1.0 PURPOSE AND NEED

1.1 INTRODUCTION

The National Park Service (NPS) proposes an extension and improvements to the dock facilities providing boat access to South Manitou Island (SMI) in Sleeping Bear Dunes National Lakeshore (National Lakeshore). This EA identifies the no action alternative (current management), one action alternative, and their impacts on the environment. This document was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR §1508.9), and the NPS Director's Order (DO)-12 (*Conservation Planning, Environmental Impact Analysis, and Decision-Making*).

The NPS mission for the National Lakeshore is "to preserve the outstanding natural features along 65 miles of Lake Michigan shoreline, in order to perpetuate the natural setting for the benefit and enjoyment of the public, and to protect the natural and historic features from developments and inappropriate uses that would destroy their scenic, scientific, historic, and recreational value" (NPS 2005).

The 1982 amendment to the National Lakeshore's enabling legislation directs that areas proposed for wilderness in the 1981 recommendation be managed maintain their wilderness character 'until Congress determines otherwise.' Consistent with that legislation, the majority of SMI is managed as wilderness including all of the island's shoreline except for one segment of shoreline (less than one mile long) located at the southeast point of SMI bay. The interior of SMI also includes non-wilderness areas managed for 'experience history' and 'recreational' purposes. Most visitors to SMI arrive by a concessioner operated ferry. Day use visitors using the ferry arrive and depart on the same ferry after spending a few hours on the island. The General Management Plan for the National Lakeshore (NPS 2008) determined that ferry service for day and overnight stays on SMI would continue.

The current SMI boat dock is located outside of wilderness on the southeast shore of SMI bay, a crescent shaped bay that provides protection from the prevailing winds (from northwest, west, southwest). At this location, the dock is subject to what would be considered unsafe wave heights (greater than two feet) for boat operations approximately five to ten days during in a 12 month period.

This location is also a convenient access point to island resources for the visiting public and NPS staff. From the dock, visitors have a short walk to the lighthouse built in 1871, a U.S. Life-Saving Service and Coast Guard station that is now a ranger station, and several 19th century farm buildings all located within a National Register Historic District. A limited road system, serving the island's interior, extends out from the dock. The island's many trails also begin from the dock landing and allow overnight visitors a scenic hike to the high perched dunes overlooking the island's western shore, a natural inland lake (Florence Lake), three designated backcountry campgrounds, and numerous other natural features.

While the current boat dock location is sheltered from prevailing winds, it also lies in shallow water along the shoreface of the beach in an area subject to sediment accumulation. Eventually, this buildup of sediment forms a sandbar beneath the boat dock that extends out into open water, blocking access to the dock. The boat dock was renovated in 1984 but during the following years, boat access to the dock was hindered by lake sand sedimentation (NPS 1991). It is estimated that the general rate of accretion of shoreline is one foot every three years.

NPS personnel perform periodic dredging of the area around the dock. With the location of the dock in shallow water, dredging the sand and sediment from under and around the dock continues to be a requirement for NPS staff to keep SMI accessible. This influences the time and workload of the National Lakeshore personnel and the financial obligations of National Lakeshore. Until 1991, when the upland disposal site reached capacity, dredge spoil was disposed of on the island at an upland site that was not

designated as a wilderness area. Since 1991, annual dredging operations have continued with disposal of the dredge spoil using a beach nourishment program to fortify sections of the SMI shoreline reduced by erosion.

During the initial planning stages of the project, particular objectives were identified as requirements for successful project completion:

- provide visitors and staff safe and convenient access to SMI resources,
- reduce or eliminate NPS staff dredging maintenance costs and work/time-use,
- eliminate potential need for large quantity contracted dredging,
- minimize the need to modify other SMI facilities (roads, trails), and
- is located outside of designated wilderness.

1.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the SMI boat dock improvement project is to provide visitors and staff a safe and convenient access point to the resources of SMI that reduces or eliminates the need for frequent dredging operations.

A deep water dock facility is needed to provide boat access to SMI.

1.3 DESCRIPTION OF THE PARK

In 1970 U.S. Congress decreed the National Lakeshore as part of the national park system through Public Law 91-479, stating that "Congress finds that certain outstanding natural features, including forests, beaches, dune formations, and ancient glacial phenomena, exist along the mainland shore of Lake Michigan and on certain nearby islands in Benzie and Leelanau Counties, Michigan…for the benefit, inspiration, education, recreation, and enjoyment of the public." The National Lakeshore is located along the northwest coastline of Michigan's Lower Peninsula, approximately 25 miles west of Traverse City, and also includes both North Manitou Island and SMI. In addition to the large perched dunes for which the National Lakeshore is named and the other natural features throughout the park, there are numerous historical and cultural features, including Glen Haven Village, three U.S. Life-Saving Service and Coast Guard stations, and Port Oneida, which is a historic farm district.

1.4 DESCRIPTION OF THE PROJECT AREA

SMI is one of two Lake Michigan islands that are included in the National Lakeshore. SMI is comprised of approximately 5,000 acres of varying habitats, including beaches, beach dunes, perched dunes, glacial moraines, a small inland lake (Florence Lake), swamps and bogs, open grasslands from previous agricultural fields, and several northern hardwood and conifer forested areas (NPS 2006). A 500 year old grove of virgin white cedar trees grows on the southwest corner of the island (NPS 2011). SMI boasts several historic and cultural features as well. These include a lighthouse built in 1871, a U.S. Life-Saving Service and Coast Guard station, and several farm buildings and remnants of former island settlements. There are also several shipwreck sites managed by the State around and near South Manitou Island (NPS 2011).

The boat dock on SMI is used by NPS boats, private boats and a commercial ferry service from Leland Michigan, which provides access for visitors to the island (NPS 2011). It is located on the eastern side of the island on the southeast shore of South Manitou Bay and is approximately 16 miles west of Leland, Michigan, and eight miles north of the nearest mainland point. When the NPS renovated and extended the dock in 1984, it was constructed mainly of wood pilings with steel connectors. The pilings were driven into the nearshore sandy lake bottom for the dock's structural support.

Two alternatives (A and B) have been selected for this proposal and will be discussed more thoroughly in Section 2.0. Alternative A is the No-Action alternative. The project area/area of potential effect (APE) for the No-Action alternative is defined as the boat dock and the beach nourishment/dredge disposal area. Alternative B is the proposed extension of the boat dock into deeper, offshore water, with the project area/APE for Alternative B defined as the boat dock and the aquatic environment immediately adjacent to the dock. Construction staging will utilize a barge and not be land based. Consequently, Alternative B does not entail disturbance of land-side vegetation communities.

Landward of the project area is a small, bare beach area, kept free of vegetation by wave action. Adjoining this bare beach is a large upper beach and foredune area, approximately 50 feet in width that is populated by a few pioneer vegetation species, including Pitcher's thistle (*Cirsium pitcheri*) and Marram grass (*Ammophila breviligulata*). Behind the foredune is a trough, separating the foredune from a backdune. Pitcher's thistle is also found in the trough and in some sand blowouts in the backdune, while more complex vegetation populates most of the established and stable backdune (NPS 2006). There is no vascular aquatic vegetation in the open water environment under and around the dock. No terrestrial or vascular aquatic vegetation exists within the APE.

1.5 PLANNING CONTEXT

The National Lakeshore *Final General Management Plan/Wilderness Study/Environmental Impact Statement* (GMP) (NPS 2009) provides long term guidelines for managing the National Lakeshore that are consistent with the directives set forth by the U.S. Congress and the NPS mission. The proposed extension of the SMI boat dock coincides with the NPS's commitment to protecting the natural and historic features of the National Lakeshore while providing safe, enjoyable recreational and educational opportunities to the public. For determining how to appropriately manage the many differing environments and resources found at the National Lakeshore, the GMP separates areas within the National Lakeshore into several management zones depending upon various factors, including public use, natural resource conditions, and natural, historic, and educational opportunities. The dock extension project area is designated as a "High Use" zone, which allows for modifications to the natural environment to accommodate NPS operational facilities and support high numbers of visitors (NPS 2008).

1.6 SCOPING

Scoping is a process to identify the resources that may be affected by a project proposal, and to explore possible alternative ways of achieving the proposal while minimizing adverse impacts. The National Lakeshore initiated the scoping process for this project by engaging appropriate state and federal agencies to identify potential issues of concern. Representative local entities were also contacted about the proposed project including the harbor master at Leland, Michigan.

Information obtained through the scoping process was integrated into the planning process and is reflected in this EA. More information regarding external scoping and Native American consultation can be found in Chapter 5, *Consultation and Coordination*.

1.7 ISSUES

Issues related to the proposed renovation and extension of the boat dock at SMI were identified and are summarized below:

- Commitment of resources (NPS budget) related to annual dredging of lake sand sedimentation from under and around the dock,
- Commitment of NPS staff workload and time-use involved with the annual dredging at and near the boat dock,
- Maintaining access to island facilities and resources for visitors and staff,

- Expected heavy visitor use from daily commercial ferry, private boat, and NPS staff boat traffic, and
- Safety of visitors and staff in ferry/boats encountering shallow water due to accumulation of lake sand sedimentation around dock.

1.8 IMPACT TOPICS

In this section and the following section on *Impact Topics Dismissed from Further Analysis*, the NPS takes a "hard look" at all potential impacts by considering the direct, indirect, and cumulative effects of the proposed action on the environment, along with connected and cumulative actions. Impacts are described in terms of context and duration. The context or extent of the impact is described as localized or widespread. The duration of impacts is described as short-term, ranging from days to three years in duration, or long-term, extending up to 20 years or longer. The intensity and type of impact is described as negligible, minor, moderate, or major, and as beneficial or adverse. The NPS equates "major" effects as "significant" effects. The identification of "major" effects would trigger the need for an environmental impact statement (EIS). Where the intensity of an impact could be described quantitatively, the numerical data is presented; however, most impact analyses are qualitative and use best professional judgment in making the assessment.

The NPS defines "measurable" impacts as moderate or greater effects. It equates "no measurable effects" as minor or less effects. "No measurable effect" is used by the NPS in determining if a categorical exclusion applies or if impact topics may be dismissed from further evaluation in an EA or EIS. The use of "no measurable effects" in this EA pertains to whether the NPS dismisses an impact topic from further detailed evaluation in the EA. The reason the NPS uses "no measurable effects" to determine whether impact topics are dismissed from further evaluation is to concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail in accordance with CEQ regulations at 1500.1(b).

In this section of the EA, NPS provides a limited evaluation and explanation as to why some impact topics are not evaluated in more detail. Impact topics are dismissed from further evaluation in this EA if:

- they do not exist in the analysis area,
- they would not be affected by the proposal, or the likelihood of impacts are not reasonably expected, or
- through the application of mitigation measures, there would be minor or less effects (i.e. no measurable effects) from the proposal, and there is little controversy on the subject or reasons to otherwise include the topic.

Due to there being no effect or no measurable effects, there would either be no contribution towards cumulative effects or the contribution would be low. For each issue or topic presented below, if the resource is found in the analysis area or the issue is applicable to the proposal, then a limited analysis of direct and indirect, and cumulative effects is presented. There is no impairment analysis included in the limited evaluations for the dismissed topics because the NPS's threshold for considering whether there could be an impairment is based on "major" effects.

1.8.1 Impact Topics Selected For Detailed Analysis

Impact topics for this project have been identified on the basis of federal laws, regulations, and orders; *Management Policies* (2006); and NPS knowledge of resources at the National Lakeshore. Impact topics that are carried forward for further analysis in this EA are listed below along with the reasons why the impact topic is further analyzed. For each of these topics, the following text also describes the existing setting or baseline conditions (i.e. affected environment) within the project area. This information will be

used to analyze impacts against the current conditions of the project area in the *Environmental Consequences* chapter.

Water Resources

NPS policies require protection of water quality consistent with the Clean Water Act. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To enact this goal, the U.S. Army Corps of Engineers (USACE) has been charged with evaluating federal actions that result in potential degradation of waters of the United States and issuing permits for actions consistent with the Clean Water Act. The U.S. Environmental Protection Agency (USEPA) also has responsibility for oversight and review of permits and actions, which affect waters of the United States. In Michigan, these permits are administered jointly by the USACE and the Michigan Department of Environmental Quality (MDEQ).

