleberry, which is widespread throughout the island; most notable is devil's club, not found elsewhere east of its native range in western Montana.

AIR QUALITY

The Clean Air Act (1977) designated Isle Royale as a class I airshed, which provides for the highest level of protection of air quality. Air quality remains a long-standing concern, as the health of this resource is so intimately linked to the other resources of the park.

Monitoring of some air quality conditions in the park was conducted beginning in the late 1980s, but lack of funding has caused the elimination of most of that effort. Some baseline information exists for visibility monitoring and gaseous pollutants.

In 1991–92 visibility monitoring equipment operating in the park identified industrial sources of visible pollutants in the viewshed toward Thunder Bay, Ontario. The direct impact to park resources from these pollutants is unknown. Park staff have documented pulp and paper mill odors reaching the park from Thunder Bay, Ontario; on average, these odors reach the park 20% of the time during the visitor season.

The park continues to operate an acid deposition monitoring station to document trends. Acid deposition is not believed to be causing problems at this time.

Of greatest concern to the park are aerially transported toxic contaminants. Some of these contaminants include mercury, organochlorines, herbicides, and elemental sulfur and zinc. In 1993 lake trout in Siskiwit Bay exceeded the state consumption advisory for total chlordane, toxaphene, total PCBs, mercury, and total DDT (MDNR 1994a). The resurgence of bald eagle and osprey nesting in the park and the dramatic increase of double-crested cormorants are linked in part to lower levels of PCBs than in previous decades, but the effects of contaminants on the plant and animal life of Isle Royale remains largely unknown.

WATER RESOURCES

Aquatic habitats account for more than 75% of the total park acreage, and cover a wide spectrum ranging from the deep, cold waters of Lake Superior to the inland lakes, streams, beaver ponds, marshes, and bogs of the island. The diversity of aquatic plant and animal life is tied to the health of the total park ecosystem, but (as with most other park resources) understanding and documentation remains sketchy. The park has no water resources management plan to guide the management or monitoring of this resource.

Water Quality

There has been limited water quality monitoring of the Lake Superior waters in the park; indirect monitoring, such as by analyzing contaminant levels in fish, indicates that contaminant levels remain a key concern. Mercury levels in common loons have been documented since the early 1990s (Evers, et al. 1996). Isle Royale loons in general exhibit lower levels of mercury than loons in most other parts of the country (particularly juvenile loons).

Knowledge of water quality in the inland waters is similarly limited, although recent and ongoing projects are providing more information. A companion effort to the 1995–97 inland lakes fishery inventory was the documentation of the baseline physical/chemical water conditions for the 32 lakes with sportfish.

Toxic contaminant levels in the inland lakes are a serious concern. Fish monitored in 1992–94 did not exceed the state of Michigan consumption advisory levels, but six of the 32 lakes sampled in the 1995–96 inland lakes fishery inventory included fish that exceeded the advisory level.

Water quality can be affected by oil and fuel discharges from boats. Sewage treatment capacity could become a problem if visitation increases. Also of concern are inadequate human waste disposal methods in the backcountry and on the water from boaters with inadequate means of disposal.

Floodplains

There has never been a formal determination of the floodplains on Isle Royale. In general, the short, low gradient streams on Isle Royale pose few flooding concerns, and the only facilities and developments believed to be near these streams are campgrounds. Occasionally a beaver dam washout causes flash flooding in a stream segment. Of greater concern has been the rising and falling levels of Lake Superior, which have created concerns about erosion near park developments.

Wetlands

There are a variety of wetland habitats, including bogs, swamps, beaver ponds, streams, and lakes ranging from a few acres to the almost 4,000-acre Siskiwit Lake. The U.S. Fish and Wildlife Service mapped these wetlands (using aerial photography) as part of the National Wetlands Inventory Program, and those maps are being incorporated into the park's geographic information system.

WILDLIFE

Mammals

The mammals of Isle Royale reflect the influence of an island ecosystem largely isolated from the continental mainland. Currently 14 mammal species are found on Isle Royale; the status of at least three additional species is largely unknown (the pine marten may be back on Isle Royale in very limited numbers). Many species common on the mainland, only 20–25 miles west, are not found on Isle Royale because they cannot swim across Lake Superior, do not cross on the occasional winter ice cover, or have not been introduced to the island by people. Several species have disappeared since post-European humans arrived on the island — most notably the caribou, coyote, and the lynx. At least two other species arrived on Isle Royale in the 20th century — the timber wolf and the moose.

This limited number of mammal species gives credence to a classic island biogeography theory (MacArthur and Wilson 1967), which argues that the number and diversity of species on islands is less than on mainland areas because island species are dependent on distance from the mainland and the size of the island. Mammal colonizations of Isle Royale are by chance dispersal; natural extinction is always a possibility.

Two species that have profoundly influenced the island ecology in the 1900s are the timber wolf and the moose. Moose arrived in the early 1900s and with no significant predator to influence population growth, quickly reached population levels that outstripped the natural carrying capacity. After a significant population crash in 1934, the moose population slowly began to increase again. The arrival of wolves in the late 1940s brought a stabilizing influence to the moose population. Moose have had a profound impact on vegetation, almost completely eliminating some species, such as Canada yew, and over browsing other species, such as aspen, mountain ash, willow, birch, and balsam fir. These impacts ripple throughout the ecosystem and even extend to an alteration of the natural fire cycle, as the more flammable Canada yew has been replaced by the less flammable thimbleberry.

The wolf and moose populations have been the subject of perhaps the longest running predator-prey research and monitoring program in the world. Initiated in 1958 by Durward Allen of Purdue University and continued since the mid-1970s by Dr. Rolf Peterson of Michigan Technological University and the National Park Service, the 40th annual monitoring program will be completed in the winter of 1998. Much of what is known about wolves in the natural setting, free of human harassment, comes from the Isle Royale studies (Mech 1966, Peterson 1977, 1994).

Other mammals on the island include the red fox, snowshoe hare, mink, short-tailed weasel, beaver, deer mouse, and red squirrel. Three known bat species are found (little brown myotis, Keen's myotis, and the big brown bat myotis). A less common species is the muskrat.
The river otter has increased substantially in numbers in the 1990s, which is probably closely related to the upswing in herring populations around the island.

Birds

Less affected by the isolation of Isle Royale are the avian species, which mirror those found on the mainland (with the exception of the ruffed grouse and spruce grouse, which cannot manage the long flight across Lake Superior). Park staff have increased the effort in the 1990s to monitor bird populations in the park; at present the park is actively monitoring bald eagle and osprey reproduction, forest songbird populations, common loon reproduction, and colonial waterbird populations. Here again, with the unaltered habitats that the island offers, the park can play a role in providing avian population information for comparison to the more altered ecosystems on the mainland.

Bald eagle and osprey populations continue to rise. Following the devastating effects of pesticides, which eliminated nesting of these species in the 1960s and 1970s on Isle Royale, both species began nesting in the park in the early 1980s. As of 1997 there were nine successful bald eagle nests and four successful osprey nests (National Park Service 1997a).

Forest songbird monitoring began in 1994; the most common include the white-throated sparrow, Nashville warbler, ovenbird, and the red-eyed vireo. In 1997, 58 species were recorded during the monitoring program (National Park Service 1997b).

Isle Royale has the only known common loon nesting activity on Lake Superior. Annual monitoring of chick production has been ongoing since 1990 for both Lake Superior and the inland lakes. The population appears to be stable, and research aimed at understanding the ecology of loons and the effects of mercury bioaccumulation in loons across the country includes data from the Isle Royale population (Evers, et al. 1996).

The colonial waterbird (great blue heron, double-crested cormorant, herring gull, and ring-billed gull) populations on the island appear healthy. Isle Royale has also witnessed the explosive growth experienced by the cormorant population

since the late 1980s and has been seen throughout the Midwest.

Fifty peregrine falcon young were released in the park over a five-year period beginning in 1987, primarily along the Feldtmann Ridge. Although occasional sightings are made of individual birds in the park, no nesting has occurred.

Herpetofauna

Little is known about the reptiles and amphibians of Isle Royale. Park staff began basic frog monitoring surveys in 1996 on the east end of the island, but no systematic work has been done since the mid-1960s. A long-term research effort focused on chorus frog tadpole populations has been ongoing for nearly 20 years, but that project is limited to the northeast end of the island.

There are three reptile (western painted turtle, red-bellied snake, and garter snake) and seven amphibian (blue-spotted salamander, American toad, spring peeper, chorus frog, green frog, mink frog, wood frog) species known on Isle Royale. The status of one other reptile (black rat snake) and two other amphibian (red-spotted newt and mudpuppy) species is in question.

The alarming decline in amphibian populations worldwide and concerns about amphibian deformities illustrate the need for good herpetofauna population information.

Fish

The diverse fishery of the Lake Superior and inland waters of Isle Royale represent the most nationally significant natural resources in the park. The lake trout is recognized as the best example of a rehabilitated lake trout population in Lake Superior. They are the most genetically diverse population in the lake. The coaster brook trout population, considered to be extremely rare, is the only known reproducing population in U.S. waters. Herring populations have rebounded in the park as they have elsewhere, enabling predators such as otters, eagles, osprey, common loons, and cormorants to improve. The fishery provides an outstanding opportunity for recreational fishing for many park visitors.

Jurisdiction over the fishery in Isle Royale is split; the state of Michigan manages and sets regulations for the Lake Superior fishery, and the National Park Service manages the inland lakes.

Much of the information on the Lake Superior fishery is focused on the lake trout. Information from the Sivertson commercial fishery on Washington Island, the Edisen Fishery in the Rock Harbor channel, the more than 30 years of net surveys by the Ashland Biological Station, and limited creel information indicates a generally healthy lake trout population. Park staff are actively working with the professional fishery managers in the Lake Superior basin to gather more information.

A regional cooperative effort involving the National Park Service, the U.S. Fish and Wildlife Service, several tribal agencies, and the states of Minnesota, Michigan, and Wisconsin is increasing knowledge of the rare coaster brook trout. A project to create a broodstock based on the Isle Royale coaster populations started in 1995. However, there remain serious concerns about the future of the Isle Royale coaster populations, and ongoing efforts will focus on acquiring more information on the park's populations.

Information on the status of the other fisheries in Lake Superior is much less extensive. Other fish species include herring, whitefish, suckers, sturgeon, northern pike, walleye, and yellow perch.

An intensive fishery inventory of the inland lakes was conducted from 1995–97. This information provides the first comprehensive update of the inland lakes fishery resource since the 1920s and will enable park management to assess the adequacy of the catch regulations. The project serves as an important baseline for the fishery and limnological resources in the inland lakes and

includes data on mercury levels in the fish. Most recreational fishing of the inland waters focuses on northern pike, walleye, brook trout, and lake trout.

Threatened and Endangered Species

Those animal species currently federally listed as threatened or endangered include the eastern timber wolf, *Canis lupus* (endangered), bald eagle, *Haliaeetus leucocephalus* (threatened), and the peregrine falcon, *Falco perigrinus* (endangered). Lynx (*Felis lynx)* have not bred in the park since the 1930s. Any that may exist in the park are probably transient.

Several other species are on the "Michigan's Special Animals" list (State of Michigan 1994b). The list is included as Appendix D.

Others

There have been no comprehensive surveys of insects, snails, or mussels on Isle Royale.

PHYSIOGRAPHY

Isle Royale National Park lies in the Superior Upland physical province (Shetron and Stottlemyer 1991). Elevation ranges from 600 feet at Lake Superior to almost 1,400 feet along Greenstone Ridge. The physiography of the park is a product of glaciation modified by bedrock. The dominant features across the landscape are the ridge and valley topography with variable thicknesses of glacial drift deposits left from the last retreat of the continental glaciers about 10,000 years ago. There are many lakes and ponds, and vast areas of swamps cover depressions in the landscape. Numerous low-gradient stream systems drain the interior of the island into Lake Superior.

Surficial deposits of glacial debris cover the island, ranging in thickness from over 5 feet near Lake Desor to less than 2 feet near the northeastern end of the island. Bedrock outcrops are common across the island.

Two major ridges parallel the long axis of the island, the Minong and Greenstone Ridges. Both ridges have steep escarpments with elevational differences of several hundred feet.

GEOLOGY

Precambrian rock layers over one billion years old, the result of successive volcanism, sedimentation, uplift, and erosion, form the Isle Royale archipelago. The bedrock sequence on the island consists of thick layers of lava and sedimentary rocks that have been tilted toward the southeast, and the linear ridges of the island are the eroded edges of individual layers of the sequence (Huber 1975). Significant minerals found in the park include copper, greenstones, datolite, and agates.

Keweenawan volcanics dominate the geology of Isle Royale, with interbedded sediments exposed in the upwarping of the deposits that tilt toward the southeast and mirror the formations in the Keweenaw Peninsula that tilt toward the northwest (Clark 1995). Sedimentary deposits lie on the southwestern end of the island that have corresponding features on the south shore of Lake Superior as sandstones and conglomerates. Cutting across these beds are many transverse faults.

Glacial activity is visible throughout the island and includes abrasions on bedrock, quarrying of rocks by plucking, striations across the bedrock, deposits of glacial till (such as at the west end of Siskiwit Lake), and landscape features such as drumlins and moraines. Former lake levels of Lake Superior are evidenced by inland beach ridges on the island.

SOILS

A soil survey for Isle Royale was completed (Shetron and Stottlemyer 1991). The research mapped and described 15 soil series, and 14 distinct soil associations were described. Three new soil series were included based on their development associated with the various lake levels in the Lake Superior basin, the decay and retreat of the glaciers, and the uplift of the land mass following glacial retreat.

The soils on Isle Royale are derived from deposits and outwash left by the retreating glaciers and meltwater. Glacial till deposits vary in thickness across the island and are much deeper toward the southwest end. Soils in the northeastern section are thin and highly organic; on the southwestern end, the soils are deeper, better developed, and less organic.

CULTURAL RESOURCES

Isle Royale's natural resources have enticed human visitors for centuries. The island has attracted people with its abundant fish, wildlife, plants, and minerals, but it has also proven to be a very isolated and difficult place to live. The aboriginal and historic resources of Isle Royale span from Archaic times (ca. 2500 B.C.) to the 1900s and trace a rich story of human activity. Evidence of human use — chipped stone tools, mining pits, lighthouses, fishing camps, boats, cabins, domestic flowers — is found across the island and in the surrounding water.

ARCHEOLOGICAL OVERVIEW

Human activity on Isle Royale can be traced back over 4,500 years, beginning with the Native American use of copper and other natural resources. The earliest use of the island was by Archaic period people (ca. 2500 to 100 B.C.). At least twelve archeological sites from this period have been identified (Clark 1995). Archaic use of the island is not well defined due to the small number of sites documented. Archaic groups were the island's first copper miners, excavating pits with stone hammers to expose the copper. Evidence has shown that these early miners also worked the copper into useful items, but large copper tools and ornate decorative items like those found south of Lake Superior are not common in Isle Royale sites.

There is more information on the initial Woodland, identified by Laurel cultural remains (ca. 100 B.C.–A.D. 700), and terminal or late (ca. A.D. 600–1650) Woodland period uses of the island. The appearance of large scrapers and stone sinkers for fishing nets in the Laurel period suggest that fish were increasingly important to their way of life (Clark 1995).

In the terminal Woodland stage the variety of pottery types found implies that the island was used by native groups from around the Lake Superior basin. Blackduck, Selkirk, Straits of Mackinac, and Huron pottery types are all found in island archeological sites from this period, some mixed in the same site (Clark 1995). Raw materials for chipped stone tools found on the island from this time period originate predominantly from the north shore of the lake near Thunder Bay (Clark 1995). Groups traveled to the island seasonally (spring to fall) to hunt caribou, beaver, and small game; to catch fish (whitefish, lake trout, sucker, and sturgeon), and to gather plants and berries. While there, they made and repaired their tools with materials they brought with them. They also made use of the rich sources of copper, mining it and then fashioning it into small tools and ornaments.

The island has fostered archeological interest since the 1870s. The earliest surveys focused attention on the identity of the early copper miners, whose pits attracted considerable attention from historic miners and academicians. The presence of the prehistoric mining sites was noted in the park's 1931 enabling legislation as worthy of protection.

The Midwest Archeological Center, with the assistance of Michigan Technological University, conducted the most recent and comprehensive archeological study of the island from 1986–1990. The study revisited previously documented sites and discovered many more new sites. Attention was focused on the shoreline and developed areas (trails, campgrounds, facilities). Isle Royale presently has 199 state-listed sites in the area covered by the survey.

Isle Royale has a number of significant shoreline archeological sites. Many of the same places the Native Americans found suitable for camping are places the park has chosen to maintain as campgrounds and developed areas. Twenty-five of the park's 36 campgrounds are on archeological sites. Therefore, the greatest ongoing threats to the archeological sites are park change and development.

Most inland portions of the island, away from the developed areas, have not been formally surveyed. Archaic period groups faced a lake level as much as 60 feet higher than today. Many Archaic sites, located well away from the modern shoreline, undoubtedly remain undiscovered.

These archeological sites enhance knowledge of early mining technology and provide insight on the ways of life of prehistoric people — food gathering and preparation and hunting and fishing technology. Although only the Minong Mine site is presently listed on the National Register of Historic Places, many of the prehistoric sites have the potential and integrity to yield additional information about the island's earliest use and culture and may be determined eligible for the national register (Clark 1995). With the exception of some severely impacted campground sites, many of the archeological sites are stable, with limited active deterioration.

Some archeological sites contain historic remains along with prehistoric evidence. Fur trade and Native/European contact trade goods have been found at six sites. The fishery bases of the American Fur Company and the camps of commercial fishing families are often found near or on prehistoric sites. Mining pits and settlements and lighthouse-associated sites have all been identified from the historic period.

HISTORICAL OVERVIEW

Early French explorers and missionaries to the Great Lakes region in the early 1600s did not mention Isle Royale specifically, although they wrote of a place to the west where the Indians told them copper could be found (Karamanski and Zeitlin 1988). By late in the century, the island began appearing on European maps of North America. Fur-bearing animals attracted trappers and traders to the region during the late 1600s and 1700s. The fur traders (Hudson's Bay Company, Northwest Company, and American Fur Company) relied on native Ojibwas and other tribes with knowledge of the region, including Isle Royale, to provide furs for the market (Cochrane 1997). These native trappers used the island's abundance of caribou, beaver, marten, and other small mammals and traded them in exchange for European goods, such as blankets, clothing, cooking kettles, tools, weapons, and traps.

Two other significant resources — copper and fish — drew prospectors and entrepreneurs throughout the last 200 years. Centuries after the aboriginal copper miners, there were three phases of historic copper mining; 1843–1855, 1873–1881, and 1889–1893 (Rakestraw 1965). Some companies had limited success and initially made money, but copper veins were depleted. The expense of maintaining an operation on an isolated island in Lake Superior combined with fluctuations in copper prices to eventually force them all to close.

Lake Superior tribes ceded their ancestral land to the U.S. government through treaties in 1842 and 1844, which opened up Isle Royale for prospecting and sale. The Isle Royale and Ohio Mining Company was one of the first to stake claims on the island. They established mining and smelting operations near present-day Daisy Farm campground in 1846–49 and conducted exploratory work at various other locations (Martin 1995). The Siskowit Mining Company located operations in the Rock Harbor channel at a site with evidence of prehistoric mining. Mining operations on the island ceased by 1855.

After the Civil War, a rise in the price of copper stimulated more mining. Companies with success in Michigan's Keweenaw copper industry looked for similar proceeds at two island sites — Siskiwit Bay and McCargoe Cove. The Island Mine operations in Siskiwit Bay had a large wharf on the bay, a road to the mine, 200-foot shafts, a stamp mill, a tramway, and a settlement of about 130 people (Rakestraw 1965). Supplies of copper were only marginal, and a fire in 1875 that destroyed the dock and stamp mill caused the mine to close by 1879.

The Minong Mine made use of aboriginal prospecting and located operations in the ridge

near McCargoe Cove. An almost 6,000-pound chunk of pure copper was found in one aboriginal pit, which led to extreme optimism about the possibilities of the site. The Minong Mining Company established docks, warehouses, a tram road, stamp mill, and blacksmith shop. They excavated two deep vertical shafts and numerous open pits (Rakestraw 1965). Here, too, the purity of the copper declined and the mine closed in 1885.

In 1889 the Wendigo Mining Company started mining explorations in the Windigo area. The company constructed a large office building, sheds, storehouses, boarding houses, log cabins, and a large wharf along the edge of the harbor in what was called Ghyllbank (Rakestraw 1965). They prospected along Washington Creek and all over the west end of the island. Between 1890–92 a number of roads were built as far inland as Lake Desor for prospecting. Using trenches and diamond drills they looked for copper, but no productive mines were developed. In 1892 the operations were shut down.

Unlike the boom and bust cycles of mining, fishing has been the longest-lived and successful economic enterprise on the island. As the Great Lakes fur trade waned in the 1830s, the American Fur Company turned to the abundant trout and whitefish around Isle Royale to support its operations, ushering in a century of commercial fishing (Rakestraw 1968). The company set up fishing stations at seven sites around the island. A predominantly Ojibwa and Metis workforce fished and worked at the stations. Although the fur company enterprise did not last long (1837–1841), commercial fishing continued. During the mining booms on the island, local fishermen often supplied the miners with fish.

Commercial fishing continued through the 19th century. It came to be primarily conducted from small family fishing camps. At the peak in the early 1900s, over 100 fishing families were based on the island (Karamanski et al. 1991). The fishermen used wooden mackinaw sailing boats and fished with gill nets or hooklines for lake trout, whitefish, and herring. Many of the fishermen by the early 1900s were of Scandinavian ancestry. They usually came to the island in the spring and stayed into the fall or early winter. Some families wintered on the island.

Enterprising commercial fishermen were the first to accommodate vacationers to Isle Royale. The island offered a rugged vacation spot with great fishing and crisp, clear air to city dwellers at the turn of the century. Growing gradually from a few rental rooms at a fisherman's home in Washington Harbor, a number of resorts and summer homes dotted the island by the 1910s and 20s. The growth of tourism was encouraged and fostered by Great Lakes shipping companies.

In 1902 the Isle Royale Land Corporation sold the Wendigo Mining Company headquarters building, some service buildings, and approximately 70 acres of land at Windigo to a group of wealthy and prominent Duluth businessmen, headed by Colonel Charles Graves, a Civil War veteran (Karamanski 1988). The group formed the Washington Club, a private fishing and boating club that functioned until the establishment of the island as a national park. They turned the headquarters building into their main clubhouse.

Copper mining on the island and the growth of Lake Superior shipping led to the establishment of four lighthouses around Isle Royale. For many ships, the island became either a big obstacle or a safe haven in times of severe weather. For others, it was a destination point for passengers and freight. Increased boat traffic brought inevitable shipwrecks. Ten large ships and many smaller vessels found a final resting place around Isle Royale.

Submerged Resources

The park boundary extends 4.5 miles into Lake Superior and encompasses a number of underwater cultural resources. Ten major shipwrecks lie inside the park boundary and are listed on the National Register of Historic Places with state significance — the *Algoma, America, Henry*

Chisolm, Chester A. Condgon, George M. Cox, Cumberland, Emperor, Glenlyon, Kamloops, and *Monarch.* The NPS Submerged Cultural Resources Unit conducted an extensive survey of the underwater resources 1980–1984. The resulting report, *The Submerged Cultural Resources Study*, completed in 1987, identified and documented the shipwrecks, smaller sunken vessels (such as the *Stanley* off Star Island and the tug in Five Finger Bay), and numerous underwater resources associated with land-based mining and fishery sites.

A vernacular boat study conducted from 1990–1994 located and documented handmade wooden fishing boats used by the island's commercial fishermen and residents from the 1880s through the 1950s. The boats, which were found on shore, in the water, and on the mainland, were generally constructed by area boat builders specifically for use at Isle Royale. Some of the boats were purposely scuttled when they were no longer needed, but many were pulled up on shore and left with engines, rudders, and other equipment intact. These boats — like the *Skipper Sam* at Wright Island — now contribute significantly to the landscape of the historic fishing camps. Most are in poor condition and are deteriorating along with the structures.

Structures

The park has approximately 180 structures that are over 50 years old, some of its most visible cultural resources. The structures stand as reminders of the island's maritime heritage (lighthouses and fishery sites), the resort era, and the early development of the park. The oldest structure on the island is the 1855 Rock Harbor Lighthouse, which is listed on the National Register of Historic Places.

The List of Classified Structures for the park should be updated. Of the almost 180 potentially significant structures, only nine — the eight at the Edisen Fishery and the Rock Harbor Lighthouse — are on the List of Classified Structures. The Midwest Regional Office is in the process of updating the list and has completed two seasons of fieldwork on the island. The update is expected to be finished by winter 1998 and will determine which structures are eligible for the national register.

Fifteen park structures are listed on the national register. The Edisen Fishery complex is listed for its regional significance. The fishery contains seven buildings — the fish house, residence, honeymoon cabin, nethouse, sleeping cabin, chicken coop, and privy — and *Belle*, a wooden fishing boat. The fishery was restored in the mid-1980s for use as a cultural demonstration interpretive site. Some landscaping was done in 1992 to reflect the historic landscape.

Rock Harbor Lighthouse, Rock of Ages Lighthouse, and Isle Royale Light Station are also listed on the national register. The Johns Hotel on Barnum Island was recently listed.

A number of summer cabins on the island are still being used by life leaseholders. When the federal government acquired land for the new park in the 1930s, landowners were offered the opportunity to sell their land and structures while ensuring continued access through a life lease agreement. The leases are active as long as the original leaseholders (or their children born before the leases were signed) are still alive. There are 16 life lease sites, most of them in Tobin Harbor. The Tobin Harbor buildings are a high priority for documentation and national register evaluation.

Isle Royale was a base for commercial fishing from the late 1830s until the park was established. Fishing continued under special use permits through the 1980s. Only one original permit is active — the Stanley Sivertson fishery at Washington Harbor. The park holds a permit to conduct cultural demonstrations with gill net fishing at Edisen Fishery. Despite the loss of the fishermen, many commercial fishing camps remain; buildings (fish houses, net houses, cabins), docks, and boats are still intact. The fisheries at Wright Island, Fishermans Home, Crystal Cove, Washington Harbor, Tobin Harbor,

and Johnson Island are intact and have structures, docks, and boats.

Many administrative facilities, some dating from the CCC and early park period, are over 50 years old, such as the offices and residences at Mott Island. Most have been altered for park uses. The majority of these structures have been treated as eligible for the national register based on their age. Some of the structures may be eligible for the national register as representative of CCC-era structures or as structures representative of the administrative history of the park.

Four lighthouses are inside park boundaries. Rock Harbor Lighthouse (1855) is owned and maintained by the park. The lighthouse consists of a 50-foot-high tower and lantern room with an attached keeper's dwelling. It functioned as a navigational aid from 1855–1859 and again from 1874–1879. After 1879 it was used as a campsite for vacationers and researchers and later as a base for the Johnson commercial fishing families. An extensive rehabilitation project in the 1980s prepared the lighthouse for a permanent maritime history exhibit that was installed in 1995.

The Coast Guard owns and retains jurisdiction over the other 3 lighthouses in the park — Isle Royale (on Menagerie Island), Passage Island, and Rock of Ages. Isle Royale Light Station was constructed on Menagerie Island to guide ships into Siskiwit Bay. Construction began in the spring of 1875 and the station was completed and lit by September of that year. It has functioned as an aid to navigation continuously since that time. The lighthouse consists of a 55-foot-high tower and attached keeper's dwelling of Jacobsville sandstone. The complex also had, in 1910, a boathouse and two landings. Other buildings included a privy, paint house, oil storage building, washhouse, and workshop. On the grounds now are the oil storage building and two outbuildings. There are no historic docks or landings at Menagerie Island. The lighthouse is listed on the national register.

Passage Island Lighthouse (1882) still guides ships passing around the northeast end of Isle Royale. The light was first lit in 1882. A fog whistle and signal house were added to the complex in 1884. At the Passage Island lighthouse complex are the tower and dwelling, tramway, turntable, winch house, landing, fog signal building, oil storage building, outhouse, helicopter landing pad, and a radio tower. A trail connects the lighthouse and a boat cove with a boathouse and a dock. The National Park Service owns the boathouse, fog signal building, and all the land at Passage Island except for approximately 6 acres around the lighthouse complex. The Passage Island station has been proposed for the national register but has not yet been listed.

Construction of the Rock of Ages light station began in 1907. Due the remoteness of the site, the work crews were based at Washington Harbor for the first season. The 10-story lighthouse was completed and lit with a temporary light and lens by October 1908. The lighthouse received a permanent second order Fresnel lens in 1910, which is now on display at Windigo. Rock of Ages is listed on the national register.

The long winters at Isle Royale combined with lack of use and maintenance are taking a toll on island structures. Many structures were not built to last long but were meant to be functional, simple shelters for use during the summer months. As soon as the constant care needed by buildings of this type is ended, they begin to deteriorate.

Cultural Landscapes

The midwest regionwide cultural landscape inventory will identify register-eligible cultural landscapes. Fieldwork began with basic documentation in August 1997. Only the Edisen Fishery and Rock Harbor Lighthouse have been identified as cultural landscapes, but many areas have the potential for cultural significance — fishing camps, life lease cabin sites, and old resort areas. Historic mining sites also may be culturally significant. Mine shafts, rock piles, dams, road and tramway remains, and partial structures can

be found at Minong Mine, Island Mine, Siskowit Mine, Wendigo Mine, and Todd Harbor's Haytown mine site.

Washington Harbor (including Washington, Booth, Grace, and Barnum Islands) in the early decades of this century was the scene of a thriving fishing community of over 20 families. The harbor should be evaluated to determine its cultural landscape significance. Many of the Sivertson fishery buildings and docks still exist. Most of the rest of the structures and docks there are used by summer residents. Crystal Cove at the northeast end of Amygdaloid Island and Fishermans Home on the south shore of Isle Royale are the most intact and have the most historical integrity of all the remaining commercial fishing sites. Johnson Island fishery on the north shore, Mattson fishery in Tobin Harbor, and Wright Island in Malone Bay also have buildings, docks, and boats. A few of the commercial fishery sites still show evidence of human occupation in the vegetation: domestic flowers (sweet william, delphiniums, and violets), apples, and rhubarb.

Isle Royale was also home to summer cottagers and vacationers in the first half of the century. There are still 16 life leaseholdings that should be evaluated as cultural landscapes. The era holds a piece of the history of the island and of park history — many life-lessees were involved in the movement to include Isle Royale in the national park system (Little 1978). The Tobin Harbor life lease community as a whole has the potential to be documented as a cultural landscape. Much of its significance lies in the harbor community as a whole and not in the individual cabin sites.

The greatest threat to the cultural landscapes is neglect and attrition over time. The winters are long in Lake Superior and many of the buildings and much of the vegetation are disappearing. The other major threat over time to the potential landscapes has been park development and destruction of key elements, such as buildings and docks. At many sites, however, enough features remain to define significance.

Ethnographic Resources

Information about the park's ethnographic resources is very limited. Few have been identified, and only the culture of the commercial fishing residents of the first half of the century has been documented. Many of the fishermen at that time were of Scandinavian ancestry. The lifeways of these fishermen are being interpreted at the Edisen Fishery. Another avenue for study has been the boat-building traditions of the fishermen. Through the vernacular boat study, related information about their cultural patterns and use of the island was collected.

Historically, groups of northern Ojibwa living on both sides of the U.S.–Canadian border used the island for hunting, trapping, fishing, and maple sugaring (Cochrane 1997). Isle Royale was an important site for procuring food and furs. Isle Royale was in the territory ceded to the U.S. government in 1842 and 1844 treaties. The pattern and frequency of Ojibwa use of the island is being studied and documented.

Objects

Isle Royale's museum collection contains a good general representation of the island's cultural and natural resources. The collection is housed in a new museum storage facility in Houghton. The facility was constructed to meet the standards for museum collection storage and provides a proper storage environment with climate controls and security. The building provides sufficient space for the collection.

The natural history collection includes the herbarium (approximately 2,300 records), geology and zoology specimens, and a small number of insects, including moths and dragonflies.

The cultural history collection is made up of a large variety of shipwreck artifacts, commercial fishing gear, household goods, summer home items, archives, and archeological objects. The archeological collection is estimated at about

7,400 items. The majority was generated by the Midwest Archeological Center's 5-year survey and is curated in Lincoln, Nebraska.

The history collection (approximately 1,150 items) contains the bulk of the objects stored in the park — primarily commercial fishing gear, household goods, books, maps, artifacts from summer homes, and small archives collection (about 450 items) of paper records, photos, and correspondence.

The park has a small ethnographic collection (approximately 220 items) that is made up primarily of the Warren basket collection. This collection of handmade baskets and containers includes birchbark items crafted by Tchi-ki-wis, a Chippewa woman, who lived on Birch Island with her husband, John Linklater. The birchbark/canvas canoe used by the Linklaters is also in the park collection.

VISITOR SERVICES

HOUGHTON

The visitor center in Houghton, Michigan, is on the Keweenaw Peninsula along Portage Lake. It is near overnight facilities, stores, medical facilities, restaurants, and gasoline stations. Visitors can obtain park information, pay user fees (if riding the *Ranger III* or piloting a personal boat), purchase season passes, obtain permits, register boats, obtain information, purchase educational materials, and enjoy several natural/cultural history exhibits.

Group camping reservations can be made by mail or by phone or in person at the visitor center. Reservations and ticketing for the *Ranger III* and Keweenaw Waterway Cruise, including all NPS and other business uses, are made by this office.

A wayside exhibit at the visitor center and six on the *Ranger III* interpret local history and island cultural and natural history. Educational videos are shown on a variety of natural and cultural history topics. Exhibits in the visitor center include artist-in-residence, animals, human history, and wilderness. Through a partnership with the Isle Royale Natural History Association, artist-in-residence program works are displayed in the visitor center and, in the summer, on the island.

ROCK HARBOR

Rock Harbor contact center is in Snug Harbor along the Rock Harbor channel near the northeast terminus of Isle Royale. It is adjacent to the dock, gas pumps, store, and restrooms and is near the ranger station, campground, and Rock Harbor lodging facilities.

The center is open daily during the visitor season. Visitors can obtain park information, pay user fees and purchase season passes, obtain permits, register boats, purchase educational materials, and enjoy several natural/cultural history exhibits.

The Rock Harbor contact center is too small to adequately provide a visitor contact desk, a bookstore, and exhibits. The Rock Harbor auditorium, where evening programs and meetings are held, is nearby. That facility also houses interpretive offices and storage and essentially meets the park's needs. Evening programs are offered nightly from mid-June through Labor Day on a variety of natural and cultural history topics. Guided walks are offered several times each week. Other guided walks and interpretive talks are offered when personnel are available. When passenger ferries arrive, area orientations are presented, and backcountry orientations are provided for backpackers before permits are issued.

A concession boat offers commercial tours. Concession employees offer educational programs on a walk to Minong Mine, at Raspberry Island, and on the various waterways between Rock Harbor Lighthouse, Passage Island, and McCargoe Cove.

A variety of wayside exhibits present aspects of the cultural and natural history of the area. These are on the Stoll Trail loop up to the wilderness boundary, on the trail to the America dock, and along Snug Harbor. Bulletin boards at the visitor center and on the *Sandy* dock describe interpretive programs, safety concerns, and passenger ferry schedules. Exhibits in the Rock Harbor visitor center explore geology and animal life and touch on cultural history.

WINDIGO

Windigo ranger station and visitor center is in Washington Harbor near the southwest end of Isle Royale. It is adjacent to the Windigo dock and near the restrooms. The general store and amphitheater are near the station.

A new ranger station / visitor center will open in the summer of 1998 and will be open daily during

the main visitor season. It is close to the store, amphitheater, and restrooms. The new facility is built around the Rock of Ages lens and pedestal. The counter should be sufficient to meet visitor needs even after ferry docking. There is room for interpretive exhibits and display and sales of educational materials.

Evening programs are offered nightly from June 12–Labor Day on a variety of natural and cultural history topics. One-hour nature walks are offered each afternoon as well as 20-minute dockside walks. Upon the arrival of the *Wenonah* or the *Voyageur II*, a general orientation is presented and backcountry orientation is provided before permits are issued.

There are four wayside exhibits along the nature trail that describe aspects of natural and cultural history. Bulletin boards on the ranger station, restrooms, and at the campground have boat and interpretive schedules, weather forecasts, and natural and cultural history.

DAISY FARM

Daisy Farm is a large boater / hiker campground in the Rock Harbor channel across from the Edisen Fishery and Rock Harbor Lighthouse complex. There are evening programs at the amphitheater during the summer and occasional guided interpretive walks, sometimes including the entire Ojibway Loop. Campground bulletin boards are updated with program announcements and regulatory / safety information. They describe interpretive programs and provides some interpretation. The campground is staffed with a volunteer camp host / interpreter.

EDISEN FISHERY

Edisen Fishery is in the Rock Harbor channel near Rock Harbor Lighthouse. It provides a fishery demonstration using techniques similar to those practiced in the 1930s–1950s. A wayside exhibit outlines the history of the fishery.

A number of exhibits in the Rock Harbor Lighthouse explore the island's maritime history.

MALONE BAY RANGER STATION

There is a small library and some posted information. Interpretive exhibits are planned for the visitor contact station.

AMYGDALOID RANGER STATION

A few photos on the walls fit in with the homey atmosphere of this old ranger station. Exhibits explore the idea of the companionship of solitude and the dangers of isolation by interpreting the lives of rangers and others who lived here.

VISITOR EXPERIENCE

Most visitors (approximately 65%) travel to Isle Royale on one of three commercial transportation services or on the NPS-operated *Ranger III*. Approximately 30% travel to the island on private boats. Most activities center around the natural environment and the wilderness character of the park and include hiking, backpacking, fishing, canoeing, boating, sailing, kayaking, diving, and observing and enjoying nature. The human history of the island and the remnants of mining, fishing, and maritime industries are also of interest to many visitors.

Isle Royale's visitors are typical of most national park visitors. They are usually highly educated and travel in family or peer groups of two to four people. They differ from visitors to many parks in that most have more experience in backcountry settings, place high value on wilderness attributes, and stay longer than visitors to most national parks (see section on visitor use numbers).

During the summer of 1996, a visitor survey was conducted to help characterize the kinds of experiences sought by visitors to Isle Royale and to determine whether or not those experiences were attained. For purposes of the survey, visitors were categorized as backcountry users (primarily backpackers, canoers, and kayakers), power-boaters (including sailboaters as a subset), and day users (some day use occurs at Rock Harbor, but most day use is concentrated at Windigo because of the daily ferry trips from Minnesota). For each user group the study identified the most popular activities, the kinds of opportunities sought, to what extent expectations were met, or problems encountered.

For backcountry visitors the most popular activities included viewing wildlife, backpacking, short walks and day hiking, photography, and enjoying NPS visitor centers. Visitors want to - observe scenic beauty, enjoy a natural setting, observe and hear wildlife, and relax. They also like to satisfy curiosity, enjoy the smells and sounds of nature, get to know the park, get exercise, and learn about nature. While no visitors reported problems that seriously detracted from their experiences, minor problems associated with noise and crowding (such as too much motorboat noise, too many other hikers in the campgrounds, difficulty finding a vacant shelter or campsite, and too many other watercraft on Lake Superior) were mentioned.

Powerboaters' most popular activities were listed as fishing Lake Superior, short walks and day hiking, motorboating, wildlife viewing, and photography. Boaters also want restorative experiences such as relaxing, observing scenic beauty, and enjoying a natural environment. They also enjoy satisfying curiosity, enjoying the smells and sounds of nature, and getting to know the park. They emphasized boating-related activities and catching fish. Similar to back-country users, powerboaters reported only minor problems, and these were related to crowding and park conditions (difficulty finding available docking space, campsites, and shelter, restrictions on fires at some campsites, and docks in poor condition).

Sailboaters differed from other powerboaters in that they considered experiences such as tranquility and solitude and nonmotorized water activities more important. They also perceived motorboat noise in narrow harbors and bays as more of a problem than did other powerboaters.

