



# Platte River Mouth Restoration and Access Plan Environmental Assessment

## Sleeping Bear Dunes National Lakeshore



November 2016

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# **1.0 PURPOSE AND NEED**

## **1.1 INTRODUCTION**

The National Park Service (NPS) proposes a Restoration and Access Plan for the mouth of the Platte River in Sleeping Bear Dunes National Lakeshore (National Lakeshore).

This Environmental Assessment (EA) identifies the no action alternative (current management), two action alternatives, and their potential impacts on the environment. The document has been prepared in accordance with the 1969 National Environmental Policy Act (NEPA), as amended and the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.9). The project is consistent with management zones designated in the 2009 General Management Plan (GMP) for the National Lakeshore (NPS 2009).

### **1.1.1 DESCRIPTION OF THE PARK**

The U.S. Congress established the National Lakeshore on October 21, 1970 (Public Law 91-479) to preserve “outstanding natural features, including forests, beaches, dune formations, and ancient glacial phenomena” for the “benefit, inspiration, education, recreation, and enjoyment of the public.”

The 71,291-acre National Lakeshore is located in the northwestern portion of Michigan’s Lower Peninsula (Figure 1-1) in Benzie and Leelanau Counties. The National Lakeshore preserves outstanding scenic and publicly accessible resources with plant and animal communities that are of a scale and quality that is rare on the Great Lakes shoreline. Ecological communities transition from shoreline edge to climax hardwood forest and include dune communities, interdunal wetlands, and freshwater resources (e.g., lakes and streams). Visitor opportunities and experiences also abound within the National Lakeshore

including: a dune climb, scenic drives, beaches and islands, opportunities for quiet solitude and naturalness, river experiences, natural and cultural heritage, hunting, and fishing.

### **1.1.2 BACKGROUND AND STUDY AREA**

The study area is located approximately 12 miles by road southwest of the village of Empire, Michigan in the southwestern portion of the National Lakeshore’s Platte River District. The Platte River District begins south of the village of Empire, extending along the shoreline of Lake Michigan south to the northern edge of Crystal Lake; and encompasses the lower 4.6 miles of the Platte River. The study area extends from the mouth of the Platte River at Platte River Point (Platte Point) eastward 1.5 miles to the Tiesma Road beach access (Figure 1-2).

The Platte River is the primary river within the 193-square mile Platte River watershed, which begins at Long Lake in Grand Traverse County and extends westward to Lake Michigan.

Approximately 76 percent of the watershed is in public ownership by the State of Michigan and the NPS. The Platte River originates at Lake Ann on the west and flows through Bronson, Big and Little Platte, and Loon lakes before it outlets into Lake Michigan. The river has stable groundwater, high flow stability, and low susceptibility to drying out due to significant groundwater input and low flow variability. Water resources are generally considered to be of good quality, with biotic communities more likely controlled by biologic processes within the stream than by environmental variability (NPS 2009).

The Platte River has been a primary conduit for hatchery-raised Coho and Chinook salmon to get to Lake Michigan. Salmon were introduced into Lake Michigan in 1966 in an effort to control invasive fish species like alewives that were impacting native trout populations.



Figure 1-1. Location of the National Lakeshore within the region (NPS 2008).



Figure 1-2. Study area location in the Platte River District of the National Lakeshore (aerial photo: USDA 2014).

The Platte River hatchery was the State's first salmon hatchery. The presence of salmon draws fishermen to the Platte River and Lake Michigan, especially in the spring and fall. The fall salmon spawning occurs from mid-September to mid-October and draws fishermen to the lower portion of the river to fish from the riverbanks or to launch boats to fish within the lake. Currently, other hatcheries within the state and the natural spawning of salmon have spread opportunities for salmon fishing to locations throughout Lake Michigan and its tributaries.

Recreational boat access to Lake Michigan in and around the National Lakeshore is possible in numerous locations (Figure 1-3). Boat ramps are located at the end of county roads at Platte Point, Empire, and Glen Arbor. Boat access facilities are currently available at Leland (not shown) and Frankfurt. The Platte Point ramp is a poured-in-place concrete slab approximately 40 feet (ft) wide, and is located on the eastern side of the Platte River about 900 ft from the dredged confluence with Lake Michigan (Figure 1-4). The boat ramps at Empire and Glen Arbor are removable steel grate systems. The ramps are put out in the spring and removed in the fall to accommodate use during key recreational months and to minimize maintenance costs. Neither of these boat ramp locations includes wave attenuation devices in the lake for use during windy or stormy conditions. The communities of Leland (located about 18 miles north of Glen Arbor) and Frankfurt provide wave attenuated boat access to the Lake.

The location of the river mouth at Platte Point is generally influenced by lake levels and the frequency and intensity of storm events. Under natural conditions with high lake levels and river flood conditions, the river mouth is more likely to dramatically move to the west (Baird/URS 2011). Once water levels return to average or low levels, the river mouth will begin to migrate back to the east. This movement generally occurs over a period of years. Additionally, waves in Lake

Michigan moving parallel to the shoreline (longshore currents) deposit sand at the river mouth, causing it to gradually fill in.

Dredging between the boat ramp and river mouth has been performed regularly by the NPS or the State of Michigan since 1968. Dredging began as a response to seven fatalities on Lake Michigan during a storm in September 1967, in which boaters were unable to easily access the Platte River due to shallow water conditions at the river mouth. Dredging only occurs after Labor Day, during fall salmon spawning and primarily at the sand bars near the mouth. The goal is to ensure sufficient water depths for recreational boaters to access Lake Michigan without the need to raise motors or walk their boats. Dredging costs on average approximately \$10,000 per year. In 2013, budget constraints led the NPS to stop dredging, and instead the State dredged that year. Due to high lake levels and economic constraints, dredging did not occur in 2014 and 2015. In 2016, the Michigan Department of Natural Resources resumed dredging operations under NPS permits.

A study on dredging at the Platte River Mouth conducted by the NPS' Geological Resources Division (NPS 2005a) concluded that human disturbances and dredging operations have directly altered this reach of the Platte River, meaning the segment of river from the boat ramp at Platte Point to the river mouth. Deposition of dredge materials along the river banks (Figure 1-4) has directly altered the adjacent shoreline environments by preventing the establishment of desirable dune vegetation.

Dredging practices in this reach have reduced the river from its natural width of 80 ft to an average of 30 to 50 ft; and the depth has been increased from 1 foot or less to 2.5 ft to meet dredge permit criteria for boat access. The NPS Study (NPS 2005a) noted that a narrower channel must either increase its velocity or be deeper to maintain flow continuity, and that dredging only slightly improved boating access



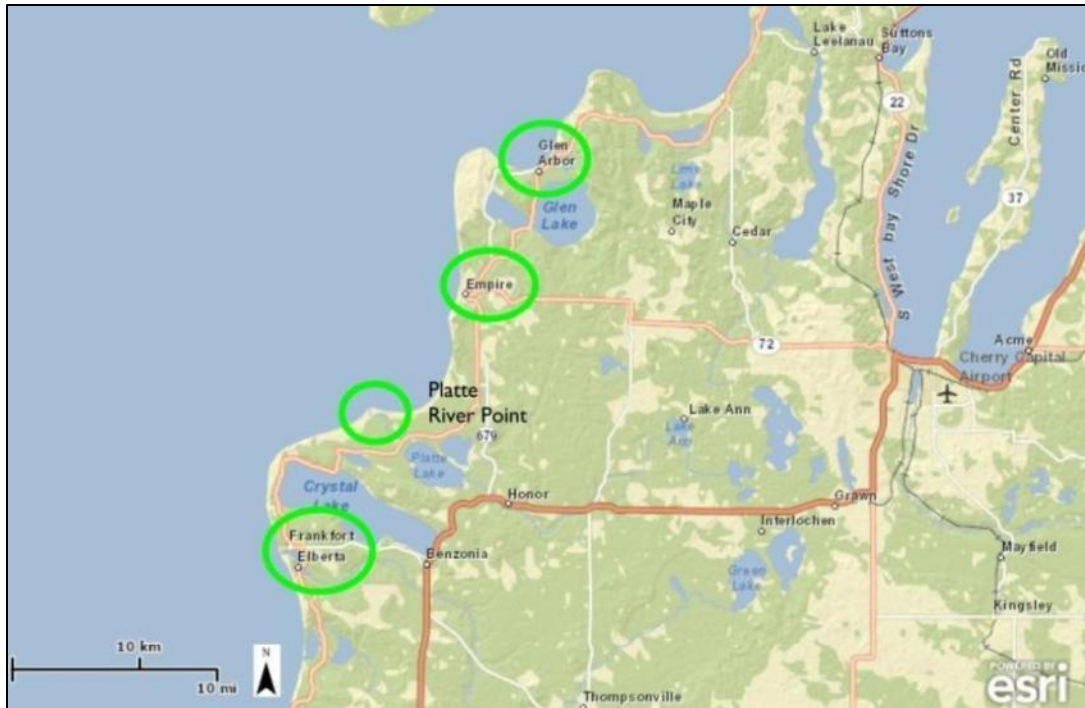


Figure 1-3. Existing recreational boat facility locations (circled in green) along Lake Michigan shoreline (Source: ESRI 2016).



Figure 1-4. Recreational facilities located at Platte Point (aerial photo: USDA 2014).



in 2005 as the entire dredge channel length had a minimum depth of 2.5 ft. It also noted that should a storm with large waves occur, dredging would have provided a negligible safety benefit for recreational boaters.

The July 2016 assessment of the river by NPS staff indicated that the first 500-ft reach heading downstream from the boat launch is 5 to 5.5 ft deep. The next 200-ft reach (500 to 700 ft downstream) is 4 to 4.5 ft deep. The next 100-ft reach (700 to 800 ft downstream) is over 3 ft deep. The last 100-ft reach is less than 2.5 ft deep. The desired/permitted dredged depth of the river is a 2.5-ft depth and 25-ft width, the minimum needed for boat passage.

Several practical considerations were noted within the 2005 dredging study (NPS 2005a) including:

- The dredge spoil piles are a physical and aesthetic irritant to swimmers due to the

gravelly nature of the dredge materials and the steep bank that has replaced the normally wide and flat beach.

- Swimmers outnumber the total number of boats launched during September by a factor of 10.
- Recreational costs outweigh benefits – 30-50% of all boats launched in September benefit a small, short-term user group compared to the deleterious effects for the larger recreational groups during the full summer.

Historic aerial photographs from May of 1974 (Baird/URS 2011) indicate a 100-foot groin, an engineered structure designed to catch sand moving in waves or currents, and other features (sand spit and jetties) present at Platte Point (Figure 1-5 inset photo). The groin at the river mouth was likely constructed to stop natural river migration to the east. Note that the groin is not visible in 2014 aerial photographs of the river mouth (Figure 1-5).



Figure 1-5. Location of structural features noted in the inset 1974 aerial photograph (Baird/URS 2011) compared with USDA 2014 aerial photograph in which these features are absent.

A large quantity (estimated at 11,000 cubic yards) of stockpiled dredge spoils, sand and gravel, removed from the river mouth is located near the mouth of the river, on the riverbanks. Spoils have been placed on the eastern side of the river for the last 20 years due to ease of access. Deposition of spoils on the western side has been avoided as it would not change river migration patterns and it is not as accessible. Additional spoils from dredging by the State in the fall of 2016 will be added to the amount on the eastern side.

The Platte Point area attracts a large number of visitors annually to kayak, canoe, swim, fish, or hike. In addition to the existing recreational boat ramp, facilities at the Point include a canoe and kayak take-out, a Township park, restrooms, and parking lots (Figure 1-4). Lake Township owns and maintains the park, canoe and kayak take-out, and the adjacent parking lot (Figure 1-6). Benzie County owns and maintains Lake Michigan Road and the boat launch. The NPS owns and maintains the large parking lot and restroom facility east of Township Park (Figure 1-7), and a small parking lot adjacent to the boat launch. Roads and facilities present at Platte Point are maintained in excellent condition in an effort to accommodate the large number of annual visitors to this location.



Figure 1-6. Existing facilities at Platte Point maintained by Lake Township include a park, parking lot, and canoe/kayak takeout (photo credit: Vireo, 2014).



Figure 1-7. The NPS maintains two parking lots and a restroom facility at Platte Point (photo credit: Vireo, 2014).

Future facilities improvements in the Platte River Corridor have been proposed as part of the NPS Targeted Accessibility Improvement Program (TAIP), including accessibility upgrades to the campground, picnic area, restrooms, parking, canoe/kayak launches, wayside exhibits, and beach access. Actions would begin to be implemented starting in 2017.

Public use records for the Platte River from 2011 through 2013 indicated a range of 82,000 to 93,000 visitors monthly in July and August. The large number of visitors to this area places considerable demands on resources, facilities, and staff while increasing potential conflicts and safety concerns. See Section 3.2 for more information on visitor conflicts and safety.

There are a number of documents developed by NPS including the General Management Plan (GMP; NPS 2008), Assessment of Natural Resource Conditions (NPS 2009), Great Lakes Network Inventory and Monitoring (NPS 2011; Corace 2009; Casper 2008), and the Washington Support Office (WASO) Natural Resource Stewardship and Science Inventory and Monitoring (NRRS I&M) Service Center that identify and describe the National Lakeshore's significant natural resources including dunes and shore, critical dunes, piping plover critical habitat, coastal forest, northern hardwoods, and northern conifers within the study area.

The region's climate is affected by Lake Michigan, resulting in a relatively temperate and humid environment that directly influences the composition of the surrounding plant communities. While dune and coastal forests are the primary ecological communities present within the study area, northern hardwoods and various conifer forest-types are present along the eastern end. The coastal forest is subdivided into oak-pine and birch-maple-aspen communities. Vegetation in the dune shoreline areas consists of grasses and forbs, with shrubs at the back edge of the "storm beach," which is devoid of vegetation due to high waves, ice, and drifting sand. The storm beach provides foraging habitat for birds. See the map in Figure 3-3 that delineates vegetation communities within the study area.

The shoreline in the study area in the southernmost part of the National Lakeshore provides habitat for a variety of wildlife including piping plover, a state- and federally-listed endangered species. Piping plovers prefer wide, sandy, open beaches along the lakeshore for feeding and nesting. Nesting territories are generally sparsely vegetated with scattered cobblestones. Wetlands, lagoons, and

river habitats are also necessary to provide food for piping plover chicks.

The shoreline of Lake Michigan in the Platte River District is denoted as Piping Plover Critical Habitat (See Figure 3-2). Management of this critical habitat is challenging due to the high public use in and around the Platte River. During the spring nesting season, NPS staff utilize enclosures to protect nest sites. The enclosures are placed in a manner that is sensitive to recreational pressures in places like Platte Point so as to protect nests while providing public access to the Platte River and Platte Bay.

Management within the National Lakeshore is divided into four zones (GMP 2008) that prescribe how resources, visitors, and facilities will be managed in the different areas in an effort to protect natural and cultural resources to the greatest extent possible given available funds (Figure 1-8). These management zones include: High Use, Experience History, Recreation, and Experience Nature.

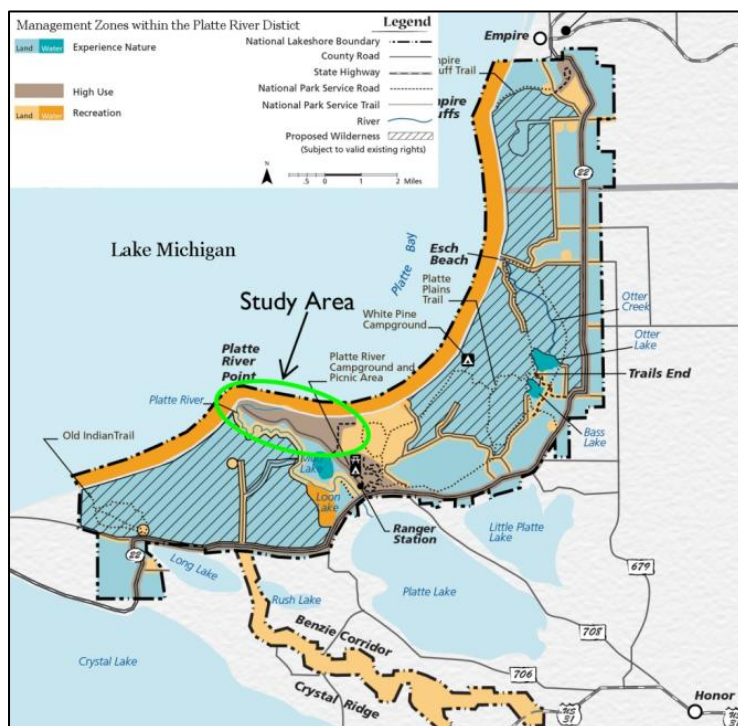


Figure 1-8. Management Zones within the Platte River District (NPS 2008).