Lake Michigan is the fifth largest fresh water lake in the world and the second largest of the Great Lakes by surface area. The USEPA and Michigan Department of Natural Resources (MDNR) report that there are advisories for fish consumption for fish from Lake Michigan, as well as noted impairment for public water supply use from Lake Michigan. The drinking water supply for the island, however, relies on two groundwater wells approximately 85 feet deep and an associated distribution system.

The primary concern regarding the water resource regards the waters of Lake Michigan in the littoral zone in the area where dock construction activities will take place. Low volume (less than 2,300 cubic yards) maintenance dredging is currently performed by NPS personnel to allow full use of the existing dock segments. The NPS currently has a joint agency dredging permit which is required from the USACE/MDEQ. This permit authorizes periodic dredging to maintain dock access. The current permit requires disposal of dredged material at a depth of 0-4 feet below the waterline and expires May 7, 2015.

The No Action alternative involves considerations of the water resource which may potentially impact water quality and biota of Lake Michigan and the littoral zone and will require that the NPS periodically renew their dredging permit previously mentioned. Under the No-Action alternative, dredging would be performed on a periodic and possibly commercial basis to support on-going ferry operations. Consequently, the Water Resources topic is carried forward for further consideration.

Aquatic Ecology

The primary concern regarding the aquatic ecology of the study area is that the littoral zone is where dock construction, dredging, and dredge disposal activities will take place. The no action alternative involves hydraulic dredging, and thus requires the NPS maintain/update their joint agency permit from the USACE and MDNR. Consequently, the aquatic ecology topic is carried forward for further consideration.

Cultural Resources

Cultural Landscapes and Historic Structures

According to the NPS's DO-28 *Cultural Resource Management Guideline*, a cultural landscape is a reflection of human adaptation and use of natural resources, and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built.

The project area at SMI is situated in close proximity to the SMI Lighthouse Complex and Life-saving Station Historical District. This District is included on the National Register of Historic Places (nominated in 1983) and consists of three primary elements: the Lighthouse Complex, the U.S. Life-Saving Station, and Associated Residences. The U.S. Life-Saving Station is located nearest the project area and covers an area of approximately 7.2 acres. It includes the main house, an oil shed, the boathouse, three sheds, the tower/flagpole, the flammable storage shed, and the concrete and chain fence. The

foundation of a lookout station located immediately southeast of the lighthouse is also included. The oldest portion of the boat dock is a reconstruction and is not included on the National Register and is not listed on the NPS List of Classified Structures.

The boundary of the historical district includes the area immediately surrounding the structures, the old boat dock, and the beach area between the structures and Lake Michigan. The 1984 addition to the old portion of the boat dock is not within the boundary of the historic district. The beach area is included because the focus of the lighthouse and lifesaving personnel was toward the water. The project will not disturb any historic structures. Additionally, since the proposed project will be an extension of the existing dock and of similar construction, the effect of the project on cultural landscapes and historic structures is expected to be negligible. However, the construction of the dock extension represents an alteration of the visual landscape by virtue of its addition to the existing cultural context. Although these effects are minor or less in degree and would not result in any unacceptable impacts, this topic has been retained for further analysis in this document.

Special Status Species

The Endangered Species Act (1973) requires an examination of potential impacts of proposed NPS activities on all federally-listed threatened or endangered species and designated critical habitat. NPS policy also requires examination of potential impacts on state-listed threatened, endangered, candidate, rare, declining, and sensitive species that are known collectively as species of concern.

The NPS must conference or informally consult with the USFWS and/or National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act to (1) clarify whether and what listed, proposed, and candidate species or designated or proposed critical habitats may be in the project area; (2) determine what effect proposed actions may have on these species or critical habitats; and (3) determine the need to enter into formal consultation for listed species or designated critical habitats, or conference for proposed species or proposed critical habitats.

Four federally-listed species and 37 state-listed species are recorded in Leelanau County, Michigan. Because the project would be constructed from the water only, most of these species, including those found in the foredune area of SMI, have been dismissed due to a lack of appropriate habitat in the project area.

Other species evaluated in Chapters 3 and 4 include the lake herring (*Coregonus artedi*), piping plover (*Charadrius melodus*), trumpeter swan (*Cygnus buccinator*), Common Loon (*Gavia immer*), and bald eagle (*Haliaeetus leucocephalus*).

Park Operations

Extension of the existing boat dock at SMI would provide for improved access to the island and would minimize the potential need for on-going dredging operations, which are provided in part by NPS personnel. Reduced dredging would effectively reduce financial commitments of the NPS and would allow for the use of these funds to support other needs at the National Lakeshore, thereby affecting the staff and how/where they conduct their work. For these reasons, the topic of park operations has been carried forward for further analysis in this document.

Visitor Use and Experience

According to the National Lakeshore, visitor records from 2008 through 2010, the average annual number of ferry passengers for SMI was 6,810. The average annual number of private boats visiting SMI for the same period was 518. The average annual number of day use and backcountry use for the same period was 3,592 and 5,925 respectively. Visitation to SMI is heaviest during July and August. Construction and dredging operations both add temporary visual and sound components to a location where visitors typically experience few such intrusions. Because ferry use is the primary means to access SMI for

visitor use and because of the visual and sound aspects of construction and dredging operations, the Visitor Use and Experience topic has been carried forward for further analysis in this document.

1.8.2 Impact Topics Dismissed From Detailed Analysis

Topography, Geology, and Soils

According to the NPS's *Management Policies* (2006), the NPS will preserve and protect geologic resources and features from adverse effects of human activity, while allowing natural processes to continue (NPS 2006). These policies also state that the NPS will strive to understand and preserve the soil resources of park units and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources.

SMI was formed by glacial deposits which overlay Devonian limestone. On SMI, an embayment forms the eastern half of the island. To the west the embayment gives way to interlobate moraines and morainal segments, perched dunes and morainal plateaus. The western fringe of the island is marked by shoreline bluffs. There is one inland lake on SMI, Lake Florence (Resource Information Base, NPS, 1979). Soils throughout National Lakeshore are sandy and well drained. Soils in the immediate area of the boat docks consist of lake beach sand and cobbles. The substrate beneath the boat dock consists of fine grained lake beach sand.

Given that there are no significant topographic or geologic features in the project area, and that the area has been previously disturbed by dock construction and dredging, the alternatives under consideration (including No Action) would result in negligible to minor and temporary adverse effects to topography, geology, and soils. Further, such minor or negligible impacts would not result in any unacceptable impacts. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Terrestrial Resources

Vegetation

According to the NPS's *Management Policies* (2006), the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of native plant communities (NPS 2006). Beaches and sand dunes, prevalent throughout the National Lakeshore and on SMI, present harsh growing conditions characterized by strong winds, shifting sand, seasonally high surface temperatures, and dry conditions.

No vascular plants grow on the beach proper because of high waves, ice, and moving sand. The first dunes behind the beach support some pioneer plants, including beach or Marram grass (*Ammophila breviligulata*), Pitcher's thistle (*Cirsium pitcheri*), sand cherry (*Prunus pumila*), and beach pea (*Lathyrus japonicus*). Further land-ward in more stabilized areas of the dunes, grass, forb, and shrub species such as little bluestem (*Schizachyrium scoparium*), hoary puccoon (*Lithospermum canescens*), and creeping juniper (*Juniperus horizontalis*) become established (NPS 2005a, MNFI 2006a). Woodland communities are established further inland.

The proposed dock extension would be located immediately adjacent to the existing dock facility in open water where terrestrial vegetation is lacking. Furthermore, no vascular aquatic vegetation exists within the project area on SMI in the vicinity of the boat dock. Similarly, under the No Action alternative, continued maintenance dredging would be limited to actions within the aquatic environment (including disposal) and would not disrupt terrestrial vegetation communities. As such, a statement of findings for vegetation will not be prepared. Further, there would be no unacceptable impacts to vegetation. Because there are no vegetative communities in the project area and because there would be no unacceptable impacts, this topic is dismissed from further analysis in this document.

Wildlife

According to the NPS's *Management Policies* (2006), the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of wildlife (NPS 2006). SMI supports fewer wildlife species when compared to nearby mainland areas of the National Lakeshore.

The proposed dock extension would be located immediately adjacent to the existing dock facility in an area that is dredged regularly to remove sand sedimentation. The presence of humans, ferry traffic, routine maintenance dredging, and the specific project location in open water has limited much of the native wildlife in the project area. Wildlife potentially occurring within the project area at the time of construction includes painted turtles, ring-billed gulls, herring gulls, double-crested cormorants, and various waterfowl common to Lake Michigan nearshore areas. Such wildlife would be temporarily displaced during construction of the new dock extension but the proposed project would eliminate the disturbance and temporary displacement of wildlife associated with ongoing routine maintenance dredging operations. Construction activities would result in negligible to minor adverse effects as activities would be conducted from a barge platform and be short in duration.

During construction, noise would also increase, which may disturb wildlife in the general area. Construction-related noise would be short term, temporary, and baseline sound conditions would resume following construction activities. Therefore, the short term, temporary noise from construction would have a negligible to minor adverse effect on wildlife.

In a similar manner, activities performed in conjunction with continued maintenance dredging under the No Action alternative would result in negligible impacts to wildlife. Intermittent activities associated with this action would be limited to the aquatic environment and would not be expected to disrupt wildlife use.

The minor or negligible impacts described above would not result in any unacceptable impacts for either alternative under consideration. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Wetlands

Executive Order 11990 *Protection of Wetlands* requires federal agencies to avoid, where possible, adverse impacts to wetlands. NPS policies for wetlands as stated in *Management Policies* (2006) and DO 77-1 *Wetlands Protection* strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Furthermore, §404 of the Clean Water Act authorizes the USACE to prohibit or regulate, through a permitting process, discharge or dredged or fill material or excavation within waters of the United States.

In accordance with DO 77-1 *Wetlands Protection*, proposed actions that have the potential to adversely impact wetlands must be addressed in a statement of findings for wetlands. For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." Under the Clean Water Act wetland definition, wetlands are not present because the project area is located in open water areas that lack hydrophytic vegetation.

For the purposes of determining if a NPS statement of findings for wetlands is needed, NPS guidance also directs that the Cowardin wetland definition be followed for naturally un-vegetated or non-soil sites such as wave-active shorelines. The Cowardin wetland definition encompasses more aquatic habitat types than

the definition and delineation manual used by the Corps of Engineers for indentifying wetlands subject to Section 404 of the Clean Water Act.

Under the Cowardin definition, the Lacustrine System includes permanently flooded lakes such as Lake Michigan. Subsystems include littoral (all wetland habitats in the Lacustrine System) and limnetic (all deepwater habitats). Because the project work being considered is entirely water based and does not involve any work on land, any wetland area of concern would have to be under water and would be bounded by the point where deepwater habitat begins. In general, the lower limits of a lacustrine wetland fall between lacustrine littoral and lacustrine limnetic (deepwater habitat) zones where the water depth reaches 2 meters (or 6.6 feet) at low water. Due to continued sand deposition the current dock ell and the starting point of any extension stands at point where the water depth is less than 6.6 feet deep when measured prior to yearly dredging operations.

DO 77-1 further provides for exceptions to the NPS requirement for a wetland statement of findings. Actions that may be excepted include docks with a wetland impact of less than 0.1 acre. These must also meet certain NPS best management practices (Appendix 2 of DO 77-1). The total, above water area of dock (existing and proposed expansion) is less than 0.09 of an acre. The actual area of land potentially disturbed on a long term basis would be further limited to the area of the points where pilings are driven. With the proposed construction activities being barge based and the mitigation measures detailed in section 2.2, the action alternative being considered would meet the NPS best management practices detailed in DO 77-1. With the dock under both the action and no action alternatives impacting a total area of than 0.1 acre, neither alternative under consideration would require the preparation of a wetland statement of fact. As a result this topic is dismissed from further analysis in this document.