Day users' most popular activities included visiting stores and NPS visitor centers, taking short walks and hikes, photography, taking ranger-led tours/walks, using self-guiding nature trails, and viewing wildlife. Day users reported minor problems related to not seeing the types of wildlife they expected.

CONCESSIONS / COMMERCIAL SERVICES

TRANSPORTATION SERVICES

Three concession permittees have five-year contracts to provide public transportation to the island. The contracts expire in 2000.

The Royale Line

This concessioner operates the M.V. *Isle Royale Queen III* and provides service between Cooper Harbor, Michigan, and Rock Harbor. This 81-foot vessel generally carries a maximum of 80–85 passengers per trip and makes the round trip to the island in one day. The vessel sails twice each week in May and September, five days per week in June, six days per week in July, and seven days per week in August.

Grand Portage–Isle Royale Transportation Line, Inc.

This concessioner operates both the M.V. *Wenonah* and the M.V. *Voyageur II*. The 65-foot *Wenonah* carries a maximum of 100 people and provides daily round-trip service from Grand Portage, Minnesota, to Windigo June 15–September 15. The *Voyageur II* carries a maximum of 39 people and also departs from Grand Portage. The *Voyageur II* circumnavigates the island in two days on each trip, overnighting at Rock Harbor. The vessel stops at Windigo on the way out and on the way back and picks up and drops off at McCargoe Cove, Belle Isle, Daisy Farm, Chippewa Harbor, and Malone Bay. The Voyageur makes two trips per week in the spring and fall; the schedule is expanded to three trips per week between Memorial Day and Labor Day.

Isle Royale Seaplane Service

This concessioner operates a twin-engine Dornier seaplane capable of carrying five passengers and gear. The service operates between private facilities on the Portage Canal in Houghton, Michigan, and designated landing areas at Windigo and Tobin Harbor. On-demand service is available late May–late September.

National Park Concessions, Inc.

The park's primary concessioner provides water taxi service out of Rock Harbor that employs several six-passenger charter boats. Service is provided as far as McCargoe Cove on the north shore and Malone Bay on the south shore.

OTHER COMMERCIAL SERVICES

Businesses that operate under incidental business permits (IBP) are allowed to use the park for specified activities. They do not have a place of business in the park but bring their customers with them. They also have no level of exclusivity; others can compete with them to provide services. The park may determine whether a permit will be issued or not for any particular activity but does not restrict the number issued. Use may be regulated through various operating plans that identify overall limits. Incidental business permits are reviewed annually, and park management may decide not to issue or renew them based on the level of use or determinations of unacceptable impacts.

Four types of commercial services are currently authorized in the park under incidental business permits. In 1997, 13 permits were issued for charter fishing, five for sea kayaking, four for scuba diving, and one for backpacking. In addition, 24 special use permits were issued to commercial enterprises, primarily youth camps,

for backpacking trips. Most of the 24 permittees visit only once or twice each season.

All charter fishing permittees operate off the north shore of Minnesota. National Park Concessions, Inc., has a contractual right to provide all charter fishing in the park. That right has only been exercised on the eastern half of the island. Charter fishing is the single largest IBP activity in the park. Park managers and visitors were concerned that escalating charter fishing activity could negatively affect the fishery, so a short-term moratorium was established on the issuance of permits during the GMP process. There are currently 12 incidental business permits issued to various individuals to bring charter groups to the park.

CONCESSION SERVICE AREAS

Rock Harbor

Most of the commercial services at Rock Harbor are operated by National Park Concessions, Inc., under a 20-year concessions contract that will expire in 2002. This includes 20 housekeeping cabins, 60 motel units (in four structures), a restaurant, snack bar, gift shop, public showers, laundry, gasoline dock (gas/diesel sales and sewage pumpout), a tour boat operation, canoe and small boat rentals, overnight docking facilities (equipped with water and power), and a water taxi and charter fishing operation.

The operating season begins with limited service around the end of May. Full service begins around June 10 and ends around September 7. NPCI employees are usually off the island by the third week in September. The company employs about 60 people during peak season, most of whom are housed in a large dormitory.

For the period 1991–1996, the lodge accounted for about 36% of the concessioner's annual gross revenues. The average occupancy rate at the lodge during that period was 45%; the highest monthly average was in August (54%). The housekeeping cabins averaged 67% during the same period with an August average of 84%. Historically about 15%–17% of all visitors to Isle Royale use the concessioner's overnight facilities. The rate structure at the lodge is based on the American plan, which includes three meals per day in the dining room. Housekeeping guests, boaters, and campers also eat at the restaurant and accounted for about 28% of the total meals served in 1995. During 1991–1996 food services accounted for about 19% of the concessioner's annual gross revenues. Grocery sales accounted for about 17%. Boat rentals and fuel sales accounted for about 16%.

The park's management of the NPCI operation is subject to the requirements of the Concessions Policy Act (16 USC 20), chapter 10 of NPS *Management Policies*, NPS-48 *Concessions Management Guidelines*, Bureau of the Budget circular A-25, and the Independent Offices Appropriation Act (PL 82-137§501, 31 USC 483a). The park is permitted to provide services to the concessioner and is required to charge them for the services based on comparable or actual costs, whichever is higher.

Traditionally the National Park Service has subsidized the concessioner's commercial activities by charging less than cost for the provision of utilities and freight services. The Park Service has tried to keep the rates to the public at an affordable level while providing the concessioner with a reasonable opportunity for profit. Over the past few years this situation has become problematic because of more demanding safety and public health requirements, increasing deferred maintenance, and unfunded needs in other park programs.

National Park Concessions, Inc., is permitted by NPS policy to pass on to their customers the difference between comparable costs and the actual costs as charged by the park.

In FY 97, NPS utility service charges to National Park Concessions, Inc., were increased to more accurately reflect the park's true costs. In FY 96, National Park Concessions, Inc., paid the park

$125,000 for utility services at Windigo and Rock Harbor; in FY 97 $241,000.

A significant percentage of the increase resulted from new annual operating costs incurred by the NPS in correcting deficiencies identified in the 1996 safety inspection. The balance of the increase resulted from a revision in the formulas used to establish annual utility rates. The revised formulas included a higher percentage of maintenance employees' salaries to more accurately reflect actual NPS costs.

The National Park Service contracted for two independent studies to analyze this situation. One was to determine the necessary improvements and costs to bring utility systems at Rock Harbor into compliance with public health codes and regulations and to identify other capital costs associated with utilities that may be anticipated over the next 10–15 years. The other study was to determine how much of the utility facilities and operations upgrade costs could be borne by the concessioner while still allowing for a reasonable profit.

The *Safety Assessment at Rock Harbor, Isle Royale National Park* found that about $2.1 to $3.8 million in repairs would be required. Some of the repairs are necessary to comply with regulations and codes. Other work would be done to repair deteriorating facilities, such as concession docks, or to replace aging structures as they near the end of their useful lives. Several projects would reduce long-term maintenance costs through up-front capital investments. Without some of the repairs and upgrades the concessions operation may not be able to continue, at least in its current configuration. In some of the problem areas, engineers identified different approaches that could be selected based on costs and other considerations. It is likely that future mandates will continue to demand a financial response from the National Park Service in order to maintain compliance. Newer facilities would require more sophisticated care and maintenance, which will add to the annual operating expense.

The *Concession Feasibility Analysis, Isle Royale National Park* indicated that it is not economically feasible for the concessioner to fund a proportional share of the repair and operations costs. However, the concessioner might be able to fund a portion. The study called for the concessioner to increase the annual payment for utility system operations that directly support concession services.

Approximately 97% of the Rock Harbor utility use is by the concessioner. In recent years the Park Service has begun to recoup more of the utility costs from the concessioner; however, the government is still substantially subsidizing the Rock Harbor concession for capital and annual operating costs. The concessions contract allows the concessioner to recover some of the utility costs from visitors through a "pass-through" process. The 20% surcharge on lodge rooms during the 1997 season was part of that process, but there was still a deficit. The contract also allows the concessioner to carry over the deficit to the next year. However, this adds to the costs the concessioner must recoup and results in higher rates for lodging. A similar situation exists for freight costs on the *Ranger III*, and the Park Service bears all the costs for solid waste removal from the island.

It is desirable for a concessioner to provide services without cost to the government. However, Isle Royale has an uncommon operating situation and a short season in an extremely remote location, so that goal may not be fully attainable. The Isle Royale budget cannot provide for the utility system upgrades or the annual operating increases. The park would have to receive a special allocation of funds to upgrade the utilities and subsidize the concessioner's share of operations. Otherwise, the National Park Service would have to continue to support the concessioner to the detriment of trail maintenance, backcountry patrols, maintenance of public marine facilities, park interpretive programs, etc. These programs and facilities serve the vast majority of visitors and are important to the purpose of the park. They can no longer suffer to allow support of a function that only serves

about 15% of the visitors and operates at 45% of capacity.

Windigo

At Windigo, National Park Concessions, Inc., operates a small convenience store and provides gasoline and sewage pumpout for boaters, showers, laundry, and limited canoe and small boat rentals. The NPCI Windigo operation runs from June 10 through mid-September. National Park Concessions, Inc., provides no overnight accommodations, restaurants, or marina facilities. Utility upgrades are necessary and the funding situation is the same as at Rock Harbor.

TABLE 5. NPCI OVERNIGHT ACCOMMODATIONS AT ROCK HARBOR IN 1997, 1996, AND 1995

	Number of Guests	Number of Nights
May	22	62
June	420	1,285
July	921	2,681
August	1,261	3,050
September	145	435
1997 total	**2,769**	**7,513**
May	42	118
June	483	1,372
July	1,173	2,955
August	1,320	3,322
September	151	506
1996 total	**3,169**	**8,273**
May	17	33
June	522	1,199
July	1,218	3,092
August	1,376	3,629
September	235	613
1995 total	**3,368**	**8,566**

Occupancy percentages have remained relatively stable over time.

TABLE 6. OCCUPANCY OF THE LODGE AND HOUSEKEEPING UNITS

1995	Lodge	Housekeeping
May	0%	76%
June	27%	48%
July	41%	82%
August	52%	84%
September	38%	53%

Source for tables 5 and 6: Isle Royale National Park

SOCIOECONOMIC ENVIRONMENT

REGIONAL LAND USE AND REGIONAL VISITOR FACILITIES AND SERVICES

Regional Characteristics

The affected economic region includes the three counties of the Keweenaw Peninsula: Houghton, Keweenaw, and Ontonogon, Michigan, and Cook County, Minnesota. The area has harsh and long winters and limited economic opportunities.

Keweenaw Peninsula, Michigan. In the late 19th and early part of the 20th centuries mining and forestry were the mainstays of the economy of the Keweenaw Peninsula. A large population was encouraged to settle and live in the region due to the mineral wealth (copper) of the peninsula. This situation has changed since the 1940s. The region's population has decreased, and services, state and local government, and manufacturing are now the mainstays. Mining no longer plays a significant part in this region's economy.

Consumptive use of natural resources has been replaced by nonconsumptive uses as the economy has evolved. Today considerably fewer people are supported by mining and logging. Many parks, including Isle Royale and other attractions, provide a focus for summer activities. Heavy winter snowfall, averaging more than 200 inches and hilly topography provide the basis for winter sports, including skiing and snowmobiling.

Cook County, Minnesota. Cook County is in the extreme northeastern part of Minnesota. It has a triangular shape bordered by Ontario, Canada, on the north, Lake Superior on the southeast, and Lake County, Minnesota, on the west. The Grand Portage Indian Reservation makes up the easternmost portion of the county. Much of this rugged and sparsely populated county is heavily wooded or covered by lakes and streams. Superior National Forest takes up about ⅔ of the county's 931,756 acres. About ⅛ of the county is privately owned. The remainder is under state and county ownership. The county's four incorporated towns and most of the population are strung out along the Lake Superior shoreline. About ⅓ of the county is in the Boundary Waters Wilderness canoe area. Long harsh winters are the norm for the county.

The economy of the Grand Portage Indian Reservation has evolved over the past decades. It has changed from subsistence hunting, fishing, and forestry to a service-oriented economy based on construction, fishing, forest products, government services, hunting, crafts, tourism, and trapping. The seasonal tourism industry dominates the reservation economy. The Grand Portage Lodge and Casino are the primary enterprises of the Grand Portage band of the Minnesota Chippewa Tribe and provide a majority of the employment opportunities on the reservation. The gambling industry on the reservation and the North American Free Trade Agreement have combined to provide a real stimulus to the local economy.

Population

Michigan has nearly 9.5 million people living in 83 counties. Houghton County ranked 44th in population in the state in 1994. Keweenaw County was the least populated county in the state and Ontonagon ranked 78th. Overall the population in all three counties has declined since 1980. Between 1980 and 1994 Houghton, Keweenaw, and Ontonagon Counties have declined in population by approximately 4.0%, 5.0%, and 12.1% respectively (now having a total of less than 50,000 people) while the state as a whole has increased by 2.9%.

Cook County, with fewer than 5,000 inhabitants, is one of 87 counties in Minnesota, which has a total population of 4.5 million. Cook County ranks 85th in the state. The county experienced a

decline in population from 1980–1990. However, its population has rebounded with an overall gain between 1990–1994 of 7.3%.

Income, Employment, and Poverty

In 1994 the national average per capita income was $21,696. Michigan ranked 19th ($22,192) and Minnesota ranked 17th ($22,217). Houghton ($15,264), Keweenaw ($15,985), and Ontonagon ($16,591) Counties had average per capita personal incomes well below the state average (see table 7). Minnesota ranked 17th in the country with a state average per capita income of $22,217. Cook County ($19,999) was significantly below the average for the state.

TABLE 7. STATE AND LOCAL COUNTY PER CAPITA PERSONAL INCOMES FOR SELECTED YEARS

County/State	Per Capita Personal Income					
	1980	1990	1991	1992	1993	1994
Michigan	10,154	18,237	18,703	19,739	20,601	22,192
Houghton County	6,863	12,634	13,400	13,615	14,517	15,264
Keweenaw County	6,715	14,586	15,364	15,305	15,052	15,985
Ontonagon County	7,511	13,758	14,460	14,951	15,604	16,591
Minnesota	$9,982	18,779	19,271	20,454	20,911	22,217
Cook County	$8,493	16,615	17,570	18,517	18,812	19,999

Source: Regional Economic Information System, Bureau of Economic Analysis, Economics and Statistics Administration, U.S. Department of Commerce, 1994 data.

Unemployment and poverty rates (1990 census data) for the states and counties are presented in table 8. Cook County had higher average unemployment than the state, but the poverty level was only slightly above the state average. The U.S. averages in 1990 for unemployment were 6.4% and for poverty were 13.1%.

TABLE 8. UNEMPLOYMENT AND POVERTY RATES

State/County	Unemployed	Below Poverty Level
Michigan	8.2%	13.1%
Houghton	9.9%	21.0%
Keweenaw	17.0%	20.6%
Ontonagon	8.4%	13.2%
Minnesota	6.0%	10.2%
Cook	10.9%	10.9%

Source: Census of Population and Housing, 1990: Summary Tape File 3, Bureau of the Census, Washington, 1992.

The major individual employer in the Keweenaw region is Michigan Technological University. Nearly 1,200 employees provide services to a student body of about 6,000 undergraduates and 600 graduate students. The next two largest employers combined provide only about half as many jobs. Health care services are also a top employer. Four health care facilities combine to provide about 1,070 jobs. Local school systems employ about 460 people.

Cook County's economy, in terms of earnings, has been based primarily on services, government, and retail trade. Due to recreation and tourism, there is a strong seasonal aspect to this local economy. More people are employed during the summer tourist season because of the influx of seasonal residents and vacationers. Services, government at all levels, and retail trade provide the most jobs in Cook County. The county's economy is heavily tied to the vacationing traveler. Hiking, mountain biking, canoeing, backpacking, camping, golf, and horseback riding are popular. Hunting and

fishing are available according to various seasons for individual fish and game. A fall color tour is promoted. Winter sports, including downhill skiing, cross-country skiing, snow-mobiling, and dog-sled racing are popular in the off season. The Grand Portage Lodge and Casino, a Chippewa tribal enterprise, is a major attraction in the Grand Portage area. Grand Portage National Monument is in the county and received over 71,000 recreational visits in 1996.

VISITOR SERVICES

The Keweenaw Peninsula is promoted as a tourist destination by the Keweenaw Peninsula Chamber of Commerce and the Keweenaw Tourism Council. Accommodations, food, automotive services, medical services, etc. are available in Houghton, Hancock, Calumet, and several other locations.

Visitor services in Cook County are somewhat limited in scope and location due to the relatively small permanent population base. However, all necessary services are available. These services are concentrated along U.S. 61 and in Grand Marais, Schroeder, Tofte, and Grand Portage. Many businesses cater to the tourist trade.

PARK OPERATIONS

ORGANIZATION AND PROGRAM AREAS

The superintendent is responsible for the overall operation and management of the park. There are two centers of operation: the administrative headquarters at Houghton and the summer headquarters at Mott Island. The park is organized into three main divisions: administration, maintenance, and ranger activities and resource management.

Because of the proximity of Isle Royale National Park to Keweenaw National Historical Park and the need to conserve money and other resources, Isle Royale will provide some support services to Keweenaw. The current use of Isle Royale National Park administrative staff for comprehensive administrative services to Keweenaw National Historical Park will continue. The superintendent of Keweenaw National Historical Park is under the direct supervision of the superintendent of Isle Royale National Park. This is the most effective sharing of services and expertise.

The Division of Administration, located in Houghton, is headed by the administrative manager/assistant superintendent. The division is responsible for personnel management, payroll, procurement, contracting, budget and finance, property management, mail and files, and the operation and maintenance of the parkwide computer system. The division also manages and supervises the operation of the *Ranger III*, a 165-foot vessel that provides primary transportation and logistical support for all island operations.

The Maintenance Division is responsible for the operation and maintenance of all park facilities and equipment, including buildings, boats, utility systems (water, power, sewer, and solid waste), employee housing, trails, campgrounds, docks, and radio and telephone systems. The division is also responsible for the transportation, storage, and distribution of gasoline for both the National Park Service and the concessioner.

The Division of Ranger Activities and Resource Management is responsible for program areas that include natural resource management (wildland and natural fire management, inventory and monitoring programs, research, wilderness management, and geographic information systems), emergency services (search and rescue, emergency medical services), SCUBA diving program, law enforcement, concessions management, interpretation and visitor services, environmental education, fee collection, *Ranger III* and group camping reservations, and cultural resource management (management of museum collections and historic structures, archeological inventory and compliance, cultural fishing demonstration program, and management of life leases).

Funding and staffing (full-time equivalency, or FTE) available and allocated to the different division program areas in FY97 are itemized in tables 9 and 10.

TABLE 9. FY 97 PERSONNEL SUMMARY

OFFICE/DIVISION	TOTAL FTE ALLOTTED	PERCENTAGE OF TOTAL
Superintendent's office	1.15	2.0%
Administration	7.39	13.2%
Ranger III	6.30	11.2%
Maintenance	22.51	40.1%
Natural resource management	3.56	6.3%
Cultural resource management	1.62	2.9%
Interpretation	7.33	13.0%
Law enforcement / emergency services	4.25	7.6%
Ranger activities and concessions management	2.07	3.7%
TOTAL	56.18	100.0%

*Base FTE allocation is 56

TABLE 10. FY 97 BASE FUNDING SUMMARY

OFFICE/DIVISION	FUNDING ALLOTTED	PERCENTAGE OF TOTAL
Superintendent's office	$128,500	5.7%
Administration	359,100	16.1%
Ranger III	244,300	11.0%
Maintenance	840,500	37.8%
Natural resource management	154,300	6.9%
Cultural resource management	60,100	2.7%
Interpretation	161,500	7.3%
Law enforcement / emergency services	181,200	8.1%
Ranger activities and concessions management	97,800	4.4%
TOTAL	**$2,227,300**	**100.0%**

MARINE OPERATIONS

All park operations are dependent on the park's fleet of 33 boats, most of which range from 16–33 feet long. Most of the larger vessels are about 20 years old; most of the smaller vessels have recently been replaced with low-maintenance workboats.

Specialized vessels include a tugboat, a work barge, a 55,000-gallon fuel barge, and a military landing craft (LCM-8). The work barge and LCM-8 are primarily used to transport items that cannot be transported on the *Ranger III*, such as vehicles, sand or gravel, and construction supplies. Park vessels are maintained at facilities on Mott Island.

Primary transportation and logistical support for the park is provided by the *Ranger III*, a 125-passenger vessel built in 1958. This NPS-owned and operated vessel sails to the island from park headquarters in Houghton, a distance of over 60 miles. The *Ranger III* runs from late April or early May until the end of October, normally taking two days for each round trip. All crew positions on the vessel require Coast Guard licenses and/or certificates. During the spring and fall freight season, the vessel makes one trip to the island per week. A crew of nine is required May 15–September 15 when the vessel carries paying passengers. During this period, the *Ranger III* makes two trips to the island each week. The vessel provides interpretive cruises on the Portage Canal for paying passengers one night per week during the summer.

The *Ranger III* provides transportation to the island for employees and visitors, carrying approximately 4,500–5,000 people each year. In a season, over 1,500 people take the weekly cruise on the Portage Canal. Most freight, groceries, and mail needed by NPS and concession operations on the island are transported on the *Ranger III*. Incineration of garbage was eliminated on the island in 1996, so the vessel now transports most of the garbage generated on the island back to the mainland. Up to six private boats 20 feet long or less can be transported on the front deck of the vessel. All diesel fuel needed to operate boats and generators on the island is carried and delivered by the *Ranger III*.

It costs approximately $425,000 per year to operate and maintain the *Ranger III*. This is partially offset by annual passenger and freight income of about $175,000. Compliance with the Oil Pollution Act of 1990 has added significant new costs and requirements (including training) to the *Ranger III* operation.

As a certificated vessel, the *Ranger III* must undergo a required hull and open machinery inspection and routine maintenance in drydock once every five years. The park contracts with a shipyard for this work, which costs about $250,000.

FACILITIES

Trails

There is a network of 165 miles of hiking trails in the park. Along these trails are about 14,000 maintained erosion control devices, approximately 6 miles of bridging, and 160 trail signs. Trails are maintained by seasonal trail crew workers supplemented by several volunteer groups. The crew has been reduced to four due to lack of funds. Insufficient maintenance has resulted in an increase in erosion and social trail development.

Docks

There are 70 boat docks of widely varying sizes in the park. About 66% are available for day or overnight use by visitors. Approximately 30 of the docks are associated with the 20 campgrounds on or near the Lake Superior shoreline. Most docks can accommodate both small and large boats and are also used by hikers and paddlers.

Visitors can obtain boat fuel from the concessioner at Windigo and Rock Harbor, where sewage pumpout service is also available. The

concession marina at Rock Harbor has six public docks and is the only location in the park where water and electrical hook-ups are available for private boats.

The large main docks at Houghton, Windigo, and Rock Harbor are designed primarily for use by the *Ranger III* and the two concession-operated ferry services.

Most park docks are 30 years old or older and are in need of significant repair or replacement. Enviroscience, Inc., a marine engineering firm from Eden Prairie, Minnesota, inspected 17 of the most popular public docks in 1996. The final report estimated repair or replacement costs for the 17 docks at $1.5 million. Repair or replacement estimates for the rest of park docks have not been prepared.

Campgrounds

There are 36 campgrounds in the park; over half are located on or near the Lake Superior shoreline. There are about 90 pit toilets, 88 shelters, and 112 individual tent sites associated with these campgrounds. There are group campsites at 17 of the park's campgrounds.

Since 1996 the park has required all groups (parties of 7–10 people) to obtain reservations for group campsites prior to visiting the island. Groups must follow the camping itinerary specified on a permit.

Individual use of sites and shelters does not require a reservation; these sites and shelters are available on a first-come, first-served basis.

Fuel Transportation and Storage

Diesel generators are used to produce all electrical power at Windigo, Rock Harbor, and Mott Island. Diesel fuel is available at Mott Island and Rock Harbor for both park and visitor boats. About 80,000 gallons of diesel fuel is delivered to the island each year by the *Ranger III* for generator and boat use. Bulk storage tanks are located at Windigo and Mott Island. Delivery lines are all underground single-wall steel pipes.

The fuel barge *Greenstone*, pulled by the tug *Colombe* transports 80,000 to 120,000 gallons of gasoline to the island each year. Gasoline is transferred at five locations in the park and is used primarily to fuel NPS and private boats. The park charges the concessions for gas delivery based on actual NPS costs to transport the fuel. Charges vary depending on whether three or two fuel runs are made per season.

DEVELOPED AREAS

Park facilities and services are located in Houghton on the mainland and at Windigo, Amygdaloid, Rock Harbor, Mott Island, and Malone Bay on the island. All utility services on the island (water, sewer, power, and garbage) are provided by the National Park Service. All employees who work on the island move from their homes and offices on the mainland to the island each spring and then back in the fall.

Houghton

Mainland operations are located on a six-acre administrative site in Houghton, Michigan. Principal facilities include a main office building, warehouse, museum storage building, maintenance shop, baggage handling building, *Ranger III* dock and two parking lots.

The headquarters building in Houghton houses a small visitor center and office space for the administrative staff. Winter office space for permanent employees who are duty stationed on the island during the operating season is also in this building. The rental of additional office space in the city of Houghton has been necessary since 1992.

Houghton serves as the principal staging area for logistical support for NPS and National Park Concessions, Inc., island operations.

Windigo

Public facilities at Windigo are used primarily by visitors who enter the park from the north shore of Minnesota and include a 19-site campground, five docks, a shower/restroom building, visitor center, and concession store. Visitors reach Windigo by concession ferry from Grand Portage, Minnesota, by concession seaplane from Houghton, Michigan, or by private boat. Windigo serves as the winter base of operations for the annual wolf/moose study.

A new 2,300-square-foot visitor center/ranger station is being built to replace an old facility of the same size that will be demolished. Windigo has nine employee housing units for the four permanent and 6–10 seasonal employees. NPS facilities include water treatment and storage facilities, five bulk fuel storage tanks, a small community building, and maintenance shop. All electrical power is produced by diesel generators. Sewage treatment is provided by two separate leachfield/septic tank systems.

Rock Harbor

The National Park Service and National Park Concessions, Inc., both operate public and administrative facilities at Rock Harbor.

The NPCI facilities and services at Rock Harbor are detailed in the Commercial Services section. All of the principal structures used by the concession are owned by the government.

The size and scope of the concession operation at Rock Harbor requires the largest and most sophisticated utility system on the island. All utility system services required for concession operations are provided by the National Park Service. NPS use of these systems represents about 3% of the total that the systems produce.

In order to correct operational deficiencies identified in a 1996 safety inspection and a followup engineering study, the park incurred substantial new costs to operate the Rock Harbor utility systems in 1997. These costs include charges for one additional utility systems operator, extended seasons for the four other utility systems operators, reestablishment of an electrician position, and required travel and training.

NPS facilities that use water, power, and/or sewer utilities at Rock Harbor include three employee housing units for one permanent and 8–10 seasonal employees, a small visitor center, a 22-site walk-in campground, an auditorium, a public bathroom, a first aid cabin, several storage buildings, and the main ferry dock.

Electrical Power Plant and Distribution System. There are three diesel powered generators ranging in size from 135kw–275kw in a powerhouse. The electrical distribution system consists of 35 transformers, 150 poles, 3,000 feet of high line and 500 feet of underground powerline.

Water Supply Treatment System. A mixed media filtration type surface water treatment plant with a 70-gallon per minute capacity supplies water to the Rock Harbor area. A state- certified operator is required whenever the plant is in operation. A state-certified water laboratory and certified lab technicians are also required. Water is stored in a 40,000-gallon clear well and in an elevated 15,000-gallon tank. The elevated tank is in poor condition and (due to lack of height) fails to provide water pressure sufficient to meet Michigan Department of Public Health requirements. A four-inch pipeline distribution system with three dead ends is in use. There is about 9,000 feet of water line on the system.

Wastewater System and Collection Systems.

The wastewater plant is an activated sludge, extended aeration type with a capacity of 30,000 gallons per day. Though the plant is operational, system improvements and additions are needed. All state health department requirements are being met. The plant is operated under a state of Michigan discharge permit. Michigan requires a state-certified operator for the system. There is a

lab associated with the wastewater plant. There are four sewage lift stations, two of which are of the air-injected type and require replacement. There is one boat pumpout facility.

Mott Island

Park headquarters is on Mott Island and includes a boat repair/carpenter shop, warehouse/ maintenance building, central office building, multiple storage buildings, generator powerhouse, bulk fuel storage tanks, water treatment facility and storage tanks, and boat docking facilities. Most park operations on the island are conducted or supported by employees living and working there.

The housing units on Mott Island include seven one-, two-, or three-bedroom duplexes, two eight-unit dormitories, a five-unit apartment building, and six one- or two-bedroom single family houses. A number of employees who work at Rock Harbor live on Mott and commute to Rock Harbor daily.

Principal components of the Mott Island utility system include a powerhouse, water pumping and treatment building, water storage tanks, four septic tank/leachfield systems, and bulk fuel storage tanks. Many components of the utility system infrastructure are old. Electrical power poles, overhead powerlines and septic tank/ leachfield systems are in need of significant repairs, replacement, or upgrading.

Malone Bay

NPS facilities at Malone Bay include a duplex for employee housing, one-room log ranger station, maintenance shed, water storage tank, dock, gasoline storage tank, and a seven-site lakeshore campground. Solar power and composting toilets are used in the duplex; backup power is supplied by a portable gasoline generator. Propane is used for heating and cooking. A trail connects this area to Siskiwit Lake and the Greenstone Ridge via Ishpeming Point. The area is staffed seasonally with two employees whose principal area of responsibility includes the south shore of Isle Royale from Fishermans Home to Chippewa Harbor.

Amygdaloid Island

On the west end of Amygdaloid Island, NPS facilities include a duplex for employee housing, maintenance shed, dock, gasoline storage tank, water treatment shed and storage tank, and two historic structures formerly used for employee housing. There are solar power and composting toilets in the duplex; backup power is supplied by a portable gasoline generator. Propane is used for heating and cooking. The area is staffed seasonally with two employees whose principal area of responsibility includes the north shore of Isle Royale from Little Todd Harbor to Blake Point.

VISITOR USE DATA

Ten Year Annual Data and Analysis

Isle Royale visitor use data has been collected since 1941. Since then there have been many management actions that influenced the numbers of visitors reported. Island visitor counts are a compilation of concessions and NPS ferry counts, day use boaters reported at the visitor centers, and overnight private boater camping permits. In 1984 the park began recording visitors to the Houghton visitor center and from 1986–1990 counted visitors at the Copper Harbor visitor center. Mainland visitor center totals are not included in the island totals.

For management purposes, visitor use of the island is the critical measurement. Table 11 shows the number of visitors to the island itself. Table 12 details passenger numbers. Overnight use (the number of visitors multiplied by the number of nights that they stayed on the island) is the most useful measure because the number of overnight stays has a direct bearing on the kinds and levels of impacts expected on resources and visitor experiences. Table 13 displays overnight use information on the island.

TABLE 11. ANNUAL VISITORS TO THE ISLAND

Year	Island Visitors
1996	17,122
1995	18,488
1994	18,725
1993	16,625
1992	16,751
1991	16,468
1990	16,258
1989	15,824
1988	13,951
1987	15,215

TABLE 12. PASSENGER NUMBERS

	1996	1995	1994
Ranger III	1,911	1,848	1,584
Isle Royale Queen	4,878	5,278	4,691
Voyageur II	1,422	2,476	1,610
Wenonah	3,226	2,544	3,262
Isle Royale seaplane	923	948	1,103
Private boats	4,859	5,539	6,408
Total	**17,219**	**18,633**	**18,658**

Source for tables: National Park Service, Public Use Statistics Program Center, and Isle Royale National Park

From 1986 to 1989 visitation to the island showed a pattern of increases and decreases. During the next four years (1990–1993) visitation was relatively constant. In 1994 and 1995 visitation increased by approximately 10%. There was a decline of 7.4% in 1996.

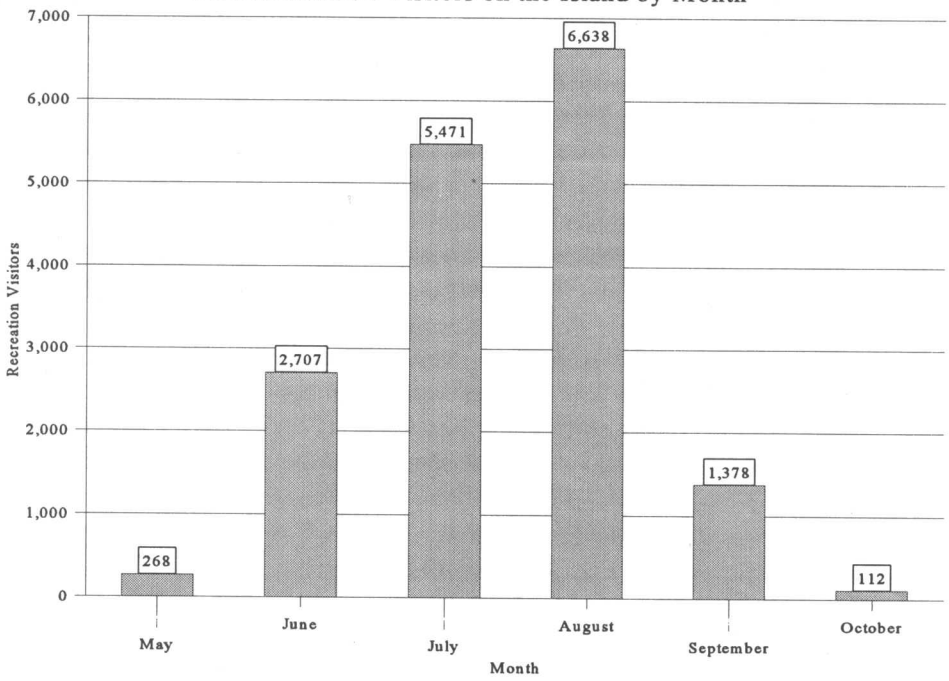
Length of Stay

In 1996 there were a total of 69,348 overnight stays. Average stay for overnight users was 4.7 days; when day users were included, the average stay dropped to 4.1 days. An overnight stay is defined as one visitor spending one night in the park for recreational purposes. As island visitation has increased and decreased over the years, so have overnight stays. Records have been kept since 1974, and there has been a steady increase in overnight stays since 1987.

Recent increases in overnight use have largely been a result of increases in visitor use during the months of July and August (table 14). Visitation during the shoulder seasons is low, but the rate of increase has been significant. The park is open to visitors from April 16 through November 1. Weather and ice conditions on Lake Superior dictate when visitors and park staff are able to arrive and depart. Over 70% of visitation takes place during July and August.

Much of that use is during the last two weeks in July and the first two weeks in August.

Figure A. Isle Royale National Park
1996 Recreation Visitors on the Island by Month



Source: National Park Service, Public Use Statistics Program Center and Isle Royale National Park

TABLE 13. OVERNIGHT STAYS 1987–1996

Year	NPCI Lodging*	Rock Harbor Marina	Rock Harbor and Windigo Campgrounds	Backcountry	Misc.	Nonrecreational Overnight	Total*
1996	8,273	1,432	8,343	46,625	4,035	640	69,348
1995	8,566	1,397	8,178	45,564	4,474	985	69,164
1994	7,962	1,628	8,665	43,673	4,262	1,192	67,382
1993	9,202	1,616	8,058	40,690	3,154	784	63,504
1992	9,512	1,456	7,397	39,663	2,243	915	61,186
1991	9,420	1,852	6,902	38,148	3,239	876	60,437
1990	8,696	1,537	6,981	37,489	3,769	706	59,178
1989	10,038	1,434	6,446	33,977	3,982	1,124	57,001
1988	9,921	2,368	5,932	31,807	4,016	1,217	55,261
1987	9,694	1,243	6,292	33,251	4,812	1,498	56,790

*These numbers are based on new information and do not match official NPS figures.

Note: Total overnight visitation to the island combines recreational and nonrecreational overnight visits. Miscellaneous includes boaters anchored out, life lessees and guests, NPS employee guests, and commercial fishermen and guests.

TABLE 14. OVERNIGHT STAYS BY MONTH AND TYPE (1996)

Month	NPCI Lodging	Rock Harbor Marina	Rock Harbor and Windigo Campgrounds	Backcountry	Misc.	Nonrecreational	Total
May	118	0	222	1,461	46	199	2,046
June	1,372	161	1,445	9,916	644	68	13,606
July	2,955	590	2,603	14,170	1,632	66	22,016
August	3,322	658	3,307	17,146	1,434	64	25,931
September	506	23	708	3,615	247	116	5,215
October	0	0	58	317	32	127	534
Total	8,273	1,432	8,343	46,625	4,035	640	69,348

Source for tables: National Park Service, Public Use Statistics Program Center

PROJECTIONS OF DEMAND

A projection of future visitor use for Isle Royale was made (tables 15 and 16). They are the best estimates available using a simple straight-line projection method and the island visitation data for 1986–1996. Projections of both the total numbers of visitors and the numbers of overnight stays are provided.

Park use is affected by many factors, but forecasted use is based solely on historical data, which is projected forward and assumes that whatever factors influenced visitation in the past will continue. Forecasting in this manner may provide reasonable estimates only if the changes that affected visitation continue. This may not be true over extended periods, so projections are less reliable over the long-term than they are short-

range. Caution is warranted when interpreting and using the results.

Growth rates of 1% and 3% are used for the projections. The figures represent a possible range of visitation growth over the next few years. The low range would result in an increase of fewer than 2,000 visitors to the island by 2007, or approximately 11.5%. The low growth projection for overnight stays is an increase of approximately 8,000, 11.5% over 1996 levels. For visitors to the island, the high forecast projects an increase of more than 6,500 visitors by the year 2007, more than a 38% increase over 1996. The high projection for overnight stays is for an increase of more than 38%, or 26,500 additional overnight stays.

Uncontrolled growth would have serious negative impacts on the resources and on the quality of the visitor experience. High levels of visitation could only be accommodated by allowing significant negative impacts on resources and visitor experiences. Managed visitation would reach an acceptable level of use and then be maintained to protect the resources and provide quality visitor experiences.