The Platte River and adjacent areas east to Tiesma Road are currently zoned High Use, which refers to High Visitor/Development Use. This zone provides for high levels of recreational use and potential development to accommodate visitor uses. This zone is designated for visitor orientation, education, and other structured activities. According to the GMP, the High Use zoning of this area allows the NPS to evaluate providing boat ramps or docks for access to Lake Michigan, if appropriate. This EA evaluates the appropriateness of these uses within the study area.

The Experience Nature zone is intended as the most natural zone where visitors may enjoy low-impact recreational activities in a mostly unaltered inland land and water landscape. High priority is placed on protecting and preserving natural resources. General activities include hiking and wildlife viewing.

The Recreation Zone is mostly natural in character with minimal development to facilitate visitor uses of inland land and water facilities like hiking trails, backcountry campgrounds and swimming beaches.

The NPS commissioned two studies relating to management options for dredging and boat access at Platte Point. In 2011, a report was completed that summarized information on historical shoreline changes at Platte Point and outlined preliminary concepts for dredge spoil management, removing spoil piles and providing recreational access (Baird/URS 2011). The report concluded that continuation of annual dredging appears to be the most practical and least costly but, does present significant site impacts. In 2014, a second report that included several conceptual recreational access designs, spoil management and disposal options, and restoration options was completed (SFS Architecture/Vireo 2014). The report summarized activities related to the alternative access locations and noted that if dredging were discontinued, an alternative location for recreational access may be needed. It also noted that salmon migration should be monitored to determine if actions would be necessary to provide river access in the absence of

dredging. Additional information from both studies is presented throughout this EA.

## **1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION**

The purpose of this Platte River Mouth Restoration and Access Plan project is to restore fluvial geomorphic processes and the aquatic ecosystem functions to the mouth of the Platte River while maintaining recreational boat access to Platte Bay, in Lake Michigan, in a manner that is sensitive to the National Lakeshore's natural resources (such as habitat, wildlife, and protected species) and the needs of the visiting public.

Restoration of fluvial geomorphic processes and ecosystem function is needed due to the Platte River having been dredged annually to maintain boat access to Platte Bay, and the dredge spoils placed on the riverbank at the mouth of the river, mostly on the eastern side. These actions have resulted in the unnatural control and channelization of the river and the creation of an artificial sand and gravel mound that interferes with aesthetics, public use, and with use of the site by rare plant and animal species. Figure 1-9 illustrates a constantly changing shoreline in relation to lake levels over a 56-year time span. The map illustrates how dynamic these fluvial geomorphic processes are even with dredging activities. Note the northern and westward shift of the Lake Michigan shoreline from 1954 (red dotted line) to 2007 (yellow line). Figure 1-10 illustrates changes to the river and adjacent Lake Michigan shoreline evaluated for 1954 and 2010 that have likely occurred as a result of dredging activities. Additional information is provided in Section 3.1.4.

Recreational boat access to Platte Bay is highly desirable as paddlers, boaters and fishermen come to Platte Point because it is the only access facility between Empire and Frankfort, and is the closest location to the Platte River salmon hatchery and the historic salmon migration area.



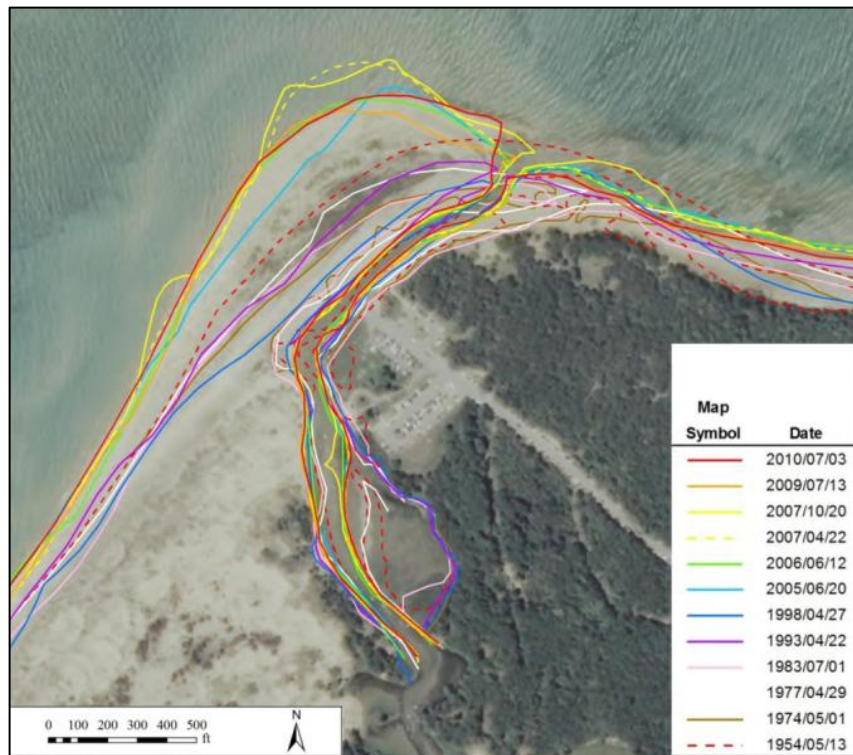


Figure 1-9. Historic shoreline changes from 1954 through 2010 illustrated on a 2010 aerial photograph showing Platte Point and adjacent beach conditions (Baird/URS 2011).

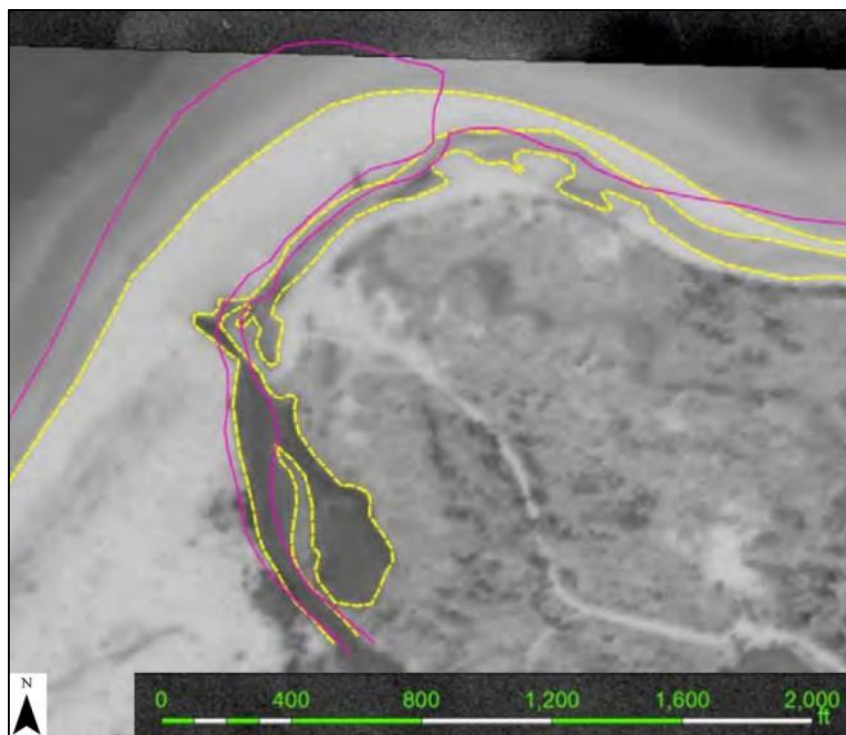


Figure 1-10. Select historic shoreline change from 1954 (pink line) to 2010 (yellow dotted line) illustrated on a 1954 aerial photograph (Baird/URS 2011).



A sustainable access plan is needed that is economically feasible and conforms to applicable laws and the NPS mission and policies. The following objectives were identified during the initial project planning phases and must be achieved for the project to be considered a success:

- Restore natural conditions and processes to the river mouth and beaches to the greatest extent practical.
- Reduce impacts to the Platte River due to dredging, and improve dredge spoil pile management should dredging continue.
- Identify, minimize, and mitigate effects on federally endangered and other sensitive species.
- Provide recreational boat access to Platte Bay.

### 1.3 SCOPING PROCESS AND IDENTIFIED ISSUES

Agencies and the public were invited to help develop the project scope. Scoping brochures describing project purpose, need, and alternatives were sent to 107 associated resource and regulatory agencies, Native American Tribes, interest groups, and the public. A press release was distributed to the National Lakeshore's media list on October 1, 2015. A 45-day comment period was held from October 1 through November 15, 2015. Simultaneously, the scoping brochure was placed on the NPS Planning, Environment, and Public Comment (PEPC) website page for the park ([www.parkplanning.nps.gov/platte](http://www.parkplanning.nps.gov/platte)).

Approximately 35 people attended a public information meeting held on October 15, 2015. Appendix A contains copies of the scoping brochure and press release. NPS staff attended additional public meetings during the scoping

period to provide more information about the project at the request of State Senator Darwin Booher (October 23) and the Lake Shores Garden Club (November 12).

The public comment period resulted in 51 comments from the PEPC website, two emails, and 11 letters for a total of 64 comments. A full summary of public comments is available in the Public Scoping Analysis Report (NPS 2016a) on the PEPC website.

The planning team identified the following issues during project scoping:

- Fluvial geomorphic processes in the Platte River, including the confluence of the river with Lake Michigan
- Critical habitat protection for the National Lakeshore's federally endangered piping plover (*Charadrius melodus*) population
- Vegetation impacts, including the National Lakeshore's federally threatened Pitcher's thistle (*Cirsium pitcheri*) population
- Recreational use impacts
- Viewsheds and aesthetics
- Character of the area
- Consistency with the National Lakeshore's GMP

Identified issues were grouped into impact topics described in the next section, which are carried through the analysis in the EA. The affected environment under each of the impact topics is identified and analyzed in Chapter 3.

### 1.4 IMPACT TOPICS

Impact topics are resources of concern that could be adversely affected by implementing any of the proposed alternatives. NEPA instructs agencies to undertake an assessment of

the environmental effects of their proposed actions prior to making decisions and to evaluate those impact topics that are most significant (meaning pivotal issues or issues of critical importance).

#### **1.4.1 IMPACT TOPICS SELECTED FOR DETAILED ANALYSIS**

Each of the following topics would be impacted by the proposed alternatives and have been retained for analysis in this document.

##### **Wildlife and Wildlife Habitat:**

As noted in Section 1.1.2, there are several habitat types present within the study area from dunes to northern hardwood forests that are important to a variety of wildlife. Implementation of the proposed alternatives could potentially impact habitat and restoration efforts within the study area.

##### **Threatened and Endangered (T&E) Species:**

There are state- and federally-listed threatened and endangered species within the study area that could potentially be impacted by implementation of the proposed alternatives. The Endangered Species Act (ESA) of 1973 requires an examination of impacts on all federally-listed threatened or endangered species. The NPS must cooperate with both the US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service to ensure that NPS actions comply with both the written requirements and the spirit of the ESA (NPS 2006). In initial consultation during public scoping, the USFWS noted the presence of the Great Lakes piping plover and Pitcher's thistle and the need to evaluate potential impacts by the proposed alternatives and visitor use within the study area.

##### **Vegetation:**

Dune and forest vegetation communities are present within the study area (see Section 3.1.3 for detailed descriptions of the vegetation communities present within the study area). The NPS has focused efforts within the study area on restoration of fore-dune habitats disturbed by removal of residential development. Construction activities under the proposed "new-build" alternatives may have short- and long-term impacts on dune habitats and existing vegetation. The dune habitat, while essential for some plant species, also provides protection of the shoreline from wave action and erosion. Increased visitation at certain locations from new facilities could also have impacts through general disturbance and the introduction of invasive species. This document will evaluate the impacts to vegetation from construction and increased visitation.

##### **Water Resources:**

The NPS is required to manage streams to protect stream processes (including flooding, stream migration, and associated erosion and deposition) that create habitat features. The NPS is required to manage wetlands in compliance with Executive Order (EO) 11990 (Protection of Wetlands), the Clean Water Act (CWA), the Rivers and Harbors Appropriation Act of 1899, and Director's Order (DO) 77-1 (NPS, 2006). EO 11988 and DO 77-2 require the NPS to avoid impacts to floodplains.

The Platte River is listed in the 1993 Nationwide Rivers Inventory (NRI) update. The listing includes free flowing rivers throughout the U.S. that are believed to possess one or more outstandingly remarkable natural or cultural values (ORVs) of greater than local or regional significance. The inventory provides information for statewide river assessments and locations of naturally functioning systems that may serve as references for monitoring activities. The entire segment of the Platte River within the National Lakeshore is listed for recreation, geology, fish, and cultural ORVs,

and has a potential classification as a recreational river.

The alternatives may have direct effects on the Platte River mouth and fluvial geomorphic processes, so this document will evaluate this topic. Wetland resources associated with the Lake Michigan shoreline are present within the study area and could potentially be impacted by construction of new facilities and roadway improvements, dredging and dredge spoil disposal. See Figure 3-5 for a map of wetlands within the study area.

### **Visitor Experience and Safety:**

The proposed alternatives could potentially affect visitor experiences and safety for boaters and the general public that use the Platte Point area. This document will assess impacts to current and future park users.

## **1.4.2 IMPACT TOPICS DISMISSED FROM DETAILED ANALYSIS**

The following impacts were determined to be insignificant and/or not considered central to the issue or of critical importance. Therefore, these impact topics have been dismissed from further analysis in this document.

### **Fish and Fisheries:**

Changes in local fishing pressure due to the action alternatives may have small effects on fish populations or fishery resources. Implementation of the proposed alternatives would not impact the performance of the State of Michigan Department of Natural Resources (MI DNR) upstream hatchery or management of the fishery. Therefore, this impact topic was dismissed from further evaluation.

### **Socioeconomics:**

The CEQ Regulations for implementing NEPA require economic analysis of federal actions that could affect local or regional economies. Tourism strongly influences local and regional economies around the National Lakeshore. The

overall tourism benefits to the local economy from the National Lakeshore alone are estimated at \$141M annually (NPS 2015a). Real or perceived changes in recreational opportunities in Platte Bay as a result of the action alternatives may affect some local businesses, especially those focused on the specific use of Lake Michigan boat access. However, effects on the overall local economy would be minimal since recreational fishing opportunities would remain accessible at Platte Point and other nearby access locations under all proposed alternatives. The net tourism benefits of the National Lakeshore are not expected to change measurably under any alternative. Therefore, socioeconomics was dismissed from further detailed analysis.

### **Geological Resources and Soils:**

Geological resources and processes (including dune erosion and stabilization, fluvial processes) and soils represent the foundation of park ecosystems. Dunes and fluvial geomorphic processes and associated soils are affected by the proposed action. The analysis of the effects on geological processes and soils are specifically addressed as part of the dune and river ecosystems within Section 4.5 Vegetation and Section 4.6 Water Resources. Geological resources were dismissed from further analysis as a separate impact topic.

### **Air Quality:**

The NPS has the responsibility to protect air quality under both the 1916 Organic Act and the Clean Air Act (CAA), as amended. Accordingly, the NPS must seek to perpetuate the best possible air quality in the National Lakeshore to preserve natural and cultural resources, and sustain visitor enjoyment, human health, and scenic vistas (NPS 2006). The National Lakeshore is a Class II air quality area under the CAA. This designation allows for limited amounts of new air emissions.