Floodplains

Executive Order 11988 *Floodplain Management* requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. Under the 2006 *Management Policies* (2006) and DO 77-2 *Floodplain Management*, the NPS will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to DO 77-2 *Floodplain Management*, certain construction within a 100-year floodplain requires preparation of a statement of findings for floodplains.

The project activities associated with both the proposed dock extension and the No Action alternative is located within the ordinary high water line of Lake Michigan and is not within a 100-year floodplain; therefore, a statement of findings for floodplains will not be prepared. Further, there would be no unacceptable impacts to floodplains. Because there are no floodplains in the project area, and thus there would be no unacceptable impacts, this topic is dismissed from further analysis in this document.

Air Quality

The Clean Air Act of 1963 (42 USC 7401 et seq.) was established to promote the public health and welfare by protecting and enhancing the nation's air quality. The act establishes specific programs that provide special protection for air resources and air quality related values associated with NPS units. Section 118 of the Clean Air Act requires a park unit to meet all federal, state, and local air pollution standards. The National Lakeshore is designated as a Class II air quality area under the Clean Air Act. A Class II designation indicates the maximum allowable increase in concentrations of pollutants over baseline concentrations of sulfur dioxide and particulate matter as specified in §163 of the Clean Air Act. Further, the Clean Air Act provides that the federal land manager has an affirmative responsibility to protect air quality related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse pollution impacts (EPA 2000).

Baseline air quality studies were conducted in the National Lakeshore during 1987 and 1988 with indications that air was of very good quality. Examination of sulfur dioxide-sensitive lichens in the

National Lakeshore revealed very little impact from this pollutant. White pine needles showed the least damage due to air pollution of all parks tested in Michigan. The area has only light industry, and as a result has extremely good visibility most of the time. Fog from Lake Michigan is the only occasional hindrance to good visibility at the National Lakeshore (NPS 2005a.).

Construction activities such as barge and dredge operations could result in temporary increases of vehicle exhaust, emissions, and fugitive dust in the general project area. Any exhaust, emissions, and fugitive dust generated from construction activities would be temporary and localized and would likely dissipate rapidly because air stagnation at the National Lakeshore is rare. Similarly, under the No Action alternative minor intermittent increases in emissions may be expected in conjunction with maintenance dredging activities.

Overall, the project is expected to result in additional air emissions for either alternative under consideration. However, this effect is not expected to cause a degradation of local air quality, as emissions would be negligible, and temporary. The Class II air quality designation for the National Lakeshore would not be affected by the proposal. Further, because the Class II air quality would not be affected, there would be no unacceptable impacts Further, the maximum allowable concentrations of Class II pollutants would not be exceeded.

Soundscape Management

In accordance with *Management Policies* (2006) and DO-47 *Sound Preservation and Noise Management*, an important component of the NPS's mission is the preservation of natural soundscapes associated with national park units (NPS 2006). Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among NPS units as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The proposed location for the dock and all construction activity would occur in what can be considered a high activity zone of the National Lakeshore. Existing sounds in this area are most often generated from on-going ferry boat docking activities, vehicular traffic (visitors and employees entering/leaving SMI), people, some wildlife such as birds, and wind. Sound generated by the construction of the proposed dock extension may include those associated with work barge and dredge operations, pile-driving, other small construction tools, and the associated workforce. Because the area already contains man-made noises, the short-term generation of noise during the construction phase is not expected to appreciably increase the noise levels in the general area. During operation, long-term noise emissions from the project area may be expected to incrementally decrease, as the proposed action would result in a reduced need for maintenance dredging (and its associated noise generation).

Similarly, under the No Action alternative minor intermittent increases in noise emissions may be expected in conjunction with maintenance dredging activities.

Such negligible or minor impacts (long-term and short-term) would not result in any unacceptable impacts for either the No Action alternative or the proposed dock extension. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Lightscape Management

In accordance with *Management Policies* (2006), the NPS strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human caused light (NPS 2006). The National Lakeshore strives to limit the use of artificial outdoor lighting to that which is necessary for basic safety requirements. The site also strives to ensure that all outdoor lighting is shielded to the maximum extent possible, to keep light on the intended subject and out of the night sky. In the vicinity of the project area at SMI, the primary sources of light include two light poles associated with the existing boat dock facility.

The proposed action will result in the extension of the boat dock and would require the addition of up to two light poles. However, as with the existing light poles, all new lights will be equipped with appropriate shielding mechanisms to reduce fugitive light. The amount and extent of exterior lighting on the extended boat dock would have negligible effects on the existing outside lighting or natural night sky of the area.

Under the No Action alternative no increase in light emissions are expected as maintenance dredging activities would be conducted during daylight hours

.

Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Socioeconomics

The proposed action would neither change local and regional land use nor appreciably impact local businesses or other agencies. Implementation of the proposed action could provide a negligible beneficial impact to the economies of nearby communities due to minimal increases in employment opportunities for the construction workforce and revenues for local businesses and governments generated from these additional construction activities and workers.

Under the No Action alternative intermittent maintenance dredging would either be conducted by NPS staff or under contract as conditions may dictate. In either case these activities are not expected to result in significant socioeconomic impacts.

Any increase in workforce and revenue associated with either alternative under consideration, however, would be temporary and negligible, lasting only as long as construction. Because the impacts to the socioeconomic environment would be negligible, this topic is dismissed.

Prime and Unique Farmlands

The Farmland Protection Policy Act of 1981, as amended, requires federal agencies to consider adverse effects to prime and unique farmlands that would result in the conversion of these lands to non-agricultural uses. Prime or unique farmland is classified by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. Because the project area is located in open water areas in the nearshore habitat of Lake Michigan, prime and unique farmlands are not present. Because there would be no effects on prime and unique farmlands, this topic is dismissed from further analysis in this document.

Cultural Resources

Archaeological Resources

In addition to the National Historic Preservation Act and the NPS *Management Policies* (2006), the NPS's DO-28B *Archeology* affirms a long-term commitment to the appropriate investigation, documentation, preservation, interpretation, and protection of archeological resources inside units of the National Park System. As one of the principal stewards of America's heritage, the NPS is charged with

the preservation of the commemorative, educational, scientific, and traditional cultural values of archeological resources for the benefit and enjoyment of present and future generations. Archeological resources are nonrenewable and irreplaceable, so it is important that all management decisions and activities throughout the National Park System reflect a commitment to the conservation of archeological resources as elements of our national heritage.

The proposed extension of the existing boat dock at SMI is an activity that is entirely water-based with no land-based activity. As described in Section 2.1.2, the construction of this facility will consist of some limited dredging followed by construction of the new dock facility from a work barge. The near-shore environments in the immediate project area are characterized by substrates that are disturbed and moved by lake currents and storm events. While several historically and archeologically conserved shipwrecks are located in the waters around SMI, no known and preserved sites are within the vicinity of the dock facility. Additionally, ongoing dredging activities conducted to support the existing dock have not resulted in the discovery of any subsurface archaeological remains (e.g. shipwrecks, etc.). Therefore, the proposed project area is not expected to contain archeological deposits; however, appropriate steps would be taken to protect any archeological resources that are inadvertently discovered during construction.

Because the project alternatives under consideration (including the No Action alternative) will not disturb any known archeological sites, the affect of the project on archeological resources is expected to be negligible. Further, such negligible impacts would not result in any unacceptable impacts. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Ethnographic Resources

NPS's DO-28 *Cultural Resource Management* defines ethnographic resources as any site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. According to DO-28 and Executive Order 13007 on sacred sites, the NPS should try to preserve and protect ethnographic resources.

The NPS recognizes that ethnographic studies are needed to formally identify groups of people with traditional associations to park lands and waters (NPS 2008). Although no groups have been formally identified yet, several American Indian tribes were consulted about ethnographic resources and tribal concerns related to actions that might be proposed within the Sleeping Bear Dunes General Management Plan. No sacred sites were identified. A Consent Decree on *the U.S. v. Michigan 1836 Inland Treaty Rights* case was signed in November 2007. The Consent Decree recognizes a treaty-retained right for tribal members to engage in certain hunting, fishing, and gathering activities in the ceded territory (including the National Lakeshore). The five Michigan Indian tribes involved in the Consent Decree are the Bay Mills Indian Community, the Sault Ste. Marie Tribe of Chippewa Indians, the Little Traverse Bay Bands of Odawa Indians, the Grand Traverse Band of Ottawa and Chippewa Indians, and the Little River Band of Ottawa Indians.

It is likely that other ethnographic resources exist in the National Lakeshore. National Lakeshore will conduct ethnographic studies when funding becomes available. Until such studies are conducted, there is insufficient information upon which to analyze ethnographic resources.

As no sacred sites have been identified; given the limited scope of the alternatives under consideration (including the No Action alternative), and because access to South Manitou Island would be perpetuated for any group traditionally associated with South Manitou Island, impacts to potential ethnographic resources are considered to be negligible. Because these effects are negligible in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Museum Collections
The NPS's *Management Policies* (2006) and DO-28 *Cultural Resource Management Guideline* (1998) require the consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript material). Because the park's museum collections would be unaffected by either of the alternatives, museum collections was dismissed as an impact topic.

Indian Trust Resources
Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by the Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources at the National Lakeshore. The lands comprising the National Lakeshore are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Because there are no Indian trust resources potentially affected by either alternative under consideration, this topic is dismissed from further analysis in this document.

Environmental Justice
Executive Order 12898 *General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* requires all 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 new dock extension would be available for use by all visitors regardless of race or income. Additionally, the construction workforces (or maintenance dredging workers) would not be hired based on their race or income. Neither of the alternatives under consideration would have disproportionate health or environmental effects on minorities or low-income populations or communities. Because there would be no disproportionate effects, this topic is dismissed from further analysis in this document.

Waste Management
Non-human solid waste generated on the island is removed from the island and disposed on the mainland. Waste generated during the dock extension activities, if this alternative is selected, will consist primarily of surplus material, wood scrap, and incidental container or packaging material. This material would be removed from the area and recycled or disposed accordingly on the mainland. In comparison, no significant generation of wastes is expected under the No Action alternative as the maintenance dredging activity does not generate construction waste materials.

Because these effects are minor or less in degree and would not result in any unacceptable impacts for either alternative under consideration, this topic is dismissed from further analysis in this document.

Energy Requirements and Conservation Potential
The implementing regulations of the NEPA require that energy requirements, natural or depletable resource requirements, and conservation potential be analyzed. Construction of the proposed dock extension is expected to require the use of fossil fuels to power the work barge and dredge. However, this additional energy use is expected to be more than offset by the reduced need for ongoing maintenance dredging. Any differences between the alternatives in terms of these factors would be localized and negligible. Therefore, this topic was dismissed from detailed analysis.

1.9 IMPAIRMENT OF PARK RESOURCES

The NPS has congressional authority to allow impacts within parks during management operations, but with the requirement by U.S. Congress through the Organic Act, that the management of the parks by the NPS "ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them" (NPS 2006). In its *Management Policies* (2006) the NPS requires that any decisions or operations with the potential for impacts be analyzed to determine the possibility of impairments to the park's resources or values. The NPS manager responsible for determining if an impact is an impairment to those resources and values must weigh several factors. These factors include the specific affected resources and values, the severity, duration, and timing of the impact(s), the direct and indirect effects of the impact(s), and the cumulative effects of the impact(s).

An impact to any resource or value within the park may or may not represent an impairment to that resource or value. The likelihood of an impact resulting in an impairment to a resource or value is increased in the event that the conservation of that resource or value is

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park,
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

Consistent with the NPS's *Guidance for Impairment Determinations in NPS NEPA Documents, November 9, 2011, a written non-impairment determination will be ultimately prepared for the selected action and appended to the Finding of No Significant Impact (FONSI).*

2.0 ALTERNATIVES

During September of 2009, an interdisciplinary team of NPS employees met for the purpose of developing project alternatives. This meeting resulted in the definition of project objectives as described in the *Purpose and Need*, and a list of alternatives that could potentially meet these objectives. One action alternative and the No-Action alternative are carried forward for further evaluation in this environmental assessment. A summary table comparing alternative components is presented at the end of this chapter.