TABLE 15. PROJECTED VISITORS 1997–2007

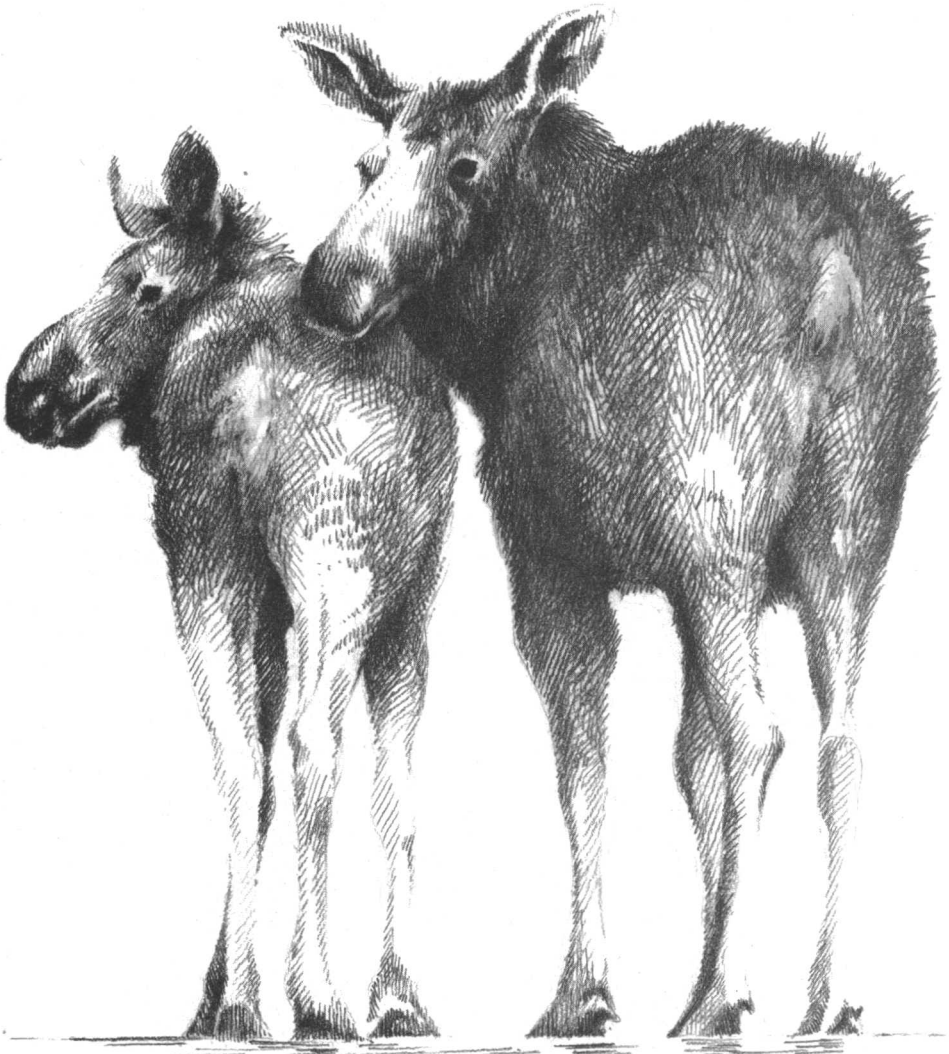
Year	Projected Recreational Visitors	
	Low 1%	High 3%
2007	19,100	23,700
2006	18,900	23,000
2005	18,750	22,350
2004	18,550	21,700
2003	18,350	21,050
2002	18,200	20,450
2001	18,000	19,800
2000	17,800	19,200
1999	17,650	18,700
1998	17,450	18,150
1997	17,300	17,650

Source: National Park Service, Denver Service Center

TABLE 16. PROJECTED OVERNIGHT STAYS 1997–2007

Year	Projected Overnight Stays on the Island	
	Low 1%	High 3%
2007	77,350	96,000
2006	76,600	93,200
2005	75,850	90,500
2004	75,100	87,850
2003	74,350	85,300
2002	73,600	82,800
2001	72,900	80,400
2000	72,150	78,050
1999	71,450	75,800
1998	70,750	73,550
1997	70,050	71,450

Source: National Park Service, Denver Service Center, Resource Planning



Environmental Consequences

The alternatives in this document establish broad overarching management guidelines. The general nature of the alternatives requires that the analysis of impacts also be general. This means that the National Park Service can make reasonable projections of likely impacts, but these are based on assumptions that may not prove to be accurate in the future.

As a result, this environmental impact statement is programmatic and presents an overview of potential impacts relating to each alternative. This environmental impact statement will serve as a basis for NEPA documents prepared to assess subsequent developments or management actions.

Impact topics were selected for analysis by determining which resources or elements of the human environment would be affected by alternative actions to address the planning issues and concerns described in the Purpose and Need section. Methods used to avoid or assess impacts are discussed below and in Appendix A. Those resources and environmental concerns that would not be appreciably affected by alternative actions were eliminated from further consideration and comparative analysis.

IMPACTS DISMISSED FROM FURTHER CONSIDERATION

The alternatives presented in this document will not have discernable negative impacts on the following resources, so these impact topics were dismissed from further consideration.

Floodplains and Wetlands

There would be no actions in floodplains or wetlands in any alternative. Preliminary site investigation for all actions has ensured that those resources can be avoided during implementation. In all alternatives involving removal or construction of docks in navigable waters, the U.S. Army Corps of Engineers and Michigan Coastal Commission would be consulted for appropriate permits.

Air Quality

Temporary impacts on air quality could be caused by construction and demolition of facilities. These would primarily involve temporary increases in particulates (fugitive dust) and vehicle emissions (where motorized equipment is used). Mitigating measures (such as watering to keep dust down) would be taken to limit even temporary and localized impacts.

All alternatives would allow park managers and others to better understand and manage air quality. Included are research into suspected threats (consistent with the concept of Isle Royale being a laboratory or benchmark for wilderness), cooperative efforts with regional air quality ecosystem management and protection programs.

Vegetation and Soils

In each alternative, the total disturbance to vegetation and soils would be very minor (less than 10 acres) considering the size of the park. Most disturbance would take place in previously disturbed areas, further reducing the overall impact. Mitigation techniques would be used to reduce impacts to the minimum necessary to accomplish the objective. Mitigation would include careful site selection, salvaging topsoil and plant material, and rehabilitation of disturbed areas. Whenever facilities are proposed to be removed, the disturbed areas would be rehabilitated and revegetated with native plants.

Inventory work would be beneficial to the park's ability to manage these resources. Data gaps in the baseline information, particularly for rare plants and several animal species, would be filled and a better overall understanding of ecosystems would be attained.

Ethnographic Resources

No ethnographic resources have been identified in the park to date. If any ethnographic resources were identified the park would follow legal requirements and NPS policy to protect these resources.

Park Collections

None of the alternatives would impact the park's collections (museum artifacts, animal specimens, etc.). These are currently being stored and catalogued according to NPS curation standards and guidelines, and the facilities are anticipated to be adequate for the duration of this plan. No alternative would change the status of these resources.

Environmental Justice Policy (Executive Order 12898)

This order requires federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low income populations and communities. The alternatives would have no such adverse effects.

- The developments and actions proposed in the proposed action would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect negative or adverse effects on any minority or low-income population or community.

- The impacts on the natural and physical environment that occur due to implementation of the alternatives would not significantly and adversely affect any minority or low-income population or community.

- The alternatives would not result in any effects that would be specific to any minority or low-income community.

- The National Park Service has had an active public participation program and has considered all public input regardless of age, race, income status, or other socioeconomic or demographic factors.

- Consultations were conducted with Native Americans, and no negative or adverse effects were identified that disproportionally and adversely affect these minority groups.

- Impacts on the socioeconomic environment from the alternatives would be minor and would be confined mostly within the local and regional geographic area near the park. These impacts would not occur at one time but would spread over a number of years, thus mitigating their effects. Impacts on the socioeconomic environment are not expected to significantly alter the physical and social structure of the nearby communities.

IMPACTS COMMON TO THE PROPOSED ACTION, ALTERNATIVES B, C, AND E

The following impacts are common to all alternatives except Alternative A (the no-action alternative) and are not repeated in the impact sections for individual alternatives.

IMPACTS ON NATURAL RESOURCES

Wildlife

Wildlife information was consulted during development of this plan in an attempt to avoid sensitive habitats. Impacts on wildlife were determined by studying locations of nests and considering habitat needs in relationship to the alternatives. Researchers and other resource experts were consulted.

Some displacement of wildlife could result from dispersal of visitation around the island, increase in visitor use of specific areas above present levels, and introduction of visitor use into previously unused areas (see wildlife discussion for each alternative). This impact would be minor and would affect a relatively small amount of the park. The survival of populations would not be threatened and available critical habitat would not be reduced. Smaller and less mobile wildlife would be affected more than larger animals that are able to move out of the areas of disturbance. The impact would last for the duration of the visitor use or the life of the facility.

Disturbance to soils and vegetation in the alternatives would have very little effect on the availability of habitat across the island. Most disturbance would be in previously disturbed areas that are relatively small and dispersed across the island and would be mitigated by revegetation where possible. Continued winter closure of the island would benefit wildlife by reducing human contact and interference.

In all alternatives, inventories would improve management of these resources. A better understanding of park resources would allow for better management and sustainability. Better data on reptiles, amphibians, insects, mollusks, and snails in a natural setting would have far-reaching benefits and would contribute to the park's role as a laboratory or benchmark for similar ecosystems.

Study of the wolf and moose relationship on Isle Royale has already produced significant results that have helped management of these species on the island and elsewhere. Because the benefits of research transcend the park boundary, convening a panel of subject matter experts if dramatic wolf population changes occur would involve those who would benefit substantially from continued research.

The Lake Superior fisheries are part of Isle Royale's significance and contribute to the experience of many park visitors. Development of a fisheries management plan would be beneficial to the management of those resources.

Threatened and Endangered Species

Data bases from the park, U.S. Fish and Wildlife Service, the state of Michigan, and current researchers have been consulted during development of all alternatives. During implementation of any action additional research would be conducted to identify appropriate mitigation measures. Specific area closures would continue to be used as necessary for protection of resources, primarily wildlife.

Additional inventory work and monitoring would benefit the management of these resources. Suitable habitat exists in the park for several threatened and endangered plant and animal species; research would verify their existence in the park and add to the knowledge needed for better management.

Designated Wilderness

There are several areas presently designated as potential wilderness additions under the 1976 Isle Royale wilderness legislation. These areas are to convert to designated wilderness after

nonconforming uses are removed or lessened. Examples of potential wilderness additions include the area around the Amygdaloid ranger station, Fishermans Home, and Wright Island. Specific actions proposed in each alternative would affect the future ability to convert these areas to designated wilderness.

Water Quality

The removal and construction of docks, trails, campgrounds, and other facilities could increase turbidity somewhat in adjacent waters. This impact would be temporary and would be mitigated by site-specific containment measures such as silt fencing and retention ponds. All disturbed areas would be revegetated so that no long-term siltation impacts from runoff would occur. All action alternatives would allow park managers and others to better understand and manage water quality. Included are research into suspected threats, cooperative efforts with regional water quality ecosystem management and protection programs, and development of a water resources management plan.

IMPACTS ON CULTURAL RESOURCES

Archeological Resources

Inventories would improve the park's ability to manage archeological resources. All action alternatives would benefit shipwrecks as the result of partnerships formed to preserve and protect these resources.

The removal of trails would benefit archeological resources because less visitor use in these areas would reduce disturbance. This would be proportional to the amount of trail removed. The same positive effect would result from the removal of docks, because visitors would be less likely to come to these areas.

Historic Resources

Impacts have been assessed for historic resources that have been determined eligible for listing on the National Register of Historic Places and those resources on the park's List of Classified Structures. The list is an inventory of all historic and prehistoric structures with historical, architectural, or engineering significance in which the park has legal interest. Included are structures that meet the criteria of the National Register of Historic Places or are contributing elements of sites and districts that meet the national register criteria. The list assists park managers in planning, programming, and recording decisions about treatment for these resources. To determine impacts, park and other NPS cultural specialists and the Michigan State Historic Preservation Office were consulted.

Adaptive use in several alternatives would help preserve structures and other features. Development of campsites or addition of docks in these areas could impact cultural landscapes, depending on the location, size, and use levels.

Inventories would help the park staff to understand and better manage the resources.

IMPACTS ON VISITOR USE AND VISITOR EXPERIENCE

Scenic Quality

Scenic values relate to the visitors' perceptions of the park and its surroundings. Natural appearing conditions (such as undeveloped shoreline) are - aesthetically pleasing. Impacts on scenic quality were determined by considering the number, nature, and scale of human developments that would interrupt the natural scene. Constructed facilities decrease the amount of undeveloped area and the sense of naturalness.

Proposed facility additions, such as campgrounds, lodging, and docks, would be designed to minimize visual intrusions. Facility design, colors, and size would be matched as closely as possible to the surrounding natural features and would be hidden from view when possible.

Wilderness Experience/Noise

A reduction in overcrowding and noise levels would enhance the wilderness experience. Separation of uses would also enhance the wilderness experience for some users.

Restriction of aircraft landings to existing designated areas and prohibition of sightseeing aircraft and personal watercraft would prevent noise increases from these activities.

RANGE OF USES

The range of uses refers to the reasons that visitors come to the park and to visitor characteristics such as age, income level, or physical ability. The range accommodated varies somewhat in different alternatives. In alternatives that call for major changes in amounts or locations of facilities and services, these impacts would be the most significant.

Visitor Use Levels

In all action alternatives it is assumed that numbers of visitors will have to be managed or limited. This may mean that in the future some visitors may be unable to visit the island when they wish or might not be able to visit at all during the season.

Disabled visitors would encounter fewer barriers as changes were made over time to meet accessibility standards in developed areas and at campgrounds. Outreach programs would increase awareness of opportunities for the disabled at Isle Royale.

Safety

Visitor safety could be affected in some alternatives because emergency response time could vary according to number and location of docks and ranger stations and the general amount of ferry and motorboat access.

In alternatives that call for nonmotorized zones, boaters would not be prevented from taking shelter in those zones in the event of hazardous weather conditions or for other legitimate safety reasons.

IMPACTS ON PARK OPERATIONS

Partnerships for cultural resource protection and maintenance would be beneficial to park resources, but a workload increase would be associated with their establishment, management, and coordination.

Establishing limits for visitation growth would minimize long-term increases in maintenance and management workload associated with wear and tear on park facilities and resources.

CUMULATIVE IMPACTS

Cumulative impacts are impacts on the natural and cultural environments and human experience that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions that happen over a period of time.

The action alternatives reaffirm the NPS commitment to protect and manage natural resources. They propose programs and allocations of funds to support those programs that would enable the park to continue (or begin) resource inventories and monitoring. This would provide the park with information that would be very beneficial when working or cooperating with other entities in the Lake Superior basin to improve the overall quality of the environment, including the fishery. The concept of the park as a natural laboratory and benchmark would be enhanced and the resulting data would be extremely valuable for research and studies conducted in the region and beyond.

If preservation of Passage Island, Menagerie Island, and Rock of Ages Lighthouses were to prove infeasible, their loss, when combined with loss of lighthouses throughout the Great Lakes region, could result in the disappearance a significant segment of Great Lakes maritime history.

ALTERNATIVE A

IMPACTS ON NATURAL RESOURCES

Wildlife

No temporary or permanent disturbance or displacement of wildlife would occur as a result of new construction or demolition. There would be no introduction of visitor use into new areas, but disturbance in existing areas would continue. Uncontrolled increases in visitor use would result in increased disturbance and displacement in busy areas. Some wildlife species would continue to adapt to human use and others would seek more suitable habitat elsewhere. Controlled use water zones would not be established, and waterfowl would continue to be disturbed at their nesting sites. This impact could increase with uncontrolled motorboat use.

Threatened and Endangered Species

Disturbance to these species (animal displacement or trampling of rare plants) could increase with rising and unrestricted use. The potential for human disturbance of wolves, bald eagles (that nest in the park), and peregrine falcons (that occasionally use the park but are not known to nest there) could increase with rising and unrestricted visitor use.

Designated Wilderness

Eighteen potential wilderness areas would be converted to wilderness after nonconforming uses are eliminated. Of these, five areas include functions (such as staff housing and the park's artist-in-residence program) that are expected to continue for the foreseeable future. Conversion of these five areas will be delayed until such functions are no longer needed or can be relocated to nonwilderness areas.

Geologic Processes

The movement of sand and sediment along the shoreline in Siskiwit Bay would continue to be interrupted by the artificial dock and breakwater structures.

Water Quality

Hydrocarbon engine and bilge emissions from private motorboats, NPS craft, and commercial ferries would continue. Without use limits or restrictions, use of motorboat and personal watercraft could increase significantly, resulting in increased emissions of hydrocarbon compounds into Lake Superior waters. Motorboat fuel emissions are not believed to be of much ecological concern at Isle Royale, however (Roy Irwin, personal communication), for the following reasons: (1) Motorboat fuel is made up largely of volatile compounds that evaporate and disperse into the air. Sunlight and microbial action help to break down most substances over time into harmless compounds. (2) More persistent hydrocarbon compounds are not likely to build to toxic levels because of the relatively low number of boats and the nature of Lake Superior; as the largest freshwater lake in the world, there is ample room in Lake Superior for dispersal of molecules, and dispersal is enhanced by water mixing from seasonal temperature changes and wave action. (3) The duration of hydrocarbon emissions is limited, as motorboat use occurs primarily during the three summer months.

Although refueling of visitor boats at park marinas would continue, potential for spills with appreciable adverse effects would remain low because approved spill prevention and response plans and measures are already in place. Similarly, the risk of environmental harm from fuel storage or transfer operations would remain low, as spill prevention and response measures (double-walled pipes and storage tanks, containment structures and equipment, spill

response training, etc.) are in place now or will be completed in 1999.

Petroleum spills from boat accidents (private, NPS, or commercial ferry) rarely occur at Isle Royale. The risk of such accidents could rise if use of motorboats in park waters increased significantly, but based on the historic rate of such incidents, the likelihood of a damaging spill would still be low. The greatest risk of a major spill is associated with the NPS fuel barge; this risk would be minimized, however, by compliance with U.S. Coast Guard regulations and conversion to a double-hulled vessel.

IMPACTS ON CULTURAL RESOURCES

Archeological Resources

Twenty-five of the park's 36 campgrounds are located on or near archeological sites. These sites would continue to deteriorate because of erosion and foot traffic. Inventories of archeological sites would continue to be done on a site-by-site basis for compliance purposes.

The lack of comprehensive surveys would result in a negative impact on the long-term management of archeological resources. Archeological investigations before ground disturbing activities would continue to alter sites as data is retrieved, and there is a risk that information would be overlooked or lost during the investigations.

Historic Resources

The currently limited park program to identify significant cultural resources would continue and would lead to marginally improved understanding and management of these resources. In the absence of identified uses for historic structures and with no strategy for adaptive use, some structures currently managed by the park (or that would come into park ownership) would be documented and allowed to deteriorate.

IMPACTS ON VISITOR USE AND VISITOR EXPERIENCE

Scenic Quality

There would be no impacts associated with increased shoreline development. Unlimited visitor use would eventually degrade the shoreline and inland areas (primarily by trampling vegetation). The motel units at Rock Harbor would continue to impact the natural appearance of the entrance to the harbor area.

Wilderness Experience and Noise

The quality of the experience for many visitors would continue to decline due to unlimited use levels, which would result in increased crowding and more competition for campsites. If motorboat use continues to increase, visitors would hear boats more frequently, especially in well traveled corridors. With no nonmotorized or quiet/no-wake zones, no decrease in noise levels would be expected to occur. Noise from sightseeing aircraft and from personal watercraft could be a problem in the future.

Range of Uses

Current range of uses and visitor flexibility in going to and moving around the island would continue to be accommodated. Potential for negative visitor experiences would continue as diverse user groups with different expectations share the same campgrounds. Disabled visitors would encounter fewer barriers as changes were made over time to meet accessibility standards in developed areas.

Unavailability of funding for concession subsidies would probably result in higher costs to the consumer and might price some individuals out of the market. If the concession operation fails, people unable to visit the island without those services would be displaced.

Safety

As facilities deteriorate, the potential for safety problems would increase.

IMPACTS ON THE SOCIOECONOMIC ENVIRONMENT

Implementation of alternative A would not result in any significant changes in overall social or economic conditions in the gateway communities. Current economic activities on the island and in Houghton and Copper Harbor, Michigan, and Grand Portage, Minnesota, would continue with business enterprises responding to market conditions and demand as warranted.

This alternative calls for continuing rehabilitation and repair of facilities at various locations. These expenditures would provide short-term positive economic benefits for a relatively few individuals and businesses.

Increases in visitor use of the island would not necessarily translate into increased economic activity in the gateway communities or on the island because, while visitor use of the island is increasing, the actual numbers of visitors to the island has decreased slightly in the past couple of years. Visitors to the island are separated from the gateway communities by Lake Superior and their spending pattern remains the same — visitors purchase goods and services in gateway communities before and after visiting the island.

If changes to the concessions at Rock Harbor resulted in fewer visitors traveling to the island from Copper Harbor and Grand Portage, those communities could be negatively affected. However, there are many other tourist attractions in the affected areas, and this disturbance of the tourism industry would be absorbed in due time with relatively small long-term negative impacts.

IMPACTS ON PARK OPERATIONS

The park would continue to violate the requirement that all national park areas have a current general management plan. In the absence of a parkwide, long-range direction for the future and associated approved priorities for actions that are established in a general management plan, decisions would continue to be made on a case-by-case basis.

Anticipated growth in visitation would continue to increase the maintenance and management workload caused by wear and tear on park facilities and resources.

CUMULATIVE IMPACTS

This alternative does not establish a priority system or long-range view of needed developments or programs to meet park objectives. This would make it difficult for the park to coordinate efforts with other entities in the region to improve the overall quality of the environment in the Lake Superior basin.

Some cultural resources are deteriorating due to lack of funding. The additional responsibility of lighthouses, particularly if no partners could be found, would further dilute funding and staff time devoted to cultural resources.

If preservation of Passage Island, Menagerie Island, and Rock of Ages Lighthouses were to prove infeasible, their loss, when combined with loss of lighthouses throughout the Great Lakes region, could result in the disappearance of a significant segment of Great Lakes maritime history.

IMPACTS ON NATURAL RESOURCES

Wildlife

This alternative proposes moderate new campground and dock construction (5–10 new facilities) and minor demolition of facilities (fewer than 5) that would temporarily disturb or permanently displace wildlife. The net loss of habitat would be minimal due to the rehabilitation of sites where facilities would be removed. Most new construction would be in previously disturbed areas that have had some degree of human use. Some increased use could occur that could cause more disturbance. Overall visitor use of the park would be monitored and managed, which would reduce wildlife disturbance compared to alternative A. (See discussion of the wildlife impacts in the "Impacts Common to the Proposed Action and Alternatives B, C, and E" section.)

Disturbance of waterfowl is most critical at nesting sites near the shoreline. This alternative establishes quiet/no-wake water zones in many areas, which affords more protection to sensitive waterfowl habitat than any of the alternatives except C. Removal of portions of the Chippewa trail would create an undisturbed area larger than existing conditions that would rarely be used by people and would probably be beneficial to wildlife.

Threatened and Endangered Species

Potential disturbance to threatened and endangered species from dispersal of visitation, increased use in particular areas, and introduction of use into new areas would be minimized by monitoring and managing visitation levels. (Also see discussion of the VERP process in the "Actions Common to the Proposed Action, Alternatives B, C, and E" section.) No additional impacts on bald eagles or peregrine falcons would be expected.

Designated Wilderness

Existing park activities will delay for the foreseeable future the conversion of five potential wilderness areas to wilderness. In this alternative conversion of two additional areas would be delayed in order to preserve cultural resources through adaptive use.

Geologic Processes

Removal of the Siskiwit dock and breakwater would permit natural shoreline processes to return, particularly the movement of sand and sediment along the shoreline in Siskiwit Bay.

Water Quality

Water quality impacts would be similar to Alternative A, with the following exceptions: Use limits and prohibition of personal watercraft in the park mean that emission of hydrocarbon compounds into park waters is not likely to increase much beyond current levels. The NPS's leadership role in use of non-polluting motorboat engines, education efforts about environmental and other benefits of non-polluting engines, and increased availability of such engines could gradually result in a greater proportion of cleaner motorboat engines in the park. This would cause a concomitant decrease in hydrocarbon emissions into Lake Superior waters. (See also "Impacts Common to the Proposed Action, Alternatives B, C, and E").

IMPACTS ON CULTURAL RESOURCES

Archeological Resources

Short-term minor negative impacts on known or previously unknown archeological resources could be caused by construction associated with adaptive use of structures at Barnum, Wright, and Washington Islands; Crystal Cove, Fishermans Home, and up to six new campgrounds and three

new campsite areas. The long-term effect of establishing quiet/no-wake water zones in Lake Superior bays and harbors would be positive. Submerged and shoreline archeological resources would be protected from wake effect.

The removal of three docks and one breakwater, construction of five new docks, and relocation of one dock could result in short-term impacts on submerged and terrestrial archeological resources.

Historic Resources

Adaptive use of structures at Barnum Island, Washington Island, Fishermans Home, Crystal Cove, and Wright Island would help preserve them and associated features; however, there could be some loss of historic fabric through adaptive use. Development of campsites at these locations could slightly impact cultural landscapes, depending on the site, location, size, and use level of the campground.

IMPACTS ON VISITOR USE AND VISITOR EXPERIENCE

Scenic Quality

The amount of developed shoreline would increase slightly because of additional campgrounds; however, the three campgrounds where docks would be removed would appear more natural. Some increased visitor impacts would occur in areas of increased activity (such as Crystal Cove and Wright Island); however, monitoring and management of use levels would limit these impacts. Removal or remodeling of motel buildings at Rock Harbor and revegetating the disturbed areas would make the shoreline appear more natural.

Wilderness Experience and Noise

Overall visitor use would be monitored and managed, which would reduce overcrowding and associated noise and enhance wilderness experience for all park users. The numerous quiet/no-wake water zones would reduce noise from ferries, visitor boats, and NPS boats, thus enhancing wilderness experiences, particularly in the northeast portion of the park. Restrictions on use of generators and noise-producing electronic devices would also promote quiet.

Range of Uses

The current range of uses would continue to be accommodated. Some separation of motorized and nonmotorized uses would increase the potential for quality visitor experiences. Quiet/no-wake zones would slightly decrease speed of boat and ferry movement around the island.

Unavailability of funding for concessioner subsidies would probably result in higher costs to the consumer and might price some individuals out of the market. If the concession operation fails, people unable to visit the island without those services would be displaced.

Visitor Use Levels

Visitor use limits would be established. Management action would be taken to prevent those limits from being exceeded. Some visitors may be unable to visit the island at a preferred time, or they may be unable to visit individual sites without adjusting their itineraries. If overnight accommodations cannot be sustained, some visitors could stop coming to the island.

Safety

With the removal of docks (at Siskiwit for example) some sites would be more isolated, and visitors would have to be more self-reliant.

IMPACTS ON THE SOCIOECONOMIC ENVIRONMENT

Facility removal and development in the park would result in money spent in the gateway communities for construction labor, management, and materials. Although this influx of federal spending would benefit a few individuals and

firms, these benefits would be short-term, lasting only for the duration of the projects. The benefits would be spread over time as the work would be conducted in phases over several seasons, which would mitigate the overall impacts.

Activities in the gateway communities of Houghton and Copper Harbor, Michigan, and Grand Portage, Minnesota, would continue with business enterprises responding to market conditions and demand as warranted. If changes to the concessions at Rock Harbor resulted in fewer visitors traveling to the island from Copper Harbor and Grand Portage, those communities could be negatively affected. However, there are many other tourist attractions in the affected areas, and this disturbance of the tourism industry would be absorbed in due time with relatively small long-term negative impacts.

IMPACTS ON PARK OPERATIONS

With reduced and more sustainable systems at Rock Harbor, the maintenance and operational workload would be reduced.

Some increase in maintenance workload would be anticipated due to the construction of new campgrounds and other facilities, and maintenance in quiet/no-wake zones would be more time-consuming because of the reduced motorized access.

Monitoring and managing visitor use levels would increase the overall park operational workload.

CUMULATIVE IMPACTS

This alternative gives focus and emphasis to researching, monitoring, and preserving cultural resources. The knowledge gained and the facilities protected would complement the efforts of historical, ethnic, and preservation groups and agencies throughout the region.

RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

This section is intended to describe the relationship of the short-term impacts of the actions proposed in this alternative to the long-term productivity of the human environment at Isle Royale. The proposed actions, such as removing or constructing docks, constructing campgrounds, removing trail sections, and modifying concession services, would require relatively minor disturbance of soils, vegetation, and habitat. Most work would be done in previously disturbed areas and mitigation measures would be used. The long-term effect on the natural environment would be minor in terms of habitat or resource loss but the effect on visitor experience would be great for decades to come. The potential for meeting all visitor expectations at Isle Royale would be greatly enhanced. Overall water and electricity use would be reduced because fewer services would be provided at Rock Harbor.

UNAVOIDABLE ADVERSE EFFECTS

The proposed action is not expected to negatively affect overall conditions for archeological sites or for rare, threatened, or endangered species. Because of the recreational purposes of the park, human activity at archeological sites in known or potential habitat for rare, threatened, or endangered species would continue. Though considered to be small, some risk of unforeseen adverse impact would be unavoidable.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible commitments of resources include destruction of nonrenewable resources such as historic fabric and archeological resources. Even with mitigating measures, it is possible that such losses could occur through adaptive use at Barnum Island, Washington Island, Crystal Cove, Wright Island, and Fishermans Home. The National Park Service would take no other actions that would constitute an irreversible commitment of resources. Irretrievable commitment of

resources are uses of renewable resources in construction of new campgrounds, docks, trail and removal of existing docks and a breakwater. The funding and renewable resources used for these endeavors are lost for other activities.

ALTERNATIVE B

IMPACTS ON NATURAL RESOURCES

Wildlife

This alternative proposes little new campground and dock construction and demolition of more than 10 facilities throughout the park, which would temporarily disturb and permanently displace some wildlife. This alternative also proposes new facility construction at Rock Harbor and Windigo; however, habitat is marginal in those areas due to current uses. The net loss of habitat would be minimal due to the rehabilitation of sites where facilities would be demolished. Much of the new construction would be in previously disturbed areas that have had some degree of human use, but some increased use could occur and increase disturbance. The removal of facilities and the general decrease in human activity in the middle of the island would more than compensate for the increased facilities and activity toward the ends. Overall visitor use of the park would be monitored and managed, which would reduce general wildlife disturbance compared to alternative A.

A moderate amount of protection would be afforded to waterfowl and their nesting sites near the shoreline compared to the other alternatives, and a significant amount of protection would be afforded compared to alternative A.

Threatened and Endangered Species

Increased activity at the ends of the island and proposed new campgrounds would cause wolves to avoid areas that they presently use. If wolves from this area were forced into an area already used by another wolf pack, the viability of one or both packs could be threatened. For species in the middle of the island, habitats would be generally improved as the result of less human presence. Potential for disturbance to bald eagles or peregrine falcons would be reduced in the middle of the island and could increase at the ends of the island.

Designated Wilderness

Park activities would delay for the foreseeable future the conversion of five potential wilderness areas to wilderness. There would be a delay in conversion of one additional area (in order to preserve cultural resources), and nonconforming uses would be eliminated in one area.

Geologic Processes

Removal of the Siskiwit dock and breakwater would permit natural shoreline processes to return, particularly the movement of sand and sediment along the shoreline in Siskiwit Bay.

Water Quality

Water quality impacts would be the same as the proposed action except that hydrocarbon emissions from motorboats would be reduced in the three coves zoned nonmotorized. The ecological effects of this reduction are not expected to be appreciable for the reasons outlined in the impacts of alternative A.

IMPACTS ON CULTURAL RESOURCES

Archeological Resources

In the short term, the construction necessary for the slight expansion of park housing at Windigo, expansion of water and sewer treatment capacity at Rock Harbor and Windigo, development of six new campgrounds, and construction of two new docks and removal of seven docks could have negative impacts by disturbing known or presently unknown archeological resources. In the long term, the placement of campground and docks could result in the disturbance of archeological resources by visitor use.

The establishment of nonmotorized and quiet/no-wake zones would benefit submerged and

shoreline archeological resources by protecting them from wave action.

Historical Resources

Adaptive use of historic structures in four areas would help to preserve them and associated features. Decay and deterioration of historic structures in the middle of the island would cause adverse impacts on the structures and to the associated cultural landscapes.

IMPACTS ON VISITOR USE AND VISITOR EXPERIENCE

Scenic Quality

The ends of the island, particularly Rock Harbor and Windigo, would appear more developed and busier than now, negatively affecting aesthetic values. The motel units at Rock Harbor would continue to impact the natural appearance of the entrance to the harbor. A substantial decrease in development and use toward the middle of the island would increase the amount of undeveloped shoreline and the sense of naturalness of this area.

Wilderness Experience and Noise

Overall visitor use would be monitored and managed, which would generally reduce overcrowding and associated noise. This alternative attempts to spatially separate visitor uses to enhance wilderness experiences toward the middle of the island. Only alternative C would enhance wilderness experiences more. At the ends of the island, the wilderness experience would be somewhat reduced by frontcountry noise and activity that would increase compared to the other alternatives. A moderate amount of nonmotorized and quiet/no-wake water zones are proposed that would reduce some noise for land-based and paddling visitors thus enhancing their wilderness experience over alternative A.

Range of Uses

The current range of uses would continue to be accommodated. More visitors would be accommodated at the islands ends, and there would be more options for disabled visitors or elderly visitors or others seeking more structured, frontcountry experiences. Visitors would have less flexibility in moving about the middle of the island due to reduced ferry and water taxi service and fewer docks.

Visitor Use Levels

Use limits would be necessary, especially for areas in the middle of the island. Some visitors would not be able to visit specific areas on the island without adjusting their itineraries.

Safety

Emergency response toward the middle of the island could be slowed because of fewer docks one fewer ranger station. Because of fewer facilities and services, visitors in the middle of the island would have to be more self-reliant.

IMPACTS ON THE SOCIOECONOMIC ENVIRONMENT

Facility construction and removal would provide short-term positive economic benefits for a relatively few individuals and businesses. The work would be completed in phases, and the benefits would be spread over the duration of the projects. Activities in the gateway communities of Houghton and Copper Harbor, Michigan, and Grand Portage, Minnesota, would continue with business enterprises responding to market conditions and demand as warranted. Despite some increased spending for development, the short- and long-term positive economic impacts of this alternative would be relatively small when compared to the affected economies as a whole.

IMPACTS ON PARK OPERATIONS

The increased development and services at Rock Harbor would increase the need for funding to subsidize the commercial operations there. This would continue to divert funds from other park programs.

While maintenance operations would be reduced in the middle of the island, requirements would increase significantly at Rock Harbor, Tobin Harbor, and Windigo. Maintenance activities would be more time consuming in nonmotorized and quiet/no-wake zones.

Reduced transportation services, fewer docks, and decreased NPS presence in the middle of the island would slow emergency response time, and overall emergency response logistics would be more difficult than they are now.

Monitoring and management of visitor use levels would increase the overall park operations workload.

CUMULATIVE IMPACTS

This alternative would give focus and emphasis to research and monitoring and to preservation of cultural resources at the ends of the island. The knowledge gained and the facilities protected would complement the efforts of historic preservation groups throughout the region. The decay and eventual loss of historic structures in the middle of the island, combined with those lost or removed previously, would constitute a cumulative loss of historic fabric and a negative impact on the record of the island's history.

ALTERNATIVE C

IMPACTS ON NATURAL RESOURCES

Wildlife

This alternative affords the greatest benefit to wildlife of all the alternatives. There would be virtually no new construction to disturb or displace wildlife. There would be a significant amount of demolition that would temporarily disturb wildlife until the areas were rehabilitated at which time there would be a large net gain of habitat. Human activity would be reduced, decreasing disturbance and benefitting wildlife. A large (about 100 miles of shoreline) amount of protection would be provided by establishment of many nonmotorized and quiet/no-wake water zones that would reduce disturbance to waterfowl and their nest sites more than any other alternative.

Threatened and Endangered Species

More of island would be suitable for use by wolves due to the creation of large tracts of untrailed land and less human use. The potential for human disturbance of bald eagles and peregrine falcons would also be significantly reduced.

Designated Wilderness

All 18 potential wilderness areas would be converted to wilderness after human intrusions end.

Geologic Processes

Removal of the Siskiwit dock and breakwater would permit natural shoreline processes to return, particularly the movement of sand and sediment along the shoreline in Siskiwit Bay.

Water Quality

The elimination of fuel sales on the island would result in many fewer motorboats in park waters. Hydrocarbon emissions from boat engines would be reduced as a result, especially in bays and coves zoned nonmotorized. The ecological impact of this reduction is not expected to be appreciable, however, for the reasons outlined under alternative A impacts.

The risk of gasoline spills from boating accidents and sewage pumpout spills would remain low because there would be fewer boats. There could be an increased risk of accidental spills by visitors transporting fuel and refueling independently because they could not buy fuel at the island. The chances of the National Park Service effectively responding to and containing a spill in this situation would be low.

With a reduced NPS presence and no concessions operations, there would be fewer fuel storage and transfer facilities on the island, but the risk of a harmful spill would not change significantly; the risk is already low due to spill prevention and response plans and other measures already in place.

IMPACTS ON CULTURAL RESOURCES

Archeological Resources

In the short term, the construction of four new campgrounds, construction of three dispersed campsite areas and one new dock, and removal of eight docks could impact archeological resources by disturbing known or presently unknown archeological resources.

Establishment of nonmotorized and quiet/no-wake zones would have a positive impact on submerged and shoreline archeological resources by protecting them from wave effects. The long-term effect of removing docks and campgrounds would be positive as less visitation would reduce potential disturbance.

Historic Resources

All cultural resources would be documented and allowed to decay. No stabilization or preservation of these resources would be attempted. This would result in an irretrievable loss of structures, including life lease cabins, mining sites, and commercial fishing complexes. Any potential cultural landscapes associated with historic structures would also be lost.

IMPACTS ON VISITOR USE AND VISITOR EXPERIENCE

Scenic Quality

The removal of many facilities from the island (such as NPS administrative facilities and housing, ranger stations, lodging, and docks) and subsequent revegetation of such areas would dramatically increase the amount of natural, undeveloped shoreline around the island, positively affecting scenic quality.

Wilderness Experience and Noise

This alternative would provide more solitude and primitiveness than the other alternatives. Removal of most of the development and reducing human activity would greatly enhance the wilderness experience and reduce noise and congestion. Visitors would seldom experience crowded conditions. Restrictions on groups would further enhance the experience by reducing encounters and noise. The establishment of a large number of nonmotorized and quiet/no-wake water zones would reduce noise and enhance the wilderness experience more than any other alternative.

Range of Uses

Visitors desiring other than primitive experiences would not be well served; this could disproportionately affect elderly visitors, those with mobility impairments, those who prefer not to camp or hike, and those with time constraints. Visitors seeking interpretive talks and contact with rangers would have to find them on the mainland. Some commercial services, such as guided scuba diving and fishing, might no longer be provided due to the lack of fuel and other services on the island. Nonmotorized and quiet/no-wake zones would greatly lessen flexibility of movement by visitors.

Visitor Use Levels

Visitors would have less flexibility in moving about the island due to reduced ferry and water taxi service and fewer docks and trails. Numbers of visitors would be limited significantly. Visitors would have to plan ahead to visit the island; spontaneous trips could be curtailed. Some people might have to wait as long as a year or more between visits.

Safety

Emergency response could be slowed because of reduced NPS and other human presence, fewer docks, and fewer ranger stations. Visitors who were not adequately prepared might suffer hardship because few services would be provided, and the likelihood of encountering other visitors would be less. There could be greater potential for accidents related to transporting extra fuel on private motorboats.

IMPACTS ON THE SOCIOECONOMIC ENVIRONMENT

Removal of park facilities would provide some positive short-term benefits for the individuals and businesses involved in the work. There would be relatively little impact on the gateway communities as a whole.

Long-term impacts of reduced visitation and park operations would be more dramatic. Scaling back the services and development in the park would result in a reduced workload for the park staff, and fewer workers would be needed. While the individuals and some businesses (especially the concessions) would be negatively impacted, the overall effects on the local gateway

communities might be absorbed with relatively minor disturbances because of the magnitude of the tourism industries in the Keweenaw Peninsula and northern Minnesota. Visitation to the park would be reduced, which would result in a reduced park contribution to the local economies. However, there are many other tourist attractions in the affected areas, and this disturbance of the tourism industry would be absorbed in due time with relatively small long-term negative impacts.

IMPACTS ON PARK OPERATIONS

Although the initial, one-time cost for facility removal in this alternative would be very high, the long-term maintenance and operational requirements for the park would be significantly reduced compared to the current operation. This would include reductions in needed staffing, housing, administration, training, and many other park functions. There would be less workload and cost associated with compliance with utility standards.

Maintenance and emergency response would be time-consuming, and logistics would be difficult because there would be fewer docks and centers of operation and because there would be extensive nonmotorized and quiet/no-wake zones.

Because of the reductions in overall park operations, more emphasis could be placed on natural resource management, monitoring, and preservation efforts than is possible now.

There would be a very high one-time cost and workload for documentation of cultural resources.

Depending on visitation levels, management of a reservation system could result in a significant operational workload.

CUMULATIVE IMPACTS

The eventual loss of all physical traces of cultural resources on the island, when combined with the loss of cultural resources elsewhere, would constitute a significant negative cumulative impact to the record of human history of the Lake Superior region.

The significantly lower fishing pressure expected due to fewer boaters could limit fishing pressure for coaster brook trout. This effect, combined with the various federal, state, and tribal efforts to reestablish coaster populations in other Lake Superior basin waters, could have a positive cumulative effect. Gametes from Isle Royale coasters are being used as part of this effort.