Under the proposed alternatives, construction activities and annual dredging activities would

occur that could result in a temporary increase in vehicle exhaust and emissions. Dust associated with exposed soils would be controlled with the application of water or other approved dust palliatives, if necessary. Contractors would be required to maintain equipment in proper working condition to minimize exhaust and emissions. Overall, there could be short-term, minimal degradation to local air quality during dredging or construction activities. However, no measurable effects outside of the immediate area would be anticipated. Therefore, air quality was dismissed as an impact topic.

### **Climate Change:**

The CEQ provides guidance to federal agencies on when and how to consider the effect of greenhouse gas emissions and climate change in the evaluation of proposed federal actions in accordance with the NEPA and CEQ Regulations. Climate change impacts from the proposed action are not expected.

### **Cultural Resources:**

Cultural resources in the National Lakeshore include archeological resources and historic structures and landscapes. NPS strategies include promoting the preservation and protection of these resources in place by eliminating and avoiding natural and human impacts, stabilizing sites and structures, monitoring conditions, and enforcing protective laws and regulations (NPS 2008).

NPS staff from the Midwest Archeological Center (MWAC) evaluated locations within the study area in 2015 and 2016 (NPS 2016c) and determined the following:

- There are no archeological resources present in the dredge spoil piles, which are considered modern developments and therefore, do not have the potential for extant archeological sites.
- Active dunes on shorelines are unlikely to have significant archeological

resources at a depth that can be reached by standard archeological testing methods, so no additional archeological work is necessary for this portion of the proposed work.

There are no known historic structures or cultural landscapes in the study area. If any historic structures or archeological artifacts (shipwreck pieces, dock remains, dugouts, etc) are discovered during project implementation, the NPS would stop work and evaluate per National Historic Preservation Act (NHPA) procedure and NPS policies (including consultation with the State Underwater Preserve) prior to proceeding.

Therefore, this impact topic was dismissed as an impact topic.

### **Environmental Justice:**

Presidential Executive Order (EO) 12898 - *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to focus attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities. The EO directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.

Both minority and low-income populations are present within the general vicinity of the National Lakeshore. However, environmental justice was dismissed as an impact topic for the following reasons:

- NPS staff at the National Lakeshore solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, gender, income

status, or other socioeconomic or demographic factors.

- The impacts associated with any proposed alternative would not disproportionately affect any minority or low-income population.
- Implementation of any proposed alternative would not result in any identified effects that would be specific to any minority or low-income population

### **Indian Trust Resources:**

Indian trust resources are those natural resources located on or off of Native American Tribal lands that are either retained by or reserved by or for Native American Tribes through treaties, judicial decisions, and EOs, and which are protected by a fiduciary obligation on the part of the U.S.

There are no Indian trust resources in the National Lakeshore. The lands comprising the National Lakeshore are not held in trust by the Secretary of the Interior for the benefit of Native Americans due to their status as such (GMP 2008). Therefore, this impact topic was dismissed from further analysis.

Other topics were dismissed because the topics or impacts were not identified as critical for decision-making or were analyzed to some extent (e.g., noise on wildlife and visitors) in other subjects. The topics include:

Soundscapes, Wilderness, Ethnographic Resources, Energy Requirements and Conservation Potential, Prime and Unique Agricultural Lands, Museum Collections, Solid and Hazardous Waste, and Lightscares.



## 2.0 ALTERNATIVES

Several alternatives were developed and evaluated in this EA to determine the appropriate action the NPS should take to accomplish the project purpose and need.

The NPS proposes to restore the aquatic ecosystem functions and fluvial geomorphic processes at the mouth of the Platte River, in Lake Michigan, and provide recreational access to Platte Bay in a manner that is sensitive to the National Lakeshore's natural resources and the needs of the visiting public.

Three alternatives were considered and carried forward for evaluation (Figure 2-1). An additional four alternatives were considered and dismissed because they either did not meet the project purpose and need, or had the potential to produce unacceptable levels of adverse impacts. These alternatives are described in Section 2.4 Alternatives Considered and Dismissed.

### 2.1 ALTERNATIVE 1: NO ACTION

Under the "No Action" alternative, no changes would be made to the current NPS management practices. Recreational boat access to Platte Bay would be available via the existing boat ramp at Platte Point that is owned and maintained by Benzie County. Annual fall dredging of the Platte River would continue dependent upon funding availability and need. The cost of dredging is approximately \$10,000 per year. Dredging of the river annually would also continue to add to the dredge spoil pile on the eastern riverbank (Figure 1-4). However, alternative spoils management (e.g., in-water disposal or off-site disposal) may be considered and impacts evaluated as part of any permitting efforts. Cost estimates for spoil disposal range from \$16 per cubic yard (CY) for off-site disposal to \$20 CY for in-water disposal. The

2011 Baird/URS Report noted that approximately 900 CY of spoil material is dredged annually, which would result in an approximate cost range of \$14,400 to \$18,000 annually, dependent upon disposal method. This would be in addition to the \$10,000 currently spent for dredging.

## 2.2 ACTION ALTERNATIVES

Two action alternatives were developed for evaluation that would meet the project purpose and need for river restoration; improved dredge spoil pile management; minimizing or mitigating impacts on federally endangered flora and fauna; and recreational boat access to Lake Michigan (Figure 2-1).

### 2.2.1 ALTERNATIVE 2: RESTORATION OF PLATTE POINT (PREFERRED & PROPOSED ACTION)

Alternative 2 is the proposed action and the preferred alternative. Under this alternative, recreational boat access to Platte Bay would remain available via the existing boat ramp and Lake Michigan Road owned and maintained by Benzie County. However, the NPS would no longer conduct the annual fall dredging of the river, and the existing dredge spoil piles along the river bank (Figure 1-4) would be removed and the river banks restored to pre-dredging conditions.

This alternative retains recreational boat access consistent with the GMP zoning. Boats would still be able to access Lake Michigan at the Benzie County ramp, although the ease of such access would be more dependent upon current lake levels, the location of the river mouth and the boating equipment involved. Increased consideration of the difficulty and risk associated with the use of a natural river mouth access point would be required of boaters as is the case for other unprotected boat access points. No expenditures for dredging or new facilities would be needed for this alternative.



Figure 2-1. Location of alternatives considered and carried forward for evaluation (aerial photo: USDA 2014).

The river mouth would be allowed to return to a more natural (i.e., pre-dredged) state over time. Rehabilitation of the river banks, through removal of the dredge spoil piles, will facilitate a return to naturally meandering river mouth. The remarkable resiliency of the river and lake to recover from past disturbances was noted in the 2005 Geological Study (NPS 2005a).

Rehabilitation of the eastern river bank by actively removing the dredge spoil pile and reshaping the bank to conditions that existed prior to stockpiling is the primary objective (Figure 2-2).

Rehabilitation and restoration of the western river bank (Figure 2-3) may be addressed, if deemed feasible and beneficial during final restoration planning.

The Baird/URS report (2011) did note that during the early years of dredging, approximately 2,600 CY of dredge material was placed along a 1,200-ft stretch of the western

river bank to stabilize the bank and to keep the river mouth from wandering. The viability and benefits of restoration efforts on the western river bank would be assessed during final design.



Figure 2-2. Looking southeast at the dredge spoil pile along the eastern river bank (photo credit: Vireo, 2015).



Figure 2-3. Looking north at the dredge spoils on the western river bank (photo credit: Vireo, 2015).

A conceptual illustration of restoration of the eastern bank is shown in Figure 2-4. SFS Architecture/Vireo (2014) characterized the dredge spoils using topographic LiDAR, due to the absence of reports and historic data. The x-axis represents the elevation in feet from sea level to the top of the existing dredge spoil pile in 2013. The y-axis represents the approximate distance from the high dune area to the water line of the lake in 2013. The volume of dredge spoils to be removed for restoration is approximately 12,000 CY. The cost estimate for removal and disposal is \$214,000 for in-water

and \$172,000 for off-site. Removal of the dredge spoil piles may be considered resource harvesting by the state and may require a permit. In-water disposal would require access to Platte Bay as well as additional permitting and environmental monitoring.

The 1974 aerial photograph (Baird/URS 2011) indicates the presence of a groin at the mouth of the river coming off of the eastern river bank (Figure 1-5). The groin is not visible in current aerial photography of this area. If the groin is found during excavation of the eastern dredge spoil pile, it would be removed as part of the restoration effort.

Disposal options for the dredge materials include in-water disposal, upland disposal, hauling off-site, or use as construction material. The 2014 SFS Architecture/Vireo report noted \$16 per CY for off-site to \$20 per CY for in-water disposal of the dredge spoils. Appropriate sites within the National Lakeshore for off-site disposal may include old gravel pits, demolition sites, etc, to avoid additional impacts to resources. Further environmental analysis would be completed for the selected disposal option.

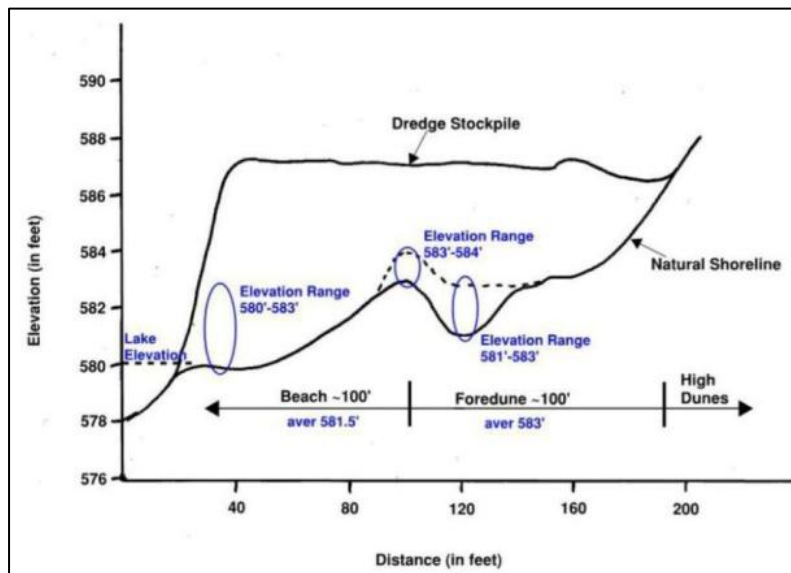


Figure 2-4. Conceptual illustration of proposed dredge spoils pile removal and beach and dune ecosystem restoration along the eastern bank of the Platte River approaching the river mouth (SFS Architecture/Vireo 2014).

Rehabilitation, restoration, and mitigation activities would generally be conducted in the fall (September to November) after the piping plovers have migrated and would include:

- Rehabilitation of the river banks including removal of existing spoil piles and vegetation and reshaping the contours that would be conducive to piping plover nesting (e.g., typical foredune with a large flat cobble pan behind it) on the eastern bank.
- Restoration of the beach and dune ecosystem landscape including replanting of vegetation during the appropriate growing season.
- Development of a plan to conduct river monitoring to track the success of passive or natural restoration in the river.
- Development of a plan to conduct vegetation monitoring to track the success of active restoration.

Both short- and long-term changes to operations would be required under this alternative. Short-term impacts of this alternative on operations would be the requirement for additional staff planning and management of contractors during removal of spoils piles and restoration measures on the western bank of the Platte River.

In the long-term, the NPS would be allowed to redirect budget dollars, staffing, and equipment from dredging, spoils management, and periodic permit renewal to other resources and maintenance needs. Other NPS management activities in the area would continue according to current planning document guidance and trajectories.

## **2.2.2 ALTERNATIVE 3: RESTORATION AND NEW BOAT ACCESS AT TIESMA ROAD**

Under this alternative, the NPS would cease dredging the Platte River and conduct restoration actions as described in Alternative 2.

In addition, the NPS would provide new recreational boat access to Platte Bay at Tiesma Road, east of Platte Point. The Benzie County boat ramp at Platte Point would remain open for recreational boat use as determined by the County.

The existing Tiesma Road is a 10-ft wide gravel road that leads to a small gravel parking lot and foot path to the Platte Bay beach. The public can also access the beach path by a trail from the Platte River campground located approximately 300 ft due east of the Tiesma Road beach access trail. Figures 2-5, 2-6, and 2-7 illustrate existing roadway and parking features.



Figure 2-5. Photo of the vegetation along the existing Tiesma Road heading north from Lake Michigan Road (photo credit: Vireo, 2015).



Figure 2-6. Photo of the existing Tiesma Road as it approaches the parking area and beach access on Platte Bay (photo credit: Vireo, 2015).





Figure 2-7. Existing parking area located at the end of Tiesma Road (photo credit: Vireo, 2015).

Figure 2-8 shows a typical removable boat ramp. Figure 2-9 illustrates a conceptual layout for proposed facilities. The conceptual design assumes the following features would be needed:

- Improvements to Tiesma Road
- Asphalt access road to the boat ramp
- Asphalt parking lot
- Removable geoweb boat ramp
- Single vault restroom
- Vegetation clearing (approximately 1.15 acres) and tree removal (approximately 1.2 acres)

**Roadways:** Tiesma Road would need to be upgraded to provide the widths and grades necessary for two-way traffic. This vehicular roadway would generally be widened by approximately 6 ft. The existing roadway is currently surfaced with aggregate and would be expected to remain as aggregate, maintaining the aesthetics of the primitive roadway and reducing the overall cost for providing boat access at this location.

The new roadway section from Tiesma Road to the boat ramp is proposed to be a 20-foot top width of asphalt for ease of maintenance given the location in the foredune and beach area.

Construction methods assume that all of the grading could be completed using typical earthmoving equipment without the requirement for off-site hauling, as excess soil would be used on-site.

Both road types would require maintenance and replacement on a somewhat frequent basis. Aggregate may need to be added to Tiesma Road every 1 to 2 years, but could be done with a front loader or road grader if the supplier delivers the aggregate and places it on the road at specific intervals. Asphalt repair and replacement on the new access road would occur at least every 8 years, with spot repairs occurring more frequently, and would likely require the NPS to retain a contractor. The portion of roadway within the dune area would also require cleaning or removal of windblown sand every 10 to 14 days during public use.

**Parking Lot:** One parking lot is proposed and would be expected to have approximately 30 parking stalls that could accommodate boat trailers. The parking lot would be approximately 60 ft wide by 150 ft long. Asphalt surfacing is proposed that would require annual maintenance, consisting of cleaning or removal of windblown sand every 10 to 14 days during public use, and repair or replacement every 8 years, with spot repairs occurring more frequently. Use of the existing parking lot (Figure 2-7) would be further evaluated during design to determine the potential to reduce impacts to resources and reduce operations and maintenance (O&M).

**Boat Ramp:** The boat ramp proposed for this alternative is a removable ramp, either concrete geoweb sections tied together with cable wire or metal fabricated sections that can be lifted and pinned together. Figure 2-8 illustrates similar type of ramp located at the village of Empire. A removable boat ramp is preferred over a permanent ramp to avoid frequent maintenance costs associated with removing sand deposited on the ramp in areas of accretion, or trying to repair erosion damage in scour areas. The removable ramp is also preferable for dealing with lake level fluctuations every year.





Figure 2-8. Removable ramp located at the access in the village of Empire, Michigan (photo credit: Vireo, 2014).

The length and width of the proposed boat ramp would approximately match the width of the existing ramp into the Platte River (40 ft), but would need to be longer (approximately 72 ft vs. 56 ft currently) in order to extend to a minimum depth of 4 ft below the typical lake water surface.

A ramp constructed of concrete geoweb sections, approximately 6 inches thick by 18 ft wide by 9 ft long, would require 16 sections. Each section would have to be dragged or lifted into place with a front end loader or a rented hydraulic lift. The weight of each section would be approximately 12,000 pounds (lbs).

In contrast, the size of the metal fabricated ramp sections are approximately 10 ft wide by 12 ft long, requiring 24 sections. Installation requirements would be similar to that of the concrete geoweb. The end of the ramp could be supported by a metal “sawhorse” within the water if the grade becomes too steep.