2.1 ALTERNATIVES CARRIED FORWARD

2.1.1 Alternative A: No Action

Under this alternative, the proposed dock extension at SMI would not be constructed. The existing dock facility would continue to operate. Additionally, there would be a continued need for on-going maintenance dredging to support ferry operations. This dredging would be conducted as needed and would result in the removal of materials from the dock area and the disposal of such materials in nearshore aquatic habitats.

Because of increased sediment deposition currently present in the existing dock area, dredging by an outside contractor would likely still be required because the volume of sediment to be removed is beyond the National Lakeshore personnel removal capabilities. In addition, moving forward, the National Lakeshore personnel will still need to spend an estimated two weeks per year of two personnel working 12 hour days to try to maintain a depth which would allow ferry docking. Depending on lake level fluctuations and sediment deposition rate, additional contracted dredging services may be needed.

Should the No Action alternative be selected, the NPS would respond to future needs and conditions of existing dock and ferrying operations without major actions or changes in present course of action. Figure 2-1 represents a plan of the existing conditions and reflects the No Action alternative.

2.1.2 Alternative B – SMI Dock Extension

This alternative consists of extending the existing dock up to 100 feet further into the lake past the existing ell within the potential area of effect. Water depth along the dock extension is dependent upon the final dock configuration. If extended out 100 feet, the water depth at the end of the dock would be approximately 23 feet. At the point of connection to the existing dock, water depth is five feet (prior to yearly dredging). Under this alternative the existing ell would remain in place. The purpose of the dock extension is not to increase capacity to serve larger or more vessels but continue to accommodate current use.

Construction of this facility is expected to be completed in a 3 to 4 week timeframe. This expected construction duration forms the basis of impact analyses presented in Chapter 4. The area of potential effect ("APE") will consist of nearshore habitat (sandy substrate) on SMI in Lake Michigan and will include the existing public access dock and the water area immediately adjacent to the docks (approximate 140 feet by 115 feet) for construction of the dock extension (Figure 2-2). No construction materials will touch the land surface. All equipment and materials will be stored or used from a barge. The structure will be constructed out of wood and steel connectors. Wood pilings will be driven into the lake bottom to form the basis of the structure and would be of a similar type as the existing dock facility.

The following text further describes the components of Alternative B:

- **Dock Features** – Dock features will include courtesy lighting and light duty electrical outlets. Water will not be provided.
- **Use/Operation of the Facility** – The dock facility will be used primarily by the concessionaire who operates the ferry boats for the NPS. Their primary objective is to deliver visitors to SMI

and they operate from May through September. Other smaller boats operated by the NPS also use the dock to deliver NPS supplies and transport NPS personnel. Private boats may tie up briefly to the dock for boarding/off-loading and delivery.

- **Utilities** – Electricity is available at the dock to allow operation of lighting and provide limited access electrical outlets.
- **Access** – As previously mentioned, access is primarily for NPS regulated boat traffic, with some short term public access allowed for pickup and drop off only. The nearest mainland port relative to the SMI dock is in Leland, Michigan, approximately 16 miles away.
- **Construction Staging** – To implement this alternative, all necessary materials will be transported and staged/stored on work barges. Staging/storing materials on shore will not be necessary to implement this alternative.

2.2 MITIGATION MEASURES

The following mitigation measures were developed to minimize the degree and/or severity of adverse effects and would be implemented during construction of the action alternative, as needed:

- To reduce noise and emissions, construction equipment would not be permitted to idle for long periods of time.
- To minimize possible petrochemical leaks from construction equipment, the contractor would regularly monitor and check construction equipment to identify and repair any leaks. In addition, the contractor will be required to have staged at the work site appropriate spill kits to contain and clean up any petrochemical leak or spill.
- Construction workers and supervisors would be informed about special status species. Contract provisions would require the cessation of construction activities if a species were discovered in the project area, until park staff re-evaluates the project. This would allow modification of the contract for any protection measures determined necessary to protect the discovery.
- Should construction unearth previously undiscovered cultural resources, work would be stopped in the area of any discovery and the NPS would consult with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation, as necessary, according to §36 CFR 800.13, *Post Review Discoveries*. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.
- The construction contractor will be informed of the sensitive and historic nature of the site. NPS staff will monitor all moving activities to minimize potential damage to the historic dock.
- The NPS would ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging paleontological materials, archeological sites, or historic properties. Contractors and subcontractors would also be instructed on procedures to follow in case previously unknown paleontological or archeological resources are uncovered during construction.
- To minimize the potential for impacts to park visitors, variations on construction timing may be considered. The primary option includes conducting the majority of the work in the off-season (early spring) or shoulder seasons. Another option includes implementing daily construction activity curfews such as not operating construction equipment between the hours of 6 PM to 7 AM in summer (May through September). The NPS would determine this in consultation with the contractor.
- Construction workers and supervisors would be informed about the special sensitivity of the National Lakeshore values, regulations, and appropriate housekeeping.
- According to *Management Policies* (2006), the NPS would strive to construct facilities with sustainable designs and systems to minimize potential environmental impacts. Development would not compete with or dominate the National Lakeshore features, or interfere with natural processes, such as the seasonal migration of wildlife or spawning of fish. To the extent possible,

the design and management of facilities would emphasize environmental sensitivity in construction, use of nontoxic materials (wood pilings, in constant contact with water, would not be chemically treated), resource conservation, recycling, and integration of visitors with natural and cultural settings.

- Access for the passenger ferry service will be retained if construction activities occur when the ferry operates.

2.3 ALTERNATIVES CONSIDERED AND DISMISSED

2.3.1 Continued Use of Existing dock without Improvement or Continued Dredging.

Under this alternative, sediment would continue to accumulate in the area of the dock and soon block access to the dock facility. Without access to a dock facility, staff and visitors would either be prevented from visiting the island or access would be gained by 'grounding' small boats on the shoreline. This would both increase the safety risk to staff and visitors and introduce impacts to natural and cultural resources as a result of multiple groundings at multiple locations. For these reasons this alternative was dismissed from further analysis.

2.3.2 Construction of a New Dock near the Existing Dock (at the southeast point of SMI bay).

Construction of a dock north of the existing dock would soon place the dock within area managed as wilderness (see 2.3.3). If located south of the existing dock, the dock site would soon be outside of the sheltered bay environment and into areas where the prevailing winds would impact safe operation of the facility. Any dock constructed immediately adjacent to the existing dock would be subject to the same sedimentation and water depth conditions. The southeast point of SMI bay is also within the boundary of the National Register Historic District. If a new dock was constructed, a connection route would have to be developed to link the new facility with the existing circulation route running through the Historic District. This alternative was dismissed from further analysis because construction of new dock at this location did not offer any benefit over extending the existing dock and would result in additional impacts to natural and cultural resources.

2.3.3 Construction of a New Dock at another SMI Location

This alternative would result in the construction of an entirely new dock facility in an area managed as wilderness as well as a potentially extensive new road/access system to link the new dock site to the existing access system. This alternative was dismissed from further analysis because construction of a dock in wilderness would be in conflict with the Wilderness Act and contrary to the direction provided by Congress in the 1982 amendment to the National Lakeshore's enabling legislation.

2.4 ALTERNATIVE SUMMARIES

Table 2-1 summarizes the major components of Alternatives A and B, and compares the ability of these alternatives to meet the project objectives (the objectives for this project are identified in the *Purpose and Need* chapter). As shown in the following table, Alternative B meets each of the objectives identified for this project, while the No Action alternative does not address all of the objectives.

Table 2-1 – Summary of Alternatives and How Each Alternative Meets Project Objectives

Alternative Elements	Alternative A – No Action	Alternative B – Dock Extension
SMI Boat Dock Facility	The existing boat dock would continue to serve as the access point for island visitors and NPS staff, with regular dredging required for safe use and accessibility.	An extended boat dock would provide a safe, deep water access point for the commercial ferry, private boats, and NPS staff boats, and would reduce or eliminate the need for dredging the lake sand sediment under and around the boat dock.
Access/Island Use	Access to the boat dock and SMI would continue unimpeded, except during dredging operations.	The existing boat dock would only not be accessible during construction operations Once the extended boat dock is in place in the deeper water, the need for maintenance dredging operations would be minimized along with associated access disruptions.
Construction Staging	Construction staging would not be needed.	Construction operations would occur from barges in the water around the current dock with no work or storage impacting the beach or adjacent terrestrial areas.
Project Objectives	**Meets Project Objectives?**	**Meets Project Objectives?**
Provide visitors and staff safe access to SMI	Yes. Continuation of dredging operations under and around the boat dock would allow for safe access to the island.	Yes. An extended boat dock would allow visitors and staff to safely access the island without the ferry/boats having to enter shallow water.
Provide visitors and staff convenient access to SMI resources	Yes. The location of the existing dock is convenient to SMI resources.	Yes. An extension to the dock would not change access to SMI resources.
Reduce or eliminate NPS staff dredging maintenance costs and NPS staff work/time-use	No. Annual dredging by NPS staff to remove lake sand sedimentation would continue.	Yes. An extension of the current boat dock out into deeper water would reduce or eliminate the need for dredging, which would save the NPS money and free up staff time for other maintenance activities.
Eliminate potential need for large quantity contracted dredging	No. Contracted, large quantity dredging would continue to be required for the current boat dock, constructed in 1984.	Yes. The current boat dock would be extended into deeper water, eliminating the need for large quantity, contracted dredging.
Minimizes the need to modify other SMI facilities (roads and trails)	Yes. An existing road and trail system provides the needed access to points on SMI.	Yes. An extension to the current dock would not require any modification to the existing road and trail system.
Is located outside of designated wilderness	Yes. The current dock is not in wilderness	Yes. An extension to the current dock would not be in wilderness

Table 2-2 summarizes the anticipated environmental impacts for Alternatives A and B. Only those impact topics that have been carried forward for further analysis are included in this table. The *Environmental Consequences* chapter provides a more detailed explanation of these impacts.

Table 2-2 – Environmental Impact Summary by Alternative

Impact Topic	Alternative A – No Action	Alternative B – Dock Extension
Water Resources	No adverse impacts to the water resources from continued dredging, as long as conditions of the required permitting are met.	No adverse impacts to the water resources would result from the construction of the extended dock. The Preferred Alternative would actually result in less overall impact to water resources since future dredging would be reduced or eliminated.
Aquatic Ecology	Minor adverse impacts on the aquatic ecology due to the continuance of annual maintenance dredging in nearshore areas.	Minor short-term adverse impacts from the construction of the dock extension, but long-term benefits of lesser or no impacts due to the reduction or cessation of annual maintenance dredging.
Cultural Resources	No impacts to historic structures or cultural resources as no construction activities would be conducted.	No impacts to historic structures; minor adverse impact to historic landscape, but proposed dock extension is expected to be designed and constructed to be consistent in appearance and materials as the existing dock facility.
Special Status Species	No impacts to special status species.	No impacts to special status species.
Park Operations	Minor to moderate adverse impact on park operations resulting from continued expenditure of financial and personnel resources of the National Lakeshore, associated with the continued maintenance dredging of the existing dock.	Minor to moderate beneficial effects to park operations and an appreciable direct cost savings will be realized due to the reduction or cessation of maintenance dredging at the proposed dock extension.
Visitor Use and Experience	Moderate adverse impacts to visitor use and experience due to periodic dredging operations.	Short-term negligible to minor adverse impacts during the 3 to 4 weeks of construction of the proposed dock extension due to noise and visual impacts. Long-term major beneficial effects for visitor use and experience resulting from uninterrupted access to the island.

2.5 ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is determined by applying the criteria suggested in the NEPA (1969), which guides the CEQ. The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA §101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural and natural resources.

Alternative A, No-Action, only minimally meets this evaluation standard because it retains facilities that would require on-going disturbance to the environment.

Alternative B is the environmentally preferred alternative because it best addresses this evaluation standard. Alternative B, Dock Extension, would reduce future commitments of NPS resources (cost and staff) and would reduce impacts to the environment from periodic maintenance dredging.