ALTERNATIVE E

IMPACTS ON NATURAL RESOURCES

Wildlife

Little temporary or permanent disturbance or displacement of wildlife would be caused by new construction or demolition. There would be very limited introduction of visitor uses into new areas to contribute to disturbance. This alternative is very similar to alternative A except that controlled visitor use would result in decreased disturbance and displacement throughout the park, similar to the other alternatives. There would be no establishment of controlled use water zones. Waterfowl would continue to be disturbed at their nesting sites but to a lesser degree than in alternative A because of visitation limits.

Threatened and Endangered Species

Reduced visitation levels would reduce general disturbance to threatened and endangered species, including wolves, bald eagles, and peregrine falcons.

Designated Wilderness

Existing park activities will delay for the foreseeable future the conversion of five potential wilderness areas to wilderness. In this alternative conversion of two additional areas would be delayed in order to preserve cultural resources through adaptive use.

Geologic Processes

The movement of sand and sediment along the shoreline in Siskiwit Bay would continue to be interrupted by the artificial dock and breakwater structures.

Water Quality

Water quality impacts would be the same as in the proposed action.

IMPACTS ON CULTURAL RESOURCES

Archeological Resources

The relocation of one dock and several campsites and construction of one new dock and one new campground could impact known or presently unknown archeological resources. The reduction in park visitation would mean less impacts on archeological resources. The lack of nonmotorized and quiet/no-wake zones would allow for continued impacts on submerged and shoreline archeological sites due to wave action.

Historical Resources

Adaptive use of structures at five locations would help preserve them and associated features, but there could be some loss of historic fabric through adaptive use. There could also be some minor impacts to cultural landscapes caused by adaptive use.

IMPACTS ON VISITOR USE AND VISITOR EXPERIENCE

Scenic Quality

The amount of developed shoreline would increase slightly because of three additional campgrounds, constituting a slight negative impact to scenic quality. The motel units at Rock Harbor would continue to impact the natural appearance of the entrance to the harbor.

Wilderness Experience and Noise

Crowding impacts would be reduced due to the reduction in visitation. There would be no non-motorized sensitive or quiet/no-wake zones, so noise would not be reduced in specific areas, but motorboats would be heard somewhat less frequently islandwide due to lower visitation levels.

Relocating the McCargoe Cove dock would reduce noise and motorboat traffic at the head of the cove. Providing separate campsites for hikers and paddlers at three locations would reduce impacts on such users from motorboats.

Range of Uses

The current range of uses would continue. Separation of uses in some areas and the lower level of visitation islandwide would lower the potential for impacts on visitor experiences, but because use levels would not be managed through zoning, occasional crowding could occur in certain areas. Visitors would have substantial freedom to move about the island.

Unavailability of funding for concession subsidies would probably result in higher costs to the consumer and might price some individuals out of the market. If the concession operation fails, people unable to visit the island without those services would be displaced.

Visitor Use Levels

Visitors would have to plan ahead to visit the island, spontaneous trips might be curtailed, and some people might have to wait as long as a year between visits. If overnight accommodations cannot be sustained, some visitors could stop coming to the island.

Safety

There would be no change.

IMPACTS ON THE SOCIOECONOMIC ENVIRONMENT

Modifications to some facilities would provide short-term economic benefits to a few individuals and businesses. Phasing of the work would spread the benefits over the life of the various projects.

Impacts would be insignificant in the gateway community economies over the long-term. Visitation would be reduced, which would reduce the park contribution to the local economies. However, there are many other tourist attractions in the affected areas, and this disturbance of the tourism industry would be absorbed in time with relatively minor long-term negative impacts.

If changes to the concessions at Rock Harbor resulted in fewer visitors traveling to the island from Copper Harbor and Grand Portage, those communities could be negatively affected. However, there are many other tourist attractions in the affected areas, and this disturbance of the tourism industry would be absorbed in due time with relatively small long-term negative impacts.

IMPACTS ON PARK OPERATIONS

Some increased maintenance workload would result from adaptive use and preservation of historic structures.

Management of a reservation system could result in a significant operational workload. Some workload increase would also result from increased interpretation services.

There would be some reduction in fee revenue and reduced income from passenger transportation on the *Ranger III*.

CUMULATIVE IMPACTS

Emphasis and focus would be placed on cultural resource research and monitoring and on preservation of certain cultural resources. Knowledge gained and facilities protected would complement historic preservation efforts across the region.

COMPLIANCE WITH FEDERAL AND STATE LAWS, EXECUTIVE ORDERS, AND REGULATIONS

In implementing the *Isle Royale National Park General Management Plan*, the National Park Service would comply with all applicable laws and executive orders, including those listed below. Informal consultation with the appropriate federal, state, and local agencies has been conducted in the preparation of this document.

The *Draft General Management Plan / Environmental Impact Statement* was on public review for 45 days. The *Final General Management Plan / Environmental Impact Statement* responds to or incorporates the public comments on the draft document. After a 30-day no-action period, a record of decision will be prepared to document the selected alternative and set forth any stipulations for implementation of the general management plan, thus completing the requirements of the National Environmental Policy Act.

This environmental impact statement is essentially a programmatic statement, presenting an overview of potential impacts relating to the proposed program for each alternative. More detailed plans may be developed for individual actions. Any such document would be tiered to this programmatic statement.

Cultural Resources

The National Park Service is mandated to preserve and protect its cultural resources through the act of August 25, 1916, and through specific legislation such as the Antiquities Act of 1906, the National Environmental Policy Act of 1969, and the National Historic Preservation Act of 1966 as amended in 1992. Cultural resources in Isle Royale National Park would be managed in accordance with these acts and with chapter V of NPS *Management Policies*, the *Cultural Resources Management Guidelines* (NPS-28), and other relevant policy directives, such as the NPS *Museum Handbook,* the NPS *Manual for Museums*, and NPS-6, *Interpretation and Visitor Services Guidelines*.

As part of its cultural resource management responsibilities, the National Park Service surveys and evaluates all cultural resources under its jurisdiction. Cultural resources are evaluated by applying the criteria of the National Register of Historic Places. In addition, the National Park Service maintains the *List of Classified Structures*, which is an inventory of all above ground historic and prehistoric structures in the national park system. All cultural resources eligible for the national register are recorded and measured according to professional standards.

Section 106 of the National Historic Preservation Act of 1966 as amended (16 USC 470, et seq.) requires that federal agencies that have direct or indirect jurisdiction take into account the effect of undertakings on national register properties and allow the Advisory Council on Historic Preservation an opportunity to comment. Toward that end the National Park Service would work with the Michigan State Historic Preservation Office and the advisory council to meet requirements of 36 CFR 800 and the September 1995 programmatic agreement among the National Conference of State Historic Preservation Officers, the Advisory Council on Historic Preservation, and the National Park Service. This agreement requires the Park Service to work closely with the state historic preservation office and the advisory council in planning for new and existing NPS areas.

The agreement also provides for a number of programmatic exclusions for specific actions that are not likely to have an adverse effect on cultural resources. These actions may be implemented without further review by the Michigan State Historic Preservation Office or the Advisory Council on Historic Preservation (reducing required consultation with the state historic preservation office) provided that NPS internal review finds the actions meet certain conditions. Undertakings, as defined in 36 CFR 800, not

specifically excluded in the programmatic agreement must be reviewed by the state historic preservation office and the advisory council before implementation. Throughout the process there will be consultation on all potential actions.

The National Park Service has developed a list of actions associated with the proposed general management plan that could have an effect on cultural resources. Some of these actions are covered by programmatic exclusions, and would require no further SHPO/ACHP review, but others would need further SHPO/ACHP review. This information is presented in table 17.

The *Final General Management Plan and Environmental Impact Statement* includes a list of actions with which the Michigan Historic Preservation Office concurs. In addition, the Michigan Historic Preservation Office will be involved in updating the List of Classified Structures and the development of cultural landscape reports that are part of the implementation of the proposed action. When the List of Classified Structures is finalized the Michigan Historic Preservation Office will receive the list along with photographs of all national register-eligible property. The Michigan Historic Preservation Office will be provided these documents for review and comment. The Michigan Historic Preservation Office further will be consulted in any priority setting for adaptive use of structures undertaken by the park. The adaptive or new uses could include, but not be limited to, such functions as park housing, or visitor lodging, storage, or emergency shelter. Archeological surveys would be part of any park development work. If a structure is scheduled for abandonment or demolition, it would be evaluated for national register eligibility and the Michigan Historic Preservation Office would provide documentation for review and comment.

Internally, the National Park Service will complete an "Assessment of Actions Having an Effect on Cultural Resources" form before implementation of any proposed actions. This is necessary to document any project effects, outline actions proposed to mitigate any effects, and document that the proposed actions flows from the general management plan. All implementing actions for cultural resources would be reviewed and certified by cultural resource specialists following the September 1995 programmatic agreement.

Prior to any ground-disturbing action by the National Park Service, a professional archeologist would determine the need for archeological inventory or testing evaluation. Any such studies would be carried out in conjunction with construction and would meet the needs of the state historic preservation offices, as well as the National Park Service. Any large-scale archeological investigations would be undertaken in consultation with the state historic preservation officer.

Section 110 of the National Historic Preservation Act requires the National Park Service to identify and nominate to the National Register of Historic Places all resources under its jurisdiction that appear to be eligible.

NPS historic areas are automatically listed on the national register upon their establishment by law or executive order.

The following studies as defined in NPS-28 (*Cultural Resource Management Guideline*) are needed for the park:

ethnographic overview and assessment
ethnographic oral history and life histories
ethnographic program
park administrative history
ethnohistory

Ongoing research has not been fully incorporated into the park's database. The following items should be updated:

cultural sites inventory
cultural resources base map
List of Classified Structures
cultural landscape inventory

During the implementation phase of the proposed action, archeological surveys, historic structures reports, and ethnographic use studies may be required. Determinations would be made on a case-by-case basis as planning for construction is funded and undertaken.

TABLE 17. ACTIONS THAT COULD AFFECT CULTURAL RESOURCES AND ASSOCIATED STATE HISTORIC PRESERVATION OFFICE AND ADVISORY COUNCIL ON HISTORIC PRESERVATION COMPLIANCE REQUIREMENTS

ACTIONS	COMPLIANCE REQUIREMENTS
Adaptive use of structures and disturbed areas at Barnum, Washington, and Wright Islands and Crystal Cove and Fishermans Home.	Requires further SHPO/ACHP review if adaptive use of structures is undertaken and/or survey determines presence of archeological resources
Transfer of Passage Island, Isle Royale, and Rock of Ages Lighthouses to the National Park Service	Requires further SHPO/ACHP review when NPS and/or partners develop plans for the stabilization, maintenance, and interpretation of these structures
Change of services at Rock Harbor	Requires further SHPO/ACHP review only if service changes result in alteration of structures that are eligible for or on the national register
Removal and relocation of McCargoe Cove dock and new boater campground	Further SHPO/ACHP review necessary to assess effects on cultural resources
Elimination of hiking trail segment at Chippewa Harbor and new camp sites for paddlers	Further SHPO/ACHP review necessary to assess effects on cultural resources
New group campsite at Belle Isle	Further SHPO/ACHP review necessary to assess effects on cultural resources
Removal of dock and breakwater at Siskiwit Bay campground, removal of dock at Threemile and Duncan Bay	Further SHPO/ACHP review necessary if actions are determined to affect submerged cultural resources
New trail from old McCargoe to new McCargoe campground	Further SHPO/ACHP review necessary to assess the effect of the trail on cultural resources
Retain national register-eligible properties if a potential use is identified	Requires further SHPO/ACHP review when structures are identified
Develop new headquarters facilities at Houghton	No further SHPO/ACHP review unless survey determines that site contains archeological resources
New campground and dock at Johns Island; evaluate structure at Johns Island for national register eligibility	Requires further SHPO/ACHP review to determine impacts on cultural resources
Replace dock at Hay Bay and strengthen breakwater at Malone Bay	Requires further SHPO/ACHP review to determine impacts on cultural resources

Tribal Consultation

The Keweenaw Bay Indian community of L'Anse and Ontonagon bands of Chippewa Indians and the Grand Portage band of the Minnesota Chippewa tribe were invited to the GMP scoping meeting on February 21, 1995. Keweenaw Bay sent a representative, Mike Donofrio, the tribal biologist. Grand Portage did not send a representative.

In August 1995 letters were sent to the Grand Portage, Keweenaw Bay, Bay Mills Indian community of the Sault Ste. Marie band of Chippewa Indians, Lac Vieux Desert band of Lake Superior Chippewa Indians of Michigan, Bad River band of the Lake Superior tribe of

Chippewa Indians, and Red Cliff band of Lake Superior Chippewa Indians of Wisconsin. The letters informed them about the GMP process, let them know that they had been placed on the GMP mailing list, and asked them how and to what extent they would like to be involved. The tribes received *Newsletter #1* in November 1995 and *Newsletter #2* in December 1995 and *Newsletter #3* in June 1996.

Park staff met with the Keweenaw Bay tribal council in Baraga in February 1996 to discuss the GMP effort and general park issues.

In September 1996 the park received a letter from the Great Lakes Indian Fish and Wildlife Commission requesting a formal consultation about the general management plan, specifically to discuss the accommodation of treaty rights.

In December 1996 the park updated the tribal mailing list and added the Sokaogon Chippewa community of the Mole Lake band of Chippewa Indians, St. Croix Chippewa Indians of Wisconsin, Sault Ste. Marie tribe of Chippewa Indians of Michigan, Lac Courte Oreilles band of Lake Superior Chippewa Indians, Lac du Flambeau band of Lake Superior Chippewa Indians, Minnesota Chippewa tribal executive committee (which represents six tribes of Minnesota Chippewa Indians), and the Great Lakes Indian Fish and Wildlife Commission, which represents 11 bands of Chippewa Indians of Michigan, Minnesota, and Wisconsin. These tribes and organizations were sent *Newsletter #4* and the previous three newsletters. The park confirmed receipt of the mailing.

On January 9, 1997, park staff met in St. Paul with other NPS personnel to discuss treaty rights, commercial fishing issues, and GMP tribal consultation before meeting with the Great Lakes Indian Fish and Wildlife Commission. That meeting was scheduled for January 16 but was canceled due to weather.

The expanded mailing list received *Newsletter #5* in March 1997.

In April 1997 park staff met in Odanah, Wisconsin, with the Lakes Committee of the Great Lakes Indian Fish and Wildlife Commission in response to their September 1996 letter requesting a government-to-government meeting. Present at the meeting were representatives of the Red Cliff, Keweenaw Bay, Lac du Flambeau, and Bad River tribes along with employees of Great Lakes Indian Fish and Wildlife Commission.

In June 1997 a letter was sent to the tribes on the mailing list (excluding the Great Lakes Indian Fish and Wildlife Commission and the Minnesota Chippewa Tribal Committee) informing them that the park was willing to meet at the tribal headquarters to discuss the general management plan. The letters also stated that the park would contact them about scheduling meetings. At that time the park added the Mille Lacs band of Chippewa Indians and the Fond du Lac band of Minnesota Chippewa to the mailing list and sent them *Newsletter #5.*

Newsletter #6 was sent to the expanded mailing list in July 1997.

Park staff began contacting the tribes in July to determine if they wanted to meet. As a result of the contacts, Keweenaw Bay, Lac du Flambeau, Lac Vieux Desert, and Sault Ste. Marie requested meetings, which were scheduled for November 1997. Bay Mills, Fond du Lac, Mille Lacs, and Red Cliff declined meetings but asked that they be kept on the mailing list. Another tribal organization was added to the mailing list — the 1854 Authority, which represents the treaty rights (1854 treaty) of Grand Portage and the Bois Forte band of Chippewa. The park will continue efforts to contact Mole Lake, Bad River, St. Croix, and Lac Courte Oreilles to attempt to meet.

On August 12, 1997 park staff met with Grand Portage Tribal Chairman Norm Deschampe and other tribal representatives in Grand Portage to discuss the GMP effort.

Indians tribes and organizations contacted:

Keweenaw Bay Tribal Council
Lac Vieux Desert Band Business Committee
Grand Portage Reservation Tribal Council
Bad River Tribal Council
Red Cliff Tribal Council
Bay Mills Executive Council
Sault Ste. Marie Chippewa Tribal Council
Lac Court Oreilles Governing Board
St. Croix Council
Lac du Flambeau Tribal Council
Sokaogon Chippewa Tribal Council
Great Lakes Indian Fish and Wildlife Commission
Minnesota Chippewa Tribal Executive Committee
Fond du Lac Chippewa Band Tribal Council
Mille Lacs Chippewa Tribe, Tribal Council
1854 Authority

The *Draft General Management Plan / Environmental Impact Statement* was sent to these tribes and organizations in March 1998. The park received a letter in response from the Great Lakes Indian Fish and Wildlife Commission in April 1998 concerning treaty rights (the letter is included in Appendix F).

SOCIAL ENVIRONMENT

Architectural Barriers Act of 1968 (42 USC 4151 et seq.), Rehabilitation Act of 1973 (29 USC 701 et seq.), and Americans with Disabilities Act of 1990 (Public Law 101-336, 104 Stat. 327)

The National Park Service recognizes its obligations to provide public facilities that are accessible to and usable by all segments of the visitor population, regardless of ability. Accessibility to and use of Isle Royale National Park facilities by visitors with disabilities will continue to be provided in conformance with laws and regulations. To the greatest extent possible, commensurate with their abilities, visitors with disabilities will be able to enjoy the park and participate in recreational activities, using the same facilities and programs as the able-bodied; sensitive park planning and design will facilitate this goal. Coordination of accessibility considerations will be developed where possible through consultation with local clubs and organizations whose members have disabilities.

Some developed areas of the park are more accessible than others. The degree of accessibility is, and will continue to be, proportional to the degree of development. Wilderness, primitive, and backcountry areas typically have little or no development and are managed primarily as areas removed from the imprint of man. These areas will be accessible to the extent feasible without major modifications. Although trails to these areas will be formalized to some degree, they will continue to be basically unimproved and will have topographic variations. New facilities in more developed areas will be accessible as will existing facilities that may be remodeled, including employee work areas and housing.

Programmatic access for sensory- and learning-impaired visitors will continue to be expanded.

Native American Graves Protection and Repatriation Act of 1990 (PL 101-601; 104 Stat. 3049)

Ownership or control of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are excavated or discovered on federal or tribal land would be assigned to lineal descendants of culturally affiliated Native American groups. Criminal penalties were established for trafficking in remains or objects obtained in violation of the act. The Isle Royale museum collection was inventoried for human remains and associated funerary objects, and summaries were prepared. Culturally affiliated tribes were consulted during the process as required.

NATURAL RESOURCES

The following natural resources laws and regulations will be followed during implementation of the general management plan.

Endangered Species Act of 1973, as amended (16 USC 1531 et seq.)

Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat.

Informal consultation with the U.S. Fish and Wildlife Service for the general management plan was initiated by letter dated January 18, 1996, to determine if any endangered or threatened species existed in or near Isle Royale National Park. A response, dated February 16, 1996, stated that certain listed and proposed endangered and threatened species and species of concern may occur in the area. The U.S. Fish and Wildlife Service commented on the draft in a letter dated May 22, 1998. The agency concurred with the National Park Service that the proposed action would not be likely to adversely affect listed species or critical habitat. Written correspondence is reprinted in Appendix F.

The National Park Service would continue to consult with the U.S. Fish and Wildlife Service regarding the need for threatened and endangered species surveys before beginning construction or rehabilitation activities. If such species were found, the National Park Service would develop and implement measures in consultation with the U.S. Fish and Wildlife Service to ensure that protected species would not be affected.

As required by NPS *Management Policies* the National Park Service would cooperate with the state of Michigan to ensure protection of state-listed species in the park.

Wilderness Act of 1964 (16 USC et seq (1988), 78 Stat. 890, Pub. L. 88-577).

This act established the national wilderness preservation system and sets forth requirements for wilderness designation and management. Isle Royale National Park includes 132,018 acres of designated wilderness that must be managed following NPS policies.

Clean Air Act, as amended (42 USC 701 et seq.)

Section 118 of the Clean Air Act requires all federal facilities to comply with existing federal, state, and city air pollution control laws and regulations. Isle Royale management will work with the state of Michigan to ensure that park activities meet all requirements.

Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands)

Executive orders 11988 and 11990 direct federal agencies to enhance floodplain and wetland values, to avoid development in the floodplains and wetlands whenever there is a practicable alternative, and to avoid to the extent possible adverse impacts associated with the occupancy or modification of floodplains or wetlands.

Pursuant to federal and state regulations, there would be no actions in floodplains or wetlands in any alternative. Preliminary site investigation for all actions has ensured that impacts on these resources could be avoided during implementation. In all alternatives involving removal or construction of docks in navigable waters, the U.S. Army Corps of Engineers and Michigan Coastal Commission would be consulted about permits.

Federal Water Pollution Control Act as amended (USC 9 sec. 1251 et seq., as amended, 33 USC sec. 1251-1376, and 1987 Federal Water Quality Act)

Proposed construction and NPS operations would have only temporary, localized effects on water quality. Federal construction would comply with the requirements of sections 401 and 404 of the Clean Water Act and other applicable federal, state, and local regulations.

Michigan Coastal Management Program

The National Coastal Zone Management Act of 1972 authorizes a state-federal partnership to ensure the wise use and protection of the nation's coastal resources. Under the federal act, eligible states receive federal funding assistance to implement approved programs and to review federal activities consistent with those programs.

Federal agency activities in or affecting Michigan's coastal zone or activities requiring federal permits must comply with section 307 of the Coastal Zone Management Act and implementing regulations, which require that such federal activities be conducted consistently with Michigan's Coastal Management Program. Review of the *Draft General Management Plan / Environmental Impact Statement* by the state of Michigan constituted a review of consistency determination. When the state of Michigan concurs with a consistency determination, the state transmits a formal state consistency response to the federal agency.

Analysis of Impacts on Prime and Unique Agricultural Lands (45 FR 59189)

Federal agencies are required to analyze the impacts of federal actions on agricultural lands in accordance with the National Environmental Policy Act. This policy was developed to minimize the effect of federal programs in converting prime, unique, or locally important farmland to nonagricultural uses. There are no prime or unique farmlands in Isle Royale National Park.

LIST OF AGENCIES TO WHOM THIS DOCUMENT HAS BEEN SENT

Copies of this *Final General Management Plan / Environmental Impact Statement* will be sent to the following agencies.

Federal Agencies

Advisory Council on Historic Preservation
Michigan and Minnesota Congressional Delegation
U.S. Environmental Protection Agency
U.S. Fish and Wildlife

State Agencies

Michigan State Historic Preservation Office
Michigan Department of Natural Resources
Michigan Department of Environmental Quality

PUBLIC COMMENTS, INCLUDING CONSOLIDATED SUBSTANTIVE COMMENTS ISLE ROYALE *DRAFT GENERAL MANAGEMENT PLAN / ENVIRONMENTAL IMPACT STATEMENT*

SUMMARY OF PUBLIC COMMENTS

The *Draft General Management Plan and Environmental Impact Statement* for Isle Royale National Park was released for public comment in March 1998. Responses were received by mail, internet, and at four public meetings (St. Paul and Duluth, Minnesota, and Houghton and Ann Arbor, Michigan). Written comments were received from almost 300 individuals, agencies, and organizations, including a petition with an extensive list of names; over 300 comments were submitted on the internet (half of those comments may be attributable to a single individual); and there were 75-150 people at each of the four meetings. The number of comments is impressive, but the responses have been focused on understanding the comment patterns and trends among the many different ideas, concerns, complaints, and compliments that were expressed.

Many people found the proposed plan to be reasonable and, while not perfect for everyone, many people indicated that they could live with the proposal as drafted. There were, however, several areas of contention.

The greatest number of comments addressed the issue of the proposed nonmotorized waters zone. Many commenters expressed their desire for much more nonmotorized area than proposed (one comment included a petition with hundreds of individual signatures). Many stated that the existing level of motor noise is inconsistent with expectations of a wilderness area. Other commenters opposed the nonmotorized zones as being unduly restrictive to motorboaters and sailors.

Most commenters expressed support for the proposed motorized sensitive zones, though many suggested that the zones be renamed to be more descriptive of the desired quiet, no-wake conditions. Some people suggested that the amount of motorized sensitive zone be increased.

Another major point of contention was the proposed removal and relocation of docks. Some people expressed support for and others opposed the changes in dock locations, particularly at McCargoe Cove and Siskiwit Bay. Many commenters who favored moving the docks voiced support for separating motorized and nonmotorized uses to reduce noise in some areas. Many of those opposed to changes were concerned about losing motorized access to certain areas, felt that the proposal discriminated against motorboaters, or felt that the changes would be too costly.

Some people expressed concern about the reduction of overnight lodging facilities at Rock Harbor, while others indicated that they believe some reduction to be appropriate. Several people stated that the proposal to remove the shoreline motel units was premature and suggested that additional options should be considered for modifying the structures in some fiscally responsible way.

Other frequently heard responses included: opposition to removal of the Chippewa Harbor trail segment, requests for additional canoe/kayak campsites, support for and opposition to visitor reservation systems or other limiting measures for managing visitation, concern about the role of the United Nations in the park's U.S. Biosphere Reserve designation, and suggestions for making the park's operations more environmentally sustainable. Several environmental organizations expressed

concern about potential water pollution resulting from motorboat use and requested more consideration of this issue.

It is important to understand that while public input is fundamental to responsible planning and greatly influences decision making in general management plans, the laws, regulations, and policies that govern the National Park Service and Isle Royale National Park must also be taken into account. The number of comments for or against certain proposals may not be meaningful because some people comment more than once (examples include the individual who sent many internet responses and the petition containing hundreds of names that was submitted by an environmental organization) and public response is not structured to represent a statistically valid sample of interested people. Public input on a general management plan is not a poll or a vote. Rather, the National Park Service must respond to the whole of the public response and must consider the merits of comments received from a diverse public and other agencies in the context of resource information, laws and mandates, and sound management practices.

SUBSTANTIVE COMMENTS

Substantive comments are defined by the Council on Environmental Quality as comments that :

(a) question, with reasonable basis, the accuracy of the information in the *Draft General Management Plan / Environmental Impact Statement*

(b) question, with reasonable basis, the adequacy of the environmental analysis

(c) present reasonable alternatives other than those presented in the plan and environmental impact statement

(d) cause changes or revisions in the proposal

In other words, substantive comments raise, debate, or question a point of fact or policy. Comments in favor of or against the proposed action or alternatives or those that only agree or disagree with NPS policy are not included. Substantive comments on the draft and the NPS replies to those comments are presented below, grouped into the following topics:

- Motorized use/water zones
- Docks
- Carrying capacity
- Rock Harbor lodge and concessions
- Use conflict/separation of uses
- Trails and campgrounds
- Wilderness
- Cultural resources management and interpretation
- Wildlife/natural resource protection
- Other topics
- Comments on the "Environmental Consequences" section
- Native American treaty rights

- Comments with detail beyond the scope of the *Draft General Management Plan / Environmental Impact Statement*

Motorized Use / Water Zones

Comment: The National Park Service should develop and adopt an alternative that would preclude all motorboats in Isle Royale National Park waters because they are noisy and cause water pollution. Other commenters suggested that the general management plan should contain a detailed plan for strongly discouraging the use of private motorboats for access to and movement within Isle Royale National Park and strongly encourage the use of existing public and commercial ferry services.

Response: Isle Royale is a wilderness maritime park. No effort was made during congressional wilderness deliberations to prohibit boats from the Lake Superior waters of the park. In fact, the following statement relating to boat docks from the congressional deliberations on Isle Royale wilderness indicates that Congress intended that motorboat use be permitted in the park: "The Committee understands that no significant expansion of boat dock numbers is anticipated, but that continued maintenance of these facilities is essential to the continued ease of access as well as the health and safety of the visitors." (Senate report 94-1357).

Comment: For clarity, the motorized sensitive zone should be renamed "no-wake zone" or "no-wake/low noise zone."

Response: The zone formerly called "motorized sensitive waters zone" has been changed to "quiet/no-wake zone" in the plan.

Comment: Some people commented that the National Park Service should not ban motorboats from Isle Royale. One person expressed the concern that ferry service could be discontinued, preventing people from visiting the island. Others commented that boats provide access for those who can't hike: the elderly, the disabled, and the very young.

Response: The proposed action does not ban motorboats from the park and does maintain ferry service. Proposed changes to motorboat use will not significantly change accessibility for those who cannot hike.

Comment: Motorboat engine technology has advanced in recent years, resulting in much cleaner and quieter engines. Engines using old technology are frequently a source of considerable water, air, and noise pollution. Engines that pollute the air and water should be banned from the park or phased out over time.

Response: The National Park Service believes that it is not reasonable or practical to establish boat powerplant requirements in the park that would differ from requirements in effect throughout the rest of Lake Superior in both Michigan and Minnesota.

Authority for setting engine emission standards rests principally with the Environmental Protection Agency, which has already promulgated new emission standards that manufacturers must meet by shortly after the turn of the century. New two-stroke engine

technology, such as Evinrudes's FICHT fuel injection, already meets the EPA standards. Engines using this new technology are on the market.

The National Park Service believes that these developments will result in the phaseout of older engines that do not meet the more stringent emission standards. The National Park Service will set an example by converting to the new engines as part of its marine engine replacement program. Public education and interpretive programs will also be used to increase public awareness of this issue.

Comment: Many people commented that nonmotorized zones should be greatly expanded beyond those in the draft proposed action to improve wilderness values and provide areas without the sounds and sights of motors. Many commenters suggested that specific bays and coves, or parts thereof, should be zoned nonmotorized (examples include Duncan Bay, Tobin Harbor, Robinson Bay, Moskey Basin, Lane Cove, and Brady Cove). More comprehensive suggestions, such as creating a buffer or transition zone (no motors or low noise) around wilderness land, or designating half the island's sheltered waters as nonmotorized, were also received.

Response: Motorboats are not permitted in the inland lakes of Isle Royale, as these areas are designated wilderness. Lake Superior waters were not included in the wilderness designation. Congress intended that motorboat use continue in the park. Because of the nature of Lake Superior, it would be unreasonable and dangerous to require boaters to anchor out for the night around the island without the protection of coves and harbors.

Instead of expanding nonmotorized zones, the plan has been revised to greatly expand quiet/no-wake zones, which will result in decreased noise, decreased wake effects on shoreline resources (including loon nests), and reduced wake impacts on canoers and kayakers. These expanded zones should provide the opportunity to experience the park in an environment more conducive to quiet and escape from modern intrusions. The expectation of not seeing motorboats is contrary to the concept of a maritime national park.

Comment: Some bays and harbors in Lake Superior should be designated as nonmotorized areas to provide a scientific control for comparison to motorized areas to determine effects on water quality, wildlife, etc.

Response: The National Park Service agrees that designating nonmotorized areas would provide some opportunity for future comparative studies of contaminant levels in motorized vs. nonmotorized Lake Superior waters, but due to the flow and interchange of water, no bays could serve as absolute control sites.Even without officially designated nonmotorized zones, the National Park Service can temporarily restrict use of some small bays or coves administratively to conduct this type of research. The plan has been modified to call for such research.

Comment: Some commenters suggested that the National Park Service permit sailboats in nonmotorized waters zones (at no-wake speeds and when wind conditions render navigation under sail impossible) since their auxiliary motors are not the primary means of propulsion. Someone suggested that sail-powered watercraft without auxiliary motors should be allowed in nonmotorized zones.

Response: The areas zoned as nonmotorized in the draft plan have been changed to quiet/no-wake zones (formerly called motorized sensitive zones). Sailboats would be permitted in these zones and in all Lake Superior waters in the park.

Comment: Visitor surveys indicate that sailboaters differ from other powerboaters in that they consider experiences such as tranquillity and solitude and nonmotorized water activities more important. They also perceive motorboat noise in narrow harbors and bays to be more of a problem (see *Draft General Management Plan/Environmental Impact Statement* p. 86). Thus, the National Park Service should consider designating some waters deep enough for cruising sailing craft to use as anchorages and nonmotorized water zones so sailors can find the quiet and solitude they seek.

Response: The proposed action has been revised. Quiet/no-wake zones (formerly called motorized sensitive zones) have been expanded, and the nonmotorized zones have been eliminated, so sailboats will have access to all Lake Superior waters. Expansion of quiet/no-wake zones will increase opportunities for tranquillity and quiet for motorized craft throughout the park. Parkwide noise restrictions called for in the plan will enhance and preserve quiet in narrow harbors and bays and will provide tranquillity and quiet for sailboats at anchor in these locations.

Comment: Concern was expressed that motorboaters will not comply with the proposed nonmotorized and quiet/no-wake zones. Commenters also suggested that quiet/no-wake zones and nonmotorized zones must be backed up with funding and a strong commitment to user education and enforcement.

Response: Nonmotorized zones have been eliminated from the proposed plan. Experience has shown that the vast majority of park users obey park rules and regulations. Violations of such rules and regulations are handled according to federal law. Current park funding requests include both education/interpretation and marine patrol.

Comment: Concern was expressed that the proposal to limit the innermost portion of McCargoe Cove to nonmotorized traffic would unduly restrict access to one of the most secure anchorages along the north shore of the island. This anchorage is especially important during southerly winds. Anchoring adjacent to the new proposed dock would permit too little swing room. It was suggested that the National Park Service consider providing mooring buoys in this area to increase safe anchorage.

Response: McCargoe Cove has been changed to a quiet/no-wake zone, where sailboats and other boats are permitted. Thus anchoring opportunities in this areas will not change as the result of the plan.

Comment: A variety of alternative suggestions for managing McCargoe Cove were received. Examples include: zoning the entire cove motorized sensitive (quiet/no-wake); opening the cove to motorboats for overnight anchorages only; making the cove quiet/no-wake during the day and nonmotorized at night.

Response: Zoning the cove for quiet/no-wake, combined with relocation of the dock closer to the mouth of the cove should meet goals for increased quiet at McCargoe Cove. (Also see response immediately above.)

Comment: The National Park Service work boats and the seaplane are the worst offenders in terms of noise pollution.

> Response: The seaplane is a reasonable alternative for those seeking access to the island. It does not fly over the main portion of the island but instead follows the shoreline. Landings and takeoffs are limited to designated areas in Tobin Harbor near Rock Harbor and Washington Harbor near Windigo. Low altitude plane flights over the island will not increase in the future, as the proposed action states that scenic overflights are inconsistent with the wilderness character of the park. When the park workboats are replaced, the National Park Service will investigate options for quieter vessels and purchase them if they meet park requirements.

Comment: Safe harbors are needed in bad weather. Nonmotorized zones could endanger the lives of powerboaters by making harbors of refuge off-limits. One person commented that the NPS response that nonmotorized zones can be used for harbors of refuge in bad weather is unworkable because the decision to use the harbor has to be left to the captain, who has to consider future weather and crew conditions.

> Response: The proposed action has been modified — it no longer includes nonmotorized zones. Thus, concern about what weather conditions warrant use of nonmotorized zones should no longer be an issue.

Comment: Consider providing mooring buoys to give boaters alternatives to anchoring out or tying up to a dock.

> Response: Self-sufficiency is a way of life on Isle Royale (see the first park emphasis statement in the plan). Mooring buoys would affect seasonal sailors/motorboaters who already anchor out without mooring buoys. Moorings can concentrate visitors in certain areas, causing crowding, decreasing opportunities for solitude, and impacting the natural scenic beauty. Vessels not self-contained using mooring buoys increase sanitary and health concerns. In addition, mooring buoys increase the maintenance workload and potential liability for the park.

Comment: Are any motorized vehicles permitted on inland waters?

> Response: Motorized vehicles are not permitted on inland waters, as these areas are designated wilderness.

Comment: Why is the NPS proposing to keep boaters out of two nonwilderness areas (Siskiwit and McCargoe Cove)?

> Response: The proposal has been modified to eliminate nonmotorized zonesLegislated wilderness applies to certain land and inland lakes portions of the park but not to Lake Superior waters (see the Wilderness Status map in the draft plan for details). Boaters, like all Isle Royale visitors, are welcome to enter both designated wilderness and nonwilderness areas of the park, provided that they observe applicable laws and regulations. In designated

wilderness mechanized equipment such as motors must be left behind. Boaters may access the land portion by hiking, paddling, tying to shore, or using small auxiliary craft.

Comment: The *General Management Plan* should include a ban on the use of jet skis.

Response: The *General Management Plan / Environmental Impact Statement* bans jet skis at Isle Royale National Park.

Docks

Comment: Some people commented that it would be wasteful to spend money to remove docks that have any expected use life remaining and build new ones in new locations. Others said the plan should call for installation of new docks prior to elimination or closure of other docks.

Response: All four docks proposed for removal (Siskiwit, Three Mile, McCargoe, and Duncan Bay) would have to be replaced within the life of the plan, even if they were to remain. The intent of the plan is to not remove docks until replacements are constructed in the same general area (i.e., the Siskiwit Bay dock would not be removed until new docks were available at Wright Island and Hay Bay. Similarly, the Duncan Bay dock would not be removed until the new dock at Crystal Cove was available for public use).

Comment: Some commenters said docks are needed for emergency response in the backcountry. One person suggested that cleats and bollards be removed from docks proposed for removal, but the docks be left in place for emergency evacuations until they deteriorate to the point that they must be removed.

Response: The docks proposed for removal are not needed for emergency evacuations or response. Park personnel routinely access shoreline areas lacking docks during both routine and emergency operations.

Comment: Keep the public dock at Threemile but make it day use only; it is popular with boaters, including lodge guests, who use it for accessing the Mount Franklin Trail.

Response: The dock at Three Mile is in poor condition and would have to be replaced if it were to remain. It is subject to ice damage, severe weather conditions, and boat wakes. Visitors wishing to access Mount Franklin could still reach it via the trail system.

Comment: Removing the Siskiwit Bay dock would eliminate trail access from the whole southwest end of the island.

Response: It is true that the closest docks (Windigo and Malone Bay) will be considerably farther from the southwestern portion of the island than the Siskiwit Bay dock. Boaters might choose, however, to anchor larger boats in Siskiwit Bay and take a dinghy ashore or beach smaller boats to take hikes or visit beaches in this area.There are several reasons for proposing the removal of the dock at Siskiwit Bay: (1) the dock and campground have become problematic for many users who are seeking quiet wilderness experiences and for

whom the campground at Siskiwit is the only opportunity to camp on the shoreline of the big lake. This special opportunity is often compromised by noise from motorboats and occasional inappropriate boater behavior. Separation of uses at Siskiwit seems prudent and viable, given that there will be overnight use sites for motorized users at three nearby sites (Hay Bay, Wright Island, and Fishermans Home). Moving the campground is not a viable option because of site limitations such as topography and swampy areas and concerns about impacting wolf use areas; (2) the existing dock is only viable because of the artificial breakwall, which has disrupted the natural currents along the beach; (3) the dock is deteriorating and would require extensive repairs, even if it were to remain.

Comment: Isle Royale's wilderness legislation and legislative history indicate that Congress intended all existing docks to remain in place.

Response: The National Park Service disagrees with this assertion. The Senate originally recommended that the Isle Royale wilderness legislation contain the following special management language: ". . . the Secretary may, as he deems necessary, a) maintain existing boat docks for the safety of visitors and the protection of the wilderness resource, and construct new boat docks at relocated campsites in the event that present campsites need to be relocated . . . ". Though this language was later deleted, the committee noted that the deletion was not an indication that maintaining and/or relocating boat docks was not permitted. The committee noted that "By removing the management language from the legislation the Committee seeks to separate the two functions of designation and administration." In other words, the committee sought to leave such management decisions to the secretary of the interior and the National Park Service.

Comment: Every dock is a safety outlet for powerboats (including sailboats) in severe weather and no docks should be removed. One person commented that the Siskiwit dock is the only dock on the island's south side that gives good protection from storms between Windigo and Chippewa Harbor.