Wave attenuation structures are not being considered for the boat ramp due to the impracticality of design and potentially undesirable impacts to natural resources. Neither Empire nor Glen Arbor has wave attenuation structures for the removable boat ramps.

**Restroom:** The conceptual plan for this alternative indicates a single-vault restroom facility. Pre-fabricated, commercially available concrete structures are proposed that would be

easy to operate and maintain. Location of this facility would be further evaluated during design to minimize design issues and potential impacts on resources.

**Clearing and Tree Removal:** This alternative would require clearing and tree removal to accommodate facilities (i.e., the footprint of the widened or new roadway, parking lot, and restroom).

The NPS would implement restoration and mitigation measures described for Platte Point in Alternative 2. In addition to these, the following mitigation measures would be implemented:

- Removal of woody vegetation during winter months (October through March) to avoid immediate impacts to migratory birds.
- Revegetation of areas impacted by construction activities with appropriate native species.
- Application of erosion and sediment control best management practices (BMPs) for construction activities.
- Development of an adaptive management plan to address long-term monitoring and management of resources.

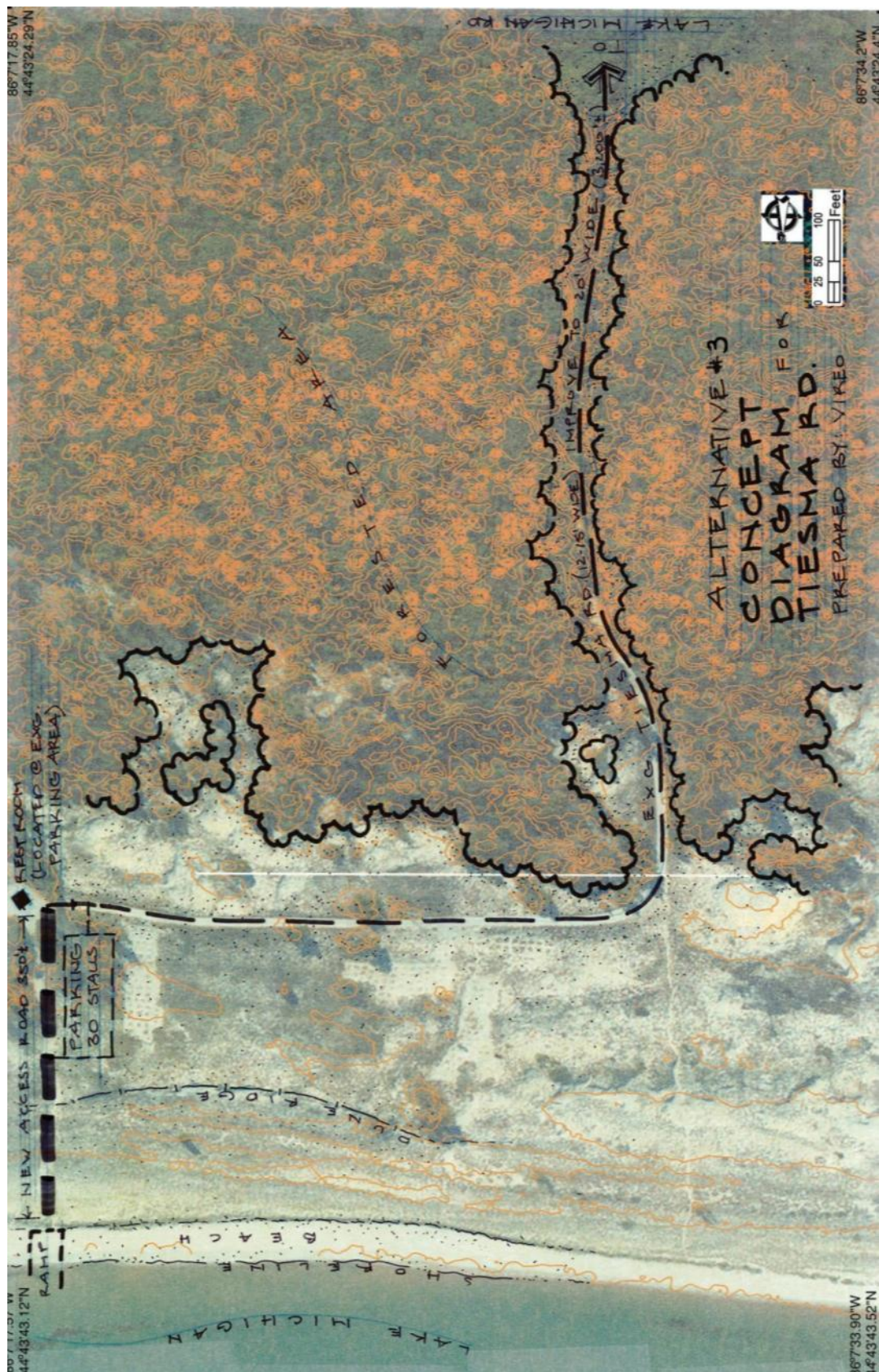


Figure 2-9. Conceptual plan for new recreational boat access to Platte Bay at Tiesma Road (SFS Architecture/Vireo 2014; aerial photograph USDA 2013).



## Summary:

Currently, the NPS maintains a small parking lot and beach trail at the end of Tiesma Road. Construction of new facilities and widening of Tiesma Road would have short-term (construction related) and long-term (O&M related) impacts on NPS budget, staffing, and equipment. In the long-term, the NPS would be required to budget for seasonal placement of the boat ramp and annual maintenance and repair of the boat ramp, restroom facilities and roadway. Staff requirements for this area would also include resource protection and maintenance. Estimates of operation and maintenance costs for the new facilities are comparable to the expenditures currently used for annual dredging at Platte Point.

NPS staff has noted issues with people parking along Lake Michigan road during times of peak visitation. The addition of facilities at this location may disperse visitors throughout this area and reduce the need for additional parking at Platte Point. It may also result in long-term impacts by attracting more public use to an area that is currently under used and under advertised.

## 2.3 ALTERNATIVES CONSIDERED AND DISMISSED

Four alternatives were considered but dismissed from detailed analysis because they did not meet project purpose and need, project objectives, or had the potential to produce unacceptable levels of adverse impacts to resources.

### 2.3.1 NEW BOAT ACCESS AT PLATTE POINT

The NPS considered providing new recreational boat access to Platte Bay at the northern end of Platte Point, east of the river mouth, using an old road cut through the dune just north of the current NPS parking lot. The existing dredge

spoil piles along the riverbank would be removed and the riverbank restored. The Benzie County boat ramp would remain open for recreational boat use without annual fall dredging of the river.

However, historic aerial photographs of the area prior to initiation of dredging and NPS acquisition (Figure 1-10) indicate that the river naturally migrates east and north, due to prevailing lake currents. Indeed, as shown in Figure 2-10, the proposed “new” access point (indicated by the yellow circle) would likely end up being within the Platte River at some point in the future once dredging ceases.



Figure 2-10. Public use of Platte Point prior to NPS acquisition (photo ca. 1967; source unknown).

The natural migration of the river mouth would likely cause long-term issues with use and maintenance of an access ramp at this location, and may require reinitiating dredging of the Platte River. Therefore, this alternative does not meet the project objectives and has been dismissed from detailed analysis.

### 2.3.2 NEW BOAT ACCESS AT ILLINOIS DRIVE

The NPS considered providing new recreational boat access to Platte Bay at Illinois Drive, east of Platte Point (Figure 2-1). The existing dredge spoil piles along the river bank would be removed and the bank restored. The Benzie County boat ramp would remain open for

recreational boat use without annual fall dredging of the river.

Illinois Drive is a semi-private roadway that originally provided access to numerous single family homes located in this area at the time the NPS acquired this part of the park. All but two properties were acquired by the NPS. Considerable effort and cost has been expended by NPS staff to restore forest and dune habitats within this area, and provide critical habitat for piping plovers and sensitive dune plants (Figure 2-11).



Figure 2-11. Vegetation within the critical dune habitat at Illinois Drive.

Construction of a boat access at this location would require a long access road (800 ft) beyond the existing Illinois Drive, which is almost twice the length needed for the Tiesma Road (Alternative 3) access, at considerable added cost. Implementation of this proposed access would incur substantial long-term adverse impacts to the forest and dune habitats.

Construction at this location could also impact the two adjoining private property owners. For these reasons, this proposed access location has been dismissed from detailed analysis.

### **2.3.3 OTHER BOAT ACCESS LOCATIONS – ESCH ROAD**

The Esch Road beach access (Figure 1-8) was suggested as an alternative boat access location during public scoping. Otter Creek is located within this proposed access area and has been known to occasionally naturally migrate to the north, in front of the proposed access point, creating a similar problem as has been seen at Platte Point. Under such circumstances, dredging would be needed to maintain access.

This location is also outside of the High Use zone for the Platte River District (Figure 1-8) that the GMP deemed appropriate for consideration of boat access facilities. The area is within the Recreation and Experience Nature zones that are intended to be natural in character, with a high priority placed on protecting and preserving natural resources.

Additionally, the Esch Road beach access is relatively close to the boat ramp in Empire, which would make this a somewhat redundant facility. For these reasons, this alternative was dismissed from detailed analysis

### **2.3.4 IMPROVED SPOILS MANAGEMENT ONLY**

During public scoping, a few commenters suggested alternatives to spoils management that could potentially alleviate the addition of dredge spoils to the eastern riverbank, should dredging continue. This alternative would only allow for limited restoration by itself and does not meet the NPS objective of restoring natural river processes. Alternative spoils management can already be considered under Alternative 1 – No Action, with impacts evaluated as part of any required permitting process. Therefore, this alternative has been dismissed from detailed analysis.

## 2.4 COMPARISON OF ALTERNATIVES

The following table summarizes the impacts under each of the three alternatives.

**Table 2-1. Comparison of Impacts by Alternative.**

Impact Topic	Alternative 1 No Action	Alternative 2 Restoration of Platte Point	Alternative 3 Tiesma Road Access
<b>Wildlife and Wildlife Habitat</b>	Adverse impacts to wildlife would only occur for a few weeks each year due to the noise and presence of dredging equipment and continued modification of the river channel.	Beneficial impacts to wildlife species would be through the addition of natural habitat, including beach habitat for foraging, due to the removal of dredged materials and the restoration of the area to a more natural state.	Beneficial impacts to wildlife species at Platte Point are the same as Alternative 2. However these may be offset by adverse impacts to wildlife and their habitats at the Tiesma Road area due to construction of facilities and increased public use.
<b>Threatened and Endangered Species</b>	Adverse impacts to piping plover critical habitat are not expected as plovers regularly attempt to nest on the dredge spoil piles and dredging occurs outside of nesting season. No other listed species occur in this area.	This alternative would result in beneficial impacts to piping plover critical habitat and other T&E species not currently present through restoration of the river banks to more natural conditions.	Beneficial impacts to piping plover critical habitat and other T&E species would result from restoration of Platte Point. Adverse impacts would occur to piping plover critical habitat, Pitcher's thistle, and Pumpelly's brome, and may occur to piping plovers, fascicled broomrape, and the Lake Huron locust from the construction of the boat ramp and associated infrastructure.
<b>Vegetation</b>	Adverse impacts to vegetation would continue due to the establishment of less desirable woody and herbaceous vegetation and other early successional non-dune species.	Impacts to vegetation would be beneficial due to removal of less desirable non-dune vegetation and restoration of dune conditions that are more conducive to sensitive dune species, including late successional dune species.	Impacts to vegetation at Platte Point would be beneficial as described in Alternative 2. Adverse impacts to vegetation including direct impacts to the Great Lakes Coastal Pine Barrens community that would occur at Tiesma Road due to construction of the facilities.
<b>Water Resources</b>	Under this alternative, continued dredging would adversely impact Lake Michigan and the Platte River, which are classified as wetlands; and some of the areas adjacent to the lake and along or near the river, which are classified as wetlands. There would be no impacts to the floodplain.	Beneficial impacts to wetlands would result from restoration of natural river migration. Deposition of sediments could provide a shallower environment for wetlands to form. No impacts to the floodplain are expected.	Impacts to water resources at Platte Point would be the same as Alternative 2. Perimeter wetlands along the Lake Michigan shoreline would be adversely impacted by the development of the boat ramp and facilities. No other wetlands would be impacted. No impacts to the floodplain are expected.



Impact Topic	Alternative 1 No Action	Alternative 2 Restoration of Platte Point	Alternative 3 Tiesma Road Access
<b>Visitor Experience and Safety</b>	<p>Impacts to visitor experience are not expected with this alternative. Visitors to Platte Point have been and would likely continue to use the eastern river bank regardless of the addition of dredge materials.</p> <p>While impacts to boater safety would be beneficial due to seasonal maintenance of a deeper river channel, impacts to swimmers would remain a potential issue with the continued high use of the area.</p> <p>Impacts expected to fishing are not expected.</p>	<p>Visual character would benefit by the restoration of the river banks. Visitor use of the riverbanks could be more restricted within certain locations during the spring nesting season if restoration results in the need for more temporary enclosures to protect piping plover nest sites.</p> <p>Boater safety could be adversely impacted if the channel becomes shallow due to natural meandering and boaters are required to lift motors to enter or exit the river.</p> <p>Access to fishing in bay from the Platte River could be adversely impacted dependent upon changes in lake and river conditions. However, the public has access to salmon fishing throughout the lake and its tributaries.</p>	<p>Beneficial and adverse impacts would occur at Platte Point as described in Alternative 2.</p> <p>Beneficial impacts to visitor experience and safety could result due to dispersing of park users within the high-use zone.</p> <p>Adverse impacts could occur at Tiesma due to the increased public use of an area previously undeveloped and underutilized for watercraft and additional recreational uses.</p> <p>Impacts to boater safety at the new ramp may be adverse as boaters would have unprotected access similar to other accesses around Lake Michigan.</p> <p>An additional recreational boat access to Lake Michigan from Tiesma Road would be a beneficial impact for recreational fishing.</p>

## 3.0 EXISTING CONDITIONS/AFFECTED ENVIRONMENT

### 3.1 NATURAL RESOURCES

The information presented in this chapter provides baselines for evaluating the impact topics from Chapter 1 that may potentially be affected by the proposed project alternatives.

#### 3.1.1 WILDLIFE AND WILDLIFE HABITAT

Wildlife habitat present at the National Lakeshore includes wetland and aquatic areas, forests (primarily coastal forests), dune systems and open fields (not including developed recreational areas). The study area for this assessment primarily consists of dune and coastal forest ecological communities. Vegetation becomes established inland from the “storm beach” in the shoreline dune areas. The “storm beach”, while devoid of vegetation due to high waves, ice, and drifting sand, does provide foraging habitat for shorebirds. Dune systems support sparse grasses and forbs, with shrubs established further inland. The coastal forest is subdivided into several tree communities that provide shelter and a food source for a variety of wildlife.

The following information is based on a review of numerous past reports, and supplemental site visits. Additional information on vegetation communities and references for source information can be found in Section 3.1.3.

A variety of wildlife species have been documented in the National Lakeshore including 74 species of fish, 18 species of amphibians, 17 species of reptiles, 46 species of mammals, and 247 species of birds (NPS 2008).

Common mammal species observed in wetlands and aquatic areas include beaver (*Castor*

*canadensis*), otter (*Lontra canadensis*), mink (*Neovison vison*), and muskrat (*Ondatra zibethicus*). Other common wildlife species observed in wetland/aquatic areas include mallard (*Anas platyrhynchos*), green-winged teal (*Anas carolinensis*), great blue heron (*Ardea herodias*), snapping turtle (*Chelydra serpentina*), painted turtle (*Chrysemys picta*), leopard frog (*Rana pipiens*), and wood frog (*Rana sylvatica*).

Common wildlife species found in all types of forest habitats at the National Lakeshore include white-tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), fox squirrel (*Sciurus niger*), flying squirrel (*Glaucomys sabrinus*), eastern chipmunk (*Tamias striatus*), and deer mouse (*Peromyscus maniculatus*).