No new information came forward from public scoping or consultation with other agencies to necessitate the development of any new alternatives, other than those described and evaluated in this document. Because it meets the purpose and need for the project, the project objectives, and is the environmentally preferred alternative, Alternative B is also recommended as the NPS Preferred Alternative. For the remainder of the document, Alternative B will be referred to as the Preferred Alternative.

3.0 EXISTING CONDITIONS/AFFECTED ENVIRONMENT

3.1 WATER RESOURCES

This section describes the natural environment of the site area related to surface water and groundwater. Surface water generally refers to streams, rivers, ponds, reservoirs and lakes. Groundwater refers to water located beneath the ground surface that is beyond the soil-root zone, and is a major source of potable water (Christopherson, 2003).

NPS policies require protection of water quality consistent with the Clean Water Act. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To enact this goal, the USACE has been charged with evaluating federal actions that result in potential degradation of waters of the United States and issuing permits for actions consistent with the Clean Water Act. The USEPA also has responsibility for oversight and review of permits and actions, which affect waters of the United States. In Michigan, these permits are administered jointly by the USACE and the MDEQ.

The project area is located along the eastern side of SMI within a natural bay of northern Lake Michigan (see Figure 1-1). Leland is the nearest port town and is the location from where most boat traffic to and from SMI, including the transport ferries, originates. Lake Michigan is the fifth largest fresh water lake in the world and the second largest of the Great Lakes by surface area.

The USEPA and MDEQ report that there are advisories for fish consumption for fish from Lake Michigan, primarily for mercury and polychlorinated biphenyls (PCB) concerns. They also note impairment for public water supply use from Lake Michigan. There is one lake (Florence Lake) located on SMI that is just over one mile from the dock site.

Shallow groundwater is present on the island at depths generally dependent upon land surface topographic elevation above lake level. The two NPS SMI water supply wells are completed at a depth of 85 feet below ground level and do not draw water from Lake Michigan. Due primarily to the sandy soils of the island, there is no developed stream system on the island and most of the precipitation on the island either infiltrates into the sandy soil, or is retained in Florence Lake, or in wetland areas. An associated distribution system conveys potable water from the groundwater wells to public use areas on SMI.

3.2 AQUATIC ECOLOGY

3.2.1 Benthos

Information on the benthic macroinvertebrate community patterns in Lake Michigan's northern basin is generally lacking (Nalepa et al. 2005). However, the benthic macroinvertebrate community in the deeper waters of the lake's southern basin have historically been dominated by the amphipod *Diporeia*, oligochaetes of the family *Tubificidae*, and fingernail clams (*Sphaeriidae*) (Mechenich et al. 2009). A shift in composition associated with decreased abundance of *Diporeia* and increased numbers of tubificids in nutrient-enriched shallow sites was noted by Cook and Johnson (1974). In recent years, densities of all three taxa have declined in the shallower waters of Lake Ontario, possibly due to the increased presence of, and competition from, zebra and quagga mussels (*Dreissena* spp.) (Lozano et al. 2001). Density declines of the critical food web components *Diporeia* and zooplankton between 1994 and 2005 are indications that certain Great Lakes ecosystems are considerably stressed (USEPA and Environment Canada 2007). In the vicinity of the existing dock facility and associated nearshore habitats, benthic invertebrate communities are expected to be relatively poorly developed due to the unstable, shifting sediments associated with these environments.

3.2.2 Fish

Eighty-one native fish species have been found in Lake Michigan, including six that are now considered extinct; an additional 17 species have been introduced to the system, either deliberately (six) or by

accident (eleven) (Eshenroder et al. 1995). The inshore fish community (<45 meters [m] in depth) in Lake Michigan includes the recreationally/commercially important northern pike, muskellunge, smallmouth bass , yellow perch, and walleye as well as catfish and sunfish species (Eshenroder et al. 1995). The esocids, centrarchids, and yellow perch are strongly associated with vegetated areas or shallow areas with woody structure as juveniles and adults. Walleye are typically found in deeper water as adults, but utilize the shallow nearshore areas for spawning habitat. Kelly and Price (1979) reported 34 species from the Lake Michigan shoreline within the National Lakeshore. Non-game species include spottail shiner, trout-perch, Johnny darter, mottled sculpin, and slimy sculpin. Fessell (2007) collected alewife, longnose dace, round goby, and Johnny darter in seine collections at Sleeping Bear Bay.

Lake sturgeon, a threatened species in Michigan, historically spawned along the shorelines of North and South Fox Islands, which are north of the study area in Leelanau County (MNFI 2000). It was also reported from the Lake Michigan shoreline within the National Lakeshore by Kelly and Price (1979). Populations of this species are reportedly increasing due to habitat improvements and protection from harvest (Schneeberger et al. 2005).

3.3 CULTURAL RESOURCES

Cultural resources as a group include historic structures, cultural landscapes, archeological resources, ethnographic resources, and museum collections. The latter three categories have not been analyzed in detail because they would not be affected under any alternative; these categories are described in the "Impact Topics Dismissed" section later in this chapter.

Historic Property Definitions

Historic properties are variously defined under 36 CFR 800 as "any historic district, site, building, structure, or object included in or eligible for inclusion in, the National Register of Historic Places." The following definitions are used by the NPS:

- Building: created principally to shelter any form of human activity such as a barn, house, church, or hotel;
- Site: the location of a significant event; a prehistoric or historic occupation or activity; or a building or structure, whether standing or ruined or vanished, where the location itself possesses historic, cultural, or archeological value, regardless of the value of the existing structure;
- Structure: a functional construction usually made for purposes other than creating human shelter, such as tunnels, bridges, oil wells, or dams;
- Object: primarily artistic in nature or is relatively small in scale and simply constructed — although an object may be moveable by nature or design, it is associated with a specific setting or environment, including sculptures, boundary markers, or statues;
- District: possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development, such as a college campus, central business district, fort, or sprawling ranch; or
- Landscape: geographic area associated with events, persons, design styles, or ways of life that are significant in American history, landscape architecture, archeology, engineering, or culture.

Each of the property types above is represented at the National Lakeshore. However, not all of these property types will be affected by actions described in this plan. Therefore, within the historic resources topic, the property types to be discussed include landscapes, sites, buildings, structures, and districts. Correspondence was initiated with the Michigan State Historic Preservation Office on May 27, 2011 to solicit preliminary potential concerns with the project.

Within Leelanau County the listed historic properties are as follows: the Glen Haven Village Historic District, the George Conrad Hutzler Farm, the George J. and Margaretha Hutzler pig barn, the North Manitou Island Life-Saving Station (also a designated national historic landmark), the Port Oneida Rural

Historic District, the Sleeping Bear Inn, the Sleeping Bear Point Life-Saving Station, and the SMI Lighthouse Complex and Life-Saving Historical District.

Numerous other properties have been determined eligible for listing on the National Register of Historic Places by the NPS and the Michigan SHPO. Many of these properties, however, have not yet had their significant features or time periods described on a nomination form for submission to the keeper of the national register for official listing.

Properties Listed in the National Register of Historic Places

As described in the *Final General Management Plan* (NPS 2008), the SMI Lighthouse Complex and Life-Saving Station Historical District was a strategic location on the Manitou Passage, providing the only harbor large enough for many ships transiting from Chicago to the Straits of Mackinac. The district consists of a lighthouse complex constructed 1858-1875, a life-saving station constructed 1901 to 1902, and two wood-frame houses constructed in 1902 and 1930. The period of significance is ca. 1858 to 1958. The historic district was entered on the state register on September 21, 1976, and the national register on October 28, 1983. Since the nomination was entered, several additional landscape features have been identified as significant components of the district, and have been determined eligible for the national register. A modified nomination to include these structures has yet to be prepared.

Manitou Passage Maritime Landscape National Historic District

As cultural resources within the National Lakeshore continue to be studied, new themes have been proposed for national register listing that look at the resources differently. This potential historic district would be comprised of a concentration of maritime historic sites, geographic features, and native habitats with few modern intrusions. This district would exemplify the historic landscape features related to the Great Lakes transportation system more completely than any other site on the Great Lakes. The Glen Haven Village Historic District, portions of the villages on North Manitou Island and SMI, and the three life-saving stations would be among the prominent contributing elements to this district. In 1999, the Michigan SHPO concurred that such a district would be eligible for the register at the national level of significance. The Manitou Passage Maritime Landscape National Historic District has not yet been formally described or proposed to the keeper of the national register (NPS 2008).

3.4 SPECIAL STATUS SPECIES

The Endangered Species Act of 1973 requires examination of potential impacts of proposed NPS activities on all federally-listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the USFWS to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the *Management Policies* (2006) and DO-77 *Natural Resources Management Guidelines* require the NPS to examine the impacts on state-listed threatened, endangered, candidate, rare, declining, and sensitive species that are known collectively as species of concern. (NPS 2006). The NPS must conference or informally consult with the USFWS and/or National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act to (1) clarify whether and what listed, proposed, and candidate species or designated or proposed critical habitats may be in the project area; (2) determine what effect proposed actions may have on these species or critical habitats; and (3) determine the need to enter into formal consultation for listed species or designated critical habitats, or conference for proposed species or proposed critical habitats.

Correspondence was initiated with the USFWS to solicit information on listed species that could potentially occur within or near the project area. Appendix A summarizes the federal and state-listed species (threatened, endangered, and species of concern) whose occurrence has been documented in Leelanau County or in the National Lakeshore (MDEQ 2011) (USFWS 2011). Four federally-listed species and 37 state-listed species are listed in Appendix A. Because the project would be constructed

from the water only, most of the species in Appendix A have been dismissed due to a lack of appropriate habitat in the project area. Those further analyzed are listed in Table 3-1 and include the lake herring, piping plover, trumpeter swan, common loon, and bald eagle.

Lake Herring. Lake herring, also known as ciscoes, are small slender school fish that are listed as threatened by the State of Michigan. Lake herring generally inhabit the midwater regions of the Great Lakes and are preyed upon heavily by lake trout, northern pike, yellow perch, and walleye (MDEQ 2011).

Large spawning schools develop as the water temperature drops in the fall. Spawning in Lake Michigan generally occurs in late November or early December, a week or two after lake whitefish spawn. Lake herring spawn at a variety of depths including shallow water 3 to 10 feet deep and pelagic zones 30 to 40 feet below the surface in very deep regions of the lake. Lake herring fry feed on algae and zooplankton whereas adults add crustaceans and small aquatic insects to their diet (MDEQ 2011).

During the 19th and early 20th centuries lake herring made up a significant part of the Great Lakes commercial fishery, but their numbers have since dropped drastically. Because actions proposed in the alternatives have the potential to impact the habitat supporting this species, the lake herring is carried forward as an impact topic in Chapter 4.

Piping Plover. The Great Lakes population of the piping plover is a federally endangered species and is listed as endangered by the State of Michigan as well. The piping plover is a small pallid shorebird (length about 7¼ inches) with a black collar, yellow/orange legs, and a short, stubby tail (Peterson 2008). Piping plovers breed in three locations in North America — along the Atlantic Coast from North Carolina to Southern Canada, along the shores of the Great Lakes, and along rivers and wetlands of the northern Great Plains. In Michigan, piping plovers prefer wide, sandy, open beaches along the shores of the Great Lakes. Nesting territories generally have sparse vegetation and scattered cobble-stones and may include river, lagoon, or other wetland habitat to provide additional food for chicks (Hyde 1999). In the winter, piping plovers migrate to the Gulf Coast between Florida and Texas and on into Mexico and the Caribbean, as well as migrating to the Atlantic Coast between southern North Carolina and Florida. Decline of the species has resulted from hunting, habitat loss, recreational pressure, predation, and environmental contaminants. In the 1970s and mid 1980s high water levels in the Great Lakes reduced available breeding habitat in that region (Hyde 1999). Habitat destruction and alteration and human development along the shores of the Great Lakes continue to impact the piping plover and have lead to their extirpation over much of their former Great Lakes nesting range.