Response: Lake Superior can be dangerous at times, and while docks generally provide shelter from storms, so do protected bays, coves, and lee sides of islands. Each dock or other location offers advantages and disadvantages depending on wind direction. Between Windigo and Chippewa Harbor boaters will have a choice of several sheltered locations, including Hay Bay, Wright Island, Malone Bay, and Fishermans Home. Siskiwit is difficult to approach in a northeast wind. Some of the alternative sites offer better approaches and shelter during such conditions.

Comment: Any docks installed to compensate for the removal of docks in other areas should be at least as long as the removed docks, should offer equally good protection from storms, have water at least as deep, and be as easy to access by motorboat.

Response: All proposed docks are in areas that have been historically used and are in protected areas with adequate water depth. Dock length will be consistent with the historic scene. Longer docks outside of developed areas will not be considered, as they may result in crowding and associated noise and reduce opportunities for solitude.

Comment: Restore a dock at Todd Harbor and schedule the Voyageur to stop there again. Todd Harbor is big enough for the entire mix of visitors as long as they aren't right next to each other and respect each other's version of the wilderness experience.

> Response: There is a dock at Todd Harbor. The National Park Service considered this idea during formulation of alternatives but decided against this action to avoid increasing use pressure on the Minong Trail, which is zoned primitive.

Comment: The *General Management Plan* should specify that the National Park Service will continue to evaluate docking options and continue to remove docks or relocate them so that boater/hiker interactions will be minimized. The plan should be only a starting point from which additional changes can be made.

> Response: General management plans are intended to be long-term general guidance documents. It is not anticipated that decisions made in these plans would continue to evolve over the life of the plan. Changes to general management plans can be made, but they require a formal amendment process that includes public input. Because docks at Isle Royale are the major points of park access for most visitors, their general numbers and locations have been specified in this plan. These decisions are not expected to evolve over the 15-20-year life of the plan. While some separation of motorized and nonmotorized uses is accomplished by the proposed plan, minimizing boater/hiker interactions is not necessarily a goal.

Carrying Capacity

Note to readers: also see the Carrying Capacity section under theheading "Comments with Detail beyond the Scope of the *General Management Plan*"

Comment: Comments were received expressing concern about increasing numbers of powerboats and their effects on the island's environment. The following question and suggestions were included in the comments: What will be done if private motorboat use continues to increase? Consider the following actions to limit boat use: limit the number of rented boats with outboard motors, stop bringing small powerboats over on the *Ranger III*, stop selling fuel for boats except for emergencies or for rented boats.

> Response: The draft plan (pages 26 and 28) refers to the NPS' legal requirement to address carrying capacity issues and to describe the visitor experience and resource protection (VERP) implementation plan that will be prepared following completion of the *Final General Management Plan /Environmental Impact Statement*. The VERP process has been developed by the National Park Service to address issues related to increases in visitation and use. Researchers have been collecting survey data from Isle Royale visitors to determine how crowded visitors feel and under what conditions visitors might feel too crowded in the future. Similarly, resource conditions are being examined to try to determine when visitor use levels result in unacceptable resource impacts. If the number of motorboaters (or other users) at Isle Royale increases to the point that crowding becomes a problem, visitors' experiences are compromised, or impacts on resources become unacceptable, management actions such as

permit or reservation systems may be implemented. The public will have an opportunity to comment on the VERP implementation plan prior to its approval.

Comment: Several comments were received about reservation systems. Some were opposed to any kind of reservation system for Isle Royale; others supported the idea of reservations. Some people had specific suggestions. Some suggested that those who come to the island in private boats should have first priority. Others suggested that a first-come, first-served reservation system would be fairest.

Response: A reservation system may be needed at some point to keep use levels consistent with positive visitor experiences and resource protection. It is not within the scope of the general management plan, however, to decide the details of a reservation system. If a reservation system is needed in the future, different options would be carefully evaluated before one was chosen.

Comment: No consideration should be given to visitor limits. The sheer remoteness of the island provides more than adequate visitor controls.

Response: As noted above, the NPS is required by law to address the issue of carrying capacity in all units of the national park system. Despite the remoteness of the island, visitation has continued to increase over time. Some visitors already complain that campsites are crowded and that wilderness experiences are being compromised. If this trend continues, some limits on visitor numbers may be necessary to maintain visitor experience and resource protection objectives established by the *General Management Plan.*

Comment: Much of the primitive zone designations have been given to trails that already see less use. The National Park Service should consider designating some others that currently experience more use as primitive, such as the Lake Desor trail and the Feldtmann Lake trail. (The ecosystems are different in these two areas and need protection).

Response: The Lake Desor trail (assumed to be the Greenstone Ridge Trail) is part of the main route between Windigo and Rock Harbor. The National Park Service feels that it is appropriate for this corridor and the Feldtmann Lake trail to be zoned backcountry to accommodate moderate use and groups of up to ten people. The backcountry designation will not preclude protection of these areas.

Comment: Isle Royale is like a city park already; which will win out — the visitors or the resources?

Response: As described above, the VERP process is intended to consider use levels that are consistent with resource protection objectives in different areas of the park. Part of the VERP implementation process is to identify resource and visitor experience indicators that ensure that visitor use is consistent with resource protection. In this way, visitors and resources both win.

Rock Harbor Lodge and Concessions

Comment: Elimination of the motel units at Rock Harbor would preclude the elderly, the disabled, and the very young from visiting Isle Royale.

Response: The draft plan acknowledges the need for some overnight accommodations for visitors who do not want to camp or who are unable to camp or backpack on the island. The plan calls for a range of different types of accessible overnight accommodations at Rock Harbor.

Comment: Many suggestions were received regarding options for the Rock Harbor motel units (rather than removing them), including: convert them to housekeeping units or to spartan, low-priced motel rooms without linens or maid service, convert them to housing for park employees, or remove two of the motel units and run the other two at higher capacity.

Response: The National Park Service agrees that possible adaptive use of the motel buildings should be explored in combination with or in place of new construction. Architectural and engineering assistance will be enlisted to explore options. This work will occur in advance of the current concessions contract expiration and negotiation of a new contract in 2002. The *Draft General Management Plan / Environmental Impact Statement* has been revised to reflect this change, and criteria were developed to guide the decision-making process (see the concessions section in the proposed action).

Comment: Concern was expressed for the areas left by removal of the lodge units.

Response: If the lodge units are removed, the sites will be rehabilitated and revegetated with native species (see p. 24 of the draft plan). The intent is to restore the areas over time to as close to their original condition as possible. Only native plants and seed sources near the disturbed site would be used in rehabilitation and revegetation.

Comment: Why are there plans to fix up the motel units if the ultimate plan is to remove them?

Response: The plan has been modified. Depending on the feasibility of retrofitting the motel buildings to create accommodations more in keeping with the goals for the Rock Harbor area, the buildings may be retrofitted and remain in place. In any case, health, safety, and accessibility standards must be met and the buildings must be maintained while the motel units are in operation.

Comment: One person suggested that the concessioner should do laundry in Houghton rather than on the island. Another suggested that the public laundry at Rock Harbor does not constitute a large energy and wastewater load compared to NPS-owned and operated laundry machines at Rock Harbor and Mott Island.

Response: Some of the concessioners' commercial laundry is transported to Houghton. Because concession and NPS employees live on the island for 3-6 months per year, laundry facilities are considered essential. For visitors who stay on the island for several days, laundry service is not essential.

Comment: There will not be enough overnight units if the motel structures are removed.

Response: There will be some loss of overnight capacity resulting from the removal or modification of the motel buildings. However, given the current low occupancy rate of the

motel units and the intended addition of some housekeeping units and/or rustic cabins, the total reduction in overnight capacity will not be substantial. The National Park Service considers some reduction reasonable in light of reduced resource and visual impacts, a more sustainable design, and units that meet code and Americans with Disabilities Act (ADA) requirements.

Comment: Despite the economics involved, the fees the concessioner must pay to the National Park Service must be kept within reason so that prices paid by visitors remain affordable. Otherwise the national parks become, in effect, costly private country clubs.

Response: The National Park Service agrees that it is desirable to keep overnight accommodations affordable to visitors. This is one reason that the *Draft General Management Plan /Environmental Impact Statement* calls for additional annual funding of $400,000 to subsidize the concessioner's utility costs. If this base increase is obtained, utility charges to the concessioner will be significantly reduced, enabling the concessioner to reduce rates charged to the public. Without the increase, utility charges to the concessioner will have to be raised, as will resulting rates to the public (see appendix C for a more detailed discussion).

Comment: The National Park Service should think about establishing a lodge and dining facilities at Windigo also.

Response: Alternative B explores the concept of adding lodging for visitors at the west end of the island. The majority of public comment has opposed additional development on the island.

Comment: The National Park Service should take measures beyond those proposed to remove unnecessary concessions and services from the park. This would encourage provision of these services in the settled gateway communities and lessen the visual and actual impacts of development in the park.

Response: Discontinuing all concession services except ferry transportation to and from the island was considered in alternative C. It is not feasible for gateway communities to provide the concession services that are available on the island, such as meal service, overnight accommodations, water taxi service, canoe and boat rentals, and fuel sales.

Comment: Clarify in the final plan that the number of lodge guests is dropping as a direct result of the M .V. *Ranger III* schedule being reduced from three to two round trips per week.

Response: The schedule for the *Ranger III* was reduced from 3 to 2 trips per week more than 25 years ago. After that, the number of passengers carried each year increased steadily with only minor fluctuations downward in years corresponding to increased gasoline prices nationwide or increases in other costs directly associated with a visit to the island, such as lodging costs. Adding an additional trip per week would increase NPS operating costs for the ship by approximately $75,000 per year (for additional crew members, overtime pay, fuel costs, etc.). As only a few *Ranger III* trips per year are full to capacity (and the seaplane and other ferries are not usually full),there is no reason to expect that the addition of another round trip per week would increase guest numbers appreciably.

Comment: One commenter questioned the figures on the actual costs of utilities at Rock Harbor and Windigo and wondered whether the National Park Service has made any attempt to reduce the costs through contracted services, better trained personnel, or any other means. Another person said the draft plan does not appear to consider options to enhance the lodge's image and/or its use, and submitted the following: (1) could overnight stays be increased at the lodge/housekeeping units by relocating the lodge in an area where more trails are available (i.e., closer to the middle of the island)? and (2) when more visitors used the lodge in the past, was there better trail access by boat or were other amenities available to interest lodge guests? Perhaps lodge use could be increased by establishing convenient, economical water taxi schedules to take lodge guests for day hikes.

> Response: Contracted services would not result in significant savings because approximately the same staff with the same level of expertise would be needed. The cost of fuel and other operating supplies would not be different, and the environmental protection regulations would be the same. Better trained employees might be conceptually possible but would not reduce costs because the same practices would be required by law and regulation. Relocation of the lodge would affect wilderness values, would impact new areas, and would be prohibitively expensive. Greater lodge use could increase the profitability for the concessioner to some degree, but major rehabilitation of the infrastructure would still be required at the same cost. None of these options would meet the goals of reducing visual impacts and achieving a more environmentally sustainable operation. As for the water taxi, it serves many areas already, and it would not be economical for it to operate on a regular schedule, rather than on demand.

Comment: Regarding the concession at Rock Harbor, has the National Park Service made an attempt to implement the provision in Special Directive 83-2 (revised) that says in special instances "the new policy has a mechanism for exceptions when additional utility costs will cause the prices of visitor goods and services to be so high as to impair their marketability and seriously jeopardize the economic viability of the concessioner?" This provision should be mentioned in the plan.

> Response: The *Draft General Management Plan / Environmental Impact Statement* recognizes that Special Directive 83-2 permits the National Park Service to subsidize concessioner utility costs under exceptional circumstances (see appendix C). This is why the plan calls for new funding to rehabilitate the utility system infrastructure and to subsidize the annual utility operating costs. If this funding is not granted, there is no viable option to having the concessioner pay. It is not appropriate or desirable for the park to subsidize concession utility costs at the expense of other priority programs, such as resource management and services affecting a far greater percentage of park visitors. Additionally, the National Park Service has no obligation to provide economically viable concession operations. The National Park Service does have the obligation not to allow a concession to operate when it is known that the operation is not viable.

Comment: Rock Harbor lodge is as much a part of the cultural history of the island as the fisheries, lighthouses, and mines. There is no evidence in the plan of an attempt to keep, further develop, or preserve structures on the shore of Rock Harbor where the original guest house is located. The only reference is to tear down what is there now and build something else, away from the shoreline, that will have no resemblance to a lodge that has been a part of the island culture since long before the island was designated a national park.

Response: In the proposed plan, the guest house (constructed 1922-24) and the Spruces cabin (1911) will be retained. The lodge motel units, constructed in 1956 and 1962 by the National Park Service, are not historic structures, nor are they significant elements of the historic Rock Harbor lodge. Before the island was designated a national park, the Rock Harbor lodge and other resorts around the island were generally made up of a main lodge building and numerous smaller guest cabins. Retention of the guest house and the only remaining guest cabin, Spruces, is consistent with the history of the Rock Harbor lodge area.

Comment: The *Draft General Management Plan / Environmental Impact Statement* discusses the negative visual impact of the Rock Harbor lodge. But a five minute stroll to the west along Rock or Tobin Harbor trails puts visitors beyond sight of the lodge development.

Response: The primary aesthetic concern with the Rock Harbor motel buildings is the intrusion on the scenic view from the water. The proximity of the structures to the shoreline and the architectural style of the buildings make them particularly obtrusive.

Use Conflict / Separation of Uses

Comment: Several people said that conflicts between user groups and separation of uses was given undue attention in the plan. Some said there would be less need to separate users if visitors were informed in advance about what to expect on the island and if users were more aware of and respectful of others' needs and expectations. Someone suggested that the National Park Service should consider the use of campground hosts to help reduce conflicts between user groups at campgrounds. Others pointed out that boaters give aid to hikers and paddlers who are injured or in trouble, share food, and provide transportation.

Response: The plan text has been revised to clarify the distinction between separating **uses** and separating **users**. It is not the intent of the plan to separate users; the National Park Service recognizes that many people who motorboat also hike and/or paddle and that many interactions between types of users are positive. The goal of the plan is to separate uses in a few areas of the park to ensure a variety of experience opportunities and to respond to many visitors who are requesting respite from motorboat noise. All park users are welcome to use all areas in the park, so long as they do so in ways consistent with visitor experience and resource protection objectives of the area. The attention paid to the issue of separating uses in the plan is warranted by the amount of public comment requesting some separation of motorized and nonmotorized uses. Though the National Park Service agrees that user education and increased awareness will help to prevent problem situations, it is also true that visitors come to Isle Royale with the expectation of wilderness, which is a reasonable expectation because 99% of the land base is statutory wilderness. The wilderness designation for Isle Royale requires the National Park Service to manage for wilderness, rather than inform the visitors that they should lower their expectations for a wilderness experience.

Comment: The notion that hikers' and boaters' use of the island should be separated, with hiking access to waterfronts limited and boaters' access by foot to the inner island restricted makes no sense. Many boaters come to the island to explore its interior and hike its trails, while hikers walking the interior for hours look forward to the waterfront contact that the trails provide at key locations.

Response: There is no attempt in the plan to limit hikers' access to waterfront areas or to limit boaters' access by foot to the inner island. There are some actions in the plan (such as relocating docks) that would enhance separation of motorized from nonmotorized uses (see also the response above).

Comment: Several people suggested that the National Park Service should build new dockless campsites or campgrounds for hikers and paddlers as an alternative to removing docks at some campgrounds. Some said campsites should be moved away from boating harbors or docks to separate user groups. One commenter said that the National Park Service should create some inexpensive, easy to maintain, widely spread out primitive individual campsites like those in the Boundary Waters Canoe Area. Another suggested that more isolated campsites with good views should be built. Others argued that development of new campgrounds and trails and replacement of lodging facilities should be limited to prevent fragmentation of wildlife habitat so that wildlife would have large areas undisturbed by human activity.

Response: The National Park Service considered the construction of several smaller campgrounds around the island but rejected this idea due to concerns about cumulative effects of additional development. Adding new developments, even small primitive campsites, into presently unused areas would further fragment available wildlife habitat. In general, wildlife would be displaced from the area around any new developments. The National Park Service considers these impacts unacceptable. Cross-country camping is still an option for those individuals seeking a primitive camping experience.

Comment: Isle Royale's problem with visitor conflicts may be largely the structure of the established campgrounds: (1) trail shelters/campsites within 100 feet of each other,
(2) insufficient shelters/campsites during peak visitation, (3) desirable shoreline campsites used by hikers, paddlers, sailboaters, and powerboaters.

Response: The configuration and number of campsites in the park has evolved over the life of the park, largely in response to growth in demand for campsites. This has resulted in more (or closer) sites in some areas than would be optimal. Topography, soils, and wetlands are common design constraints. Increasing the number of sites to accommodate peak use would result in greater resource impacts caused by facilities that would receive only occasional use. When use conflicts occur, they are related more to insensitive or rude behavior and noise than campground design, so optimal campground layouts would not prevent them.

Comment: Rangers should be stationed at points of high visitor concentration. For example, a ranger should be stationed in McCargoe Cove rather than Amygdaloid Island, and a small ranger station should be constructed at Daisy Farm.

Response: There is a campground host cabin at Daisy Farm. The National Park Service believes that visitor conflict issues are best resolved through proper facility design and location, public education, and ranger patrols rather than through onsite supervision of visitor use. The constant presence of NPS employees in campgrounds would diminish the wilderness experience for all users. An NPS employee was stationed at McCargoe Cove for two summers. While this resolved most conflict issues at McCargoe, it displaced such problems to unstaffed campgrounds.

Trails and Campgrounds

Comment: What is the rationale for removing the hiking trail connection from Chippewa Harbor to the east end of Lake Richie? This action eliminates a cross-island option for hikers. Some hikers will still go cross-country, however, and a trail concentrates and limits hiking impacts. Removing the trail connection also prevents motorboaters from accessing the rest of the trail system from this point.

> Response: The portage trail connection from Chippewa Harbor to Lake Richie will remain in place to provide access to the lake for paddlers and boaters. Chippewa Harbor has become a very popular area and is heavily used by paddlers,boaters, and hikers. Removal of the trail segment will reduce crowding and use pressure on this fragile resource area. The campground is primarily situated on rock, and expansion of the campground would encroach on an area of archeological significance. Further, the closing of the trail as a route from Moskey Basin or as a cross-country trail will allow some separation of uses. It is true that motorboaters and hikers will have to access the island's trail system from another point. However, the cross-island canoe route will remain open, with Chippewa Harbor continuing to serve as a destination or point of embarkation for this group of island visitors.

Comment: Isle Royale lacks sufficient trails along the Lake Superior shoreline. The lakeside hiking trails that led from Daisy Farm to Moskey Basin in the 1970s should be replaced.

> Response: The following trails follow the Lake Superior shoreline for at least part of their length: the Tobin Harbor trail from Rock Harbor lodge to the Mount Franklin trail, the Rock Harbor trail from Rock Harbor lodge to Daisy Farm, the Scoville Point trail, a portion of the Feldtmann Lake trail near Windigo, the Island Mine trail along Siskiwit Bay, and a portion of the east Hugginin Cove trail.
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> The shoreside trail between Daisy Farm and Moskey Basin was relocated primarily because it was in a very wet area. There are two ways to deal with trails crossing wet areas: bridging and trail rerouting. Trail rerouting, where an alternative route is possible, is the more sustainable choice because of reduced impacts on wetlands and reduced maintenance costs over the long term. Contributing to the decision to reroute the trail were visitor complaints about hikers and boaters seeing and hearing each other along the trail.

Comment: Several commenters suggested creating new trails, such as (1) a day use trail from the Siskiwit Bay campground toward Point Houghton, (2) a trail between Moskey Basin and the Rock Harbor Lighthouse on the Rock Harbor side, (3) from the Rock Harbor lighthouse to the Chippewa Harbor vicinity, and (4) from Malone Bay to the Island Mine trail. Reasons given for creating such trails included dispersing use and allowing visitors to visit points of interest without using a concessions-operated boat.

> Response: Early in the planning process the team considered the option of creating additional trails on the island. In the end, these ideas were not included in the alternatives because of concerns about adding to the trail maintenance load, the need to avoid or bridge wet areas, and wildlife concerns related to introducing human activity into new areas of the island. Regarding suggestion (1) in the comment above, wetlands and raptor nesting areas are a concern. For

suggestions (2), (3), and (4) there are threatened and endangered species concerns (bald eagles and wolves).

Comment: One person suggested that backpackers should be allowed to camp in areas other than designated campsites, such asbeside trails. Another commenter said a possible solution to conflicts between users at campgrounds would be to make hikers and paddlers aware that there are options to campgrounds (i.e., cross-country camping).

Response: The park does allow off-trail camping (cross-country camping) in certain areas of the park, and this use will continue. Special protective regulations apply to cross-country camping, and a special camping permit is required. Cross-country camping is intended for those who want to get away from park trails and established campgrounds. It is not intended as overflow or trailside camping. As long as there is a relatively low level of this type of camping, its impact to wildlife and vegetation will remain acceptably low.

Comment: I assume the Three Mile campsite would be off-limits to boaters.

Response: Boaters would be welcome to use this campsite but with the removal of the public dock, they would have to access it via the trail system or by beaching a small craft.

Comment: There should be some campsites established exclusively for sail and powerboaters, preferably on small islands, and for paddlers in more sheltered areas along the main island generally not accessible by hikers.

Response: The proposed plan will not reserve campgrounds or campsites exclusively for particular user groups. Instead, the means of access provided will largely determine who uses particular campgrounds.

Comment: Regarding the elimination of commercial kayak trips around the west end of the island, the plan says this would "help maintain isolated shorelines with opportunities for solitude." Solitude for whom? The shorelines can't be reached other than by boat (kayak). Won't such trips just be relocated to the east end, thereby increasing the demand for already crowded campsites? Since these kayakers apparently distribute themselves away from developed campgrounds where conflicts exist, they should be congratulated rather than penalized.

Response: The intent is to provide areas where paddlers who are not traveling as part of a commercial trip can find solitude. This action will help prevent cumulative impacts from repeated use of specific areas in pristine zones.

Comment: The location of campsites on Lake Richie needs clarification. The Existing Conditions map shows campsites on the east and south ends of the lake, but the map for the proposed action shows no campsite on the south side of the lake and a "new" campsite on the north side of the lake, with no explanation of the change.

Response: The plan does not propose to relocate any campgrounds on Lake Richie. The campground in question is located at the end of a peninsula that extends out into lake on the

north side. The campground symbol has been repositioned on the Existing Conditions map to more accurately reflect the location.

Comment: Consider increasing the number of small canoe/kayak sites along the Lake Superior shoreline. In particular, consider a paddler campsite in the vicinity of Blake Point; the campsites on either side of Blake Point (Merritt Lane and Duncan Narrows) are often full, and there are no other options in the area for sea kayakers, who cannot compete with motorboaters for shelters and campsites. If it is not possible to create a new campsite for resource reasons, another option would be to reserve a shelter or tent site at campgrounds on either side of Blake Point. A last option would be to create some kayak campsites in or near Rock Harbor.

Response: The proposed action has been modified to include the addition of one or two tent sites at Merrit Lane to improve opportunities for paddlers to camp in the area. Also, cross-country camping is allowed in certain locations in this area (a permit is required).

Wilderness

Comment: The *General Management Plan / Environmental Impact Statement* should include a wilderness designation plan and clearer indications of when areas recommended for wilderness will finally be managed as such.

Response: A wilderness and backcountry management plan is called for in the plan (see p. 28 of the draft). This plan will provide guidance on this topic and will be available for public review.

Comment: A large part of the unique wilderness experience that could be provided by Isle Royale as an island wilderness could include the wilderness shoreline looking out on waters also in wilderness condition. None of the alternatives described in the *Draft General Management Plan / Environmental Impact Statement* provide a shoreline that looks out on Lake Superior open waters without motorized boats. The most protective alternative would have most of the Isle Royale wilderness surrounded by nonmotorized waters. This alternative does not seem to have been considered. Less protective alternatives would also benefit from substantial portions of wilderness shoreline buffered by nonmotorized boating restrictions and were also not considered. Similarly, ferry boat routes could be moved further offshore; perhaps moved out of the channels between the main island and the offshore island. These alternatives were also not considered in the draft plan.

Response: Alternatives such as described here were not considered because they are not believed to be viable alternatives. As mentioned in several other responses, Congress intended that motorboat use be continued at Isle Royale, as it is a maritime park. Because of the nature of Lake Superior, it would be unreasonable and dangerous to require motorboaters to travel and anchor around the island without the protection of coves and harbors. Because of the length of the ferry trips to the island (it requires six hours or more to travel from Houghton, Michigan, or Grand Portage, Minnesota, to Rock Harbor) it would not be reasonable to expect the ferries to lengthen their trips even more by traversing the island far enough out to be unseen from the shore. The *Voyager* circumnavigates the island at most three times per week, the *Ranger III* makes the round trip twice per week, and the Isle Royale *Queen* comes straight

in and out of Rock Harbor without circling the island; therefore, the majority of visitors do not see the ferries during most times of most days.

Comment: The draft states that potential wilderness additions will be managedike wilderness. In this regard, it is not clear that the ferry landings, shelters, docks, and campgrounds proposed for the frontcountry zone, wilderness portal zone, and backcountry zone are in keeping with the management of wilderness.

Response: In Senate hearings on the Isle Royale wilderness bill, language is included that indicates the intent to retain motorized boat access to the island. Included in the language is the continuance of ". . . the construction and maintenance of boat docks along the lakeshore as long as their purpose is for safety of visitors and the protection of the wilderness resource." Further language reads, "The Committee understands that no significant expansion of boat dock numbers is anticipated, but that continued maintenance of these facilities is essential to the continued ease of access as well as the health and safety of the visitors." The National Park Service believes that the ferry landings and docks, as called for in the various alternatives, are consistent with the intent of this language. The number of ferry landings is not increased in any of the alternatives. The number of docks in the various alternatives remains the same as existing conditions, is increased slightly, or, in alternatives B and C, is reduced.

"Relatively large campgrounds" would be permitted in frontcountry zones only when the zones are in nonwilderness (p.30). "Moderate-sized campgrounds," including shelters, would be permitted in frontcountry and wilderness portal zones. In these staging areas, such campgrounds are deemed necessary for protection of resources because visitors are dropped off at these primary ferry stops (the only way to access these areas other than hiking or private boats) and often cannot disperse immediately to other areas. Established camping areas help limit impacts resulting from this "pulsed" visitation. No new shelters would be added in backcountry zones, but tent platforms may be provided as necessary to protect resources.

Comment: Wilderness management zones are unnecessary and probably violate the Wilderness Act. Planning that condones impairment or potential impairment of a wilderness area because of its proximity to human intrusions violates the Wilderness Act. The National Park Service should instead establish a good baseline for management decisions regarding recreational use, scope of development, and visitor facilities and services by setting goals through desired future conditions and adapting use patterns as new data becomes available through inventorying and monitoring.

Response: Park management prescriptions for visitor use and resource protection in different areas of the park (management zoning) is basic to good planning and is required by NPS planning policy. Zone descriptions are descriptions of desired future conditions. Zones that prescribe uses and resource conditions consistent with wilderness values are not in violation of wilderness law or management policy.

Cultural Resources Management and Interpretation

Comment: There is little attention given to monitoring the conditions of Isle Royale's shipwrecks. It is not until Phase III (13-20 years out) that there is mention of setting standards and/or implementing any preservation policies or partnering for the shipwrecks.

> Response: Cooperating with partners to set standards for and carry out preservation of shipwrecks is listed not under Phase III, but rather under "Actions to be Implemented on an Ongoing or As-Needed Basis" (see p. 144 of the draft plan). This means that such efforts could begin right away and continue throughout the life of the plan. Also, we have expanded the discussion of the Great Lakes Shipwreck Preservation Society and shipwreck documentation and stabilization in the plan so that readers can better understand the nature of shipwreck management.

Comment: There are no visitor statistics presented in the plan on the number of shipwreck divers that visit the island. Therefore, the National Park Service apparently has no means to estimate diver impact on shipwreck resources or to determine funding and staff needs to monitor, stabilize, and preserve the wrecks for future visitors.

> Response: The park does have statistics on numbers of divers and numbers of dives. The plan does not include this information because no changes are proposed related to diving. Current monitoring indicates that there is no need to make any changes to diving practices on the island, but if future inventory and monitoring identify potential impacts, the park will take action as necessary to protect these resources.

Comment: Why is the cottage history not as important as some of the other stories? Interpretation of this part of Isle Royale's history is largely ignored in the plan.

> Response: The National Park Service did not intend to overlook the interpretation of cottage history (people who have traditionally summered on the island in private dwellings). Two park emphasis statements have been revised to address the island's cottage history.

Comment: Modifications to the cottages (solar panels, water filtration systems, etc., for buildings adapted to administrative uses) are inconsistent with their preservation.

> Response: Adaptive use is recognized as a means to preserve historic structures. Consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation (as required by section 106 of the National Historic Preservation Act) will ensure that all significant features of adaptively used historic structures will be either preserved or recorded.

Comment: Comments were received regarding former homesites on the island. Commenters said that remaining homesites are relics of a significant past culture and are of interest to visitors. Some said statements in the plan about using partnerships for preserving historic structures are not strong enough (draft text on p. 24 was cited as an example); the National Park Service should encourage partnerships with previous owners, lease holders, fishermen, and concerned people who develop preservation plans for specific sites. Other comments were more specifically related to the families who once owned the homesites. There was a suggestion that the plan address the issuance of permits to original families to

use and maintain family homesteads (at the families' expense or with public donations) into the future. The park and public would benefit from preservation of the island's historic culture at very little expense, and the original families could maintain and preserve their ancestral heritage. Families could share cultural artifacts with the visiting public by putting them on display at the homesites.

> Response: A cultural resource management plan will be completed after the *General Management Plan / Environmental Impact Statement* is finalized. This plan will address the future of the homesites/life lease sites. Decisions will be made on which homesites to maintain based on the criteria outlined on page 24 of the draft plan (wilderness status of the land, national register eligibility of the structures and sites, condition of the structures, importance to cultural landscapes, and suitability and potential for adaptive uses by the park.) After these decisions are made, partnership agreements will be sought to stabilize, maintain, and interpret the homesites. The original families will be eligible to participate in the partnerships. All agreements made will be consistent with NPS laws and policies.

Comment: The Wilderness Act of 1964 states "features of historical value may be present in wilderness areas." It further states that wilderness "is an area retaining its primeval character and influence, without permanent improvements or human habitation." Historic structures should be allowed to remain on Johns Island (see p. 35 of the draft plan); new docks and tent platforms seem contradictory to the Wilderness Act.

> Response: The cabin on Johns Island will be evaluated for retention or removal based on the criteria listed on page 24 of the draft and in the above response. Facilities such as tent platforms will only be used at campgrounds where needed for resource protection, which is consistent with NPS wilderness management. The Senate hearings on the Isle Royale wilderness bill provide for the continuance of ". . . the construction and maintenance ofboat docks along the lakeshore as long as their purpose is for safety of visitors and the protection of the wilderness resource."

Comment: The issues section of the plan says "There is no clear policy for the disposition of structures, grounds, and docks on the island following the expiration of life leases" (p. 5). In the proposed action section of the plan there is still no clear policy — it says life lease properties will be dealt with on a case-by-case basis (p. 24).

> Response: The criteria by which individual cases will be decided are set forth in the *Draft General Management Plan / Environmental Impact Statement*. These criteria include information that will be provided by the ongoing cultural landscape inventory and update of the List of Classified Structures. Results are not yet available. A cultural resource management plan will be developed upon completion of the *General Management Plan* and will be available for public review. It will document decisions to remove or retain and maintain structures and sites. The decisions will be based on the criteria listed on page 24 of the draft plan. The results of ongoing studies will be used in the evaluation. After the decisions are made, partnership agreements will be sought to stabilize, maintain, and interpret the life lease properties. Family members of the original leaseholders will be eligible to participate in the partnerships. All agreements made will be consistent with NPS laws and policies.

Comment: Underwater archeological sites should be mapped (such a map should have been included in the plan) and motor use restrictions should be implemented to protect these archeological and cultural resources.

> Response: A priority for the management of cultural resources in the proposed plan is completion of inventories and documentation of all archeological sites, both underwater and terrestrial (p. 24). The inventories will include areas of potential disturbance, such as campgrounds and popular boating spots. If impacts to archeological sites are determined through future monitoring, steps will be taken to limit the impacts, and (if necessary) the *General Management Plan* will be amended. Due to the sensitive nature of archeological sites, specific maps and site data are not made available to the public.

Comment: As the draft plan acknowledges, the Lake Superior fishes and fisheries are very significant resources and important components of the maritime park experience. Two suggestions related to the theme of Lake Superior fishes and fisheries are as follows: (1) a theme study and comparative analysis for the fishes and fisheries of Isle Royale to establish their national significance and provide a clearer direction for management and research and (2) a 5-year strategic management plan for the historic fisheries that includes options for adaptive use, site preservation and maintenance, interpretation, and sustainable funding and financing.

> Response: The National Park Service agrees that a study of the fishery resources at Isle Royale, for the purposes of establishing national significance and to provide clear direction for research and management, is appropriate; a fisheries management plan is called for in the *Draft General Management Plan / Environmental Impact Statement* (see p. 29). A priority for cultural resource management will be completion of inventory and documentation of cultural landscapes, which will include historic fishery sites (see p. 24 of the draft). Structures at the historic fisheries were included in the List of Classified Structures update and are being evaluated for national register eligibility and historical significance. An ethnographic study of commercial fishing on Isle Royale was funded in 1998 and will greatly help to increase knowledge of the fishing culture on Isle Royale. Management plans for the fishery sites proposed to be used as campgrounds (Fishermans Home, Wright Island, and Crystal Cove) will be developed upon completion of the *General Management Plan* and will include options and strategies for adaptive use, site preservation and maintenance, interpretation, and partnerships for funding, as suggested.

Wildlife / Natural Resource Protection

Comment: Commenters suggested that nonmotorized zones be increased to protect loon populations and other nesting waterbirds. One commenter asked about what scientific evidence is available to suggest that loons are being negatively affected by boat wakes in Pickerel Cove.

> Response: Input from biologists who have worked with Isle Royale waterbirds was sought by the planning team throughout the planning process. Their recommendations to protect such species were incorporated into the proposed action (as revised); the biologists have commented that the quiet/no-wake zones in the plan do a good job of minimizing impacts to waterbirds such as loons, while still providing safe harbor and permitting motorboat use in

Lake Superior waters of the park. Evidence that loon nests can be affected by boat wakes is based on nest observations; these effects are not specific to Pickerel Cove.

Comment: One person said that the National Park Service should let the Michigan Department of Natural Resources manage the fisheries at Isle Royale. Another said that the National Park Service should work closely with the Michigan Department of Natural Resources and statewide sportsmens' groups to foster a positive relationship as stewards of island wildlife resources.

Response: By law, responsibility for the management of the inland lakes fishery and terrestrial wildlife rests with the National Park Service. Primary responsibility for the management of the Lake Superior fishery in the park rests with the Michigan Department of Natural Resources. The park has and will continue to work closely with the state, the U.S. Fish and Wildlife Service, Indian tribes, and other stakeholders to manage and protect this fishery. The plan calls for the development of a fisheries management plan (see page 29 of *Draft General Management Plan / Environmental Impact Statement*).

Comment: Has the carrying capacity of the island for animals been studied? Too many animals can harm the vegetation. Hunting or relocation of animals should be considered to reduce overpopulation of moose and other species.

Response: Nature has its own way of managing wildlife; NPS policy will remain constant — to intervene as little as possible. Harm to vegetation is a value judgment; overpopulation of moose has occurred in the past at Isle Royale and will probably occur again.The significant moose population crash of 1996 (due to the severe winter, parasites, and lack of food) has removed any current concerns about overpopulation. Relocation of animals, particularly from an area as remote as Isle Royale, is very expensive and not always successfulHunting in national parks is prohibited by law unless specifically authorized by the enabling legislation.

Comment: The plan should address pollution emanating from Thunder Bay and Duluth.

Response: The National Park Service believes that it will be most effective in addressing pollution from such areas by cooperating in regional efforts designed to tackle such issues. Examples include the Great Lakes Regional Air Partnership and the Binational Program to Protect and Restore the Lake Superior Basin. According to the plan (p. 23), the National Park Service will investigate ways to contribute to and benefit from regional ecosystem management and protection. Also, there is ongoing research at Isle Royale examining this issue.

Comment: Because natural resource inventories for all species have not been completed, is it possible that new information about natural resources could result in changes to the *General Management Plan*?

Response: Yes, depending on the nature of the information and any adjustments, a general management plan amendment may nor may not be required.

Comment: The language describing frontcountry zones suggests that the proposed action would negatively affect bogs, which are very fragile plant communities.

Response: Text in the proposed action (p. 35) does say that frontcountry zones would be near developed areas and where there are other natural or cultural features of special interest, such as bogs. This statement must be considered in the context of the general description for frontcountry (p. 30), however, which addresses the potential for negative impacts to bogs and other resources. "Visitors, sites, and trails would be intensively managed in the frontcountry zone to ensure resource protection and visitor safety . . . . The zone would not be near sensitive natural or cultural resources if such resources could not be adequately protected."

Comment: The National Park Service should undertake the designation of all Lake Superior waters within the park as Outstanding National Resource Waters under the federal Clean Water Act where increased loading of persistent bioaccumulative toxics from all sources would be prohibited.

Response: The National Park Service has recommended that all national park waters in the state of Michigan be designated Outstanding National Resource Waters. This recommendation has been forwarded to the state of Michigan, which has responsibility for the designation.

Comment: The *General Management Plan* should include a clearly articulated desired future condition for all habitats and ecosystems in the park to provide direction for developing long-term ecological protection strategies.

Response: Because of the general nature of these plans, descriptions of desired future conditions are also general. Because of Isle Royale's wilderness status, the range of desired conditions in different habitats or ecosystems is not broad. This is reflected in the large areas of the island that are zoned as "pristine." More detailed desired future conditions will be included in the revision of the park's resources management plan and wilderness management plan.

Comment: Mollusks and snails should be added to the list of taxa in need of inventory. Information for the state of Michigan indicates that Isle Royale lacks these inventories.

Response: Mollusks and snails have been added to the list in the *General Management Plan.*

Comment: There is also the potential for short-term water pollution due to spills of toxic materials around Lake Superior and inside park boundaries" (p. 5 of the draft plan). Spills of what and where?

Response: There could be accidental releases of petroleum products (gasoline, diesel fuel, lubricating fluids, etc.) that are used to operate boats. Accidents could also occur because the products are transported as bulk cargo or stored in NPS land-based storage facilities, are contained on commercial vessels traversing shipping lanes, and are transported on visitors' boats. Gasoline and/or diesel fuel are stored in bulk at Rock Harbor, Mott Island, Malone Bay, Windigo, and Amygdaloid Island. Sewage sludge is pumped from holding tanks at NPS developed areas and is transported for disposal on the mainland. Regular inspections of NPS vessels, particularly those transporting petroleum products as bulk cargo and of NPS shore-based storage facilities are conducted at least annually. U.S. Coast Guard-approved spill prevention and contingency (response) plans are in place and address actions to be taken should a spill occur. The NPS has no authority to control commercial vessel activity on Lake Superior and use of

petroleum products is necessary to accomplish park operations, risk of accidental release cannot totally be eliminated.

Comment: The provision of diesel fuel, gasoline, and pumpout stations for public use increases the potential of water pollution while further encouraging uses of the Isle Royale wilderness that is perhaps not in keeping with the intent of the wilderness designation by Congress. A combination of reducing the need for importing and storing diesel fuel and gasoline and upgrading the infrastructure would make an alternative more protective of the environment. Several commenters said that the *General Management Plan* should include a plan to reduce or phase out fuel transportation to, and sales of fuel at, the island.

Response: Alternative C would eliminate fuel sales at the island. However, because access to the park is possible only by boat and floatplane, even this alternative would not totally eliminate the use of liquid petroleum fuels in the park. In fact, the risk of petroleum spills and hazardous situations could increase as the result of boaters transporting fuel in containers aboard their vessels.