During the June 2016 site visit, numerous bird species were heard including: northern cardinal (*Cardinalis cardinalis*), chipping sparrow (*Spizella passerina*), eastern towhee (*Pipilo erythrophthalmus*), American redstart (*Setophaga ruticilla*), and yellow warbler (*Dendroica petechia*). Commonly observed forest birds include: ruffed grouse (*Bonasa umbellus*), pileated woodpecker (*Dryocopus pileatus*), downy and hairy woodpeckers (*Picoides pubescens* and *P. villosus*, respectively), red-breasted and white-breasted nuthatches (*Sitta canadensis* and *S. carolinensis*, respectively), black-capped chickadee (*Poecile atricapillus*), brown creeper (*Certhia americana*), barred owl (*Strix varia*), and great horned owl (*Bubo virginianus*).

Open fields and dunes provide valuable habitat for grassland nesting birds in the summer and for other wildlife throughout the year. In the dune systems of the National Lakeshore, representative birds include: bobolink (*Dolichonyx oryzivorus*), bluebird (*Sialia sialis*), killdeer (*Charadrius vociferus*), meadowlark (*Sturnella spp.*), horned lark (*Eremophila alpestris*), and northern harrier (*Circus cyaneus*).

Common mammals are white-tailed deer, red fox, and meadow vole (*Microtus pennsylvanicus*).

### 3.1.2 THREATENED AND ENDANGERED SPECIES

The Endangered Species Act (ESA) (16 U.S.C. - 1531 to 1544) requires federal agencies to determine the effects of their actions on federally-listed threatened and endangered species of fish, wildlife, and plants, and their critical habitats; and to take steps to conserve and protect these species.

The USFWS Information for Planning and Conservation (IPaC) system was utilized to determine federally-listed threatened and endangered species and their habitats with the potential to occur within the study area (USFWS 2016). Seven species may be located within the study area. These species are listed in Table 3-1. In addition, 49 state-listed endangered or threatened species and another 15 species of concern were identified as having the potential to occur in Benzie County. These species are listed in Appendix B.

The entire project area (except for portions of Tiesma Road) is within designated Critical Habitat for the piping plover. Critical habitat unit boundaries extend 500 meters (1,640 ft) inland from the normal high water line, although the inland edge of the area that contains the primary constituent elements may vary depending on the extent of the open dune system.

Based on the biological evaluation, several species were identified that are known to occur in the vicinity of the study area. Field surveys were completed on June 28, 2016. The biological evaluation study area is shown on Figure 3-1. Based on the fore dunes and interdunal wetland habitats present in the study area, the biological evaluation focused primarily on the following protected species:

- Piping plover (*Charadrius melodus*)
- Pitcher's thistle (*Cirsium pitcheri*)
- Pumpelly's brome (*Bromus pumpellianus*)
- Fascicled broomrape (*Orobanche fasciculata*)
- Lake Huron locust (*Trimerotropis huroniana*)
- Western moonwort (*Botrychium hesperium*)
- Spoon-leaf moonwort (*Botrychium spathulatum*)
- Pine-drops (*Pterospora andromedea*)
- Broad-leaved sedge (*Carex platyphylla*)
- Chestnut (*Castanea dentata*)

Fore dunes are the areas located just behind a beach and are often established with a few hardy plant species which stabilize the dunes and allow for establishment of additional plant species such as Pitcher's thistle. Interdunal wetlands are shallow ponds and pools located between dunes.

The area surrounding Platte Point provides suitable and regularly utilized nesting habitat for the piping plover (Figure 3-1). Plovers have nested on the western bank of the Platte River at Platte Point annually and nests are monitored by the NPS. Suitable nesting habitat is also located on and near the spoil pile on the eastern bank of the Platte River and piping plovers have nested there successfully. However, this area experiences higher human use levels, and as piping plovers are highly sensitive to disturbances, plovers have often abandoned nests in this area and moved to areas with lower levels of human activity on the western side of the Platte River and elsewhere in the park.

At the time of the site visit, two active piping plover nests were located on the western bank of Platte Point. These nests were protected with exclusionary fencing and predator exclosures. The NPS has an extensive piping plover monitoring program along the lakeshore. The NPS program monitors plover activity daily during the nesting season and areas of nesting plovers are fenced off and closed to unauthorized personnel and park visitors. No

**Table 3-1. Federally-Listed Threatened or Endangered Flora and Fauna Species with Potential to Occur in the Study Area and a Description of Their Required Habitat.**

Name	Federal Status	State Status	Habitat Description
Michigan Monkey-flower <i>Mimulus michiganensis</i>	Endangered	Endangered	The only plant entirely endemic to Michigan, this flowering plant occurs in sunny areas, roots in silty, sandy, alkaline mud, and grows out of a stream of cool, running water. This species has been documented at the National Lakeshore as well as Benzie and Leelanau counties.
Pitcher's Thistle <i>Cirsium pitcheri</i>	Threatened	Threatened	This conspicuous thistle is found only on the open sand dunes along the shores of the western Great Lakes. This species is present in the vicinity of the study area.
Piping Plover <i>Charadrius melodus</i>	Endangered	Endangered	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 wetlands or small streams. This species has been documented at the National Lakeshore as well as in the study area. The study area contains critical habitat for piping plover.
Red Knot <i>Calidris canutus rufa</i>	Threatened	Not Listed	Found in tundra areas during breeding season. Outside of breeding season primarily found in marine habitats near coastal inlets, estuaries, and bays around the Gulf of Mexico. This species has not been documented at the National Lakeshore.
Indiana Bat <i>Myotis sodalis</i>	Endangered	Endangered	Summer roosts and forages are in riparian, bottomland, and upland forests with trees that have loose or exfoliating bark. This species has not been documented at the National Lakeshore or in Benzie or Leelanau counties.
Northern Long-eared Bat <i>Myotis septentrionalis</i>	Threatened	Not Listed	Found in caves and mines during winters, where they hibernate. During the summer, can be found roosting underneath bark in cavities or crevices of trees. Rarely seen roosting in manmade structures. Forages in and at the edges of woodlands and over open fields near woodlands. This species is present at the National Lakeshore, its abundance is unknown.
Eastern Massasauga <i>Sistrurus catenatus</i>	Threatened	Species of Concern	This small rattlesnake is found in shallow wetlands, usually in lowland areas such as marshes or swamps. It was historically found at the National Lakeshore.



Figure 3-1. Biological survey study area, including identified use areas for the federally endangered piping plover.



Figure 3-2. Threatened and endangered species survey results.



additional protected species were located in the study area around Platte Point.

Several protected species were observed in the dune habitat portion of the Tiesma Road study area. Pitcher's thistle, a federally threatened plant species, was abundant and several hundred individuals were observed in densities ranging from 1 plant per square meter to 5 plants per square meter, with an approximate average of 1.5 plants per square meter for the entire study area. Additionally, the state-listed Pumpelly's brome, fascicled broomrape, and Lake Huron locust were also observed in these dune areas. Figure 3-2 illustrates where these species were observed.

The Tiesma Road location has historically been a location where the prairie warbler (*Dendroica discolor*, state endangered species) has been heard. The warbler's song was not heard during the biological field visit; however, it is assumed the warbler may frequent the Tiesma Road location due to the presence of appropriate habitat for this species.

### 3.1.3 VEGETATION

Based on the National Vegetation Classification Standard (NPS 2012a), communities present in the study area include: Great Lakes Beachgrass Dune, Great Lakes Coast Pine Barrens, Great Lakes Dune Pine Forest, Great Lakes Juniper Dune Shrubland, Jack Pine - Northern Pin Oak Forest, Northern Red Oak - Sugar Maple Forest, Sand Cherry Dune Shrubland, and White Pine - Red Oak Forest (Figure 3-3). Full descriptions of listed communities may be found in the Hop et al. 2011 inventory.

#### Dunes:

As mentioned earlier, dunes and shoreline habitats present harsh growing conditions characterized by strong winds, shifting sands, dry conditions, and seasonally high surface temperatures. Vegetation starts just behind the "storm beach" of Lake Michigan, which is

generally devoid of vegetation due to high waves, ice, and drifting sands.

The first dunes behind the storm beach support sparse pioneer plants, such as American beachgrass (*Ammophila breviligulata*), Pitcher's thistle (*Cirsium pitcheri*), sand cherry (*Prunus pumila*), and beach pea (*Lathyrus japonicus*). Inland from the pioneer plants, in more stabilized areas of the dunes are intermediate and later successional grass, forb, and shrub species including little bluestem (*Schizachyrium scoparium*), hoary puccoon (*Lithospermum canescens*), and creeping juniper (*Juniperus horizontalis*) become established (NPS 2011; MSU 2006).

#### Forests:

Where the dunes form an ecotone with the woodlands, several forest communities are established, including both the barrens and woodland phases of Great Lakes Coast Pine Barrens as well as Great Lakes Dune Pine Forest. Coastal forests tend to grow behind and between dunes where they are protected from the wind and where sand accumulates more slowly. The barrens have a global conservation status rank of G2-Imperilled, which indicates the community is at high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors (Hop et al. 2011).

Farther inland, from the early and intermediate successional dune communities and open forest-types are Northern hardwood and conifer forest-types are found including Jack Pine – Northern Pin Oak Forest, Northern Red Oak – Sugar Maple Forest, and White Pine – Red Oak Forest. These forests are dominated by Jack pine (*Pinus banksiana*) and northern pin oak (*Quercus ellipsoidalis*); red oak (*Quercus rubra*), sugar maple (*Acer saccharum*), and white pine (*Pinus strobus*). Other tree species present include black cherry (*Prunus serotina*), white ash (*Fraxinus americana*), American beech (*Fagus*

*grandifolia*), and yellow birch (*Betula alleghaniensis*), and red pine (*Pinus resinosa*).

### **Invasive Species:**

Some of the more invasive plant species in the National Lakeshore are garlic mustard (*Alliaria petiolata*), leafy spurge (*Euphorbia esula*), spotted knapweed (*Centaurea maculosa*), purple loosestrife (*Lythrum salicaria*), and baby's breath (*Gypsophila paniculata*). The National Lakeshore places a high priority on controlling these five plant species and five others - black locust (*Robinia pseudoacacia*), common reed (*Phragmites australis*), myrtle (*Vinca minor*), Scotch pine (*Pinus sylvestris*), and the tree of heaven or ailanthus (*Ailanthus altissima*) (NPS 1999). Management of high priority invasives is being addressed through the Great Lakes Invasive Plant Management Plan EA (NPS 2012b), and state and federal laws and regulations EO 13112-Invasive Species, and the Lacey Act, as amended (18U.S.C. 42).

The study area is located entirely within an area mapped by the Michigan Department of Environmental Quality (MDEQ 2016a) as a Critical Dune Area (CDA). These areas are dunes that are considered to be sensitive to a disturbance and occupy approximately 70,000 acres along the shorelines of Lake Michigan and Lake Superior. CDAs are regulated by Part 353, Sand Dunes Protection and Management, of the Natural Resources and Environmental Protection Act ([NREPA] 1994 PA 451 as amended). Any activity which significantly alters the physical characteristics of a CDA or creates a contour change in a CDA requires a permit from the MDEQ. Some CDAs occur in High Risk Erosion Areas, where the shoreline is receding at rate of 1 ft or greater per year. Construction projects in those areas require additional review under NREPA (Part 323, Shorelands Protection and Management).

During the June 2016 site visit, vegetation observed in the forested area along Tiesma Road

was typical of northern hardwoods located throughout the National Lakeshore. Most common tree species observed included sugar maple, red oak, and jack pine. Leptosporangiate fern species were the most commonly observed plant species growing in the understory. No protected plant species were observed in the forested areas along Tiesma Road during the site visit.

### **3.1.4 WATER RESOURCES**

The National Lakeshore contains a wide variety of water resources as described in the following paragraphs.

#### **Lake Michigan:**

Lake Michigan is the only one of the five Great Lakes of North America that is located entirely within the United States. The lake is second largest by volume after Lake Superior and third largest in surface area (after Lake Superior and Lake Huron). Its surface area is 22,400 square miles and it is approximately 307 miles long by 118 miles wide with a 1,640 mile long shoreline. Lake Michigan has an average depth of 279 ft.

According to the National Lakeshore Water Resources Management Plan (NPS 2002), the National Lakeshore contains 64 miles of Lake Michigan shoreline including 31 on the mainland, 13 miles on South Manitou Island and 20 miles on North Manitou Island. The National Lakeshore also contains numerous lakes and several streams, including all of Otter Creek, parts of Shalda Creek and Crystal River, and 4.6 miles of the Platte River.

The study area for the Platte Mouth Restoration project is located in the southern part of the National Lakeshore's mainland shore, and includes the shoreline extending from just west of the mouth of the Platte River (Platte Point) eastward along gently curving Platte Bay.



Figure 3-3. Vegetation communities map (NPS 2012a)

### Platte River:

The Platte River originates at Lake Ann in Grand Traverse County, runs through Leelanau and Benzie Counties and empties into Lake Michigan. Approximately 4.6 miles of the river are located within the National Lakeshore. Within this reach there are several recreational developments including boat launch ramps and campgrounds. Most of the river supports canoeing, kayaking, and fishing activities.

Upstream from the park, MI DNR runs the Platte River State Fish Hatchery. This facility raises Pacific Coho (*Oncorhynchus kisutch*) and Chinook salmon (*Oncorhynchus tshawytscha*), which were originally introduced into the Great Lakes to control the alewife (*Alosa pseudoharengus*) population, but which now support an important recreational fishery, as well as contributing to tribal and commercial fisheries. This hatchery is the main egg take station for Coho salmon in the Upper Great Lakes.

The NPS has dredged the mouth of the Platte River for a number of years starting in 1968. Timing of dredging has been in the month of September to provide boat access to Lake Michigan during the fall salmon run. The geomorphology of Platte Point has changed substantially, primarily due to dredging. Dredge spoils were piled on either bank at the river mouth, although predominantly on the eastern bank, which in effect channelized the river and limited the river's natural meandering pattern. Figure 3-4 shows aerial photographs from 1954 to 2010 which show the changes in river form.

The Platte River is listed on the Nationwide Rivers Inventory (NRI), and thus is considered "potentially eligible" for identification as a Wild and Scenic River. Section 5(d) of the National Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271-1287) requires that "in all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas." The NPS established the NRI in part to comply with this requirement.