The USFWS has designated critical habitat for the piping plover along certain shorelines within the National Lakeshore including 2.1 miles (3.3 kilometers [km]) along North Manitou Island and 14.2 miles (22.5 km) along the mainland lakeshore (USFWS 2001). There is no critical habitat designated on SMI. Because actions proposed in the alternatives have the potential to impact the habitat supporting this species, this species is carried forward as an impact topic under in Chapter 4.

Trumpeter Swan. The trumpeter swan is listed by the State of Michigan as a threatened species. Trumpeter swans use marshes and wetlands associated with the Great Lakes, inland lakes and ponds for cover and food, and they require large open water areas for takeoff and landing (MNFI 2007). Nesting areas should be buffered by a no-activity zone to eliminate human disturbance by boats, personal water-craft, and birdwatchers (MNFI 2007).

Competition from the mute swan, a nonnative aggressive species, has been documented, and steps have been taken to reduce mute swan populations within the National Lakeshore (NPS 2008).

Trumpeter swans were reintroduced to the southern mainland portion of the National Lakeshore in 2006 and 2007 (NPS 2008). Because of potential impacts of various activities proposed in the alternatives, this species is carried forward as an impact topic in Chapter 4.

Common Loon. The common loon is listed as threatened by the State of Michigan. Common Loons are known to breed throughout northern North America in boreal coniferous and northern hardwood forests. Common loons breed on inland lakes that have an abundant population of fish and a large proportion of undeveloped shoreline. They prefer lakes with a small island or bog mat where it can hold the nest inaccessible to raccoons and other egg-eating predators and where there is little or no high-speed boat traffic. Common loons are also known to utilize littoral, midwater, and benthic portions of the Great Lakes (MNFI 2007). In Michigan, they are known to breed only in the Upper Peninsula and the very northern portions of the Lower Peninsula (MNFI 2007). Adult common loons are easily disturbed and stressed and may desert their nest if approached too closely by a person, boat, or other water vehicle, or even the wake from such a vehicle (MNFI 2007).

In 2006 there was a large die-off of more than 2,900 water birds in the National Lakeshore, including about 180 loons, due to Type E Botulism toxin poisoning. This die-off continued in 2007, including an additional 60 loons and more than 1,000 other birds. A combination of invasive species (including quagga mussels and round gobies), enhanced native algae and Type E Botulism bacteria growth, and a rapidly changing lake ecosystem have led to conditions that are believed to be ongoing and devastating to common loons as well as other native bird and fish species (NPS 2008).

In the National Lakeshore, this species has been documented on several lakes (NPS 2008). Because actions proposed in the alternatives have the potential to impact the habitat supporting this species, the common loon is carried forward as an impact topic for discussion in Chapter 4.

Bald Eagle. The bald eagle, although recently delisted under the Endangered Species Act, is still listed as threatened by the State of Michigan. The reason for historic declines in bald eagle populations in the 1950s and 1960s included the use of chemicals such as PCBs, DDT (dichlorodiphenyltrichloroethane), DDE (dichlorodiphenyldichloroethylene), and mercury, as well as disturbance and displacement by humans. DDT was the primary cause, and the banning of DDT in the early 1970s led to a resurgence in bald eagle numbers throughout the U.S. as well as the Great Lakes region. Although bald eagles are seen throughout almost all counties of Michigan during the winter, they nest mainly in the Upper Peninsula (especially the western portion) and the northern portion of the Lower Peninsula (MNFI 2007).

Because their primary diet consists of fish, bald eagles tend to feed, roost, and nest in large trees or snags near water bodies (MNFI 2007). Eagles in some parts of the country are particularly sensitive to human disturbance. Adult birds appear to flush more quickly when foraging than when on the nest. In Michigan, 75% of all alert responses to human activity occurred when activity was within 1,640 feet (500 m) and flight responses occurred when activity was within 656 feet (200 m); vehicles and pedestrians elicited the highest response frequencies (NPS 2008).

Bald eagles have been documented in all but the central mainland portion of the National Lakeshore, and nests have been identified in the northern and southern mainland portions of the National Lakeshore as well as on both North Manitou Island and SMI (NPS 2008). Because actions proposed in the alternatives have the potential to impact the habitat supporting this species, the bald eagle is carried forward as an impact topic in Chapter 4.

Table 3-1 – Special Status Species in the Project Area

Scientific Name	Common Name	Federal Status	State Status	Preferred Habitat	Disposition
Coregonus artedi	Lake herring or Cisco		T	Midwater regions of the Great Lakes. May spawn in shallow water (3 to 10 feet deep) or in pelagic zones.	Impact analysis provided in Chapter 4.
Charadrius melodus	Piping plover	*E*	*E*	Found on wide sandy lakeshore beaches with scattered cobbles and sparse vegetation. Also found on Lake Michigan islands in areas with same characteristics. Nesting area may include interdunal wetland or small stream.	Impact analysis provided in Chapter 4.
Cygnus buccinator	Trumpeter swan		T	Marshes and wetlands associated with the Great Lakes, inland lakes, and ponds. Nests are frequently placed on muskrat houses. Reintroduced in the southern area of the National Lakeshore in 2006 and 2007.	Impact analysis provided in Chapter 4.
Gavia immer	Common loon		T	Inland lakes and rivers. Nest where fish populations are good. Quiet sheltered coves with limited boating activity. Utilize Great Lakes in early spring until inland lakes thaw.	Impact analysis provided in Chapter 4.
Haliaeetus leucocephalus	Bald eagle		*SC*	Found near coastal areas, rivers, lakes, or other bodies of water with a supply of fish, waterfowl, or seabirds. Generally nest within about 13,000 feet (4 km) of water in dead snags or live trees.	Impact analysis provided in Chapter 4.

E – Endangered; T – Threatened; SC – Special Concern

Source: MDEQ (2011) and USFWS (2011)

Prepared By: SPS 03-17-2011
Checked By: WJE 03-18-2011

3.5 PARK OPERATIONS

All access to SMI is by way of water other than an occasional sea plane or emergency helicopter flight. Park operations depend on supplies and personnel arriving to the island by way of the dock on a daily basis during the primary summer season. NPS boats, as well as the ferry boats operated by the concession company, regularly use the dock to offload supplies as well as for passenger unloading. Private boats may temporarily tie up at the dock for loading and unloading, but only momentarily during the loading/unloading period. Presently, the National Lakeshore staff spends an estimated two weeks each summer conducting small scale hydraulic dredging to remove sandy sediment which has settled near the dock to allow safe docking.

3.6 VISITOR USE AND EXPERIENCE

Ferry use is the primary means to access SMI for visitor use. Statistics provided by the National Lakeshore identifying visitor use are summarized in Table 3-2 for 2008 through 2010. The predominant use is for backcountry overnight camping. The average number of private boats visiting SMI was 518 with an average of 432 staying overnight. The protected bay on the east side of the island offers the best protection from winds and consequently is a popular place for boat visitors to anchor. Due to the protected bays proximity to the dock where visitors load and unload, it is also popular with day users as well as overnight campers.

Table 3-2 – SMI Public Use Summary 2008-2010

Year	2008	2009	2010	Mean
Ferry Passengers	6,879	6,762	6,788	6,810
Private Boats	571	472	511	518
Day Use	3,658	3,600	3,517	3,592
Back Country	6,575	5,711	5,489	5,925
Camp Permits	774	782	749	768
Overnight Boats	385	440	472	432

According to the National Lakeshore visitor records from 2008 through 2010, the average annual number of ferry passengers for SMI was 6,810. The average annual number of private boats visiting SMI for the same period was 518. The average annual number of day use and backcountry use for the same period was 3,592 and 5,925 respectively (see Table 3-2). Visitation to SMI is heaviest during July and August. Percentage ferry visitation by month is given in Table 3-3.

Table 3-3 – Ferry Passenger Use Percent by Month (2010) - SMI

	May	June	July	August	September
Percent (%)	5	15	38	39	3

The island offers hiking trails and numerous destinations and sights to see including the historical Coast Guard Life-Saving Station, South Manitou Lighthouse, historical farming community relics, sand dunes, virgin stand of timber, and shipwrecks located around the island perimeter. The Manitou Passage State Underwater Preserve was established in 1988 to help preserve the various shipwrecks in the area and offers scuba and snorkeling opportunities for those bringing their own gear.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 METHODOLOGY

This section analyzes the potential environmental consequences, or impacts, that would occur as a result of implementing the proposed project. Topics analyzed include paleontological resources, visitor use and experience, and park operations. Direct, indirect, and cumulative effects, as well as impairment are analyzed for each resource topic carried forward. Potential impacts are described in terms of type, context, duration, and intensity. General definitions are defined as follows, while more specific impact thresholds are given for each resource at the beginning of each resource section.

- **Type** describes the classification of the impact as either beneficial or adverse, direct or indirect:
  - *Beneficial*: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
  - *Adverse*: A change that moves the resource away from a desired condition or detracts from its appearance or condition.
  - *Direct*: An effect that is caused by an action and occurs in the same time and place.
  - *Indirect*: An effect that is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable.
- **Context** describes the area or location in which the impact will occur. Are the effects site-specific, local, regional, or even broader?
- **Duration** describes the length of time an effect will occur, either short-term or long-term:
  - *Short-term* impacts generally last only during construction, and the resources resume their pre-construction conditions following construction.
  - *Long-term* impacts last beyond the construction period, and the resources may not resume their pre-construction conditions for a longer period of time following construction.
- **Intensity** describes the degree, level, or strength of an impact. For this analysis, intensity has been categorized into negligible, minor, moderate, and major. Because definitions of intensity vary by resource topic, intensity definitions are provided separately for each impact topic analyzed in this environmental assessment.

4.2 CUMULATIVE IMPACTS

The CEQ regulations, which implement the NEPA (1969) (42 USC 4321 et seq.), require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the No-Action and Preferred Alternative.

Cumulative impacts can be assessed by combining the impacts of the Preferred Alternative with other past, present, and reasonably foreseeable future actions within an appropriate area of geographic analysis. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at the National Lakeshore and, if applicable, the surrounding region. Because the scope of this project is relatively small, the geographic and temporal scope of the cumulative analysis is similarly small. The geographic scope for this analysis includes actions within the National Lakeshore boundaries at SMI, while the temporal scope includes projects within a range of approximately ten years. Given these bounding characteristics, no other projects were identified that represent the potential to result in cumulative effects to the resources affected by the proposed project. No further discussion of cumulative impacts is needed in the resource topic sections.

4.3 WATER RESOURCES

4.3.1 Intensity Level Definitions

NPS policies require protection of water quality consistent with the Clean Water Act. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To enact this goal, the USACE has been charged with evaluating federal actions that result in potential degradation of waters of the United States and issuing permits for actions consistent with the Clean Water Act. In Michigan, these permits are administered jointly by the USACE and the – MDEQ. The thresholds for this impact assessment are as follows:

Negligible: Impacts are effects that are not detectable, well above water quality standards, and within historical baseline water quality conditions.

Minor: Impacts are effects that are detectable but well within or above water quality standards and within historical baseline water quality conditions.

Moderate: Impacts are effects that are detectable, within or above water quality standards, but historical baseline water quality conditions are being altered on a short-term basis.

Major: Impacts are effects that are detectable and significantly and persistently alter historical baseline water quality conditions.

4.3.2 Impacts of Alternative A (No-Action Alternative)

Under the No-Action alternative, regular maintenance dredging on an annual basis would continue to be necessary in order to remove sand sediment that is continuously deposited near the dock. This action would periodically alter the bathymetry in the vicinity of the dock and would result in small and localized changes in hydrodynamics due to changes in water depth and circulation patterns. However, such alterations are considered to be minor and would not result in an adverse impact on the water resources as long as the conditions of the joint permit were met.

If contracted dredging and maintenance dredging by the National Lakeshore personnel continue on an annual basis into the foreseeable future, as would be necessary under the No-Action alternative, new joint dredging permits will be required on a five year basis. However, in the context of the amount of nearshore habitat available in the vicinity of SMI, coupled with the short term, small scale impact associated with this maintenance dredging activity, the No-Action alternative would result in negligible adverse effects to the water resources.