Energy conservation is considered in park operations and is recognized as a practice that can reduce the amount of petroleum products required for NPS operations.

At present, the park is actively replacing the fuel systems at the remote ranger stations and Windigo, and is replacing the fuel lines at Mott Island, Windigo, and Rock Harbor with double wall piping. Employees have received intensive training in spill prevention and mitigation, and spill prevention plans are either in place or are in preparation. Each fueling station is provided with absorbent pads for mitigation of small spills incidental to a fueling station. Pumpout stations are provided to make the disposal of sewage from boats easy, therefore helping to prevent this material from being dumped into Lake Superior. The boating industry is actively working to reduce two-cycle engine problems with the shift to four stroke engines and innovative technology for two-stroke engines.

The park is exploring the feasibility of adding a second hull to the gasoline barge to add a measure of safety to that operation. There is no other feasible way to move gasoline from the mainland to the park. The park's administration requires the use of diesel fuel and gasoline since there are no practical alternatives. Similarly, a significant portion of the visiting public would be precluded from visiting the park if fuel sales were banned.

Other Topics

Comment: The plan must emphasize the national significance of Isle Royale National Park as primarily a resource based, wilderness park. Recreation and visitor use decisions flow from this recognition, but are secondary in importance. The plan is heavy on visitor experience and light on resource protection. It appears campground and docking facility placement and density and motor use zones and densities are driven largely by expectations and traditional use by a small percentage of park users.

Response: The park purpose, significance, and park emphasis statements, presented in the planning background section of the *Draft General Management Plan / Environmental Impact Statement*, clearly reflect the national and international significance of Isle Royale and its wilderness/natural resource focus. Along with resource protection, visitor use of national parks is a primary, not a secondary part of the system's missionIn as much as they focus visitor use in resource areas best able to withstand use, park facilities and management zones are as much a part of resource protection as they are support for visitor experiences. In this maritime park, motorboat use is supported, not only by traditional use but by congressional intent. Monitoring for resource protection and visitor experience indicators, as called for in this plan and subsequent carrying capacity and wilderness management plans, will help to ensure use appropriate with resource protection goals.

Comment: The *General Management Plan* should call for a noise ordinance that bans the use of noise-making equipment such as stereos, generators, loud parties in wilderness or within hearing distance of wilderness. It should include a noise mitigation plan that would include the noise ordinance as well as mitigation measures for machinery, motorized vessels, etc.

Response: The plan has been modified to call for noise restrictions in most zones. Also included are commitments to replace park equipment with quieter models as funding allows. Any specific plans needed to implement these actions would be prepared subsequent to approval of the plan.

Comment: Under "Park Operations" the draft plan states that "the schedule and purpose of the M.V. *Ranger III* is to support operations, and services to the concessioner and passengers are secondary." The purpose of the *Ranger III* was and is to complement the added capacity of the lodge rooms and cottages constructed during the same period that the ship was built, i.e., carry more passengers. The *Ranger III* is the "entrance highway to the park". This entrance highway should be open for travel more than four days per week.

Response: This assertion is not true. Legislation appropriating funds for construction of the *Ranger III* describes the primary purpose of the vessel as providing logistical support to park operations, including transportation of freight (supplies, materials, equipment) and fuel. Transportation of park employees whose presence is required on the island is a secondary purpose, and transportation of island visitors is a third purpose. Schedules are established to meet these needs in an effective and economical manner (see also the comment about *Ranger III* schedules in the Rock Harbor lodge and concessions comment section).

Comment: The *Draft General Management Plan / Environmental Impact Statement* gives no attention to provision of interpretive information, orientation, or preregistration in Minnesota.

Response: The draft plan proposes on p. 34 that park orientation be provided to visitors at the Houghton, Copper Harbor, and Grand Portage (Minnesota) ferry staging areas. Also, private boaters may preregister by purchasing an annual boat pass.

Comment: Access to Edisen Fishery, lighthouses, and other points of interest via NPS or commercial boat trips is not addressed in the plan.

Response: Edisen Fishery, Rock Harbor Lighthouse, and Passage Island Lighthouse are in frontcountry zones, where "day use, interpretation, and educational opportunities would be emphasized" (p. 35). Guided day trips to such areas will continue, and this has been clarified in the plan.

Comment: Comments at a public meeting on the plan alternatives indicated that alternative A (no action) was the most popular, so why does the National Park Service propose to do something other than continue existing conditions?

Response: Written comments and comments at other meetings did not show the same level of support for alternative A, which does not address many of the issues described in the plan. Substantial public support was shown for all of the alternatives. Nevertheless, the selection of a proposed action or a final plan is not determined by vote. In making management decisions, the laws, regulations, and policies that govern the National Park Service and Isle Royale National Park must be followed. The National Park Service must consider the merits of comments received from a diverse public and other agencies and must consider resource information and sound management practices. All the issues and information summarized in both the draft and final documents, including the issues raised in these comments, have been seriously considered. The number of comments in itself is not meaningful because some people comment more than once, and public comment is not structured to represent a statistically valid sample of all interested people.

Comment: It is evident from the language in the plan that deferred maintenance has caught up with the park. However, the need to repair the ravages of time and neglect does not, in and of itself, justify changing to different types of facilities.

Response: The National Park Service agrees that the need to repair or replace facilities does not, in and of itself, justify changing the park's infrastructure. In no case during the GMP process has the decision to make changes in facilities been made lightly or arbitrarily. Recommendations have been made with considerations related to visitors, management of natural and cultural resources, and long-term operations and maintenance.

Comment: The National Park Service has not demonstrated that the proposed changes in Rock Harbor will result in any real monetary savings or will lead to any significant operational changes in utilities operations. Studies conducted by an NPS engineer, consultation with the Michigan Department of Environmental Quality on wastewater treatment options, and close study of water treatment operations all bear this out.

Response: Proposed changes to concession accommodations at Rock Harbor reflect numerous considerations in addition to NPS utility system costs. These include: the historically low occupancy rate of the motel units, visual impact and appearance of buildings, public desire for some more rustic (and less expensive) units, concession staffing and housing needs, and the desirability of reducing energy and water consumption. Engineering studies did show that substantial utility cost savings, particularly in sewage treatment, could not be accomplished without drastic reductions in overnight visitor accommodations.

Comment: There is a lack of a well-defined bottom-line priority in the draft plan. The five park purpose statements put the plan in the position of trying to accomplish everything. If budgets continue to be tight, where will the park focus its resources? Too much money and attention is being paid to maintenance and development. A bottom-line, number one priority for the park should be included in the plan, and the National Park Service should commit to that priority with supporting financial and staffing investments.

> Response: While the National Park Service is largely in agreement with this comment, it believes that the *General Management Plan* has gone as far as it can to accomplish the goal of focusing priorities. National parks are not single-purpose places. All parks struggle with the delicate balances between protection and public access, visitor services and facilities and the costs of maintaining them, and the wide range of often conflicting public needs, demands, and desires and the responsibilities ofpark managers. This plan has attempted to narrow the park's focus in prescribing the relatively limited range of visitor experiences considered consistent with designated wilderness, acknowledging that only the most significant cultural resources can be protected (at least without help from private funding sources), and recommending actions to increase the sustainability of commercial visitor facilities and decrease their impacts on park resources and operations.

Comment: What is the plan regarding research accommodations such as the Boreal Research Station on Davidson Island or structures used by the wolf-moose researchers? No mention was made in the alternatives regarding these areas/structures.

> Response: No changes to these facilities are proposed by the GMP alternatives. Research is supported by the park purpose statement. The park will continue to promote and support research activities.

Comment: The *General Management Plan* should address the investment and changes necessary from the NPS administrative and operational standpoint to achieve the goals of the plan. The plan is incomplete if it provides a new framework for visitor use alone.

> Response: Need for administrative staff on the island is determined by the requirements of each alternative. Only alternative C would result in substantive changes in park operations (administrative staff on the island would be significantly reduced, consistent with alternative C's concept as discussed in the plan).

Comment: Several people commented on Isle Royale's designation as an international biosphere reserve under the Man and the Biosphere Programme of the United Nations Educational, Scientific, and Cultural Organization. Most commenters said this designation is not needed because the United Nations should have no say in the management of the park. One commenter asked several questions: who imposed this designation, and by what authority?, what is supposed to happen next under the program?, and who is the ultimate policy maker for our national park system?

> Response: In 1980 the park was designated a U.S. Biosphere Reserve under the United Nations Man and the Biosphere Programme in recognition of Isle Royale's global significance as a representative of the Lake Forest Biogeographical Province. The United Nations does not have a coercive role in implementing the biosphere reserve program, nor has the United

Nations any role or authority whatsoever in the management of units of the U.S. national park system. Because the National Park Service is an agency of the Department of the Interior, the secretary of interior is the ultimate policy maker for the national parksystem.

Comment: A reading of the plan leaves the impression that the alternatives are based on relatively sketchy information on park resources. The National Park Service should refrain from establishing fixed management zones, either land- or water-based, until sufficient baseline data becomes available.

Response: Park planning is undertaken with the best available resource information. All desirable information will never be available, especially with the realities oNPS budgets. Delaying the establishment of long-term goals and strategies for park management until some future date when all information is available is not a viable option.

Comment: On page 28, the resources management plan is characterized as one of the "implementation plans to follow this general management plan." However, in appendix B, where the work is scheduled and funded, the resources management plan is not included. The purpose and need section indicates that Isle Royale needs a new resource management plan, which will use inventorying and monitoring data to help make decisions; however, this document does not indicate how that will occur.

Response: The park has an approved *Resources Management Plan*. This plan will be updated to be consistent with the *General Management Plan*, following GMP approval. Although the resources management plan itself is not listed in appendix B, the inventories and monitoring activities that will be included in the plan are listed. Language has been added to clarify these points.

Comments on the Environmental Consequences Section

Comment: Shoreline sediment distribution is not significantly impacted by the dock and breakwater at Siskiwit Bay. Shoreline sediment 45 years ago was essentially the same as it is today; the bay is very shallow with a mud bottom.

Response: There has been a dock in place for many years in the same area as the present dock at Siskiwit Bay. The aerial photography record of this area, which dates back to 1930, indicates that these docks have interrupted the natural current along the shoreline and caused a considerable buildup of sand and silt. A small artificial peninsula is being formed. Because a dock has been at that location for years does not justify leaving the dock and breakwater in place. Removing the dock will allow a return to the natural currents that existed before docks were built.

Comment: There is insufficient presentation of data and analysis in the environmental impact statement. It does not adequately address impacts of Mott Island and does not discuss the impacts of removal of buildings, storage tanks, and utilities in terms of debris, runoff, etc. There is no discussion of the impacts of creating new campsites. The environmental impact statement does not assess impacts of all alternatives equally.

Response: The level of analysis in the draft is necessarily general because of the conceptual nature of the plan. Effects of specific actions related to construction and demolition of facilities will be assessed in specific environmental analyses that will be carried out in advance of such activities. Operations at Mott Island would be substantially modified only in alternative C. These effects are discussed in the impact section for alternative C. Potential consequences of new campsites are discussed throughout the "Environmental Consequences" section of the draft, and mitigation measures are discussed on pages 107 and 108. The alternatives were treated equally in the draft, except that sections on "unavoidable adverse impacts" and "irreversible and irretrievable commitment of resources" were included only for the proposed action, consistent with the approving official's interpretation of the National Environmental Policy Act and Council on Environmental Quality guidelines.

Comment: The environmental impact statement does not adequately address impacts on natural resources (water quality, aquatic ecology, and wildlife) from motorboat hydrocarbon emissions.

Response: The discussion of water quality impacts has been expanded. However, because these impacts are not believed to be significant at this time, the level ofletail remains at approximately the same level as for other impact topics. More detail is provided below.

It is true that motorboats can contribute some (usually small quantities) harmful contaminants into lake waters. As pointed out by the Environmental Protection Agency and others, some two-cycle engines tend to produce more hydrocarbons than certain other engines (usually four-cycle engines). The National Park Service has reviewed studies related to motorboat pollution at diverse locations, including a recent study of hydrocarbon contaminants entering park waters at Crater Lake National Park[2]. Even in areas with much higher boating activity year-round, it has been hard to find documented biological impacts from petroleum hydrocarbons originating from motorboats. Other conclusions of these studies include the following:

Potential contaminants from gasoline spills and incomplete combustion of mixed fuels include BTEX compounds, PAHs, alkyl PAHs, and alkanes. The BTEX (benzene, toluene, ethylbenzene, and xylene) compounds and alkanes tend to break down fairly quickly through biological, chemical, photochemical, and volatilization processes. More resistant to breakdown are PAHs (polycyclic aromatic compounds) and alkyl PAHs.However, even PAHs are subject to rapid loss from the water column due to volatilization and sedimentation, At a heavily boated reservoir in Virginia, the presence of PAHs, especially the lower molecular weight compounds (eg. acenaphthene and naphthalene), in the water column during June probably resulted from recent PAH inputs[3].

[2] "Investigation of the Extent and Significance of Hydrocarbon Contamination Associated With Boat Use at Crater Lake National Park," project no. CRLA-N-301.002. Investigators: Robert Collier and Bernd (sic) Simoneit, College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, OR.

[3] Mastran, R.A., A.M. Dietrich, D.L. Gallegher, and T.J. Grizzard. 1994. Distribution of polyaromatic hydrocarbons in the water column and sediments of a drinking water reservoir with respect to boating activity. Wat.Res. 28:2353-2366. Portions reprinted with permission of Elsevier Science Ltd, Pergamon Imprint, The Boulevard, Langford Lane, Kidlington 0X5 1GB, UK.

Removal mechanisms such as photolysis, volatilization, sedimentation, or hydrological processes may explain losses of PAHs from the water column throughout the summer. This is in agreement with another study which found the highest hydrocarbon concentrations in Lake Metigoshe, North Dakota, in July (during peak boating activity) and the lowest concentrations in October (low boating activity)[4].

Recreational boating levels at Isle Royale are relatively low now, and will not be allowed to increase indefinitely. Personal watercraft (jet skis) are prohibited in the park by the *General Management Plan*. Limits on boating may be required in the future if concerns related to resource impacts or visitor experiences become apparent during monitoring. The duration of motorboat use at Isle Royale is not long; most recreational use occurs during June, July, and August. PAH molecules are likely to be well-dispersed given the sheer size and depth of Lake Superior. For all of these reasons, PAH concentrations in water and sediments in coves is expected to be quite low at most locations during most of the year (Roy Irwin, personal communication).

The National Park Service recognizes, however, that it has no baseline information on current petroleum hydrocarbon levels in the Lake Superior waters of the park.The park will initiate proposals to fund research to examine this concern and establish baseline conditions for hydrocarbon levels; this action has been added to the *General Management Plan*. The National Park Service can administratively and temporarily restrict the use of some small water areas in this research effort. If future research or other new information suggests that motorboat use is resulting in ecological harm, additional administrative actions can be taken, and/or the *General Management Plan* can be amended to call for measures to prevent or mitigate such harm. Also, the plan now calls for the National Park Service to take a leadership role at Isle Royale in using cleaner engines and in educating others about clean engine technology. The National Park Service anticipates no discernable adverse effects on water quality or aquatic or other organisms from the proposed plan or any of the action alternatives.

Comment: The collective impact of individual motorboats, when combined with past, present, and reasonably foreseeable future actions and existing systemic pollution, is likely to have significant cumulative effects. There is no good faith effort in the *Draft General Management Plan / Environmental Impact Statement* to identify and explain these indirect and cumulative effects. The direct, indirect, and cumulative impacts of all motorized activity in park waters, including private, commercial, and public transport and support facilities and activities, should be addressed for each alternative. Fuel transportation, storage, and pumping of fuel, accidental fuel spills, leaking fuel tanks, bilge emissions, sewage pumpout spills, boating accidents, plane crashes, and water and sound pollution should also be addressed.

[4] Brammer J.D. and R.L. Puyear. 1982. Identification and quantification of water soluble components of outboard motor exhaust and of a gasoline in a North Dakota lake, and a determination of their biological effects upon selected freshwater organisms. NTIS PB83-224436, Springfield, VA.

Response: The National Park Service does not agree that changes to motorboat use or park operations as a result of the GMP alternatives are likely to have significant direct, indirect, or cumulative impacts on the environment. Some degradation in water quality could occur if motorboat use significantly increased relative to existing conditions. Although (theoretically) boat use could continue to increase over time in alternative A (no action), this would not occur under the other alternatives, all of which include caps on visitation growth. Therefore, no adverse impacts from motorboat use would occur under any of the action alternatives, including the proposal. The discussion of water quality impacts has been expanded to explain the reasons for this conclusion. Because the action alternatives would not result in significant increases in boat use compared to alternative A, the contribution to cumulative impacts resulting from this plan would be negligible.

The park has implemented a number of safety practices to reduce the potential for accidental spills to an acceptable level of risk, given the essential role petroleum products play in operations. Regarding the potential for hydrocarbon spills, U.S. Coast Guard-approved spill prevention and contingency (response) plans are in place for NPS vessels that transport and transfer petroleum products in the park. Employees receive spill prevention and response training; practice exercises are conducted to ensure response readiness. The National Park Service is investigating the feasibility of applying a honeycomb overlay product to the gasoline transport barge to achieve a double-walled configuration and reduce spill potential.

A comprehensive spill prevention, control, and counter-measure plan for shore-based storage facilities will be completed and implemented by the 1999 operating season. Storage facility spill response plans are now in place. Bulk storage facilities at Rock Harbor, Mott Island, Malone Bay, Windigo, and Amygdaloid Island have either double-walled storage tanks or are within containment structures. Single-walled distribution piping is being replaced with double-walled piping. This work will be completed at Mott Island and Windigo by early in the 1999 operating season and at Rock Harbor by 2000. All shore-based petroleum storage facilities are inspected by U.S. Coast Guard officials annually. Standard operating procedures that address spill prevention and immediate response needs are in place and are followed during fuel transfer operations. Spill containment equipment is prepositioned for rapid deployment.

A 2-year cycle for pumping and disposing of sewage has been established to control the volume to be handled each time. The practice of pumping sewage into storage tanks has been abandoned and a self-contained sewage pumper truck is used to pumpout holding tanks and to contain the sewage during transport to the mainland for disposal.

Comment: The *Draft General Management Plan / Environmental Impact Statement* does not mention the impacts of continuing seaplane service on residents of the mainland along the flight path.

Response: None of the alternatives propose changing the seaplane service, thus changes to the seaplane service were not assessed.

Comment: The *Draft General Management Plan / Environmental Impact Statement* should address the possibility that private motorboat access increases the probability of domestic dogs entering the park from boat docks, causing the transmission of canine viruses to Isle Royale's wolves. All

recreational impacts to wolves and other threatened and endangered species must be fully addressed in the *Environmental Impact Statement* and in formal consultation with the U.S. Fish and Wildlife Service.

> Response: The park prohibits domestic mammals within park boundaries and vigorously enforces this regulation. While it is conceivable that more boats (assumed to bring more dogs) could increase the risk of intentional or unintentional violation of the regulations and hikers could bring the virus over on their boots, the only way to completely eliminate the risk would be to not allow people on the island, which is not a reasonable solution. The proposed plan calls for no actions that would increase the risk of virus transmission.
>
> All other reasonably foreseeable recreational impacts to wolves and other proposed, threatened, and endangered species from the alternatives have been discussed in the "Environmental Consequences" section of the draft. No other issues or impacts have been raised by the U.S. Fish and Wildlife Service during their review of the draft (see letter in appendix F).

Comment: Researchers have raised concerns about wolves losing their fear of humans if too many campgrounds are dispersed around Isle Royale.

> Response: Dispersal of human activities and/or facilities into new areas, which could cause impacts on wolves and other species, was identified as a concern during the scoping, planning, and environmental analysis process. Minimizing such dispersal of use was a goal during development of the proposed plan. With the exception of a new dock and campground at McCargoe Cove, the draft plan does not propose new campgrounds in areas that do not have a tradition of human activity or use, so associated impacts to wolves and other threatened and endangered species have been avoided. The U.S. Fish and Wildlife Service has concurred with this conclusion.

Comment: One person suggested that the public involvement process for developing the plan was inadequate and out of compliance with NEPA guidelines.

> Response: There is no basis for this claim. The public involvement effort for this plan, which is summarized on p. 7 of the draft, exceeded NEPA requirements and typical GMP public involvement programs.

Comment: Even though the National Park Service has been charged with developing a general management plan for the park, should not private citizens, such as representatives of the major user groups, have been included in the decision-making process and included on the planning team?

> Response: Individuals and interest groups have been extensively involved in the entire GMP process over the past three years, including scoping, alternatives, and environmental impact analysis through the public involvement process. The Federal Advisory Committee Act, Public Law 92-463, prohibits federal agencies from involving interest groups in decision-making or as "team-members" on federal projects (except when advisory committees are specifically authorized by Congress).

from alternative C (included in the impact section for that alternative in the final document), no cumulative effects other than those discussed in the draft could be identified.

Comment: There are no real descriptions of "unavoidable adverse effects", merely a contradictory assertion that first, no negative effects will be likely to occur, and second, there will be unavoidable "risk of adverse impact if the recreational purposes of the park are met." There is no analysis or justification provided for either of the statements, nor is there any discussion of unavoidable impacts on other resources or uses. The only section containing even this cursory analysis is that of the proposed action.

Response: The wording in the draft document was unclear. The language has been clarified to express the point that while no impacts to wildlife species are anticipated, the mere presence of people could have unforeseen effects, regardless of specific actions and mitigations called for in the plan. The only way to ensure no impact to wildlife would be to allow no use ofthe island — a solution that is not reasonable.

Discussion of "unavoidable" impacts, when anticipated to be minor or nonexistent, is limited to the proposed action, consistent with the approving official's interpretation of the National Environmental Policy Act and Council on Environmental Quality guidelines.

Comment: The section discussing "irreversible and irretrievable commitment of resources" is flawed. The only alternative analysis containing this section is the proposed action, and in that analysis, only cultural resources are considered. Any alternative containing continued use, transportation of, and sales of gasoline will need to deal with discharge of persistent toxins into the waters of Lake Superior.

Response: The National Park Service cannot identify any "irreversible and irretrievable commitment of resources" resulting from the proposed plan, other than those described in the impact section for the proposal (see discussion on water quality concerns above). Discussion of "irreversible and irretrievable commitment of resources," when anticipated to be minor or nonexistent, is limited to the proposed action, consistent with the approving official's interpretation of the National Environmental Policy Act and Council on Environmental Quality guidelines.

Native American Treaty Rights

Comment: The language in the section of the draft plan entitled "Native American Treaty Rights" (p. 26-27) should be revised to indicate: (1) treaty rights are beyond the scope ofthe plan, and any actions taken to implement the plan must conform to the law regarding these rights, (2) to ensure that it honors these rights, the National Park Service would cooperate with those tribes that retain hunting, fishing, and gathering rights at and around Isle Royale, and (3) the National Park Service would routinely consult with tribes having treaty rights and their designated representatives on a government-to-government basis.

Response: The comment was considered and the essence of the language was incorporated. Legally established treaty rights are not currently known. The National Park Service has

formally requested this determination. The park is currently consulting with regional tribes on a government-to-government basis.

Comments with Detail Beyond the Scope of the GMP (includes sustainability, carrying capacity, and park operations and visitor services sections below)

Sustainability

Several comments were received that made specific recommendations for ways that the National Park Service could improve the long-term sustainability of park operations. Sustainability is an important long-term goal, and such a statement has been added to the *General Management Plan / Environmental Impact Statement.* Specific actions to improve sustainability are too detailed, however, to include in a general management plan. These detailed suggestions will be considered by the park staff as they undertake implementation of the plan and in subsequent implementation plans. Detailed comments included:

The rental of motorboats on Isle Royale should be phased out in favor of nonmotorized and solar-charged electric watercraft. The National Park Service should set an example of low-impact use and could use the transition as an opportunity to educate the public.

The *General Management Plan / Environmental Impact Statement* should include a plan to replace diesel generators with renewable electricity/heat generation. It should also address waste generation, recycling, and disposal.

Concern was expressed about the increasing impact of park administration and staff presence. The park's reliance on large motorboats compromises the island's integrity as a wilderness park, as does the growing need for staff housing and associated generator-driven utilities. The following solutions were suggested: (1) reconsider the addition of new buildings and focus on using what is already there, (2) vastly increase the use of alternative energy sources such as solar, and (3) vastly decrease staff use of motorboats and look for alternatives such as using money saved on fuel to hire more people to kayak patrol and hike to maintain trails and campgrounds instead of boating.

Composting toilets could be considered in all new development.

The need for diesel fuel transportation and storage (and potential spills) could possibly be reduced by provision of solar-generated electricity.

Carrying Capacity

The legal requirement for general management plans to address visitor carrying capacity is discussed in the Carrying Capacity section above. It is NPS policy to establish goals for visitor experience and resource protection for all areas of a park through management zoning in general management plans. More detailed quantification of use levels appropriate to those management goals and discussion of

possible strategies that could be employed to manage use levels if necessary are documented in implementation planning that follows. Several commenters offered recommendations for how to manage visitors or asked detailed questions about how various use level decisions might be made. These comments will be considered during implementation planning subsequent to the approval of this plan. Comments included:

> The National Park Service should not spend time and money developing a VERP (carrying capacity) plan for Isle Royale unless it makes the commitment to funding the monitoring that is necessary to make the plan effective. Consider dedicating a percentage of use fees collected from park visitors to a monitoring program.
>
> Comments were received asking for more detail on how visitor numbers might be limited and what indicators might be monitored.
>
> Regarding carrying capacity, the National Park Service should add dispersed individual campsites, then issue a limited number of entry permits so that hikers are not required to file or follow a specified itinerary. This would allow visitors a true wilderness experience.
>
> The general management plan does not address how many and what types of visitors the NPS hopes to serve at Isle Royale. The number of backcountry hikers and one-day visitors is currently limited by the number of water vessels and airplanes that transport them to the island, and this is appropriate. However, the draft plan does not propose any limits for powerboaters, 70% of whom travel to the island via private motorcraft. Eventually the relative balance of hikers, one-day visitors, and lodge users to boaters will favor boaters because there is no transportation limit or barrier for boaters. The plan should include the relative percentages of user groups now, the target percentages for the future, and what potential actions might be taken to preserve the balance between motorboaters and other users.
>
> If the major crowding issues are in the final two weeks of July and all of August, create a system that removes the peak and provides incentives for greater visitation earlier in the summer. Creating more of a season in June and early July may also assist the concessions operations in smoothing out the peaks and valleys.
>
> For weekend boaters, establish critical weekends that require anchorage and/or limited dock usage. Don't limit the numbers of boaters, but rather regulate the use of limited space. Boaters have the advantage of mobility; use it to spread the impact.
>
> Annual use permits should not be issued to boaters. Such permits are discriminatory because hikers don't have this option, and they are undesirable because they encourage boaters to visit as many times as possible and bring as many people as possible to maximize the value of their pass.
>
> Many more powerboaters than hikers and day users are repeat visitors to the park. The plan should have a specific statement of intent that encourages first time visitors to come to Isle Royale. The *General Management Plan* should discourage repeat visitors, particularly those who may overuse and overtax Isle Royale's wilderness resources.

The requirement for groups of 7-10 people to follow a preordained itinerary and camp in group sites should be dropped. This policy significantly detracts from the island experience (it fosters point-to-point hiking without stopping to look around or enjoy one's surroundings) and does little to improve encounters between smaller groups and the larger group.

Park Operations and Visitor Services

Several comments were received that made recommendations for various park operational programs. While many of these suggestions may have considerable merit, they are too detailed to be included in the plan, which is intended to be a long-range, general guidance document. For example, one commenter requested that a large, permanent dock be built in Hay Bay. Decisions regarding dock size, materials, and other details are beyond the scope of a general management plan. Many such recommendations will be considered, however, as the park moves into more detailed implementation planning. Other detailed comments included:

The National Park Service should consider banning alcohol in park boundaries.

There should be a limit on the size of boats taking dock space and limits on the consecutive number of nights that boats are allowed to stay at docks.

The *General Management Plan* should describe the experience for visitors using the remaining lodge options in the proposed plan, including what they would need to bring and what would be available on the island.

Water taxi service should be started at Windigo to allow for adaptive reuse of Washington Island area cabin and homesites by those without their own boats.

A volunteer boater group could help to educate other boaters, and this type of partnership could extend to other user groups as well. The Isle Royale Natural History Association's charter for education makes it a good choice to assist and direct such volunteer groups.

Several comments were received that suggested changes to the *Ranger III* schedule. Reasons varied, and included reducing the utility load at Rock Harbor and better accommodation of users' schedules.

Private motorboaters should be able to register as park users in advance of their arrival, instead of being required to travel to Windigo or Rock Harbor first.

Several people suggested ways for the park to increase its fund base, such as charging more to use the park, starting an adopt-a-wolf program, and selling wolf novelties such as T-shirts and greeting cards.

The National Park Service has taken the lead in seeking partnerships that can provide large sums of money and/or abundant staffpower. The National Park Service should also be receptive to partnerships with small groups (including single families) who may not be able to provide large sums of money. These people, working under close supervision, can accomplish

many actions identified in the general management plan if tasks are broken down into small steps so that volunteers can accomplish useful work in the amount of time they can spend on the island in a given year. Over time, such efforts will provide significant benefits to the park, the general public, and the volunteers.

The National Park Service should discontinue the pumpout service for private boats.

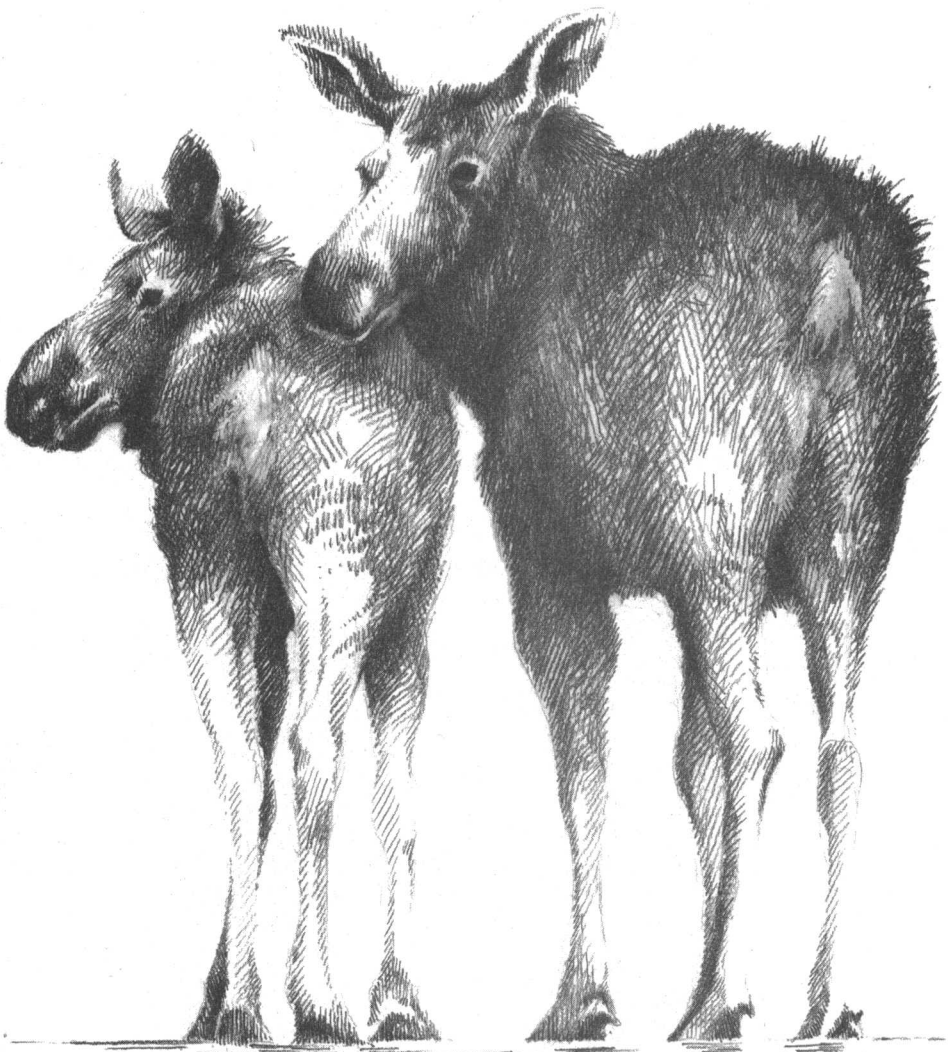
A disproportionate amount of user fee income is being spent on docks. The NPS should use it instead to maintain the *Ranger III*, create more interpretive programs, improve accessibility at Rock Harbor, maintain historic structures, or create informational brochures.

Why is it that the National Park Service comes up with large amounts of money for destruction and removal of facilities, but there is never enough money for rangers, trails, docks, etc.?

Vegetation growth along the Greenstone trail from Mount Franklin to approximately Angleworm Lake has resulted in reduced opportunities to see Lake Superior. Is there potential for limited, controlled burns along this section of trail to improve views and create diverse vegetation for moose?

Funds for the inventory and monitoring of Lake Superior fisheries could be sought from other sources, especially since these are potentially commercially viable fisheries and important recreational game fisheries. This would preserve NPS funds for inventory and monitoring activities on Isle Royale.

Adjusting operating requirements of incidental business permits annually to control the number of people brought to the island by diving, paddling, and hiking charters (see p. 28 of the draft plan) could have a significant impact on holders of permits if instituted without appropriate notice. A minimum of one year notice is needed; 1999 user numbers should be instituted in the spring of 1998 rather than the fall, for example, so that charters could be booked appropriately.



Appendixes, Bibliography, Preparers, Index

APPENDIX A: PLANNING ANALYSIS AND DEVELOPMENT OF THE PROPOSED ACTION

PLANNING ANALYSIS

Visitor use statistics such as yearly and monthly trends in lodge, campground, dock, and ferry use were gathered and studied. The planning team also discussed areas where visitors or park staff have noted problems in the past and sought the underlying reasons for these problems.

Natural and cultural resource inventories were evaluated. A computerized geographic information system was used to store, retrieve, display, and manipulate spatial resource information.

The geographic information system aided in the placement of management zones and facilities in different alternatives. Desirable and undesirable characteristics for each zone (according to the written descriptions) were identified, then a suitability map was created for each management zone. For the frontcountry zone, for example, areas best meeting the following criteria were identified: within a day's hike or boat ride from Rock Harbor or Windigo, not near sensitive natural resources, not on steep slopes, and near interesting cultural or natural features that could be protected from use impacts (scenic viewpoints, lighthouses, etc.). Each zone's suitability map then showed areas of the park that are particularly well suited or poorly suited for that zone.

A comprehensive analysis of resources that are sensitive to human use was also conducted with the geographic information system. Information on the following resources was overlaid to create a map highlighting areas that are particularly sensitive to human use:

- areas frequently used by wolves
- wet soils
- steep slopes
- loon nests
- raptor nests
- colonial waterbird colonies
- stream corridors
- rare plant locations and suitable habitat
- known archeological sites

Such GIS-generated resource inventories and suitability maps were consulted when decisions were made about how to place zones and facilities in different alternatives. The maps were also used to check potential impacts of the alternative (including the proposed action). Other measures taken to check feasibility and determine potential impacts included field-checking alternative ideas and proposals and consulting with resource experts and other agencies.

Hundreds of public comments were received in response to the first four GMP newsletters and from the first round of public meetings. Each comment was reviewed. Many of the comments were incorporated into the draft GMP alternatives. Input from visitor surveys that were conducted during the summers of 1995 and 1996 provided a better understanding of what visitors to Isle Royale value, what their expectations are, what problems they experience, and how accepting they would be of management actions (such as reservations) designed to keep island experiences enjoyable.

The goal was to ensure that the draft alternatives did not include actions that had no public support or that had unacceptable effects on park resources or visitors. Public and agency comments on the draft were given full consideration and were be incorporated into the final plan.

ANALYSIS OF ALTERNATIVES

In order to develop a preliminary preferred alternative, the five draft alternatives that had been reviewed by the public were evaluated. To minimize the influence of individual biases and opinions, the team used an objective analysis process called "Choosing By Advantages." This

process, which has been used extensively by government agencies and the private sector, evaluates different choices (in this case, the five preliminary alternatives) by identifying and comparing the relative advantages of each according to a set of criteria.

The first step in developing criteria was to establish goals for the preferred alternative. The goals were based on park purpose, significance, and emphasis statements, laws and policies, and public concerns and comments. The goals were written in two categories: one represented conditions to be met by the preferred alternative; the second represented conditions that would be desirable for the preferred alternative to meet (i.e., the degree to which an alternative satisfied the goal would measure the desirability of the alternative). The two groups of goals are shown below.

The actions in the preferred alternative must:

- provide safe, sustainable, and efficient park operations for resource protection and visitor use
- provide public access
- not adversely impact threatened and endangered species in ways that could not be mitigated
- result in no net loss of wetlands
- meet clean air and water standards
- allow no degradation of resources and wilderness character in designated wilderness
- allow no loss of cultural resources without complete documentation

Actions that would be desirable in the preferred alternative:

- maximum public access for all user groups (consistent with resource protection and visitor experience goals)
- minimum disruption of desired experiences for all user groups
- little or no adverse impact on plants, animals, fish, or soils
- no degradation of wilderness values islandwide
- preservation of properties eligible for the National Register of Historic Places

The next step in the CBA process was to develop the criteria that would be used to compare the alternatives. Using the goals presented above and factors that were commonly mentioned by the public in commenting about the alternatives, the team identified seven criteria by which to evaluate the alternatives:

- provide a maximum range of visitor experiences
- provide maximum access, flexibility, and freedom of movement around the island
- provide maximum opportunities for orientation, interpretation, and education
- preserve or enhance wilderness values (quiet, opportunities for solitude, absence of modern intrusions, etc.)
- preserve and protect cultural resources
- preserve and protect natural resources
- provide for visitor safety

The team identified the relative advantages of each alternative for each of the seven criteria. Each advantage was given a point value that reflected its importance. Then, by adding up the scores for each alternative, the team was able to determine how the alternatives compared overall. Costs of implementing the alternatives were then compared to examine the relationships between advantages and costs. The relative advantages of the alternatives for each criterion are summarized below.

Provide a Maximum Range of Visitor Experiences

The team found that alternatives B and D best met this criterion. Both would add to the range of activities consistent with the purpose and character of the park by providing designated areas for nonmotorized boating and some additional areas

for motorboat camping, especially on the outer islands. Alternative C would provide the narrowest range of activities of any of the alternatives.

Provide Maximum Access, Flexibility, and Freedom of Movement

Alternative A would provide the best access, flexibility, and freedom of movement overall. Alternative D would be similar to alternative A, but separation of uses would preclude some visitor flexibility. While alternative E would provide the most freedom of movement of any of the alternatives, the associated reduction in visitor numbers would significantly restrict access. Alternative B would require restrictions toward the middle of the island, although access to the ends of the island would be enhanced over existing conditions. Alternative C would be the most restrictive of any of the alternatives.

Provide Maximum Opportunities for Orientation, Interpretation, and Education

While the alternatives would not differ greatly in the provision of park orientation and information, alternatives D and E would provide the most interpretation and education, particularly because these alternatives call for preservation and/or adaptive use of more cultural resources than do the other alternatives. Alternative C would provide interpretation only off-island.

Preserve or Enhance Wilderness Values (Quiet, Opportunities for Solitude, Absence of Modern Intrusions)

Alternative C would provide the best protection of wilderness values islandwide. While alternative B would enhance these qualities toward the middle of the island, the increased development at the ends could compromise wilderness values. Separation of uses in alternative D would better meet some visitors' expectations for wilderness experiences but not to the same extent as alternative C.

Alternatives A and E would protect wilderness experiences as they are now, but if visitation levels continue to increase, wilderness values could be compromised under alternative A because of crowding and associated resource impacts.

Preserve and Protect Cultural Resources

The largest number of historic structures would be preserved in alternative E. The situation would be similar in alternative D, but the reduced visitation numbers in alternative E could also result in less overall impacts on archeological sites. Archeological sites would be best protected in alternative C because of the reduction in facilities and fewer developed campsites, but historic structures would not be preserved or adaptively used in that alternative. The same would be true for the middle area of the island in alternative B, although some historic structures would be preserved near the ends of the island.