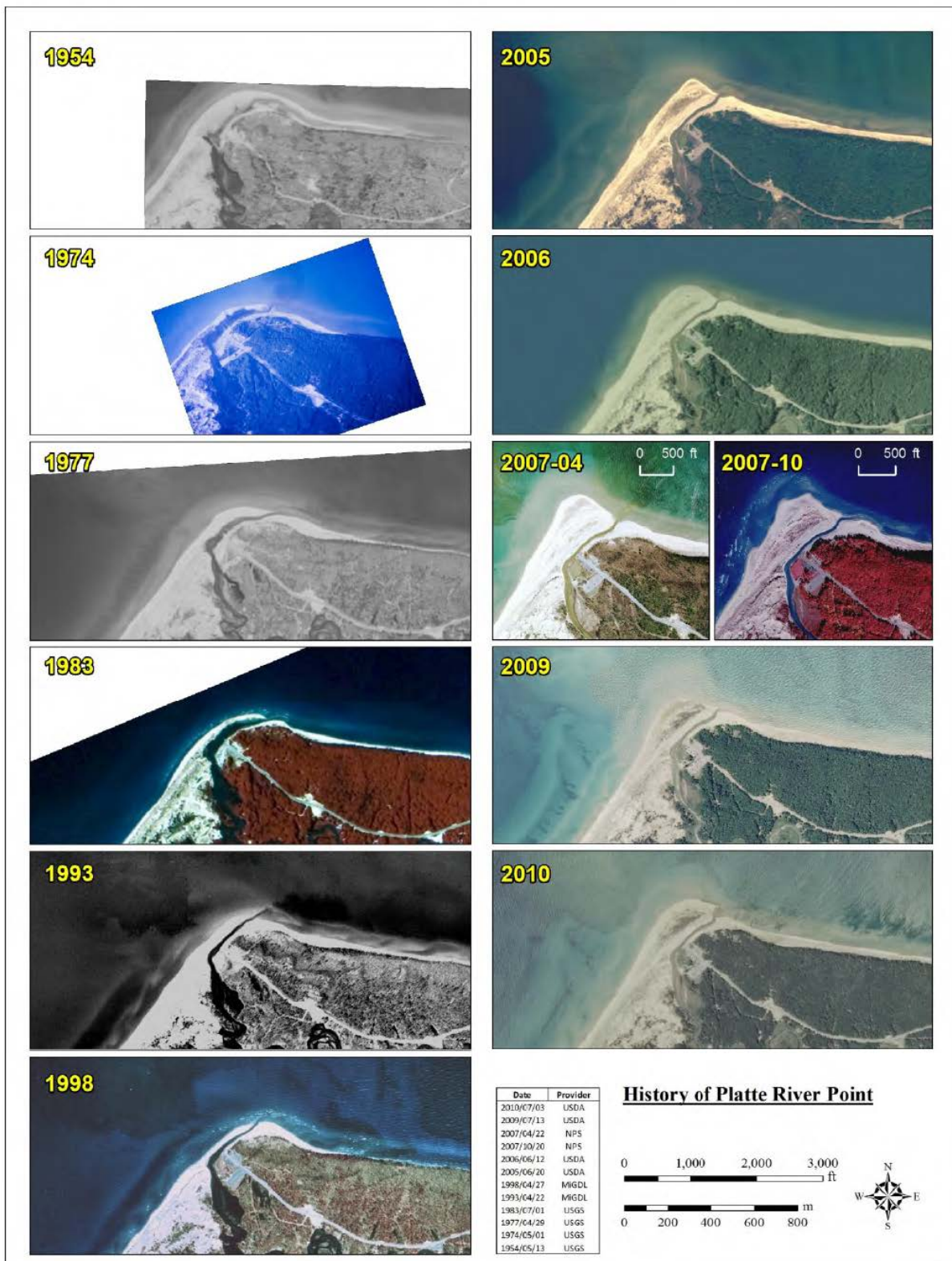


Figure 3-4. Change in Platte Point geomorphology over time (Baird/URS 2011).



The entire segment of the Platte River within the National Lakeshore is on the NRI. Inclusion on the NRI is based on ORVs. The ORVs that would make this reach of the Platte River eligible for inclusion on the NRI are recreation, geology, fish, and cultural values.

This segment of the Platte River is also potentially eligible to be classified as a Recreational river, which is defined by the Wild and Scenic Rivers Act of 1968 as those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

### Wetlands:

The U.S. Army Corps of Engineers (USACE) and the EPA, define wetlands as 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 other wetland community types (EPA 1972). Furthermore, the Cowardin Classification system (USFWS 1992) defines open water habitats with depths of less than 2 meters (6.56 ft) as wetlands. Open water with depths greater than 2 meters are considered deep water habitat. Based on this system, the Platte River is considered a riverine, lower perennial, unconsolidated bottom, permanently flooded wetland (R2UBH, 0.34 acres in project area) and the shoreline of Lake Michigan surrounding Platte Point and Tiesma Road is a lacustrine, littoral, unconsolidated bottom, permanently flooded wetland (L2UBH, 31.81 acres in study area). Figure 3-5 illustrates these areas and Table 3-2 provides the Cowardin classification.

Other wetland areas observed during the June 2016 site visit were located in the back-dune areas near Tiesma Road. These wetlands were primarily vegetated with sedge species and some were inundated with surface water up to several inches deep (PEMA, 0.138 acres). At Platte Point, a wetland has developed on the western bank of the mouth of the Platte River (PSSA, 1,334 acres).



Figure 3-5. Wetlands observed during the site visit (MDEQ 2016b).



**Table 3.2. Wetland Types Present Within the Study Area.**

Wetland Name	Cowardin Type	Cowardin Code	Acreage
Platte River	Riverine, lower perennial, unconsolidated bottom, permanently flooded	R2UBH	0.34
Lake Michigan Shoreline	Lacustrine, littoral, unconsolidated bottom, permanently flooded	L2UBH	31.81
Scrub-Shrub Wetland	Palustrine, scrub-shrub, temporarily flooded	PSSA	1.334
Emergent Wetland	Palustrine, emergent, temporarily flooded	PEMA	0.122
Emergent Wetland	Palustrine, emergent, temporarily flooded	PEMA	0.016
Open Water	Palustrine, unconsolidated bottom, sand bottom	PUB2	0.052

### **Floodplains:**

The Lake Michigan shoreline and Platte River are designated as Zone A, which is the 100-year floodplain according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). The remainder of the study area is Zone C, which corresponds to areas outside of the 100-year floodplain of both the Platte River and Lake Michigan. Floodplains in the project area are shown in Figure 3-6.

### **Water Resource Policies and Regulations:**

Based on the existing water resources and settings, the following water resource policies and regulations apply to the National Lakeshore.

DO 77-1. This DO establishes NPS policies, requirements, and standards for implementing EO 11990: "Protection of Wetlands" (42 Fed. Reg. 26961). It requires NPS to take specific, thorough actions regarding wetlands, including adopting a goal of "no net loss of wetlands," and use of Cowardin classification of wetland and riverine habitat.

Executive Order (EO) 11988 requires Federal agencies to avoid, to the extent possible, the

short- and long-term adverse impacts associated with the occupancy and modification of floodplains. Federal agencies are to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

DO 77-2. Applies to all NPS proposed actions, including the direct and indirect support of floodplain development that could adversely affect the natural resources and functions of floodplains, including coastal floodplains, or increase flood risks. This DO also applies to existing actions when they are the subject of regularly occurring updates of NPS planning documents. This DO requires that the NPS protect and preserve the natural resources and functions of floodplains; avoid long- and short-term environmental effects associated with the occupancy and modification of floodplains; and avoid direct and indirect support of floodplain development and actions that could adversely affect the natural resources and functions of floodplains or increase flood risks; and restore, when practicable, natural floodplain values previously affected by land use activities within floodplains.

Clean Water Act. Section 404 of the Clean Water Act regulates discharge of dredged or fill material into Waters of the U.S. Lake Michigan, the Platte River, and wetlands within the vicinity of the study area would be considered Waters of the U.S. Discharges of any fill material (e.g., construction of roads, parking areas, or boat ramps, or for spoil disposal) within wetlands or other open (non-wetland) waters would require a Section 404 permit from the Detroit District of the USACE, as well as a Section 401 permit from MDEQ. These permits are issued through a joint permit application process that covers activities that may impact wetlands, floodplains, marinas, dams, inland lakes and streams, Great Lakes bottomlands, Critical Dunes, and High Risk Erosion Areas.

Rivers and Harbors Act. The Rivers and Harbors Act of 1899 regulates any activities that could affect navigation within Navigable Waters so that interstate commerce is not adversely affected. Bridges are regulated by the U.S. Coast Guard under Section 9 of the Act, and other activities that could affect navigation such as any

wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structure, are regulated by the USACE under Section 10 of the River and Harbors Act. Lake Michigan is considered a Navigable Water, as is the Platte River downstream of its interface with Loon Lake.

Great Lakes Bottomlands. The bottomlands of the Great Lakes are held in trust by the State of Michigan for use and enjoyment by its citizens. Private uses that could affect public enjoyment are regulated under Part 325, Great Lakes Submerged Lands, of the NREPA (1994, PA 451, as amended). The limits of bottomlands for Lake Michigan were set at elevation 580.5 ft in 1985. This project would not constitute private use.

Coastal Zone Management Act. Lake Michigan is within the Coastal Zone Management (CZM) Act boundary, and activities within the CZM are regulated (MDEQ 2016c). Any activities within Lake Michigan would require coordination with Michigan's CZM Program. Figure 3-7 illustrates the boundaries for the study area within the CZM.

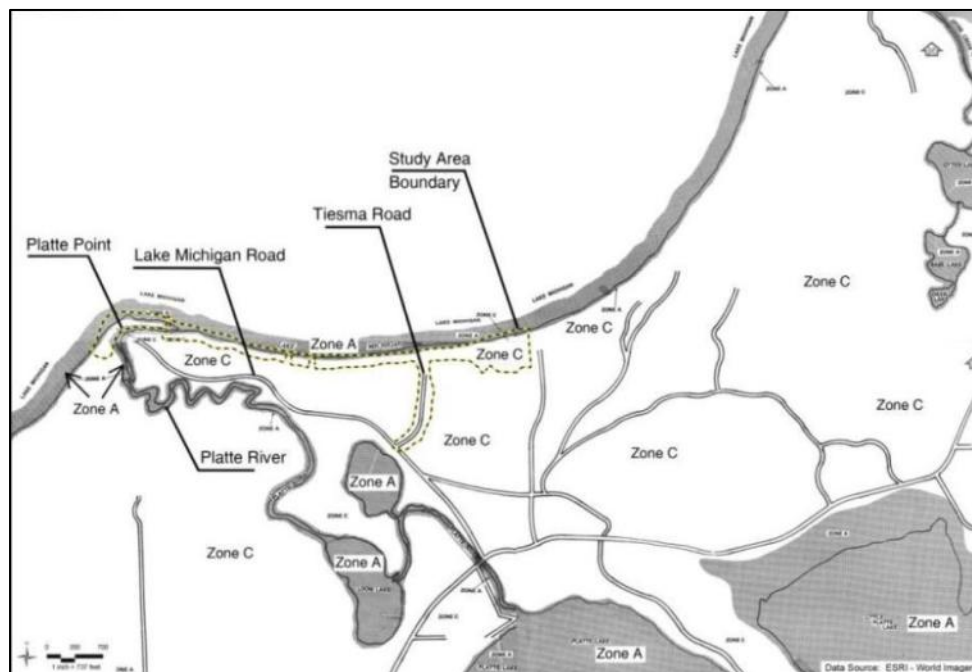


Figure 3-6. FEMA mapped floodplains within the study area (FEMA 1989).



Figure 3-7. Coastal Zone Management boundary (MDEQ 2016c).

## 3.2 VISITOR EXPERIENCE AND SAFETY

Visitors from diverse backgrounds can experience a range of opportunities consistent with the purpose, significance, and fundamental resources and values of the National Lakeshore (NPS 2008). Visitor use levels and activities are consistent with preserving the National Lakeshore’s purpose, significance, and fundamental resource values.

Visitor use data for the National Lakeshore (NPS 2016b) shows a relatively steady increase in visitors annually from the 696,600 recorded in 1976 to over 1.5 million in 2015. The Platte River District is considered one of the highest use areas with traffic counts showing a high of 31,307 vehicles at the Platte River mouth in the month of July (NPS 2015a). This infers 3-4 people per vehicle.

Visitors are offered a variety of opportunities within the High Use zone at Platte Point including walking, picnicking, camping,

swimming, boating, viewing scenic vistas, and attending interpretive programs. The zone is well suited for family recreation.

A Visitor Use Study conducted in July of 2009 (Holmes et. al. 2010) indicated the majority of visitation is in the summer and that 68 percent of visitor groups were family groups. The most common visitor activities within the National Lakeshore are walking, hiking, dune climbing, and sightseeing. Overall quality of facilities, services, and recreational opportunities were rated as very good or good by 95 percent of the visitor groups. Clean air and water were most commonly rated as very important or important resources (96 percent).

Universal accessibility within the National Lakeshore is important to provide opportunities for visitors of all abilities to experience the dunes, surrounding sands and water, historic structures and cultural landscapes, and to enjoy representative portions of the back country (NPS 2009). TAIP includes accessibility improvements at Platte Point.

## 4.0 ENVIRONMENTAL CONSEQUENCES

A determination of the probable impacts of each alternative on park resources has been made in accordance with the NEPA. In addition to determining the environmental consequences of the alternatives, NPS Management Policies 2006 and DO-12 require an analysis of potential effects to determine if actions would impair park resources.

### 4.1 METHODOLOGY

The assessment of impacts includes an evaluation of effects as a result of implementing each alternative discussed in Chapter 2. The impact assessments were based on professional judgment using information provided by NPS staff, relevant references and technical literature citations, and subject matter experts.

Evaluation of the alternatives included an assessment of type and duration of the impact. Direct impacts are those caused by an action related to the project. Indirect impacts are those occurring as a reasonably predictable consequence of a project action. Duration of impacts can be short-term, those lasting only during implementation, or no more than two years after completion; or long-term, lasting beyond two years or permanently.

### 4.2 CUMULATIVE IMPACTS

The CEQ regulations for implementing the National Environmental Policy Act and NPS DO 12 Conservation Planning, Environmental Impact Analysis, and Decision Making (NPS 2015b) require assessment of cumulative effects in the decision-making process for federal projects. Cumulative effects are considered for both the no action and proposed action alternatives.

Cumulative effects were determined by combining the effects of the alternative with

other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future actions at the National Lakeshore and in the surrounding region. These other actions in conjunction with this project are intended to preserve and restore cultural resources and to improve visitor experience.

The National Lakeshore has proposed facility improvements as part of the NPS TAIP. Preliminary concepts and ideas were developed in 2014 for a hiking and kayaking “Bay to Bay Trail”. The trail could benefit by the added infrastructure proposed at Tiesma Road in Alternative 3. At this time, there have been no further planning efforts for this trail. Additional facilities may result in an increase in visitation to areas like Platte Point due to the improved accessibility for all visitors.

**Conclusions:** Indirect cumulative impacts for all alternatives from increased recreational use are relatively small compared to current use patterns. No direct impacts related to the proposed action are anticipated.

### 4.3 WILDLIFE AND WILDLIFE HABITAT

#### 4.3.1 IMPACTS TO WILDLIFE AND WILDLIFE HABITAT FROM ALTERNATIVE 1 (NO ACTION)

There would be adverse impacts to wildlife from disturbance by noise, visual cues, or scents associated with visitor use (sensory-based disturbance). Visitor use is highest in the summer months (May through August), and impacts to wildlife would be greatest during this duration. The boat ramp and Platte Point see very high levels of human activity during this timeframe, and many of the wildlife species occurring in this area are currently exposed to high levels of recreational visitor use. Although several wildlife species become accustomed to human activity, sensitive species or species that

require a more isolated setting may continue to avoid this area during the summer months when human activity is greatest.

Dredging occurring in the fall months would add additional noise and activities, but these activities are relatively discrete in duration and location and would not be expected to adversely affect wildlife. The 900-ft of dredging from the boat ramp to Lake Michigan would have slight impacts to surrounding terrestrial and aquatic wildlife habitats. Given that dredging activities occur in the fall (September), more sensitive periods associated with wildlife breeding, nesting, and the rearing of young have generally been completed, and many bird species have initiated their southern migrations and would not occur in the project area.

**Conclusions:** Adverse impacts to wildlife under Alternative 1 (No Action) would occur annually (or as needed) for the month of September during actual dredging activities, and continued modifications to channel habitats through dredging and staging of dredged materials on the banks of the Platte River. These impacts are considered to be relatively discrete in time and space (a short period of time for dredging, which is limited to approximately 900 ft of the Platte River channel).

Current visitor use is high and occurs on the eastern and western banks of the Platte River at its confluence with Lake Michigan. Habitats and wildlife use patterns in this area are already impacted by these existing conditions and management regimes and would not change as a result of this alternative. Wildlife habitat would continue to be disturbed from dredging, continuing the persistence of early successional species, limiting habitat for desirable or sensitive wildlife.

Cumulative impacts are not expected with this alternative given the current use patterns of this area.

#### **4.3.2 IMPACTS TO WILDLIFE AND WILDLIFE HABITAT FROM ALTERNATIVE 2 (PREFERRED)**

Up to 2,600 CY on the western bank and 11,000 CY on the eastern bank of dredged material may be removed, and beach/dune habitat may be restored on the each bank of the Platte River (Figure 4-1). However, given the popularity of the eastern bank for recreational activities, restoration to an “un-impacted” dune community type may be less successful on this bank.