4.3.3 Impacts of Alternative B (Preferred Alternative)

Under Alternative B, no additional dredging beyond the NPS conducted maintenance dredging would be conducted. Dredging to support access to the new dock facility would be infrequent as the greater depths at the new dock facility will not require on-going dredging. Consequently, in the context of the amount of nearshore habitat available in the vicinity of SMI, coupled with the infrequent, short term, localized impact associated with this activity, Alternative B would result in negligible adverse effects to water resources.

4.4 AQUATIC ECOLOGY

4.4.1 Intensity Level Definitions

Aquatic environments will be affected by construction activities associated with on-going dredging operations (No Action Alternative) and the extension of the dock (Preferred Alternative). The thresholds for this impact assessment are as follows:

Negligible: Neither aquatic resources nor their dependent habitat would be affected, or changes would be either non-detectable or if detected, and would have effects that would be considered slight, local, and short-term.

Minor: Changes in aquatic biota and their associated habitats would be measurable, although the changes would be small, likely short-term, and the effects would be localized. No mitigation measure associated with water quality or hydrology would be necessary.

Moderate: Changes in aquatic ecosystems would be measurable and long-term but would be relatively local. Mitigation measures associated with aquatic biota or their associated habitat would be necessary and the measures would likely succeed.

Major: Changes in aquatic ecosystems would be readily measurable, would have substantial consequences, and would be noticed on a regional scale. Mitigation measures would be necessary and their success would not be guaranteed.

4.4.2 No Action alternative

The No-Action alternative will affect the aquatic biological resources negatively because of the continuance of regular maintenance dredging in near shore areas. Direct impacts on benthic macroinvertebrate communities will be periodic but relatively minor because they will occur over a small area and because nearshore communities in Lake Michigan are already of low diversity. Direct impacts on fish populations will likewise be small. Individual fish will avoid the small area during dredging, and will return after their completion.

4.4.3 Proposed Action Alternative

The likely effect of the proposed action will be a short-term adverse impact due to the construction of the dock extension, followed by a long-term beneficial impact due to the cessation of maintenance dredging. Direct impacts on benthic macroinvertebrate communities will be negligible because they will occur over a small area and because nearshore communities in Lake Michigan are already of low diversity. Direct impacts on fish populations will likewise be small. Individual fish will avoid the small area during dock construction, and will return after their completion. The long-term impact of the proposed action will be beneficial because it will obviate the need for maintenance dredging that would disturb the sediment and result in reduced water clarity for several subsequent days.

The only aquatic species listed as threatened or endangered that may occur in the study area is the lake herring or cisco (see Table 3-1). It is generally found in mid-water regions of the Great Lakes, but may spawn in shallow waters near shore. They spawn in late November or early December at a variety of depths including shallow water 3 to 10 feet deep and pelagic zones 30 to 40 feet below the surface in very deep regions of the lake (MDEQ 2011). Despite its potential presence in the study area, it is not considered common in Lake Michigan (Schneeberger et al. 2005) and it has not been encountered in previous surveys near the project site (Fessel 2007). Even if any were present, individuals could avoid short-term impacts by emigrating from the area. In the long term, the impact to aquatic species would likely be beneficial, as the proposed action would reduce or eliminate future impacts associated with maintenance dredging.

4.5 CULTURAL LANDSCAPES AND HISTORIC STRUCTURES

4.5.1 Intensity Level Definitions

The SMI Lighthouse Complex and Life-Saving Station Historic District is the only cultural resource in the project area that is listed on the National Register of Historic Places (NRHP). There are also some U.S. Life-Saving Service/Coast Guard era houses and cottages that are considered eligible for listing on the NRHP but which are not included in the SMI Lighthouse Complex and Life-Saving Station Historic District nomination to the NRHP that are within the viewshed of the dock area. The methodology used for assessing impacts to cultural landscapes and historic structures is based on how the project will affect the features for which the landscape or structure is significant. The thresholds for this impact assessment are as follows:

Negligible: The impact is at the lowest levels of detection, barely perceptible and not measurable.

Minor: *Adverse*: The impact is measurable or perceptible, but it is slight and affects a limited area of a structure/landscape or group of structures/landscapes. The impact does not affect the character defining features of a National Register of Historic Places eligible or listed structure/landscape and would not have a permanent effect on the integrity of the structure/landscape.
Beneficial: Stabilization/preservation of features is in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Moderate: *Adverse*: The impact is measurable and perceptible. The impact changes one or more character defining feature(s) of a historic structure/landscape, but does not diminish the integrity of the resource to the extent that its National Register eligibility is jeopardized.
Beneficial: Rehabilitation of a structure/landscape is in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Major: *Adverse*: The impact is substantial, noticeable, and permanent. For National Register eligible or listed historic structure/landscapes, the impact changes one or more character defining features(s) of the historic resource, diminishing the integrity of the resource to the extent that it is no longer eligible for listing on the National Register.
Beneficial: The impact is of exceptional benefit and the restoration of a structure/landscape is in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

4.5.2 Impacts of Alternative A (No-Action Alternative)

The No-Action alternative would result in negligible impacts to the historic dock and District because no construction activities would be conducted. The dock was not identified in the National Register Nomination.

4.5.3 Impacts of Alternative B (Preferred Alternative)

The proposed project entails the extension of an existing dock facility at SMI, the National Lakeshore. The purpose of the project is to provide boat access in deeper water, thereby minimizing or eliminating the need for future maintenance dredging. There are several historic structures, such as the South Manitou Lighthouse Complex and Life-Saving Station Historical District, located adjacent to but not within the APE. The existing dock was renovated by the NPS in 1984 by a previous dock extension project and includes a section of dock that is a meticulous reconstruction of a U.S. Life-Saving Service/Coast Guard era dock. This reconstructed section of dock is not included on the NRHP nomination and is not listed on the NPS List of Classified Structures.

The project will require driving wooden pilings into the sandy substrate of Lake Michigan to accommodate the dock extension. Pilings will be <2 feet in diameter and will be driven at least 10 feet into the substrate. All work will be conducted over water from barges. No land disturbance is proposed. The APE will consist of nearshore habitat (sandy substrate) on SMI in Lake Michigan and will include the existing public access dock (approximate 100 feet by 65 feet) and the area immediately adjacent to the docks for construction of the dock extension. The APE boundary measures approximately 140 feet by 115 feet and is confined as such because the project is an extension of existing facilities. The APE is located in the harbor of SMI and does not include adjacent upland areas on the island.

The proposed dock extension will not directly affect or alter any characteristics of the adjacent historic property. However, it does constitute an extension of the existing dock facility which will represent a minor alteration of the cultural or historic landscape. The proposed dock extension, however, will be designed and constructed in such as way as to provide a feature that is consistent in appearance and materials with the existing dock facility. No significant alteration of the historic landscape is expected. The resultant dock facility is also not considered to alter any factors included in the original evaluation of

the property's eligibility for the National Register. Consequently, it is concluded that the proposed project will have no adverse effect on the subject historic property.

The Preferred Alternative would result in no impacts to historic structures because the construction of the dock extension will be conducted over water with no land disturbance expected. The proposed dock extension will result in a minor adverse impact by slightly altering the appearance of the historic landscape. But, the proposed dock extension will be consistent in appearance and materials to the existing dock.

4.6 SPECIAL STATUS SPECIES

In accordance with 50 CFR § 402(a) and the NPS *Management Policies* (2006), federal agencies are required to review all actions to determine whether an action may affect listed species or critical habitat. If such a determination is made, formal consultation is required, unless the federal agency determines, with the written concurrence of the USFWS, that the proposed action is not likely to adversely affect any listed species or critical habitat. It is NPS policy to survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The NPS strives to fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both proactively conserve listed species and prevent detrimental effects on these species. This is accomplished by cooperating with the USFWS to ensure that NPS actions comply with both the written requirements and the spirit of the Endangered Species Act, and by cooperating with the USFWS and other agencies and entities to facilitate delineation of critical habitat, development and implementation of species recovery plans and candidate conservation agreements, and proactively managing for proposed and candidate species.

NPS staff evaluated impacts on federally and state-listed threatened and endangered species and provided an Endangered Species Act determination as defined in 50 CFR Section 402 and the *Endangered Species Consultation Handbook* (1998) for each alternative. Impacts to the lake herring (*Coregonus artedi*), piping plover (*Charadrius melodus*), trumpeter swan (*Cygnus buccinator*), common loon (*Gavia immer*), and bald eagle (*Haliaeetus leucocephalus*) have been evaluated by comparing projected changes resulting from the proposed action alternative to existing conditions.

Impact thresholds for the addressed federally listed or candidate species are defined based on USFWS Section 7 impact terminology as follows:

No effect means there are absolutely no effects to the species or its critical habitat, either positive or negative. A no-effect determination does not include small effects or effects that are unlikely to occur. If effects are insignificant (in size) or discountable (extremely unlikely), a determination of "not likely to adversely affect" is appropriate.

Not likely to adversely affect means that all effects to the species or its critical habitat are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without adverse effects to the species (for example, there cannot be "balancing" so that the benefits of the action would outweigh the adverse effects). Insignificant effects relate to the size of the impact and should not reach the scale where take occurs. Discountable effects are considered extremely unlikely to occur. Determinations of "not likely to adversely affect, due to beneficial, insignificant, or discountable effects" typically require written concurrence from the USFWS.

Likely to adversely affect means that an adverse effect to the species or its critical habitat may occur as a direct or indirect result of an action, and the effect is not discountable, insignificant, or beneficial. In the rare event that adverse effects could not be avoided, the project would either be discontinued or NPS staff would request formal consultation with the USFWS.

Impact thresholds for Michigan state-listed plant and wildlife species are defined as follows:

Negligible: Impacts on state-listed plant and wildlife species would not be observable or measurable and would be well within the range of natural variability.

Minor: Impacts on species or their habitat would be detectable, but still within the range of natural variability both spatially and temporally. No interference with feeding, reproduction or other activities affecting population viability would result from the impacts. Sufficient functional habitat would remain to support viable populations.

Moderate: Impacts on activities necessary for survival, and on species habitats, can be expected on an occasional basis, but are not anticipated to threaten potential or continued existence of the species in the park. Changes to population characteristics could be outside the natural range of variability spatially or temporally but would not be anticipated to result in loss of population viability.

Major: Impacts on Michigan state-listed plant and wildlife species or their habitats would be detectable, outside of the natural range of variability both spatially and temporally, and would be anticipated to result in loss of viability at the population level.

Impact duration is described as short term and long term effects. Short term effects are effects lasting less than two years whereas long term effects are effects lasting longer than two years.

As described previously the proposed action would require construction of a dock extension within an area measuring approximately 140 feet by 115 feet. This dock extension would connect to the existing dock facility on SMI and would be constructed by barge from the water. Disposal of dredged material will be restricted to areas below the water line at depths ranging from 0 to 4 feet. Construction from the water will keep construction equipment off of beach and dune areas thus minimizing impacts to beach and dune habitat as well as their associated flora and fauna. Consequently, the assessment of impacts to sensitive species is focused on those species potentially utilizing the near-shore aquatic environment.

Lake Herring (*Coregonus artedi*). Lake herring, a species listed as threatened by the State of Michigan, generally inhabit the midwater regions of the Great Lakes. They spawn in late November or early December at a variety of depths including shallow water 3 to 10 feet deep and pelagic zones 30 to 40 feet below the surface in very deep regions of the lake (MDEQ 2011).

Construction of the proposed dock extension would take place in shallow water near the shore, not in the midwater regions of Lake Michigan that lake herring prefer. Furthermore, construction would not occur during the late November or early December spawning season due to the potential for winter weather interference. As such, any potential impacts are considered minor and would be of short duration

Under the No Action alternative, maintenance dredging would continue on an annual basis to support on-going operations. This activity would result in nearshore disturbance to the aquatic environment from the removal of substrates in the vicinity of the existing dock, and from the placement of dredge material in the shallow nearshore areas. While such disturbances would be more frequent than those for Alternative B, the potential impacts are considered minor and would be of short duration.