Preserve and Protect Natural Resources

Because of the creation of larger, unfragmented natural areas (because of trail removal) and reduced development and use levels in alternative C, protection of natural resources would be greatest in that alternative. Alternative A rated the lowest for this criterion, primarily because visitation levels could continue to increase to the point that resource protection could be compromised. Alternatives B and E would provide some improved resource protection over the existing conditions because of the increase in primitive areas in alternative B and the overall visitation reduction in alternative E. Alternative D was rated higher than A for this criterion because of the expectation of some management of visitation levels.

Provide for Visitor Safety

The alternatives did not vary greatly under this criterion. There was a great deal of concern

expressed in the public response about boaters not having access to safe harbors during periods of rough weather. While not communicated in the description of the preliminary alternatives, it was never intended that nonmotorized zones would exclude boaters from taking shelter for safety reasons. For this criterion the alternatives varied mostly in regard to the number of bases of park operations and ferry stops (affecting response time in emergencies) and, in the case of alternative C, the risks associated with boaters having to carry their own fuel. Alternatives C and B were rated as lowest for this criterion. Alternative A rated highest due to the larger number of people in the backcountry.

DEVELOPMENT OF THE PRELIMINARY PREFERRED ALTERNATIVE

Alternatives D and E had the highest total ratings. Alternative E rated significantly lower than D for the criteria related to visitor access (because of the greatly reduced visitor numbers) and for preservation of wilderness values (because of the lack of separation of uses). The team concluded that alternative D was the closest to the direction a preferred alternative should take; however, alternative D rated relatively low for resource protection and would be the second most expensive to implement of the original five alternatives. Also, some actions in preliminary alternative D would have been unpopular with many users.

The team worked to develop a preliminary preferred alternative that would be similar to alternative D but would improve natural resource protection and require fewer restrictions on use levels than alternative E. Some modifications were also made to reduce implementation costs and to avoid actions with little public support.

EVOLUTION OF THE PROPOSED ACTION

The preliminary preferred alternative was shared with the public in *Newsletter #6* (distributed in July 1997). The planning team read and considered over 300 responses. Analysis of the potential impacts on resources and visitors was completed, and additional analysis of NPS costs to subsidize the Rock Harbor concession services and rehabilitate the supporting utility systems was undertaken. Based on these analyses and careful consideration of public opinion, the preliminary preferred alternative was modified to create the proposed action described in the draft document. Following public review, the proposed action was modified further and is presented here.

TABLE A1. THE ATTRIBUTES OF EACH OF THE FIVE ORIGINAL ALTERNATIVES WITH RESPECT TO THE ANALYSIS CRITERIA

ANALYSIS CRITERIA	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERATIVE E
Maximum range of visitor experiences	• maintains existing range of experiences	• expands nonmotorized experiences • expands overnight opportunities	• provides a more narrow range of experiences than existing	Similar to B: • expands nonmotorized experiences • expands overnight opportunities	Similar to A: • maintains existing range of experiences
Maximum access, flexibility, and freedom of movement around the island	• few access restrictions • no limitation on visitation growth	• access restricted in middle of island • access increased at ends of island • visitation levels moderate	• access highly restricted islandwide • visitation levels low	• access moderately restricted due to separation of uses • visitation levels moderate	• few access restrictions • visitation levels low
Maximum opportunities for orientation, interpretation, and education	• orientation and information at Houghton, Rock Harbor, Windigo • interpretation at features of special interest	• orientation and information increased at Rock Harbor and Windigo • interpretation increased at ends of islands • no interpretation in middle of island	• orientation and information at Houghton, Copper Harbor, and Grand Portage • no orientation, information, or interpretation on the island	• orientation and information as in A • interpretation increased in nonwilderness areas • additional interpretation at Washington/Barnum	• orientation and information as in A • interpretation as in D and increased at three historic fishing sites

ANALYSIS CRITERIA	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERATIVE E
Enhance wilderness values	• wilderness values protected as existing unless visitation increases	• some areas with noise reductions (quiet/no-wake and non motorized zones) and separation of uses • large percentage of island with low and very low visitor encounter rates • moderate percentage of island with moderate and high visitor encounter rates	• many areas with noise reductions (quiet/no-wake and non motorized zones) and emphasis on primitive experiences • low and very low visitor encounter rates on most of island • low percentage of island with moderate visitor encounter rates (no high encounter rates)	• some areas with noise reductions (quiet/no-wake and non motorized zones) and separation of uses • moderate percentage of island with low and very low visitor encounter rates • low percentage of island with moderate and high visitor encounter rates	• few areas with noise reductions • low percentage of island with low and very low visitor encounter rates • high percentage of island with moderate visitor encounter rates
Preserve and protect cultural resources	• structures preserved: Edison Fishery, Rock Harbor lighthouse, Rock Harbor "guest house", Spruce cabin, few life lessee cabins • potential for impacts on archeological sites increased if visitation increases	• structures preserved: same as A, plus structures at Washington and Barnum islands, Passage island, and Crystal Cove • potential for impacts on archeological sites reduced in middle of island, increased at ends of island	• structures preserved: Rock Harbor "guest house", Spruce cabin • potential for impacts on archeological sites significantly reduced islandwide because of low visitation level	• structures preserved: same as B, plus structures at Fishermans Home and Wright Island • potential for impacts on archeological sites similar to alternative A because of dispersed use	• structures preserved: same as D • potential for impacts on archeological sites reduced islandwide because of lower visitation level

ANALYSIS CRITERIA	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERATIVE E
Preserve and protect natural resources	• despite few changes in use patterns, some wildlife displacement and disturbance to soils and vegetation could increase over time from increased visitation	• some wildlife displacement and disturbance to soils and vegetation could increase from concentrated use at island ends; impacts would decrease in island middle	• creation of three large unfragmented habitat areas (due to trail removal) would benefit wildlife as would low visitation levels • some localized impacts on wildlife, soils, and vegetation from new campsites and dispersal of campsites	• creation of one large unfragmented habitat area would benefit wildlife somewhat • some islandwide disturbance of wildlife from dispersed visitation • some localized impacts on wildlife, soils, and vegetation from new campsites and dispersal of campsites	-little wildlife displacement and disturbance to soils and vegetation because of few changes in use patterns and low visitation
Provide for visitor safety	• 5 bases of park operations; 7 ferry stops • no restrictions on park motorboat access • high overall level of human presence	• 4 bases of park operations; 2 ferry stops • some areas with reduced or no park motorboat access • high level of human presence at ends of island, low level at middle	• 2 bases of park operations; 2 ferry stops • many areas with reduced or no park motorboat access • low overall level of human presence • potential for accidents from transporting extra fuel on private boats	• 5 bases of park operations; 7 ferry stops • some areas with reduced or no park motorboat access • high overall level of human presence	• 5 bases of park operations; 7 ferry stops • no restrictions on park motorboat access • moderate overall level of human presence

APPENDIX B: PLAN PHASING, COSTS FOR STUDIES, CONSTRUCTION COSTS

IMPLEMENTATION

The proposed action would be implemented over the next 15 to 20 years. The actions have been divided into phases to identify priorities for funding and to guide implementation. The time frames given for the phases are approximate.

Phase I: 1–5 years

Phase I actions are considered high priority because they:

address crucial resource protection needs
remedy serious infrastructure concerns
accommodate immediate interpretation or visitor use needs
must be accomplished before subsequent steps can be taken
could be accomplished fairly quickly with relatively little time and money

Phase I actions include:

- expand monitoring of natural resource trends
- inventory Lake Superior fisheries
- inventory water and air quality
- establish a natural resource research advisory board
- expand monitoring of cultural resources
- inventory and document archeological sites
- inventory and document cultural landscapes
- inventory and document ethnographic resources
- assess condition of lighthouses
- develop interpretive media supportive of park emphasis statements
- take action to keep visitation levels in line with goals and maintain quality visitor experiences and resource protection
- prepare a commercial services plan
- prohibit use of personal watercraft, commercial aircraft for sightseeing, and multidestination cruise ships
- place charter fishing operations on limited concession permits
- establish quiet/no-wake waters zones
- establish a group campsite at Belle Isle

- remove hiking trail access at Chippewa Harbor
- eliminate commercial kayak use from the west end of the island between Todd Harbor and Point Houghton
- make some privies and shelters accessible for people with disabilities
- repair/replace docks that are to remain
- replace/rehabilitate Rock Harbor utility systems
- replace dock at Hay Bay
- consider potential adaptive uses for historic structures at Barnum and Washington Islands
- repair docks at Wright Island, Crystal Cove, and Fishermans Home using volunteer agreements for resource protection and interpretation
- prepare a wilderness and backcountry management plan
- develop new campground with dock on Wright Island
- develop new campground with dock at Crystal Cove
- develop dock at Fishermans Home
- remove dock at Duncan Bay (after replacement dock and campground are established at Crystal Cove)
- add 1–2 campsites at Merritt Lane

Phase II: 6 – 12 years

Phase II actions would:

require or benefit from the results of phase I actions
address intermediate priority resource protection needs
address intermediate interpretation or visitor use needs.

- inventory reptiles and amphibians
- inventory insects
- develop a fisheries management program
- prepare a water resource management plan

• use disturbed areas and historic structures at Barnum Island and east end of Washington Island for an interpretive and /or research facility and add a campground and/or improved docking facilities
• provide park orientation at Houghton, Copper Harbor, and Grand Portage ferry staging areas
• add a limited number of sustainable rustic accommodations at Rock Harbor
• remove motel units and discontinue dining room service at Rock Harbor
• discontinue concession and public laundries at Rock Harbor and public laundry at Windigo
• relocate McCargoe Cove dock somewhat closer to the mouth of the cove and add a new boater campground
• provide a new trail from old McCargoe to new McCargoe campground
• remove dock and breakwater at Siskiwit Bay Campground (after other docks in the area are available for use)
• remove public dock at Threemile Campground
• conduct a separate study to develop and evaluate options for improving Houghton headquarters

Phase III: 13 – 20 years

Phase III actions depend on the results of phase I or II studies and are lower priority resource protection, visitor use, or interpretation needs.

They include:

• remove historic structures with no life leases or special use permit arrangements unless eligible for national register and potential use identified
• develop new campground with dock on Johns Island

Actions to be Implemented on an Ongoing or As Needed Basis

• continue systematic monitoring of natural and cultural resources
• investigate ways to contribute to and benefit from regional ecosystem management and protection efforts• convene a panel of wolf subject matter experts
• cooperate with partners to set standards for and carry out preservation of shipwrecks
• work with organizations that encourage and enable use of wilderness areas by special populations
• assist writers with park-related materials
• assist educational institutions with development of programs that promote park goals and reduce impacts
• seek partnerships with other groups to enrich interpretation and education opportunities regionwide
• modify structures in developed zones, vessels, and aircraft to meet accessibility standards (as facilities are replaced or modified)
• cooperate with Native Americans to recognize established treaty rights
• limit commercial activity to avoid commercialization and excessive use
• provide support services to Keweenaw National Historical Park
• strengthen education outreach efforts
• conduct research to fill gaps in understanding of cultural history
• seek partners to help stabilize, maintain, and interpret Passage Island, Isle Royale, and Rock of Ages Lighthouses
• seek partners to help stabilize, adaptively use, and maintain historic structures at Wright Island, Crystal Cove, and Fishermans Home
• further investigate ship-based overnight concessions at Rock Harbor

NATURAL AND CULTURAL RESOURCE RESEARCH, INVENTORY, AND MONITORING COSTS

TABLE B1. ESTIMATED COSTS FOR NATURAL RESOURCES PROGRAMS (BACKLOG ACCORDING TO EXISTING PLANS) IN ALL ALTERNATIVES

	One-time Costs	Annual or Recurring Costs
Lake Superior Fish		
Conduct study of lake trout hooking mortality	$100,000	
Conduct additional coaster brook trout surveys	$15,000	$10,000 every other year for monitoring
Conduct Lake Superior creel survey	$25,000	
Monitor water quality (inland lakes and Lake Superior)		$15,000 annually
Conduct air quality contaminants research (determine existing levels in sediments, water, organisms, then monitor; study food web impacts)	$300,000	$30,000 every 5 years for monitoring
Inventory and monitor reptiles and amphibians	$70,000 over two years	$5000 annually for monitoring
Inventory and monitor insects	$90,000	$6000 every 3 years for monitoring
Monitor rare plants		$9000 every 3 years for monitoring
Inventory and monitor other aquatic wildlife (mollusks, exotic species, etc.)	$100,000	$6000 annually for monitoring
Inventory and monitor other terrestrial wildlife (owls, small mammals, etc.)	$200,000	$6000 annually for monitoring
Expand existing monitoring program (institutionalize program, establish database management program; employee and support costs)		$75,000 annually
Develop fisheries management plan (includes partnerships/meetings with state and federal agencies)	$10,000	
Convene research advisory committee (primarily travel/meeting costs)		$8000 annually
Monitor wilderness management impact		$6000 annually
Develop water resources management plan	$40,000	
Conduct research to determine baseline levels of petroleum hydrocarbons in Lake Superior water and sediments	$35,000	
TOTALS	**$985,000 one time**	**$176,000 annually**

TABLE B2. ESTIMATED COSTS FOR CULTURAL RESOURCES PROGRAMS (BACKLOG ACCORDING TO EXISTING PLANS) IN ALL ALTERNATIVES

	One-time Costs	Annual or Recurring Costs
Conduct condition assessment of 3 lighthouses	$40,000	
Archeological survey of Windigo area	$46,000	
Update List of Classified Structures and prepare national register nominations	$16,000	
Research ethnography of commercial fishing	$20,000	
Monitor and preserve submerged cultural resources	$10,000	$15,000 annually for monitoring
Inventory / monitor threatened archeological sites	$40,000	$8000 annually for monitoring
Prepare cultural landscape report for Edisen Fishery and Rock Harbor Lighthouse	$36,000	
Complete historic structures report for Edisen Fishery	$15,000	
Research paleo-Indian environmental interaction	$60,000 over three years	
Trace first Euro-Americans on Isle Royale	$18,000	
Conduct study of cultural landscapes for management	$50,000	
Research trapping history of Isle Royale	$36,000	
Prepare administrative history report	$50,000	
Survey, map, and assess abandoned copper mines	$18,000 over two years	
TOTALS	**$455,000 one time**	**$23,000 annually**

TABLE B3.ESTIMATED COSTS FOR CULTURAL RESOURCES PROGRAMS (NEW—TO MEET LEGAL AND POLICY REQUIREMENTS) FOR THE PROPOSED ACTION AND ALTERNATIVES B,C, AND E

	One-time Costs	Annual or Recurring Costs
Inventory archeological sites on relict beach ridges	$300,000 over 5 years	
Archeological inventory of historic mining sites	$400,000 over 5 years	
Archeological inventory of historic fishing sites	$300,000 over 5 years	
Inventory submerged components of terrestrial sites	$500,000 over 5 years	
Inventory archeology of aboriginal mining sites	$225,000 over 3 years	
Inventory archeology of inland lakes and portage trails	$225,000 over 3 years	
Inventory archeology of lighthouses	$180,000 over 3 years	
Manage museum collection		$10,000
TOTALS	**$2,130,000 one time**	**$10,000 annually**

CONSTRUCTION COST ESTIMATES

Included below in the construction cost estimates for the alternatives are costs for backlogged repair and rehabilitation of facilities, new construction, and demolition. These figures are meant to give a very rough idea of the relative costs of the alternatives only. Costs for Isle Royale are considerably higher than for most other national parks due to the expense of barging materials, equipment, and workers across Lake Superior. The cost to the National Park Service for many actions could be less than shown, however, depending on contributions by partners and the amount of labor provided by volunteers.

Costs for stabilizing or rehabilitating the Rock of Ages, Passage Island, and Menagerie Island lighthouses were not estimated because their condition has not been assessed; these costs would not vary significantly among the alternatives in any case.

Table B4: Alternative A (No Action) Construction Cost Estimate

REPAIR AND REHABILITATION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
Repair/rehab docks	1,965,000	375,000	2,340,000
Repair/rehab Rock Harbor utilities	2,811,260	536,500	3,347,760
Repair/rehab Mott Island utilities	655,000	125,000	780,000
Repair/rehab Windigo utilities	655,000	125,000	780,000
TOTAL REPAIR AND REHABILITATION	**$6,086,260**	**$1,161,500**	**$7,247,760**

NEW CONSTRUCTION AND DEMOLITION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
Total new construction	0	0	0
Total demolition	0	0	0
TOTAL NEW CONSTRUCTION AND DEMOLITION	**$0**	**$0**	**$0**

Table B5: Proposed Action Construction Cost Estimate

REPAIR AND REHABILITATION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
Repair/rehab docks	1,965,000	375,000	2,340,000
Repair/rehab Rock Harbor utilities	2,811,260	536,500	3,347,760
Repair/rehab Mott Island utilities	655,000	125,000	780,000
Repair/rehab Windigo utilities	655,000	125,000	780,000
TOTAL REPAIR AND REHABILITATION	**$6,086,260**	**$1,161,500**	**$7,247,760**

NEW CONSTRUCTION AND DEMOLITION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
New construction			
Docks	917,000	175,000	1,092,000
Campgrounds	117,900	22,500	140,400
Rock Harbor rustic lodging	1,310,000	250,000	1,560,000
Historic commercial fishing sites (adaptive use)	982,500	187,500	1,170,000
Total new construction	**$3,327,400**	**$635,000**	**$3,962,400**
Demolition			
Rock Harbor motel units,etc.	1,310,000	250,000	1,560,000
Docks	163,750	31,250	195,000
Trails	13,100	2,500	15,600
Total demolition	**1,486,850**	**$283,750**	**$1,770,600**
TOTAL NEW CONSTRUCTION AND DEMOLITION	**$4,814,250**	**$918,750**	**$5,733,000**

Table B6: Alternative B Construction Cost Estimate

REPAIR AND REHABILITATION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
Repair/rehab docks	1,965,000	375,000	2,340,000
Repair/rehab Rock Harbor utilities	2,811,260	536,500	3,347,760
Repair/rehab Mott Island utilities	655,000	125,000	780,000
Repair/rehab Windigo utilities	655,000	125,000	780,000
TOTAL REPAIR AND REHABILITATION	**$6,086,260**	**$1,161,500**	**$7,247,760**

NEW CONSTRUCTION AND DEMOLITION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
New construction			
Docks	1,965,000	375,000	2,340,000
Campgrounds	327,500	62,500	390,000
Rock Harbor lodging	1,310,000	250,000	1,560,000
Windigo housing	655,000	125,000	780,000
Rock Harbor utilities	1,310,000	250,000	1,560,000
Windigo utilities	6,550,000	1,250,000	7,800,000
Washington, Barnum, Passage Islands (adaptive use)	982,500	187,500	1,170,000
Total new construction	**$13,100,000**	**$2,500,000**	**$15,600,000**
Demolition			
Docks	262,000	50,000	312,000
Malone Bay ranger station	163,750	31,250	195,000
Total demolition	**$425,750**	**$81,250**	**$507,000**
TOTAL NEW CONSTRUCTION AND DEMOLITION	**$ 13,525,750**	**$ 2,581,250**	**$ 16,107,000**

Table B7: Alternative C Construction Cost Estimate

REPAIR AND REHABILITATION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
Repair/rehab docks	982,500	187,500	1,170,000
Repair/rehab Rock Harbor utilities	327,500	62,500	390,000
Rehab Rock Harbor structures	655,000	125,000	780,000
Repair/rehab Windigo utilities	327,500	62,500	390,000
TOTAL REPAIR AND REHABILITATION	**$2,292,500**	**$437,500**	**$2,730,000**

NEW CONSTRUCTION AND DEMOLITION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
Total new construction	**$0**	**$0**	**$0**
Demolition			
Rock Harbor	4,585,000	875,000	5,460,000
Mott Island	3,275,000	625,000	3,900,000
Windigo	1,310,000	250,000	1,560,000
Malone Bay	163,750	31,250	195,000
Amygdaloid	163,750	31,250	195,000
Docks	1,637,500	312,500	1,950,000
Total demolition	**$11,135,000**	**$2,125,000**	**$13,260,000**
TOTAL NEW CONSTRUCTION AND DEMOLITION	**$11,135,000**	**$2,125,000**	**$13,260,000**

Table B8: Alternative E Construction Cost Estimate

REPAIR AND REHABILITATION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
Repair/rehab Docks	1,965,000	375,000	2,340,000
Repair/rehab Rock Harbor utilities	2,811,260	536,500	3,347,760
Repair/rehab Mott Island utilities	655,000	125,000	780,000
Repair/rehab Windigo utilities	655,000	125,000	780,000
TOTAL REPAIR AND REHABILITATION	**$6,086,260**	**$1,161,500**	**$7,247,760**

NEW CONSTRUCTION AND DEMOLITION	Gross Costs	Advance and Project Planning Costs	Total Project Costs
New construction			
Docks	131,000	25,000	156,000
Campgrounds	39,300	7,500	46,800
Total new construction	**$170,300**	**$32,500**	**$202,800**
Demolition			
Docks	32,750	6,250	39,000
Total demolition	**$32,750**	**$6,250**	**$39,000**
TOTAL NEW CONSTRUCTION AND DEMOLITION	**$203,050**	**$38,750**	**$241,800**

APPENDIX C: ANALYSIS OF NATIONAL PARK CONCESSIONS, INC., OPERATIONS

THE CONCESSIONER AND THE CONCESSIONS CONTRACT

The principal concessioner at Isle Royale National Park is National Park Concessions, Inc. (NPCI). Through one national contract, NPCI operates in five national park areas: Isle Royale, Olympic, Big Bend, Mammoth Cave, and Blue Ridge Parkway. The 20-year contract expires in 2002. The company had gross revenues of approximately 10.6 million dollars in 1996; gross revenue from Isle Royale operations in the same year were about $1.2 million. The company is a nonprofit entity, exempt from income taxes; net income is retained by the company and is not distributed to shareholders.

Unlike most large NPS concessioners, NPCI does not pay franchise fees. Instead, NPCI pays 3 ½% of gross revenues into a contract fees special account that the company administers. Funds in this account are used to fund capital improvements to concession facilities in all five parks. Working with the concessioner, the five individual parks identify projects to be completed using special account funds. Projects are then ranked in priority and approved by the NPS Washington Concessions Office. Special account funds can only be spent on concession facilities located in NPCI's land assignment areas as identified in the contract.

CONCESSIONS MANAGEMENT

NPS management of the NPCI concession operation is subject to both law and policy, including the Concessions Policy Act (PL 89-249, 16 USC 20), NPS *Management Policies*, NPS-48 *Concessions Management Guidelines*, Bureau of the Budget circular A-25, and the Independent Offices Appropriation Act (PL 82-137§501, 31 USC 483a).

NPS UTILITY SYSTEMS

There are no commercially available utility services on Isle Royale. All utilities (water, sewer, electricity, solid waste, and phone service) required to operate the NPCI concession services are provided by the National Park Service, and 97% of the utility services at Rock Harbor are consumed by the concessioner. The size and scope of the concession operation requires the largest and most sophisticated utility infrastructure on the island.

The annual operating and long-term capital costs for the utility systems to support this concession on a wilderness island in the middle of Lake Superior are substantial. These costs have to be paid by the National Park Service, the concessioner, or the visitor. The utility system infrastructure is not included in NPCI's land assignment area, so funds in the contract fees special account cannot be used to pay for the utility system infrastructure. Only NPS funds may be used.

Traditionally the National Park Service has subsidized NPCI's commercial activities at Isle Royale by charging less than cost for utility and freight services. The park has tried to keep utility rates at a level that would enable NPCI to keep charges for goods and services affordable to the public. The NPS subsidy also provided the concessioner with a reasonable opportunity to make a profit as required by the Concessions Policy Act. Over the past few years, this situation has become problematic because of tighter government budgets, a growing backlog of deferred maintenance, unfunded needs in other park program areas, and more demanding safety and public health regulations.

Park utility charges to NPCI have increased substantially from the $125,000 charged in FY 1996. There are two reasons for this significant increase. First, previous formulas used to establish utility rates to the concessioner did not reflect the true cost to provide these services. Second, a 1996

safety inspection and follow-up engineering study of the park utility systems identified numerous operational deficiencies, some of which required immediate corrective action. The park incurred substantial additional costs in beginning the required improvements. In addition, NPS utility costs increase annually due to inflation.

In recent years the National Park Service has begun to recoup a larger share of the actual cost to provide utility services, but the park is still only partially compensated for expenses to support Rock Harbor concession operations. Money from the park's base budget is used to pay the difference between actual NPS utility costs and reimbursement for utility services received from the concessioner. Additional utility charges to the concessioner (consistent with law and NPS policy) are being evaluated for FY99 to reduce the utility subsidy to the concessioner from base funds.

The National Park Service will continue to subsidize certain functions upon which NPCI operations depend. For example, the park handles all the solid waste generated by NPCI, transporting it to the mainland. Under the current contract, the park must pay all of the costs for this service, even though NPCI generates a large percentage of all solid waste on the island. Both NPS and NPCI operations depend on the *Ranger III*. This vessel transports all freight and diesel fuel required for park and NPCI operations. Operating costs for the vessel in FY 97 were about $425,000; income from freight and passengers was $175,000. The difference was funded out of park base funds. Every five years the vessel must undergo dry dock inspection and repair, which typically costs about $250,000, all of which is paid by the National Park Service.

CONCESSIONER RATES TO THE PUBLIC

Concessioner charges to visitors for goods and services are approved by the National Park Service. Requirements of the Concessions Policy Act compel the National Park Service to provide a reasonable opportunity for the concessioner to make a profit. Given Isle Royale's location 60 miles from mainland Michigan, concession prices are substantially higher than similar services on the mainland. Higher operating costs, the short season, and rather low volumes factor heavily.

The Concessions Policy Act requires the National Park Service to charge the concessioners for utility services and further directs that such charges be based on the costs for comparable services or actual cost, whichever is higher. Special Directive 83-2 (revised) specifies how this should be done. Utility rates from the city of Houghton, Michigan, are used by the park as the comparable services. Concessioners are responsible for paying utility costs up to the level of comparables. If utility charges to the concessioner exceed comparables, the act stipulates that concessioners may pass on the difference to their customers through a pass-through process. NPS utility rates exceed those of the comparables.

NPCI has been including a utility pass-through in their prices for a number of years. In response to the increasing utility rates being charged by the park, NPCI asked for NPS approval to institute a utility surcharge on all their products and services beginning in 1997. A 20% surcharge was requested at Rock Harbor and an 18% surcharge was requested for Windigo. Consistent with the Concessions Policy Act, both requests were approved. The previously used pass-through was eliminated and incorporated in the surcharge, so concession rates did not increase 20% from 1996 to 1997. Through the surcharge NPCI attempted to recover the utility costs that exceeded comparables.

Preliminary information suggests that revenue from the 1997 surcharge will not be sufficient to enable the company to recover the difference between comparable utility costs and actual utility costs paid by the company to the National Park Service. The contract allows the concessioner to carry over any such deficit to the next year. However, this adds to the costs the concessioner must recoup the following year, resulting in ever higher rates for lodging and other services. The 18% drop in lodge use since 1995 suggests that prices are already at a

point where visitors are either unable or unwilling to pay the higher costs. Special Directive 83-2 provides an exception under which the National Park Service can subsidize a concessioner's utility costs if those costs are excessively high. Such a subsidy is dependent on available NPS funds and the need for those funds by other competing program areas.

APPENDIX D: STATE THREATENED AND ENDANGERED PLANTS, FISH, MAMMALS, BIRDS, AND AMPHIBIANS OF ISLE ROYALE NATIONAL PARK
(updated January 1998)

COMMON NAME	SCIENTIFIC NAME	RANK		1992 STATUS		
		GLOBAL	STATE	US	MI	ABUNDANCE
Wild chives	Allium schoenoprasum	G5	S1		E	unc
Round-leaved orchid	Amerorchis rotundifolia	G5	S1		E	rare
Rosy pussytoes	Antennaria rosea	G4G5	SH		T	rare
Big leaf sandwort	Arenaria macrophylla	G4	S1		T	rare
Great northern aster	Aster modestus	G5	S1		T	rare
Western moonwort	Botrychium hesperium	G3	S1		T	rare
Slough grass	Beckmannia syzigachne	G5	S1		T	rare
Low northern rock-cress	Braya humilis	G4	S1		T	
Reedgrass	Calamagrostis lacustris	G2G3Q	S1		T	rare
Narrow-leaved reedgrass	Calamagrostis stricta	G4	S1		T	
Autumnal water starwort	Callitriche hermaphroditica	G5	S2		SC	rare
Calypso orchid	Calypso bulbosa	G5	S2		T	unc
Sedge	Carex atratiformis	G5	S2		T	unc
Sedge	Carex media (norvegica)	G5	S2S3		T	frequent
Eastern paintbrush	Castilleja septentrionalis	G5	S2S3		T	common
Purple clematis	Clematis occidentalis	G5	S3		SC	unc
Small blue-eyed mary	Collinsia parviflora	G5	S2		T	rare
Douglas's hawthorn	Crataegus douglasii	G5	S3S4		SC	rare
Ram's head lady-slipper	Cypripedium arietinum	G3	S3	C3	SC	rare
American rock brake	Cryptogramma acrostichoides	G5	S2		T	unc
Slender rock brake	Cryptogramma stelleri	G5	S3S4		SC	rare
Wild oatgrass	Danthonia intermedia	G5	S1S2		SC	rare
Rock whitlow-grass	Draba arabisans	G4	S2S3		T	unc
Smooth whitlow-grass	Draba glabella	G4G5	S1		T	rare
Twisted whitlow-grass	Draba incana	G5	S1		T	rare
English sundew	Drosera anglica	G5	S2		SC	rare
Spreading wood fern	Dryopteris expansa	G5	S2S3		SC	unc
Fragrant cliff woodfern	Dryopteris fragrans	G5	S3		SC	
Black crowberry	Empetrum nigrum	G5	S2		T	rare
Willow herb	Epilobium palustre	G5	S3		SC	unc
American eyebright	Euphrasia artica	G5	S1		T	frequent
Moor rush	Juncus stygius	G5	S1		T	
Blue lettuce	Lactuca pulchella	G4	SH		T	rare
Auricled twayblade	Listera auriculata	G3	S2S3	C3	SC	rare
Involucred honeysuckle	Lonicera involucrata	G4G5	S2		T	rare
Small-flowered wood-rush	Luzula parviflora	G5	S1		T	unc
Fir clubmoss	Lycopodium selago	G5	S2S3		SC	rare
Water-milfoil	Myriophyllum alterniflorum	G5	S2S3		SC	unc
Pygmy water-lily	Nymphaea tetragona	G5	S1		T	rare
Devil's club	Oplopanax horridus	G4G5	S2		T	unc
Sweet cicely	Osmorhiza depauperata	G5	S2		SC	frequent
Marsh grass-of-parnassus	Parnassia palustris	G5	S2		T	rare
Franklin's phacelia	Phacelia franklinii	G4	S1		T	unc
Butterwort	Pinguicula vulgaris	G5	S3		SC	unc
Alpine bluegrass	Poa alpina	G5	S1S2		T	rare
Canby's bluegrass	Poa canbyi	G4G5	S1		T	rare
Alpine buckwheat	Polygonum viviparum	G5	S1S2		T	unc
Prairie cinquefoil	Potentilla pensylvanica	G5	S1		T	unc

Macoun's buttercup	Ranunculus macounii	G5	S1	T	rare
Prairie buttercup	Ranunculus rhomboideus	G4	S2	T	unc
Gooseberry	Ribes oxyacanthoides	G5	S3	SC	frequent
Pearlwort	Sagina nodosa	G5	S2	T	unc
Satiny willow	Salix pellita	G5	S2	SC	rare
Tea-leaved willow	Salix planifolia	G5	SH	T	unc
Encrusted saxifrage	Saxifraga paniculata (S. aizoon)	G5	S1	T	rare
Prickly saxifrage	Saxifraga tricuspidata	G4G5	S2	T	unc
Rayless mountain ragwort	Senecio indecorus	G5	S1	T	unc
Awlwort	Sublaria aquatica	G5	S1	T	rare
False asphodel	Tofieldia pusilla	G5	S2	T	unc
Downy oatgrass	Trisetum spicatum	G5	S2	SC	frequent
Dwarf bilberry	Vaccinium cespitosum	G5	S1S2	T	rare
Alpine blueberry	Vaccinium uliginosum	G5	S2	T	rare
Mountain-cranberry	Vaccinium vitis-idaea	G5	SX	X	rare
Squashberry	Viburnum edule	G5	S2S3	T	common
Northern woodsia	Woodsia alpina	G5	S1	T	rare

Unc = uncommon
List compiled from "Michigan's Special Plants" (June 1992 list), Michigan Dept. of Natural Resources

STATE-LISTED FISH

COMMON NAME	SCIENTIFIC NAME	RANK		1992 STATUS	
		GLOBAL	STATE	US	MI
Lake Sturgeon	Acipenser fulvescens	G3	S2	C2	T
Cisco or lake herring*	Coregonus artedii	G5	S3		T
Siskiwit Lake cisco**	Coregonus bartletti	G1Q	S1		SC
Kiyi	Coregonus kiyi	G3	S3	C2	SC
Shortjaw cisco	Coregonus zenithicus	G3	S2	C2	T
Spoonhead sculpin	Cottus ricei	G5?	S3		SC

*subspecies
**species

STATE-LISTED MAMMALS

COMMON NAME	SCIENTIFIC NAME	RANK		1992 STATUS	
		GLOBAL	STATE	US	MI
Moose	Alces alces	G5	S3	SC	
Gray Wolf	Canis lupus	G4	S1	LELT	E
Lynx	Felis lynx	G5	S1	C2	E
Marten	Martes americana	G5	S2		T
Woodland caribou	Rangifer tarandus	G5	SX	LE	X

Compiled from "Michigan's Special Animals" (June 1994), Michigan Dept. of Natural Resources

STATE-LISTED BIRDS

COMMON NAME	SCIENTIFIC NAME	RANK		1992 STATUS		
		GLOBAL	STATE	US	MI	
Cooper's hawk	Accipiter cooperi	G4	S3S4		SC	O,T
Northern goshawk	Accipiter gentilis	G4	S3	C2	SC	R
Short-eared owl	Asio flammeus	G5	S1		E	A,T
Long-eared owl	Asio otus	G5	S2		T	A,T
American bittern	Botaurus lentiginosus	G4	S2S3		SC	R
Red-shouldered hawk	Buteo lineatus	G5	S2S3		T	A
Piping plover	Charadrius melodus	G3	S1	LELT	E	H
Black tern	Chlidonias niger	G4	S3	C2	SC	A
Lark sparrow	Chondestes grammacus	G5	SX		X	A
Northern harrier	Circus cyaneus	G5	S3		SC	O,T
Yellow rail	Coturnicops noveboracensis	G4	S1S2		T	H
Merlin	Falco columbarius	G4	S1S2		T	R
Peregrine felcon	Falco peregrinus	G3	S1	LE	E	A,T
Common loon	Gavia immer	G5	S3		T	R
Bald eagle	Haliaeetus leucocephalus	G3	S3	LELT	T	O
Black-crowned night-heron	Nycticorax nyticorax	G5	S2S3		SC	A
Osprey	Pandion haliaetus	G5	S3		T	O
Double-crested cormorant	Phalacrocorax auritus	G5	S4		SC	O,T
Black-backed woodpecker	Picoides arcticus	G5	S2		SC	R
Dickcissel	Spiza americana	G4	S3		SC	A
Caspian tern	Sterna caspia	G5	S2		T	A
Common tern	Sterna hirundo	G5	S2	C2	T	O
Yellow-headed blackbird	Xanthocephalus xanthocephalus	G5	S4		SC	A
Western meadowlark	Sturnella neglecta	G5	S4		SC	A

R = regular occurrence
O = occasional occurrence
A = accidental occurrence
H = hypothetical occurrence
T = breeds on adjacent mainland

Species list and abundance based on *Isle Royale National Park Checklist of Birds* (1994)

STATE-LISTED AMPHIBIANS

COMMON NAME	SCIENTIFIC NAME	RANK		1992 STATUS	
		GLOBAL	STATE	US	MI
Boreal chorus frog	Pseudacris triseriata maculata	G5T5	S1		SC

Compiled from "Michigan's Special Animals" (June 1994), Michigan Dept. of Natural Resources

No listed reptiles are known to inhabit Isle Royale. In 1977 there was one inconclusive photo taken of what may have been a black rat snake (Elaphe obsoleta obsoleta), which is listed as a species of special concern in Michigan.

No comprehensive inventories of insects, snails, or mussels have been completed for Isle Royale.

LEGEND

MI 1991 Current species status under the Michigan Endangered Species Act reviewed during 1987-91. Endangered and threatened designations were legally effective as of November 14, 1991. P (proposed) = species has been officially dropped for listing by the technical committee.

Listing status with the Michigan Department of Natural Resources
- E = endangered
- T = threatened
- SC = special concern
- X = probably extirpated

U.S. 1991 Species status under the Federal Endangered Species Act as of July 15, 1991, and updated August 29, 1992 (for animals). LE, LT (listed endangered, listed threatened) = species has been officially listed as endangered (E) or threatened (T). P (proposed) = species has been officially proposed for listing. C1 (category 1) = listing as E or T is considered appropriate but has not yet been officially proposed. C2 (category 2) = listing as E or T may be appropriate but more information is needed. C3 (category 3) = Species is more widespread or abundant than previously thought. LELT indicates that an animal is listed as endangered in part of its range and threatened in the remainder of its range.

Global Ranks

G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences rangewide or very few remaining individuals or acres) or because of some factors(s) making it especially vulnerable to extinction.

G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of factor(s) that make it vulnerable to extinction throughout its range.

G3 = either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region) or because of other factor(s) making it vulnerable to extinction throughout its range; occurrences of 21 to 100.

G4 = apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 = demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GH = of historical occurrence throughout it range, i.e. formerly part of the established biota, with the expectation that it may be rediscovered (e.g. Bachman's Warbler).

GU = possibly in peril rangewide but status uncertain; need more information.

GX = believed to be extinct throughout its range (e.g. passenger pigeon) with virtually no likelihood that it will be rediscovered.

State Ranks

S1 = critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.

S2 = imperiled in the state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) that makes it very vulnerable to extirpation from the state.

S3 = rare or uncommon in state (on the order of 21 to 100 occurrences).

S4 = apparently secure in state, with many occurrences.

S5 = demonstrably secure in state and essentially ineradicable under present conditions.

SA = accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range.

SE = an exotic established in the state; may be native elsewhere in North America (e.g. house finch or catalpa in eastern states).

SH = of historical occurrence in state and suspected to be still extant.

SN = regularly occurring, usually migratory and typically nonbreeding species.

SR = reported from state, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.

SRF = reported falsely (in error) from state but this error persisting in the literature.

SU = possibly in peril in state, but status uncertain; need more information.

SX = apparently extirpated from state.

LAWS FOR NAT. PARK SERVICE, PARKS, & MONUMENTS

7. Isle Royale National Park

An Act To provide for the establishment of the Isle Royale National Park, in the State of Michigan, and for other purposes, approved March 3, 1931 (46 Stat. 1514)

Isle Royale National Park, Mich.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That when title to all alienated lands within Isle Royale in Lake Superior, Keweenaw County, Michigan, and immediately surrounding islands as shall be designated by the Secretary of the Interior in the exercise of his judgment and discretion as necessary or desirable for national-park purposes, shall have been vested in the United States and exclusive jurisdiction over the same shall have been ceded by the State of Michigan to the United States, said area shall be, and is hereby, established, dedicated, and set apart as a public park for the benefit and enjoyment of the people, and shall be known as the Isle Royale National Park: *Provided*, That the United States shall not purchase by appropriation of public moneys any lands within the aforesaid area, but such lands shall be secured by the United States only by public or private donation. (U.S.C., 6th supp., title 16, sec. 408.)