With the cessation of dredging activities, boat use of the Platte River may decrease, as deposited sediment at the mouth of the Platte River may limit the size of boat able to pass from the river to the lake. Less boat traffic may have a beneficial impact on wildlife species frequenting the area as there may be less disturbance due to boat noise and human activity. However, given the popularity of Platte Point for other recreational activities (canoeing and kayaking, tubing, picnicking, etc), wildlife may continue to avoid the area due to human activity.

Cessation of dredging is not anticipated to measurably or meaningfully change the condition or size of existing aquatic habitats in this area, and no effects, beneficial or otherwise, would be anticipated on aquatic habitats.

Restoration of the western bank, which has limited recreational activity, is likely to result in a long-term beneficial impact to wildlife as up to 0.61 acres of habitat could be restored to natural conditions. Additional discussion is provided in Section 4.4.

Platte Point would continue to accommodate a high number of visitors during the summer months. No additional impacts would occur to sensitive wildlife populations that may avoid this area during the summer months.





Figure 4-1. Dredge spoil areas on the banks of the Platte River.

**Conclusions:** Long-term beneficial impacts to general wildlife species and their habitats under Alternative 2 may occur from the removal of the dredged material and the restoration of the area to a more natural state. However, this beneficial impact could be limited on the eastern bank due to the high levels of human recreational foot and boat traffic anticipated to continue to occur in this area. Wildlife habitats and use patterns would likely continue on a similar trajectory compared to current conditions on the eastern bank for the Platte River. Areas on the western bank would likely see increased usage by native wildlife species. Additional discussion regarding potential impacts to piping plover is provided in Section 4.4.

Cumulative impacts are not expected with this alternative given the current use patterns of this area.

### 4.3.3 IMPACTS TO WILDLIFE AND WILDLIFE HABITAT FROM ALTERNATIVE 3

Effects to general wildlife habitats and wildlife at Platte Point would be long-term and beneficial and similar as previously described in the preceding section, under Alternative 2.

Wildlife and wildlife habitat along Tiesma Road would experience permanent direct impacts associated with the improvement and widening of Tiesma Road, and indirect impacts associated with increased vehicular use of the road, which would reduce the quality of habitats immediately adjacent to the road.

Vegetation removal for required improvements along Tiesma Road would result in the loss of up to 1.2 acres of forested habitats to accommodate the new road width. This amount of loss of woodland habitat is not expected to measurably or meaningfully impact populations of any wildlife species which occur in the area.

Increased vehicular and human use of the road

would result in increased noise and human activities in the area, which would likely reduce the quality of woodland habitat immediately adjacent to the road. Assuming wildlife species may avoid or reduce activities within 100 ft of roads, otherwise suitable habitat adjacent to Tiesma Road may see reduced wildlife use, especially during daytime hours and summer months when human activity is highest. Increased traffic and increased vehicle speed may also increase the instance of wildlife and vehicle collisions in this area. Wildlife species currently occurring in the area are generally tolerant of human activity, and no adverse impacts to wildlife populations would be expected from the proposed change to the woodland habitat.

Impacts to the dune system located in the proposed boat ramp area would result in the loss of dune habitats (up to 1.15 acres of dune and beach habitat would be cleared). Based on the limited amount of dune habitat present in the area and the location of the Great Lakes Coastal Pine Barren habitat, reducing available habitat would result in adverse impacts to wildlife that frequent the area. Increased human foot-traffic in the area would also likely reduce wildlife usage of this area.

**Conclusions:** Wildlife habitat in this area would see a permanent loss of 2.25 acres due to the improvement and development of the new Tiesma Road alignment, and a small amount of otherwise available habitats could see reduced wildlife use due to indirect effects from road use (primarily during the daytime in the summer months). Species present in the area are generally tolerant of human activity. The Great Lakes Coastal Pine Barrens are globally imperiled, and any loss of this habitat may result in adverse impacts to wildlife that utilizes this resource. However, the loss of 2.25 acres is not expected to jeopardize wildlife populations that occupy this habitat within the National Lakeshore.

Cumulative impacts are expected to be temporary, occurring during construction of the new facilities.

## **4.4 THREATENED AND ENDANGERED SPECIES**

### **4.4.1 IMPACTS TO THREATENED AND ENDANGERED SPECIES FROM ALTERNATIVE 1 (NO ACTION)**

Within the Platte Point area, the only listed species which may be impacted is the piping plover and its critical habitat. Continued dredging could increase the size of the spoil piles. Dredging would have no direct impact on this species, as dredging occurs in the fall, after piping plover have left the area for winter habitats. Piping plover have used piles on the eastern side of the river as nesting sites, with limited success, likely due to high recreational use in the area, and would continue to have that habitat available. As such, impacts to plover critical habitat from continued dredging are not expected. Establishment and encroachment of woody and other vegetation on the western bank on the Platte River in dredged materials from previous dredging may limit habitat quality in that area.

**Conclusions:** Dredging and dredge deposition on the banks of the Platte River are not anticipated to result in significant impacts to piping plover, as plovers regularly attempt to nest in this substrate. The alternative may affect but is not likely to adversely affect piping plover or its critical habitat. No other listed species would be impacted under Alternative 1, as suitable habitat for these species does not occur in this area, and the area is not occupied by these species.

Cumulative impacts are not expected with this alternative given the current use patterns of this area.

#### **4.4.2 IMPACTS TO THREATENED AND ENDANGERED SPECIES FROM ALTERNATIVE 2 (PREFERRED)**

Direct impacts to piping plover are not anticipated under Alternative 2's beach restoration activities since these actions would occur outside of the breeding and rearing period. Restoration of the area to a more natural setting and contours, and removing spoil piles from the banks of the Platte River could result in enhancing up to 1.8 additional acres of habitat within the mapped critical habitat area for the piping plover. Piping plovers have successfully nested on or near the spoil piles in previous years, but nesting attempt have generally been unsuccessful, likely due to high visitor use in the area. Based on nesting densities from previous years in adjacent locations on the west bank of the Platte River, the restored spoil piles could potentially provide additional habitat for up to four additional nesting pairs but their nesting success, especially on the east side may remain limited due to continued high levels of recreational use.

Additionally, habitat for other listed species (Pitcher's thistle, Lake Huron locust, and broomrape) would be more available in restored area for species colonization and use. These species were not present in the project area during the biological survey completed on June 25, 2016; however, densities of Pitcher's thistle ranged from 1.5 to 5 individuals per square meter along the shoreline where more natural conditions exist.

**Conclusions:** Beneficial impacts to piping plover critical habitat would occur from restoring the area currently consisting of spoil piles to a more natural habitat and surrounding landscape. This would provide additional habitat for piping plovers to nest within the designated critical habitat, but it may not result in improved nesting success due to the continued high recreational use expected on the

east side of the riverbank. Other listed species (Pitcher's thistle, broomrape) may see increased benefits from dune restoration activities, which would allow these species to establish in the restored areas where they are not currently present. The alternative may affect but is not likely to adversely affect piping plover, its critical habitat, or Pitcher's thistle.

No cumulative impacts are expected with this alternative given the current use patterns of this area.

#### **4.4.3 IMPACTS TO THREATENED AND ENDANGERED SPECIES FROM ALTERNATIVE 3**

Alternative 3 would result in the same effects at Platte Point as outline in Alternative 2.

Additionally, at Tiesma Road other effects are expected. As previously described in Chapter 3, Pitcher's thistle (federally threatened species) and Pumpelly's brome (state threatened species) were identified at the Tiesma Road project location and fascicled broomrape (state threatened species) is located west of the immediate project vicinity. The proposed alignment of the access road and boat ramp would bisect the population of Pitcher's thistle, resulting in direct impacts to up to 2,500 plants (based on a density of 1.5 plants per square meter) through direct take of the plants, as well as a direct loss of stabilized dune habitat. The Pumpelly's brome population would likely also be impacted from grading and construction of the access road and associated facilities.

Approximately 0.73 acres of Pumpelly's brome are located within the project area and would be directly impacted by the proposed improvements. The fascicled broomrape population would not likely be directly affected; however, indirect effects may occur if increased human activity destabilizes the dune habitat in the area. Figure 4-2 shows the proposed layout for improvements associated with Alternative 3. Up to 1.15 acres of dune and beach habitat

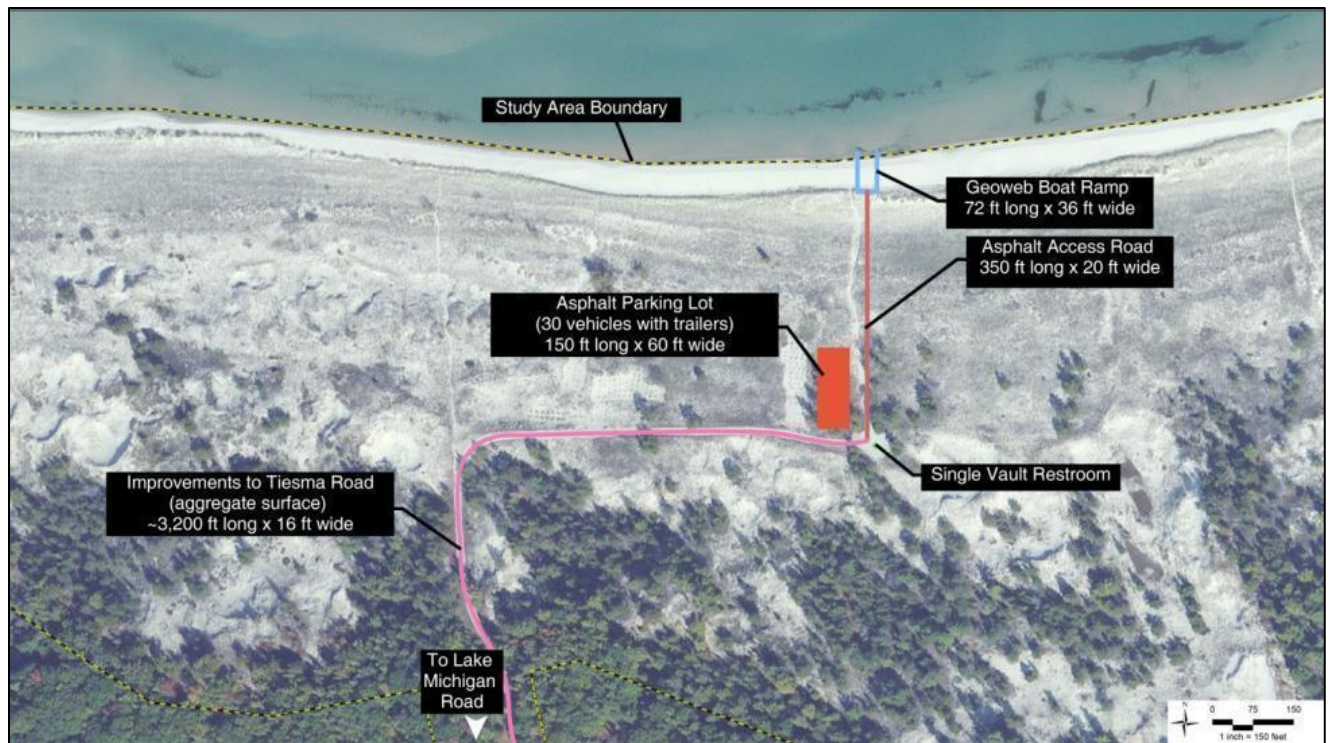


Figure 4-2. Proposed layout of improvements at Tiesma Road.

would be cleared to accommodate construction of these facilities.

This alternative would also directly impact the designated critical habitat for the piping plover from the construction of the boat ramp, additional parking, and a restroom at this location. Constructing these amenities would be expected to draw in more visitors to this area. This could lead to more recreation pressure on the beach location within the critical habitat, which currently receives less recreation pressure. This increased activity may result in reducing the success of nesting piping plovers in this area. Based on data from previous years of nesting, this may result in the loss of one to two nests annually.

Indirect impacts to Pitcher's thistle and fascicled broomrape may also occur from increased human activity in dune habitats around the proposed Tiesma Road boat ramp. Increased human activity in the vicinity of the proposed boat ramp would likely result in additional foot traffic and disturbance to the natural dune

habitats, which would adversely impact these two plant species through direct trampling of the plants, as well as de-stabilization of dune habitats. Additionally, there is the potential for increased introductions of non-native competitor species, such as noxious weeds.

As previously described in Chapter 3, the Lake Huron locust (a state threatened insect species) was also observed in the Tiesma Road boat ramp area. Impact to dune habitats from Alternative 3 may directly impact individuals (through trampling of adults or eggs during the construction process), and convert otherwise suitable habitats to an unsuitable condition.

Additionally, increased human foot traffic around the Tiesma Road boat ramp would likely de-stabilize the grassy dune habitats favored by this species, and could thus reduce the availability of suitable habitat around the boat ramp through a reduction in grass and forb cover. This would likely result in a reduction of density and population levels around the boat



ramp, but would not likely result in a meaningful population-level impact for this species.

The prairie warbler (state endangered species) has been known to frequent this location. Direct impacts to the warbler are not anticipated; as any construction activities will comply with the Migratory Bird Treaty Act. Indirect impacts to warbler habitat would likely be minimal.

**Conclusions:** Some beneficial impacts to several threatened and endangered species and critical habitat for piping plover would result from returning Platte Point to a more natural dune habitat as described for Alternative 2, which would potentially allow sensitive species, including Pitcher's thistle, and broomrape to re-establish.

Adverse impacts to piping plover critical habitat, Pitcher's thistle, and Pumpelly's brome would occur as a result of this alternative. In addition, impacts to piping plover, fascicled broomrape and Lake Huron locust may occur at the proposed Tiesma Road boat ramp location.

Cumulative impacts are expected to be adverse and short- and long-term. Short-term impacts would occur during construction of the new facilities. Long-term impacts could occur with increased recreational use of this previously under-utilized area.

## **4.5 VEGETATION**

### **4.5.1 IMPACTS TO VEGETATION FROM ALTERNATIVE 1 (NO ACTION)**

There would be continued adverse impacts to vegetation from continuation of depositing dredge spoils along the eastern riverbank. Herbaceous and woody vegetation would likely continue to establish along the dredge spoil piles, dependant on vegetation management and recreational use patterns. This vegetation is not typical of surrounding dune vegetation and may encourage establishment of early successional

species such as white cedar or spotted knapweed.

**Conclusions:** Adverse impacts to vegetation under Alternative 1 would continue. Establishment of herbaceous and woody vegetation along the dunes would continue which may encourage establishment and disturbance from other non-dune species which could reduce native dune plant species in this small area.

No cumulative impacts are expected with this alternative given the current use patterns of this area.

### **4.5.2 IMPACTS TO VEGETATION FROM ALTERNATIVE 2 (PREFERRED)**

The restored area on the western bank would provide the potential for increased dune and shoreline vegetation habitats, which would provide areas of potential habitat for recolonization by species such as Pitcher's thistle and broomrape that currently do not grow on the spoil piles.

On the eastern bank, the removal of spoil piles may include revegetation, although success of these efforts may be limited due to the high level of human traffic.

**Conclusions:** Impacts to vegetation under Alternative 2 would be beneficial as woody, less favorable plant species would be removed from the area and natural dune conditions would be re-established. Restoration efforts under Alternative 2 would be favorable to allowing sensitive dune species to re-establish in the area.

No cumulative impacts are expected with this alternative given the current use patterns of this area.

### **4.5.3 IMPACTS TO VEGETATION FROM ALTERNATIVE 3**

Impacts to vegetation conditions at Platte Point would be similar as previously described under Alternative 2.