Piping Plover (*Charadrius melodus*). Piping plovers, a species listed as endangered by both the USFWS and the State of Michigan, breed along the shores of the Great Lakes where they prefer wide, sandy, open beaches. The USFWS has designated critical habitat for the piping plover along certain shorelines within the National Lakeshore but there is no critical habitat designated on SMI (USFWS 2001).

Construction of the proposed dock extension would occur by barge from the water thereby avoiding direct impacts to piping plover and their habitat. Although construction noise may result in some minor disruption, impacts are considered short term. Existing habitat in the project vicinity is less favorable due to the on-going noise and general disruption of boat operations and tourism. As such, potential impacts resulting from construction of the proposed dock extension are considered minor and project implementation is not likely to adversely affect piping plover or their habitat.

Under the No Action alternative, maintenance dredging would continue on an annual basis to support on-going operations. This activity would result in nearshore disturbance to the aquatic environment from the removal of substrates in the vicinity of the existing dock, and from the placement of dredge material in the shallow nearshore areas. Because no disturbances would occur to the terrestrial environment and potential nesting areas of the piping plover, no impacts to this species are anticipated

Trumpeter Swan (*Cygnus buccinator*). Trumpeter swans, listed as threatened by the State of Michigan, use marshes and wetlands associated with the Great Lakes and were reintroduced to the southern mainland portion of the National Lakeshore in 2006 and 2007 (NPS 2008). Although they have the potential to utilize the harbor on SMI, the habitat here is less favorable (lacks marsh/wetland components) and ongoing boat traffic provides a constant source of disruption. As such, any potential impacts from either the No Action alternative or Alternative B are considered minor and would be of short duration.

Common Loon (*Gavia immer*). Common loons, listed as threatened by the State of Michigan, prefer lakes with a small island or bog mat where nests are inaccessible to raccoons and other egg-eating predators and where there is little or no high-speed boat traffic. Common loons are also known to utilize littoral, midwater, and benthic portions of the Great Lakes (MNFI 2007). Although they have the potential to utilize the harbor on SMI, the habitat here is less favorable because routine and ongoing boat traffic provides a constant source of disruption. As stated in Section 3.4, common loons are easily disturbed and distressed by human activities. As such, common loons are not likely to utilize the habitat near the existing boat dock thus any potential impacts from either the No Action alternative or Alternative B are considered negligible or minor and would be of short duration.

Bald Eagle (*Haliaeetus leucocephalus*). Bald eagles, a species listed as threatened by the State of Michigan, tend to feed, roost, and nest in large trees or snags near water bodies (MNFI 2007) and have been documented for SMI. As stated in Section 3.4, bald eagles are somewhat sensitive to human disturbance. Favorable habitat is abundant in more remote areas of SMI where boat traffic and general human disturbance is lacking or less prevalent. Although construction noise may result in some minor disruption, impacts are considered short term. As such, any potential impacts from either the No Action alternative or Alternative B are considered minor and would be of short duration.

4.7 PARK OPERATIONS

4.7.1 Intensity Level Definitions

Implementation of a project can affect the operations of a park such as the number of employees needed, the type of duties that need to be conducted, when/who would conduct these duties, how activities should be conducted, and administrative procedures. For the purpose of this analysis, the human health and safety of park employees is also evaluated. The methodology used to assess potential changes to park operations is defined as follows:

Negligible: Park operations would not be affected or the effect would be at or below the lower levels of detection, and would not have an appreciable effect on park operations.

Minor: The effect would be detectable, but would be of a magnitude that would not have an appreciable adverse or beneficial effect on park operations. If mitigation were needed to offset adverse effects, it would be relatively simple and successful.

Moderate: The effects would be readily apparent and would result in a substantial adverse or beneficial change in park operations in a manner noticeable to staff and the public. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.

Major: The effects would be readily apparent and would result in a substantial adverse or beneficial change in park operations in a manner noticeable to staff and the public, and be markedly different from existing operations. Mitigation measures to offset adverse effects would be needed, could be expensive, and their success could not be guaranteed.

4.7.2 Impacts of Alternative A (No-Action Alternative)

If no action is taken regarding extending the dock at SMI, annual maintenance dredging would continue to be necessary in order to remove sand sediment that is continuously deposited near the dock and would result in an adverse impact on the National Lakeshore operations. Without dredging, this buildup of sand would prevent the ferry boats from safely accessing the existing dock. Ten years ago, this sandy sediment was dredged by a contractor annually until budget cuts were made. In general, it is believed by the National Lakeshore personnel that contracted dredging would be necessary on average every three years.

In addition, the National Lakeshore personnel may also perform dredging activities throughout the summer months as allowed by their USACE/MDEQ joint dredging permit in order to maintain a depth to allow safe ferry docking. These dredging activities affect both the annual operating budget of the National Lakeshore as well as personnel workloads and activities. In conducting the maintenance dredging activities, the use of small boats, pumps and piping in an open water environment are utilized by the National Lakeshore personnel and there is an inherent degree of risk to health and safety of those personnel.

The context of the impact is primarily on a local scale, involving the budget and personnel of the National Lakeshore, and the impact would have long term consequences to budget and personnel requirements throughout the coming years whenever dredging is required.

The No-Action alternative would have a minor to moderate adverse effect on park operations at the National Lakeshore. The operating budget for contracted dredging would need to be reestablished to allow for dredging activities. Likewise, workloads for park personnel would need to include periodic maintenance dredging. This currently takes about two weeks for several personnel working approximately 12 hour per day.

If contracted dredging and maintenance dredging by the National Lakeshore personnel continue into the foreseeable future, as would be necessary under the No-Action alternative, there would be an unnecessary drain on the financial and personnel resources of the National Lakeshore. The no-action alternative would result in minor to moderate adverse effects to park operations.

4.7.3 Impacts of Alternative B (Preferred Alternative)

If the dock extension alternative is selected, the existing dock will be extended into deeper water. The likely but unguaranteed outcome of this will result in a direct beneficial impact to the National Lakeshore operations. The National Lakeshore would no longer need to provide staff for routine maintenance dredging. Funding for specialized contracted dredging to allow ferry docking could be discontinued or cut back (for contingency need). Both personnel need and financial need reductions would benefit not just the National Lakeshore, but the NPS overall.

The duration of this benefit is intended to be long term in as much as the extension is into historically deeper water. There are no guarantees however, that the presence of the dock extension will not create conditions causing additional sand deposition adjacent to the proposed extension.

The intensity of the beneficial outcome of this alternative is considered minor to moderate, in that there would no longer be the need to task National Lakeshore personnel with sediment removal activities, nor would outside dredging services be required for an indeterminate time period.

4.8 VISITOR USE AND EXPERIENCE

4.8.1 Intensity Level Definitions

The National Lakeshore was established to preserve and protect its natural and cultural resources for the benefit and enjoyment of the public. The methodology used for assessing impacts to visitor use and experience is based on how a new dock extension at SMI would affect the visitor, particularly with regards to the visitors' enjoyment of SMI. The thresholds for this impact assessment are as follows:

Negligible: Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. Any effects would be short-term. The visitor would not likely be aware of the effects associated with the alternative.

Minor: Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short-term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.

Moderate: Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative, and would likely be able to express an opinion about the changes.

Major: Changes in visitor use and/or experience would be readily apparent and have substantial long-term consequences. The visitor would be aware of the effects associated with the alternative, and would likely express a strong opinion about the changes.

4.8.2 Impacts of Alternative A (No-Action Alternative)

If no action is taken, the dock will not be extended. Because of increased sediment deposition currently present in the existing dock area, dredging by an outside contractor would likely still be required because the volume of sediment to be removed is beyond the National Lakeshore personnel removal capabilities. In addition, moving forward, the National Lakeshore personnel will still need to spend an estimated two weeks per year of two personnel working 12 hour days to try to maintain a depth which would allow ferry docking. Depending on lake level fluctuations and sediment deposition rate, additional contracted dredging services may be needed.

Visitor use and experience is expected to be affected under the No-Action alternative, as there would be a visible presence of dredge operations at the dock area. Presumably, dredging activities would be staged so as to provide continued access to the dock by ferry boats or other small water craft. However, the presence of the dredge and its associated floating booms may be expected to provide a periodic interruption of visitor experience in this natural and historic setting. This impact would be considered moderate adverse and long-term.

4.8.3 Impacts of Alternative B (Preferred Alternative)

This alternative will have a direct and beneficial impact on visitor use and experience for the whole island. It will allow access to SMI for a significant portion of the SMI visitor base (average of 6810 annual ferry passengers versus 518 annual private boats) with fewer disruptions of ferry service. This impact is considered moderate beneficial in that it allows access to SMI by the largest primary group of visitors.

During the construction period (estimated to be approximately three to four weeks), there may be a direct adverse impact to visitor use and experience at the area where the construction is performed. Even

though the construction crew and equipment will not interfere or delay loading and unloading of ferry boats, the visual presence and intermittent noise of equipment and the pile driving process may diminish the overall aesthetic experience for some visitors. Those who are visiting SMI for a wilderness or pristine type recreational experience may be impacted to a minor degree. This visual impact will occur only near the dock area and the noise impact will vary depending on how close to the dock the visitor is and upon the wind speed and direction. These impacts may be mitigated by establishing construction curfew periods as stated in Section 2.2 to minimize impact to camper experience.

Potential dock extension to the existing dock would have a beneficial effect on visitor use and experience over a prolonged period because it will allow continued access to SMI by visitors. Construction related impacts associated with noise and visual intrusion will be negligible to minor because it will be only for the brief period of construction.

5.0 CONSULTATION AND COORDINATION

5.1 EARLY COORDINATION

Internal scoping was conducted by an interdisciplinary team of professionals from the National Lakeshore. Interdisciplinary team members discussed the purpose and need for the project; various alternatives; potential environmental impacts; past, present, and reasonably foreseeable projects that may have cumulative effects; and possible mitigation measures.

5.2 AGENCY CONSULTATION

Agency correspondence is presented in Appendix B. In accordance with the Endangered Species Act, the NPS contacted the USFWS with regards to federally listed special status species, and in accordance with NPS policy, the National Lakeshore also contacted the MDEQ with regards to state issues of concern including state-listed species. The results of these consultations are described in the *Special Status Species* section in the *Environmental Consequences* chapter.

In accordance with Section 106 of the National Historic Preservation Act, the NPS also contacted the Michigan SHPO an opportunity to comment on the effects of this project. The results of this consultation are described in the *Historic Structures* section in the *Environmental Consequences* chapter.

5.3 PUBLIC PARTICIPATION

The EA will be released for public review to inform the public of the availability of the environmental assessment, the NPS will publish and distribute a letter or press release to various agencies, tribes, and members of the public on the park's mailing list, as well as place an ad in the local newspaper. Copies of the EA will be provided to interested individuals, upon request. Copies of the document will also be available for review at the National Lakeshore's visitor center and on the internet at http://parkplanning.nps.gov/.

The EA is subject to a 30-day public comment period. During this time, the public is encouraged to submit their written comments to the NPS address provided at the beginning of this document. Following the close of the comment period, all public comments will be reviewed and analyzed, prior to the release of a decision document. The NPS will issue responses to substantive comments received during the public comment period, and will make appropriate changes to the EA, as needed.

6.0 LIST OF PREPARERS

The following individuals contributed to the preparation of this Environmental Assessment:

PREPARERS:		
Name	**Organization**	**Role**
Joseph Caryl	AMEC Environment & Infrastructure (AMEC)	Project Manager
William Elzinga, MS	AMEC	NEPA Lead
Stephen Stumne, MS	AMEC	Terrestrial Resources
Samuel McCord, PhD	AMEC	Aquatic Ecology
James Veenstra, MS	AMEC	Water Resources
Caleb Leonard	AMEC	Environmental Planning Support
Linda Hart	AMEC	Environmental Planning Support
CONTRIBUTORS:		
Name	**Organization**	**Role**
Tom Ulrich	Sleeping Bear Dunes National Lakeshore (National Lakeshore)	Deputy Superintendent
Lee Jameson	National Lakeshore	Project Manager
Dianne Flaugh	National Lakeshore	Compliance Review
Mike Duwe	National Lakeshore	Compliance Review

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