Establishment, etc.

Proviso. Lands to be secured without Federal cost.

SEC. 2. The Secretary of the Interior is hereby authorized, in his discretion and upon submission of evidence of title satisfactory to him, to accept on behalf of the United States title to any lands located on said islands offered to the United States, without cost, as may be deemed by him necessary or desirable for national-park purposes. (U.S.C., 6th supp., title 16, sec. 408a.)

Acceptance of title.

SEC. 3. The administration, protection, and development of the aforesaid park shall be exercised under the direction of the Secretary of the Interior by the National Park Service, subject to the provisions of the Act of August 25, 1916 (39 Stat. 535), entitled "An Act to establish a National Park Service, and for other purposes," as amended: *Provided*, That the provisions of the Act approved June 10, 1920, known as the Federal Water Power Act, shall not apply to this park. (U.S.C., 6th supp., title 16, sec. 408b.)

Administration by National Park Service.

Vol. 39, p. 535. See p. 9.

Proviso. Federal Water Power Act not applicable. Vol. 41, p. 1063.

thetic to the industry and opposed to State or Federal regulation thereof.

(d) The explanation for the immunity of the said parties since 1922 from effective prosecution by the Department of Justice for violating the antitrust laws, notwithstanding the unlawful character of the business activities of the said parties, and particularly as to whether such immunity has any relation to the fact that the successful negotations by the industry for the services of Will H. Hays and George Akerson took place while the former was Postmaster General and the latter secretary to the President of the United States.

(e) The relations of the said parties (1) with the State Department and the Department of Commerce in connection with the settlement of acute problems of the industry in several foreign countries, and (2) with the League of Nations, and the several committees thereof officially interested in the industry, including the International Educational Cinematographic Institute of the League of Nations at Rome, in which a representative of the said parties is a prominent member.

(f) The explanation for the policy pursued by the said parties in the employment in the industry of persons formerly affiliated with the State Department or the Department of Commerce, and the financial interest, if any, of Hon. Julius Klein, Assistant Secretary of Commerce, with any company in the industry.

(g) The participation of the said parties or other members of the industry in the patent pool agreement between the leading American and German electrical companies entered into at Paris, France, in June and July, 1930, whereby the world trade in audible-film apparatus and theater equipment was apportioned among the major companies represented, together with the activities of representatives of the State Department and Department of Commerce in accelerating such agreement and in informing the President of the United States of the agreement and the loss suffered by nonparticipating companies of the industry as a result of the agreement.

(h) The relations, if any, of the said parties with the Federal Trade Commission and the Department of Justice in connection with the failure of the department to vigorously prosecute the said parties for violating the Federal antitrust laws.

(i) The probable effect on the unlawful activities of the four members of the industry prosecuted in 1928 by the Government under the antitrust laws in the event of decrees in favor of the United States in those cases.

(j) The activities of the Copyright Protection Bureau, operated under direction of the said parties, in so far as the bureau exacts large sums of money from independent exhibitors under color of the penalty clause of the Federal copyright laws.

The committee shall report to the Senate, as soon as practicable, the results of its investigations, together with its recommendations, if any, for legislation requesting the Attorney General to institute proceedings against the members of the industry presumably guilty of unfair or unlawful trade practices or combinations.

For the purposes of this resolution such committee or any duly authorized subcommittee thereof is authorized to hold hearings, to sit and act at such times and places during the sessions and recesses of the Senate in the Seventy-second and succeeding Congresses until the final report is submitted, to employ such clerical and other assistants, to require by subpœna or otherwise the attendance of such witnesses and the production of such books, papers, and documents, to administer such oaths, and to take such testimony and make such expenditures as it deems advisable. The cost of stenographic services to report such hearings shall not be in excess of 25 cents per hundred words. The expenses of the committee, which shall not exceed $25,000, shall be paid from the contingent fund of the Senate upon vouchers approved by the chairman.

ISLE ROYALE NATIONAL PARK, MICH.

Mr. VANDENBERG. Mr. President, the Senate has completed this morning the legislation to create a national park at Isle Royale, Mich. It will be the greatest national park in the system if and when the plans are perfected. It is the only national park in the Great Lakes area. I predict for it a tremendous popularity when it finally has been taken into the national system. Perhaps the most remarkable and enthusiastic indorsement ever given to a national-park project is contained in the report of Secretary of the Interior and the Director of the National Park Service upon the so-called Cramton-Vandenberg bill. I ask unanimous consent that these reports be printed in the RECORD.

There being no objection, the memorandum of Director Albright, of the National Park Service, was ordered to be printed in the RECORD, as follows:

DEPARTMENT OF THE INTERIOR,
Washington, February 25, 1931.

Hon. GERALD P. NYE,
Chairman Committee on Public Lands and Surveys,
United States Senate.

MY DEAR MR. CHAIRMAN: In compliance with your request of February 24, for a report on S. 6221, which is a bill that would provide for the establishment of the Isle Royale National Park, in the State of Michigan, I transmit herewith a memorandum on the subject that has been submitted by Director Albright of the National Park Service.

After a review of the proposed measure, I agree with Mr. Albright.

Very truly yours,

RAY LYMAN WILBUR, *Secretary.*

DEPARTMENT OF THE INTERIOR.
NATIONAL PARK SERVICE.
Washington, February 25, 1931.

Reference is made to letter, dated February 24, from the chairman of the Committee on Public Lands and Surveys, United States Senate, inclosing for report a copy of S. 6221, Seventy-first Congress, third session, entitled "A bill to provide for the establishment of the Isle Royale National Park, in the State of Michigan, and for other purposes."

Isle Royale is the largest island in Lake Superior, located just inside the international boundary about 25 miles north and west of Keweenaw Point in Michigan. It lies in Keweenaw County of that State. It is approximately 44 miles long, with an average width of 5 miles. Its area is estimated at approximately 205 square miles. Twelve square miles of this area are composed of inland lakes, 24 in number, leaving 193 square miles, or approximately 123,520 acres net of land area. To this may be added about 2,000 acres on the immediately surrounding smaller islands which should be included in the project. It is accessible by boat from about May 1 to November 15. For the remainder of the year it is ice bound. During the open season boats from Duluth, Minn., Houghton, Mich., and Port Arthur, Ontario, provide transportation. A good many people now fly over the island. It has no telegraph or telephone connections with the mainland. The last census indicated only 23 registered voters, mostly trappers, fishermen, or miners, who live scattered throughout the area. It is used on a very small scale for summer resort purposes, a small lodge being available at Rock Harbor on the eastern end.

The topography of the island is quite broken, and can perhaps be best described as a moss and forest covered mass of gigantic rocks, the result of a volcanic upheaval. It has the appearance of being almost entirely in its primeval state, for, due to the rugged formation, lumbermen have left its tree growth alone. The island is said to have burned over in the remote past, and evidences of such fires can be seen in places. However, in such instances nature has restored conditions well. There are many marvelous beauty spots in their primitive condition, thus offering perfect examples of nature's textbooks for the study of scientist and student. Especially is this the case on the smaller islands surrounding the main Isle Royale. The exquisite, rugged beauty of the cliffs of the shore lines, indented with countless small bays and mouths of trout streams that may be enjoyed by sailing along the narrow deep fiords or channels, constitutes a particularly fascinating contribution to the scenic offerings of the park.

Due to the peculiar combinations of inland lakes and forested terrain, these factors may be held accountable for the preservation and increase of the wild life of the island. Without this sheltering cover of balsam, spruce, beech, birch, poplar, and pine, Isle Royale to-day doubtless would not be the home of moose, woodland caribou, beaver, deer, and other wild life. It is considered no exaggeration to estimate 2,000 moose and 400 woodland caribou on the island, the latter an animal not encountered elsewhere within the confines of the mainland of the United States. Moose may now be seen with little effort by any visitor. This in itself will present an unusually fine wild-life spectacle. Botanists report a wealth of flora, equaling in season the finest flower displays of the other national parks. The flora and fauna of the island, said to be entirely foreign to the neighboring shores of the lake and to be sub-Arctic in character due to the perpetually cold waters by which Isle Royale is surrounded, have long been the object of scientific curiosity. The waters of the island and the surrounding lake abound with fish so that the sport of fishing would be one of the outstanding attractions of the park. The island group are considered the greatest breeding grounds for the herring gull in the Great Lakes. The proposed park thus offers large opportunities for study and enjoyment to the lover of bird, animal, and fish life under most favorable conditions.

Another most interesting feature of the island is the archæological remains. In two remote sections—one on the northern shore and the other in the south Siskiwit Bay district—extensive mining operations of ancient days have been uncovered. How far back into our history these go has not yet been definitely determined. On the old Minong workings, near McCargoes Cove, great piles of stone hammers, crude large stone steps leading to the water's edge and other stone implements have been uncovered. Whether these represent the operations of ancient white men or began with their Indian antecedents is unknown. However, there are remains of literally thousands of open pit mines from which, in aboriginal times, the early inhabitants of these regions obtained practically all of the copper that was used in aboriginal America. From here and the adjacent mainland where all of this copper was obtained, it found its way by the trade routes into other parts of North America, and all of the copper, so far as can be determined, which has been found in mounds in the South and elsewhere, was originally obtained from this immediate vicinity. Here at and near the heard of McCargoes Cove, therefore, may be said on good authority to be the real seat of this great ancient mining industry.

It is, therefore, evident that from a scenic, recreational, scientific, and educational standpoint, here is presented one of the outstanding opportunities for the establishment of a great island national park, unique of its kind in the system, and measuring up

to the high standards that have been prescribed for such establishment. Its type of scenery, utterly distinct from anything now found in our national park system, its primitiveness, its unusual wild life and interesting flora, its evidences of possible prehistoric occupation, all combine to make Isle Royale and its neighboring islands of national park caliber.

It is this very unusualness which will also present unusual problems for development, if and when created as a national park. Complete protection, of course, is the prime object aimed at. The island appears peculiarly adapted for the building of a simple system of horse and hiking trails from one end of the island to the other, following ridges or partly at lower elevations near the shores with other trails, crossing over and connecting the longer parallel trails. From these pathways unending and everchanging scenes of marvelous beauty would be unfolded, without disturbing the wilderness character of the area or the wild life. Such development of the inner section of the park would be paralleled by the boat routes through the channels surrounding the island.

The matter of establishing this national park was first seriously brought to the attention of the department in 1924 through the interest of Michigan conservation associations which were actively pushing the matter and exerting themselves toward securing the private holdings on the island in order that they could be offered to the Federal Government. The area was carefully inspected in 1925 by former Director Mather, of the National Park Service, who gave it his unqualified approval. He was much impressed and very enthusiastic over the possibilities. It has been visited and reported on by other outstanding men of authority, notably this past summer by Harlan P. Kelsey, of Salem, Mass., a botanist and conservationist, as collaborator for the service, and Dr. Frank R. Oastler, of New York City, outstanding in conservation circles and a member of the advisory board on educational problems in national parks, both of whom were high in their praise of the area from a scenic and scientific standpoint. The area was also studied in 1930 by Senator WALCOTT, chairman of the Special Committee on the Conservation of Wild Life Resources of the United States Senate, and other members of that committee. In all discussions of the possible creation of this park, the department and the service, while being favorable to the project, have taken the stand that the only condition under which the project would be acceptable under established policies would be that all the area required should be conveyed to the Federal Government without cost, as was the policy approved by Congress for the establishment of the three proposed southern Appalachian parks.

It may be pertinent to observe at this point that, while all except 9,121 acres of the island, which are public land, are in private or State ownership, the head of one of the large copper companies owning considerable acreage on the island has indicated that some 21,000 acres of their holdings would be turned over to the park project without cost, in the event of the establishment of the park, and that this gift may be increased to 45,000 acres. The Conservation Commission of the State of Michigan stands ready to deed 2,240 acres of land under its jurisdiction toward the project. Altogether commitments have been made to turn over approximately 56,000 acres of the total required for the park, leaving the rest still to be acquired by local authorities.

Under the provisions of S. 6221, the actual establishment of this national park is based upon the condition that the land deemed necessary be turned over to the United States without cost for acquisition.

HORACE M. ALBRIGHT, *Director.*

MESSAGE FROM THE HOUSE

A message from the House of Representatives by Mr. Chaffee, one of its clerks, announced that the House had passed without amendment the following bills of the Senate:

S. 5455. An act to authorize an additional appropriation of $7,500 for the completion of the acquisition of land in the vicinity of and for use as a target range in connection with Fort Ethan Allen, Vt.;

S. 5588. An act to add certain public lands to the Washakie National Forest, Wyoming;

S. 6078. An act to provide for the commemoration of the Battle of Fort Necessity, Pennsylvania; and

S. J. Res. 247. Joint resolution authorizing the President to proclaim October 11, 1931, General Pulaski's Memorial Day for the observance and commemoration of the death of Brig. Gen. Casimir Pulaski.

The message further announced that the House had passed the following bills of the Senate, each with amendments, in which it requested the concurrence of the Senate:

S. 101. An act to provide for producers and others the benefit of official tests to determine protein in wheat for use in merchandising the same to the best advantage, and for acquiring and disseminating information relative to protein in wheat, and for other purposes; and

S. 5724. An act authorizing the George Washington Bi-Centennial Commission to print and distribute additional sets of the writings of George Washington.

The message also announced that the House had passed the bill (S. 6169) to extend the restrictive period against alienation of any interest of restricted heirs of members of the Five Civilized Tribes, and for other purposes, with an amendment, in which it requested the concurrence of the Senate.

ENROLLED BILLS AND JOINT RESOLUTION SIGNED

The message further announced that the Speaker had affixed his signature to the following enrolled bills and joint resolution, and they were signed by the President pro tempore:

S. 5033. An act to authorize an appropriation of tribal funds to purchase certain privately owned lands within the Fort Apache Indian Reservation, Ariz.;

S. 5455. An act to authorize an additional appropriation of $7,500 for the completion of the acquisition of land in the vicinity of and for use as a target range in connection with Fort Ethan Allen, Vt.;

S. 5524. An act to coordinate the agricultural experiment-station work and to extend the benefits of certain acts of Congress to the Territory of Porto Rico;

S. 6011. An act to authorize the Secretary of the Interior to purchase certain land in California for addition to the Cahuilla Indian Reservation, and issuance of a patent to the band of Indians therefor;

S. 6078. An act to provide for the commemoration of the Battle of Fort Necessity, Pa.;

S. 6128. An act to amend sections 17 and 27 of the general leasing act of February 25, 1920 (41 Stat. 437; U. S. C., title 30, sees. 184 and 226), as amended;

S. 6146. An act to provide for distribution of tribal funds of the Puyallup Indians of the State of Washington;

S. 6271. An act relating to the tenure of congressional members of the George Washington Bicentennial Commission;

H. R. 8677. An act for the relief of certain disbursing officers of the Army of the United States and for the settlement of individual claims approved by the War Department;

H. R. 15493. An act to authorize the Secretary of War to lease to the city of Little Rock portions of the Little Rock air depot, Ark., and for other purposes; and

H. J. Res. 303. Joint resolution to amend Public Resolution No. 80, Seventieth Congress, second session, relating to payment of certain claims of grain elevators and grain firms.

HOUSE BILL REFERRED

The bill (H. R. 17262) granting pensions and increase of pensions to certain soldiers and sailors of the Regular Army and Navy, and so forth, and certain soldiers and sailors of wars other than the Civil War, and to widows of such soldiers and sailors, was read twice by its title and referred to the Committee on Pensions.

ECONOMIC INVESTIGATION IN THE OIL, COAL, LUMBER, AND OTHER INDUSTRIES

Mr. SMOOT. Mr. President, the Finance Committee met to-day and considered the joint resolution (H. J. Res. 525) to provide for the investigation of economic conditions in the oil, coal, lumber, manganese, asbestos, and agricultural industries, and for other purposes, I am authorized as chairman of the committee to report it to the Senate and ask unanimous consent for its immediate consideration.

Mr. LA FOLLETTE. I object.

The PRESIDENT pro tempore. Objection is made.

MINING EXPERIMENT STATION, COLLEGE PARK, MD.

The PRESIDENT pro tempore laid before the Senate the amendments of the House of Representatives to the bill (S. 5220) authorizing the establishment of a mining experiment station of the Bureau of Mines at College Park, Md., which were, on page 1, line 11, after the word "site," to insert "of not less than 20 acres"; on page 2, line 2, after the word "donated," to insert "and conveyed by deed conveying absolute title," and on the same page, line 3, to strike out all after the word "purpose" down to and including the word "indicated" in line 4.

IN REPLY REFER TO

United States Department of the Interior

FISH AND WILDLIFE SERVICE
East Lansing Field Office (ES)
2651 Coolidge Road
East Lansing, Michigan 48823

February 16, 1996

Edward Carlea
National Park Service
1709 Jackson St.
Omaha, NB 68102-2571

Re: Endangered Species List Request, Isle Royale National Park, Michigan

Dear Mr. Carlea:

This responds to your letter of January 18, 1996, requesting U.S. Fish and Wildlife Service (Service) review of threatened and endangered species occurrences in relation to the above referenced site.

Endangered Species Act Comments

The Service has determined that federally listed and candidate species pursuant to the Endangered Species Act of 1973 (as amended), may be present within the project area (Enclosure A). Federally listed species are afforded protection pursuant to State of Michigan Public Act 204 (Endangered Species Act of 1974).

Species of concern are currently under review by the Service for consideration of listing as endangered or threatened. Species of concern have no protection under the federal Endangered Species Act and a determination of "may affect" does not require preparation of a biological assessment or consultation with the Service. Species of concern which may be proposed and listed in the future are included as advance notice to federal agencies or their designees. If early evaluation of your project indicates that it is likely to adversely impact a candidate species, your agency may wish to request technical assistance from this office.

The Service recommends you contact the State Endangered Species Coordinator, Mr. Tom Weise (Michigan Department of Natural Resources, Wildlife Division, phone: 517/337-1263) to determine the presence of state listed species. Federal species of concern may be State of Michigan listed species. The State Endangered Species Act requires permits in advance of any work that could potentially damage, destroy, or displace State-listed species.

If the project is modified or new information about the project becomes available that indicates additional listed or proposed species may be present and/or affected, consultation with this Service office should be reinitiated. The Service further advises that should any other species occurring in the project area become Federally listed or proposed, the Federal action agency for the work would also be required to reevaluate its responsibilities under the Act. Since threatened and endangered species data is continually updated, the Service suggests the lead federal agency annually request an updated Federal list of the species occurring in the project area.

The Service requests that confirmation of the occurrence data be provided by the National Park Service (NPS). The Service would like the NPS to identify any endangered species occurrences that are not included in the list.

The opportunity to provide our resource protection recommendations is appreciated. Any questions can be directed to Tom Eitniear of this office at (517) 351-6283.

Sincerely,

Tom Eitniear

for Charles M. Wooley
Field Supervisor

Enclosures

cc: Michigan Department of Natural Resources, Wildlife Division, Lansing, MI
(Attn: Tom Weise)

Enclosure A

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND SPECIES OF CONCERN THAT MAY OCCUR WITHIN THE AREA OF THE

Isle Royale National Park, Michigan

Bald Eagle (Threatened)

Gray Wolf (Endangered)

Lynx (Species of Concern)

Auricled Twayblade (Species of Concern)

Ram's Head Lady's-Slipper (Species of Concern)

April 30, 1996

N1621(ISRO)

Memorandum

To: Field Supervisor, U.S. Fish and Wildlife Service, East Lansing, Michigan

From: Superintendent, Isle Royale National Park, Michigan

Subject: Informal consultation for Isle Royale National Park General Management Plan/Environmental Impact Statement, Michigan

We received your letter of February 16, 1996 providing a list of the proposed endangered and threatened species and species of concern believed to occur within Isle Royale National Park. We appreciate your timely response to our request for such a list.

We can confirm the presence of four of the five species you listed (gray wolf, bald eagle, auricled twayblade, and ram's head lady's-slipper). We cannot confirm the presence of the lynx. There has been no evidence of a breeding population of lynx since the 1930s; sporadic sightings of lynx are occasionally given to the park by visitors, although we have no way to confirm the accuracy of those sightings. In all likelihood, if any lynx do exist in the park they represent individual transients.

We are unsure if your list should include the peregrine falcon. Some 50 young were hacked on Isle Royale from 1987 to 1991, although we have had no confirmed nesting since then. We get occasional sighting reports every year by visitors and researchers, but those birds observed may be migrants or transient visitors. We have spent some time searching suitable habitat for nests, but have found none.

If you have any questions please contact Jack Oelfke, Branch Chief, Natural Resource Management, at 906-487-9080.

Signed
Douglas A. Barnard

cc:
Jill Medland, GPSSO, Omaha
Terry Goodrich, DSC

bcc:
NRMS, ISRO

DABarnard:JGOelfke:pkl:4/30/96
C...vsrps\nrms\fws-gmp.mem

IN REPLY REFER TO

United States Department of the Interior

FISH AND WILDLIFE SERVICE
East Lansing Field Office (ES)
2651 Coolidge Road
East Lansing, Michigan 48823

May 22, 1998

Mr. Douglas A. Barnard, Superintendent
Isle Royale National Park
800 East Lakeshore Drive
Houghton, Michigan 49931

Subject: Endangered Species Act Consultation for General Management Plan EIS

Dear Mr. Barnard:

The U.S. Fish and Wildlife Service (Service) apologizes for the unavoidable delay in this response to your March 30, 1998, request for Endangered Species Act Section 7 informal consultation for the Draft General Management Plan Environmental Impact Statement (EIS) for Isle Royale National Park. The Service concurs with your notification that the eastern timber wolf (*Canis lupus*), bald eagle (*Haliaeetus leucocephalus*), and peregrine falcon (*Falco peregrinus*) are the only federally listed species known or likely to be on Isle Royale. You also considered the Canada lynx (*Lynx canadensis*), which is currently a candidate species, and is likely to be listed in the near future. Isle Royale also is designated critical habitat for the wolf.

The Service concurs with your determination that the proposed alternative is not likely to adversely affect the listed species or critical habitat. Most activities described in the General Management Plan will occur in areas previously disturbed and designated for human use. Removal of a few docks and addition of campgrounds and docks in areas where these facilities have not previously existed is proposed, but as your analysis indicates, these changes are relatively minor in scale and would not be expected to further impact eagle, wolf and peregrine falcon use of the island. The statement on EIS page 115 that "potential disturbance to threatened and endangered species would be minimized by monitoring and managing of visitation levels" is important in assuring that activities conducted under the General Management Plan do not adversely affect listed species. The Service assumes the statement means that Isle Royale National Park would promptly act to modify activities, such as motor boat traffic disturbing nesting eagles, that are found to affect listed species.

This precludes the need for further action on this project as required by Section 7 of the Endangered Species Act. However if the project is modified or new information about the project becomes available that indicates listed or proposed species may be present and/or affected, consultation with this Service office should be reinitiated.

We appreciate the opportunity to cooperate with Isle Royale National Park in the conservation of our Nations's threatened and endangered species.

Sincerely,

Charles M. Wooley
Field Supervisor

cc: MDNR, Wildl. Div., Lansing, MI (Attn: T. Weise)

archives/may98/isropl-1.sc7

GREAT LAKES INDIAN FISH & WILDLIFE COMMISSION

P. O. Box 9 • Odanah, WI 54861 • 715/682-6619 • FAX 715/682-9294

• MEMBER TRIBES •

MICHIGAN	WISCONSIN		MINNESOTA
Bay Mills Community	Bad River Band	Red Cliff Band	Fond du Lac Band
Keweenaw Bay Community	Lac Courte Oreilles Band	St. Croix Chippewa	Mille Lacs Band
Lac Vieux Desert Band	Lac du Flambeau Band	Sokaogon Chippewa	



September 23, 1996

Mr. Douglas Bernard, Superintendent
National Park Service
Isle Royale National Park
800 E. Lakeshore Dr.
Houghton, Michigan 49931-1895

Dear Superintendent Bernard,

The Great Lakes Fishery Committee (Lakes Committee) of the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) has requested that I contact you regarding the development of a general management plan for Isle Royale National Park. The Lakes Committee is undertaking a review of Newsletter Number 3, and seeks the prerequisite government-to-government consultation process about this matter that the federal government's trust and treaty obligations require. President Clinton's Memorandum on the government-to-government relationship with tribes requires agencies to consult with affected tribal governments prior to taking actions that would affect them.[1]

The Lakes Committee's perspective on the general management plan is an off-reservation one, and it is from that aspect of the tribes' sovereignty and retained rights that these comments are submitted. Any comments by the Lakes Committee are from an intertribal, ceded territory perspective and are not intended to, nor should be construed as, precluding comments by tribes based upon their individual sovereign prerogatives.

Pursuant to specific delegations of tribal sovereign authority, the Lakes Committee develops natural resource management plans, assists its member tribes in developing suitable conservation regulations, and assists the tribes in securing their usufructuary rights in the Great Lakes and their tributaries. Thus it is appropriate as well as necessary for the Park Service to consult with the Lakes Committee as well as any individual tribe that may be impacted by the plan. The Lakes Committee invites Park Service representatives to attend an upcoming meeting of the Lakes Committee to explain and discuss the management planning process in more depth.

The Lakes Committee is concerned about the management of Isle Royale National Park. Natural resource management affects the availability of resources and their supporting habitats.

---

[1]Government-to-Government Relations with Native American Tribal Governments, Memorandum of April 29, 1994, 59 Fed. Reg. 22951.

This in turn may affect the tribes' ability to engage in a full and fruitful exercise of their ceded territory rights.

Please feel free to contact me if you have any questions or need further information. Park Service representatives that would attend a Lakes Committee meeting should coordinate with Ann McCammon Soltis of the Commission staff.

Sincerely,

James H. Schlender
Executive Administrator

cc: Lakes Committee Representatives
Lakes Committee Biologists
James E. Zorn, Policy Analyst
Neil Kmiecik, Director, Biological Services Division
Ann McCammon Soltis, Policy Analyst

GREAT LAKES INDIAN FISH & WILDLIFE COMMISSION
P. O. Box 9 • Odanah, WI 54861 • 715/682-6619 • FAX 715/682-9294

• MEMBER TRIBES •

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Keweenaw Bay Community	Lac Courte Oreilles Band	St. Croix Chippewa	Mille Lacs Band
Lac Vieux Desert Band	Lac du Flambeau Band	Sokaogon Chippewa	



April 17, 1998

Isle Royale General Management Plan Project Leader
National Park Service, Denver Service Center
P.O. Box 25287
Denver, Colorado 80225

Re: Draft General Management Plan Environment Impact Statement

Dear Sir or Madam,

The Great Lakes Indian Fisheries Committee of the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) submits the following comments on Isle Royale National Park's Draft General Management Plan Environment Impact Statement. As acknowledged in the draft plan, a number of tribes (including GLIFWC member tribes) have reserved treaty rights in Lake Superior surrounding Isle Royale and on Isle Royale itself. These comments are submitted from a ceded territory perspective with the explicit understanding that each GLIFWC member tribe may choose to submit comments from their own perspective.

Although the language in the plan is a good first step, several changes would be appropriate. The section entitled Native American Treaty Rights (p. 26-7) could be revised as+ follows: [Note: Deletions from the present draft are struck out and additions are underscored.]

> Several bands of Lake Superior Chippewa have rights guaranteed by various treaties in the geographic area in which Isle Royale and Isle Royale National Park are located. <u>These rights are beyond the scope of the Isle Royale Management Plan. The Management Plan and any actions taken to implement the Management Plan must conform to the law regarding these rights.</u> ~~Following normal procedures and guidelines,~~ <u>As part of its efforts to ensure that it honors these rights,</u> the National Park Service would cooperate with ~~these entities~~ <u>those tribes that retain hunting, fishing, and gathering rights at and around Isle Royale</u> to recognize established treaty rights. <u>This includes routine consultation with those Tribes and their designated representatives on a government-to-government basis.</u> It would be park policy to work to strengthen dialogue and to work with involved Indian tribes and the Great Lakes Indian Fish and Wildlife Commission to ensure that issues of common interest are addressed.

The Lakes Committee appreciates the opportunity to submit these comments. Please do not hesitate to contact Ann McCammon Soltis or me if you have questions or need further information.

Sincerely,

James H. Schlender
Executive Administrator

cc: Lakes Committee
James E. Zorn, Policy Analyst
Neil Kmiecik, Director, Biological Services Division
Bill Mattes, Great Lakes Biologist
Ann McCammon Soltis, Policy Analyst

NATURAL RESOURCES COMMISSION
JERRY C. BARTNIK
KEITH J. CHARTERS
NANCY A. DOUGLAS
L. THORNTON EDWARDS, JR.
PAUL EISELE
WILLIAM U. PARFET
LLOYD F. WEEKS

STATE OF MICHIGAN

JOHN ENGLER, Governor
DEPARTMENT OF NATURAL RESOURCES
STEVENS T MASON BUILDING, PO BOX 30028, LANSING MI 48909-7528
WEBSITE: www.dnr.state.mi.us
K. L. COOL, Director

REPLY TO:
LOWER PENINSULA FIELD HEADQUARTERS
8717 N ROSCOMMON RD
PO BOX 128
ROSCOMMON MI 48653

May 6, 1998

Isle Royale General Management Plan Project Leader
National Park Service, Denver Service Center
P.O. Box 25287
Denver, CO 80225

Project Planning Team:

Thank you for the opportunity to review the Draft General Management Plan Environmental Impact Statement for Isle Royale National Park. I have been asked to review the Draft and comment on potential impacts on wildlife resources resulting from planned actions.

The preferred alternative will have minimal impact on wildlife resources. Any loss of habitat caused by new construction would be mitigated by removal of facilities at existing sites. There will also be minimal impacts to threatened and endangered species.

Thank you for the opportunity to review and comment on the draft plan.

Sincerely,

John Hendrickson
Field Coordinator
WILDLIFE DIVISION
517/275-5151

cc: Mary Benson

MICHIGAN DEPARTMENT OF STATE
Candice S. Miller, Secretary of State
Lansing, Michigan 48918-0001

STATE HISTORIC PRESERVATION OFFICE
Michigan Historical Center
717 West Allegan Street
Lansing, Michigan 48918-1800

July 20, 1998

MR DOUGLAS A BARNARD
SUPERINTENDENT
ISLE ROYALE NATIONAL PARK
800 EAST LAKESHORE DRIVE
HOUGHTON MI 49931-1869

RE: ER-940213 Draft General Management Plan, Isle Royale National Park, Keweenaw County (NPS)

Dear Mr. Barnard:

Under the authority of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-cited report. This letter contains our comments on the Draft General Management Plan for Isle Royale National Park in Keweenaw County.

Isle Royale contains several resources listed in the National Register of Historic Places. Furthermore, I am confident your Classified Structures List will identify a number of additional properties eligible for listing in the national register. Until the State Historic Preservation Office (SHPO) obtains a copy of that list, my comments must remain somewhat general in nature. Proposed changes to resources must be submitted on a case-by-case basis for review until a list of national register-eligible resources is developed. No comments on specific changes to docks, campgrounds, concession facilities, etc. are provided in this response.

Overall, the report meets the conditions of the 1995 Programmatic Agreement for National Parks. My concerns regarding the specific alternatives are as follows:

Alternative A - Existing Conditions

This alternative states that once the List of Classified Structures has been completed and national register-eligible properties are identified: "Such resources would then be maintained, stabilized, or documented and allowed to decay." *The SHPO does not support demolition by neglect as a viable planning option and such an action constitutes an Adverse Effect (36 CFR Part 800.9 [b]). Alternative uses for all eligible resources should be considered.*

The concession service facilities and overnight lodging facilities at Rock Harbor must be evaluated for national register eligibility before closure. Alternative uses should be discussed.

The Proposed Action and Alternatives B, C and E

All alternatives except for C call for retaining historic structures eligible for listing in the national register, if a potential adaptive use is identified. *The process for identifying new uses should be clarified.*

Unlike Alternative A, the Proposed Action and Alternatives B and E do not state that the List of Classified Structures would be updated and a cultural landscape report would be completed. *As proposed in Alternative A, the List of Classified Structures should be updated, a cultural landscape report should be completed, and the SHPO should review and comment on these documents. The List of Classified Structures and the cultural landscape report should be incorporated into the Proposed Action and Alternatives B and E in order to determine what resources must be considered in managing the park.*

The National Park Service (NPS) and the SHPO may have differing opinions regarding priority of structures. As stated on page 24 "Priority for adaptive use would be given to structures in nonwilderness areas." *Note that the SHPO will use different criteria for determining priority such as historical significance and uniqueness of the resource in question. Therefore, the SHPO should be consulted when priority is determined.*

Regarding accessibility requirements on existing national register-eligible structures, *the ADA requirements should be fulfilled while meeting the Secretary of the Interior's Standards for Rehabilitation (NPS, 1990).*

The proposed water and sewer treatment plant plan outlined in Alternative B must be reviewed by the SHPO for its impact on both below and above-ground resources.

Alternative C, which calls for the removal of all historic structures, would constitute a determination of Adverse Effect (36 CFR Part 800.9 [b]).

Archaeology

Dr. John Halsey, the State Archaeologist, infers from this plan that the NPS intends to continue to conduct archaeological surveys in advance of construction and in areas of high archaeological potential. *We emphasize the need for continuation of these surveys.*

Additional Comments

Some portions of the draft plan lead us to ask for additional information. The chart you provided showing the proposed actions and compliance requirements emphasizes archaeological resources, but appears to overlook the potential for above-ground resources. No. 4, "removal and relocation of McCargo Cove dock..." states that no further SHPO/Advisory Council (ACHP) review is necessary unless a survey determines that the site contains archeological resources. Has a determination of eligibility been made for the McCargo Cove dock? Has a determination been made regarding the hiking trails and other manmade landscape features that are part of the park's history?

In addition to the SHPO/ACHP reviewing plans for structure stabilization, etc., *the SHPO must also review and comment when a structure is slated for abandonment or demolition.*

In order to review NPS Isle Royale projects in an efficient manner, *it is essential that the SHPO receive a final copy of the List of Classified Structures with photographs of each eligible property.* Was every structure evaluated in the compilation of this list?

If you have any questions, please contact Martha MacFarlane, Environmental Review Coordinator, at (517) 335-2721. Thank you for this opportunity to review and comment.

Sincerely,

Brian D. Conway
State Historic Preservation Officer

BDC:LRA:mlm

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

B - 19J

Ms. Marilyn Hof
Isle Royale General Management Plan Project Leader
National Park Service, Denver Service Center
P.O. Box 25287
Denver, CO 80225

Dear Ms. Hof:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and section 309 of the Clean Air Act, we have reviewed the Draft Environmental Impact Statement (DEIS) on the Isle Royale General Management Plan. We have consolidated comments that we have received from our Lake Superior Team, Critical Ecosystem Team and the Great Lakes National Program Office, along with the comments from the Environmental Review Group. Our detailed comments on the DEIS are expressed in the remainder of this letter.

The Purpose and Needs statement (p.4), under OVERVIEW states that, "A new plan is needed to provide an overall guide for the future use of resources and facilities, to clarify research and resource management needs and priorities . . . "; and continues under ISSUES, "The natural resource program at Isle Royale is committed to developing a basic understanding of the park's resources and ecosystem and monitoring the health of those resources and processes." Yet, on page 28, the Resources Management Plan, which includes inventorying and monitoring, is characterized as one of the "IMPLEMENTATION PLANS TO FOLLOW THIS GENERAL MANAGEMENT PLAN." Moving to Appendix B, where the work is scheduled and funded, the Resources Management Plan is not scheduled and not funded. The Purpose and Needs section indicates that Isle Royale National Park needs a new resource management plan, which will utilize inventorying and monitoring data to help make decisions, however this document does not indicate how that will occur.

Adaptive management of natural resources is being advocated by many land and resources management agencies. Inventorying and monitoring are important components of adaptive management and Isle Royale should be commended for the commitment to inventorying and monitoring under the proposed action as noted in Appendix B. Careful consideration of parameters to be measured during inventorying and monitoring, and consideration of how those data will be used in future adaptive management decision-making, are prerequisite to actual data collection. For these reasons, a draft resource management plan would be very useful in the overall design of a comprehensive inventory and monitoring program. If this path were followed, the scheduling of some of the

inventories may well have been different, and the funding and scheduling of the resource management would have been clearer.

Funds for the inventory and monitoring of Lake Superior fisheries could be sought from other sources, especially since these are potentially commercially viable fisheries and at least, important recreational game fisheries. Federal, state, and NGO funds may well be found for the development of the fishery. This would preserve National Park Service (NPS) funds for inventory and monitoring activities on Isle Royale. This matter should be further addressed in the forthcoming Final Environmental Impact Statement (FEIS).

Mollusks and snails should be added to the list of taxa in need of inventory. Information for the State of Michigan indicates that Isle Royale lacks these inventories.

Wilderness areas or Potential Wilderness additions should not be compromised by NPS actions. The DEIS states that Potential Wilderness additions will be managed like Wilderness. In this regard it is not clear that ferry landings, shelters, docks and campgrounds, as proposed for the "Frontcountry Zone", "Wilderness Portal Zone" and "Backcountry Zone" are in keeping with the management of Wilderness.

A large part of the unique Wilderness experience that could be provided by Isle Royale, as an island Wilderness, could include the Wilderness shoreline looking out on waters also in Wilderness condition. None of the alternatives described in the DEIS however, provide a shoreline that looks out on Lake Superior open waters without motorized boats. The most protective alternative would have most of the Isle Royale Wilderness surrounded by non-motorized waters. This alternative does not seem to have been considered. Less protective alternatives would also benefit from substantial portions of Wilderness shoreline buffered by non-motorized boating restrictions and were also not considered.

Similarly, ferry boat routes could be moved further offshore from some shorelines; perhaps, moved out of the channels between the main island and the offshore islands. These alternatives were also not considered in the DEIS.

Motorboat engine technology has advanced in recent years, resulting in much cleaner and quieter engines. Engines using old technology are frequently a source of considerable water, air and noise pollution. The opportunity to require the newer technology engines, especially in "motorized sensitive waters" was not included in any alternative.

The need for diesel fuel transportation and storage (and potential spillage) could possibly be reduced by provision of solar generated electricity. The present storage and transmission infrastructure for diesel and other fuels appears to be somewhat fragile. The provision of diesel fuel, gasoline and pumpout stations for public use increases the potential of water pollution while further encouraging uses of the Isle Royale Wilderness that is perhaps not in keeping with the intent of the Wilderness designation by Congress. A combination of reducing the need for improving and storing diesel fuel and gasoline, and upgrading the infrastructure would make an alternative more protective of the environment.

Composting toilets could be considered in all new development.

Ninety-nine percent of Isle Royale is Wilderness (p.8), as designated by Congress. The major threats to Isle Royale are from development of non-Wilderness amenities, motorized boating and the support of these non-Wilderness activities by supplying diesel fuel, gasoline, docks, pumping stations, etc. This is a difficult balancing act for the managers of Isle Royale, however, encouraging the primary stresses to the Isle Royale Wilderness may not be in the long-term best interest of Wilderness management of the island.

Clarifications needed:

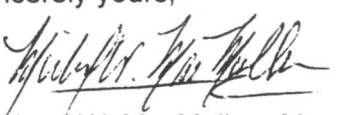
Are any motorized vehicles permitted on inland waters?

"There is also the potential for short-term water pollution due to spills of toxic materials around Lake Superior and inside park boundaries." (Page 5.) Spills of what and where?

Based upon our review and the comments set forth above, we have assigned an "EC-2" rating to the DEIS. The "EC" portion of the rating indicates that EPA has environmental concerns. The "2" portion of the rating indicates that additional information should be provided with the forthcoming FEIS. Our concerns will be resolved if the requested information is provided, as related to (1) the development of the resource management plan and its relation to the purpose and need statement, and inventory and monitoring; (2) Wilderness management in relation to structures in the various management zones; and (3) non-motorized zones along Wilderness shorelines.

We appreciate the opportunity to review the Isle Royale DEIS. If you have any questions on our comments please contact Dr. John Schneider, of my staff, at 312.886.0880 or by E-mail at schneider.john@epamail.epa.gov.

Sincerely yours,



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

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