In the Tiesma Road and boat ramp area, forest and native dune vegetation types – including the globally imperiled Great Lakes Coast Pine Barrens – would be removed for the construction of the road and boat ramps (up to 1.2 acres of forested areas and up to 1.15 acres of dune and beach habitat); secondary (indirect) impacts to surrounding vegetation are likely to occur in the dune areas from foot traffic and trampling. This would likely reduce the density of native vegetation around the boat ramp, and could create conditions suitable for invasive species establishment. Similarly, disturbance around the Tiesma Road alignment could also create conditions favorable for noxious weed establishment. The NPS has a weed management program to monitor for noxious weeds. Implementation of Alternative 3 would require this program to be expanded to increase monitoring frequency and area to identify new or aggressive infestations in the area. These areas would be treated per current management guidance, at additional cost to the program.

**Conclusions:** Impacts to vegetation at Platte Point under Alternative 3 would be beneficial as woody, less favorable plant species would be removed from the area and natural dune conditions would be re-established. Restoration efforts to Platte Point under Alternative 3 would be more favorable to allow sensitive, dune species to re-establish in the area.

Vegetation in the Tiesma Road area – including globally-imperiled Great Lakes Coast Pine Barrens – would experience long-term impacts from the construction of the Tiesma Road and boat ramp and associated infrastructure. Direct, adverse impacts to vegetation would be approximately 2.35 acres, of which

approximately 3 acres of impact to the Great Lakes Coast Pine Barrens community, which is a globally imperiled community. Indirect impacts from increased foot traffic in dune habitats may additionally impact vegetation around the boat ramp.

Cumulative impacts are expected to be adverse and short- and long-term. Short-term impacts would occur during construction of the new facilities. Long-term impacts could occur with increased recreational use of this previously under-utilized area.

## **4.6 WATER RESOURCES**

### **4.6.1 IMPACTS TO WATER RESOURCES FROM ALTERNATIVE 1 (NO ACTION)**

Continued dredging at Platte Point would have a continued impact on Lake Michigan and the Platte River. Dredging would impact approximately 900 linear ft of the Platte River, which would result in temporary mobilization of fine sediments in the river and in Lake Michigan. This may temporarily impact water quality at the mouth of the Platte River and into Lake Michigan. Dredging would also channelize the mouth of the Platte River and prevent dune habitat from forming.

Dredging and the associated siltation of the Platte River and its Lake Michigan outlet would result in impacts to approximately 1.94 acres of wetlands (0.34 acres of riverine, 1.6 acres of littoral). Removed material would continue to be placed in upland areas and would not impact the interdunal wetlands on the west bank of the river.

The No Action Alternative at Platte Point would have no effect on floodplains in the area and would perpetuate the existing condition.

**Conclusions:** Continued dredging would impact Lake Michigan and the Platte River under Alternative 1 (No Action). This would

result in impacts to water quality from the increase in sediments and channelization of the river. Continued dredging would impact approximately 1.94 acres of wetlands in the shallow portions of Lake Michigan and the Platte River.

No cumulative impacts are expected with this alternative given the current use patterns of this area.

#### **4.6.2 IMPACTS TO WATER RESOURCES FROM ALTERNATIVE 2 (PREFERRED)**

Implementation of Alternative 2 would result in the cessation of dredging activities, which would eliminate the yearly mobilization of fine sediments created from dredging. The shore and mouth of the Platte River would change and begin to migrate to the east over time as sediments from the Platte River become deposited, and lake currents shape the deposition of sediments, making a much more natural environment.

The bed of the Platte River would likely become shallower for approximately 900 ft (from the boat ramp to Lake Michigan) as naturally occurring sediments begin to fill in to the channel and return the channel depth to a natural condition.

No dredge or fill activities would occur with this alternative, so no direct impacts to wetlands would be expected. Indirect, beneficial impacts to wetlands would occur in the mouth of the Platte River, as dredging would cease and the natural fluvial process would deposit sediment in the lower 900 ft of the river. The river would begin to extend beyond its current 4.3 acres at the mouth of the river. This would likely add additional riverine wetland acreage incrementally as the river meanders eastward, and it is estimated that up to an additional 0.5 acre of riverine wetland may be added as the river migrates. Sedimentation may allow wetland

vegetation to form in some portions of this area, enhancing wetland values. This may lead to increased wetland development as the back channel areas would increase and shoreline erosion would decrease.

Impacts to floodplains are not expected as no cut or fill would occur.

**Conclusions:** Alternative 2 would allow the river channel and mouth of the river to change and migrate to the east, which would change the physical attributes of the area, returning the river to a more natural state. Beneficial impacts to wetlands may occur as the lower 900 ft of the river gains sediment, causing a shallower environment for potential wetland vegetation. Riverine wetlands would expand in area. No impacts to floodplain would occur.

No cumulative impacts are expected with this alternative given the current use patterns of this area.

#### **4.6.3 IMPACTS TO WATER RESOURCES FROM ALTERNATIVE 3**

Impacts to the mouth of the Platte River, Lake Michigan, wetlands, and floodplains at Platte Point would be identical to Alternative 2.

Impacts to Lake Michigan at the Tiesma Road portion of this alternative would include the placement of the boat ramp within the lake. This would result in disturbance to wetlands in the shallow perimeter of the lake. The removable boat ramp would result in annualized, temporary direct impacts to the lake and associated wetlands, as the annual installation and use of the boat ramp may create minor mobilization of sands and sediments in this area.

Alternative 3 would result in increased recreational usage in the area. Power boat use in this area could result in localized potential increases in petroleum occurrences (leaks) in this portion of the lake.

The field survey completed on June 25, 2016 identified two interdunal wetlands east of the project area (Figure 3-5). These wetlands are outside of the project area and would not be impacted by construction of the boat ramp or associated parking areas or restrooms.

The proposed parking area and restroom would not be located within the floodplain. The boat ramp would be placed within the 100-year floodplain of Lake Michigan; however, the boat ramp is not a permanent structure and would not modify the floodplain. There would be no impact to floodplains in the area of Tiesma Road.

**Conclusions:** Impacts to water resources at Platte Point would be similar to those observed and described under Alternative 2.

Creation of a boat ramp area at Tiesma Road would have adverse impacts to Lake Michigan, specifically the perimeter wetlands of the lake, from the temporary placement and disturbance from the annual installation and removal of the boat ramp. No other wetland impacts would occur. The restrooms and parking area would not be constructed within the 100-year floodplain. No impacts to floodplains would occur.

Cumulative impacts are expected to be temporary, occurring during construction of the new facilities.

## **4.7 VISITOR EXPERIENCE AND SAFETY**

### **4.7.1 IMPACTS TO VISITOR EXPERIENCE AND SAFETY FROM ALTERNATIVE 1 (NO ACTION)**

Under this alternative, there would be no change to current visitor experience and safety. Visitors would continue to use the facilities at Platte Point following current management guidance.

Fall dredging of the river to facilitate recreational boat access for salmon fishing would continue. During dredging operations there would be a temporary interruption of visitor access to the eastern river bank of the Platte River where dredge spoils would continue to be deposited. The deposition of dredge materials onto the river bank would continue to have an adverse impact on the visual character of the river bank and the ability of visitors to get into and out of the water as the slope of the river bank increases with the additional dredge material.

Access to the Platte River and Platte Bay for salmon fishing would remain unchanged. People would be able to fish along the river banks, within the river, or use motor boats to access Platte Bay.

The use of the river mouth by swimmers and motor boats concurrently presents a potential safety issues for both users. While no accidents between boaters and swimmers have been recorded, the public has expressed concern about this issue.

The long-term forecast for Lake Michigan and surrounding streams is declining lake levels and reduced stream base flows. High lake levels over the last few years have reduced the need for fall dredging. In the long-term, when dredging may be more important for motorized access during the fall salmon spawning, boater safety may benefit from a channel temporarily deepened during the dredge period and until natural sedimentation reoccurs.

**Conclusions:** Impacts to visitor experience are not expected with this alternative. Visitors to Platte Point have been and would likely continue to use the eastern river bank regardless of the addition of dredge materials. While impacts to boater safety would be beneficial due to seasonal maintenance of a deeper river channel, impacts to swimmers would remain a potential issue with the continued high use of the area. There are no impacts expected to people fishing.



No cumulative impacts are expected with this alternative given the current use patterns of this area.

#### **4.7.2 IMPACTS TO VISITOR EXPERIENCE AND SAFETY FROM ALTERNATIVE 2 (PREFERRED)**

Visitor use of the Platte Point area would be restricted during construction activities.

Restoration could result in an increase in piping plover habitat on both sides of the river, resulting in a greater need to close additional areas seasonally to protect nest sites. Visitors would still be able to access the eastern river bank and Lake Michigan shoreline as closures of the western bank and parts of the eastern bank when nest sites are present usually allows for such access.

Visually, this alternative would have long-term aesthetic benefits by removing dredged material from the eastern bank, restoring the river banks to natural conditions, and eliminating the presence of dredging operations and equipment in the fall.

Given the long-term forecast for Lake Michigan, decreasing river depth and the formation of sand bars would likely occur, potentially requiring boaters to lift motors to enter the river, and could preclude the use of the river by larger boats. Entering and exiting the Platte River mouth would likely be more challenging for boaters, potentially making entry and exit to the bay less safe under certain conditions for some boaters.

Adverse impacts to fishing access in the area would be expected due to reduced opportunities to access the bay under certain conditions. Some boats and boaters may not be able to access the bay as they would under Alternative 1. However, people would continue to have access to the river and Platte Bay to fish.

In the long-term, visitors and boaters would likely continue to see potential safety challenges due to the presence of boaters and swimmers in the same location at the Platte Point access.

**Conclusions:** There would be both beneficial and adverse impacts to visitor experience and safety for Alternative 2. Restoration provides aesthetic benefits for visitors. Cessation of dredging would have an adverse impact on boater safety and boat access. Swimmers and boaters using the same area of the Platte River would continue to see potential conflicts under this Alternative. Access to fishing in Platte Bay could potentially be more difficult dependent upon lake and river conditions. However, the public has access to salmon fishing throughout the lake and its tributaries.

No cumulative impacts are expected with this alternative given the current use patterns of this area.

#### **4.7.3 IMPACTS TO VISITOR EXPERIENCE AND SAFETY FROM ALTERNATIVE 3**

The impacts on visitor experiences and safety at Platte Point are the same as in Alternative 2.

Additionally, in the short-term, construction of new facilities and the widening of Tiesma Road would interrupt visitor access and use of this area although this area is currently under-utilized. Timing of construction outside of peak visitation months could minimize this impact. Construction of the new facilities would not adversely impact boaters or swimmers as this area currently is not significantly used by either user group.

This alternative would have short-term adverse impacts to the visual quality of the Tiesma Road area during construction due to the presence of construction equipment. In the long-term, there would be adverse impacts due to placement of a visible structure (restroom facility).

The addition of facilities at the Tiesma Road location may provide long-term benefits to Platte Point by dispersing visitors throughout this high-use area. This may also benefit the safety of swimmers by reducing the number of motor boats at Platte Point. New facilities may attract more public use to an area that is currently underused and under advertised, adversely affecting individuals who prefer solitude, but benefitting those who would enjoy a new location they may not have otherwise visited. Increased public use of this area could result in the need for additional facilities.

Vehicular access and parking would benefit over the long-term through the widening of Tiesma Road and the additional parking lot. Parking at Platte Point may be easier through the dispersal of visitors, and could potentially reduce the number of vehicles parked along roadsides during peak use periods. The increased use of this new facility for parking would adversely impact the visual character of the area which currently has no structures and limited parking.

The lake level forecast would have long-term management impacts on the placement of the removable boat ramp at Tiesma Road as the length of the ramp would need to accommodate fluctuations in lake levels.

Use of the ramp would require boaters to be alert to lake and weather conditions. The Tiesma Road boat ramp would be similar to other ramps that directly access Lake Michigan without wave protection structures. Such ramps can be

challenging to use under certain conditions. Long-term, adverse impacts to boater safety and access may occur compared to Alternative 1.

Benefits to fishing within this high-use zone would be expected from the additional access to Platte Bay at Tiesma Road, but these benefits may not completely offset the reduced access resulting from the unprotected ramp and ceasing to dredge the Platte River described in Alternative 2.

**Conclusions:** Alternative 3 would have similar effects on visitor use and experience at Platte Point as Alternative 2. Additionally, in the long-term, Alternative 3 may reduce user conflicts at Platte Point by dispersing park users within the high-use zone. However, it could have adverse impacts on the visual character of the Tiesma Road area due to the addition of facilities and increased public use. Visitor experiences in the area may decrease or improve based on the individual. This alternative may have an adverse impact on boater safety and access due to the unprotected ramp and ceasing dredging in the Platte River. The benefits to recreational fishing from an additional access point to Platte Bay may not offset the reduced access expected from an unprotected ramp and stopping of dredging at Platte Point.

Cumulative impacts are expected to be adverse could occur with increased recreational use of this previously under-utilized area.

## 5.0 AGENCY CONSULTATION AND COORDINATION

This section discusses the efforts to include public participation and agency coordination for this EA.

### 5.1 PUBLIC INVOLVEMENT

As described in Section 1.3, the NPS solicited public input during the public scoping phase of this study, resulting in a total of 64 comments. A Public Scoping Analysis Report (NPS, 2016a) is available at the website indicated below.

The NPS will solicit public input on the Draft EA during the public comment period in November and December 2016. The document will be available for review online through the NPS PEPC system at:

[parkplanning.nps.gov/platte](http://parkplanning.nps.gov/platte)

Paper copies will be available for review at the park's Visitor Center in Empire and upon request.

### 5.2 AGENCY CONSULTATION AND COORDINATION

The NPS sent scoping brochures to resource and regulatory agencies and Native American Indian tribes during the public scoping period in fall of 2015 (Appendix A). Scoping comments were received from four agencies (EPA, USFWS, MI DNR, and MI DEQ).

The NPS initiated agency consultations to evaluate potential impacts of the project on threatened and endangered species, archeological resources, and water resources. Agency correspondence is in Appendix C.

On March 16, 2016, the NPS contacted the USFWS with regards to threatened and endangered species and their habitat. The USFWS provided recommendations on March 25, 2016 for riverbank restoration and the timing of the proposed actions that were incorporated into the Alternatives.

Final review of the Preferred Alternative by the USFWS and SHPO is being conducted during public review of this document.

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

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# **APPENDICES**



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## APPENDIX A: PUBLIC SCOPING MATERIALS



National Park Service  
U.S. Department of the Interior

Sleeping Bear Dunes NL  
9922 Front Street  
Empire, MI 49630  
213-326-4700 phone  
[www.nps.gov/slbe/](http://www.nps.gov/slbe/)  
[www.nps.gov](http://www.nps.gov)

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### Sleeping Bear Dunes NL News Release

Release Date: October 1, 2015

Contact: Kevin Skerl, [kevin\\_skerl@nps.gov](mailto:kevin_skerl@nps.gov), 231-326-4750

### Platte River Mouth Restoration and Access Plan / Environmental Assessment Public Scoping

EMPIRE, MI - Sleeping Bear Dunes National Lakeshore (National Lakeshore) Superintendent Dusty Shultz announced today that the National Park Service (NPS) proposes to develop a Platte River Mouth Restoration and Access Plan / Environmental Assessment (EA).

The Platte River is located in the southern portion of the National Lakeshore and discharges into Lake Michigan. Benzie County owns and manages a recreational boat launch at Platte River Point, approximately 900 feet from the river mouth, at the end of Lake Michigan Road. It is most heavily used in the fall by salmon fishermen to get their boats into Platte Bay and greater Lake Michigan. Dredging between the boat launch and river mouth has been performed regularly since 1968 by the NPS or the State. Dredging has typically occurred after Labor Day, primarily at the sand bars at the river mouth. In 2013, budget constraints led the NPS to stop dredging, and the State of Michigan dredged that year instead. Due to high lake levels and economic constraints, dredging has not occurred since then. A large quantity of stockpiled dredge spoils (sand and gravel removed from the

river) is located near the mouth of the river, on the eastern side. Dredging of the river and continued deposition of spoils on the shore cause negative environmental impacts.

The 2009 *General Management Plan* (GMP) for the park, states the NPS will provide Lake Michigan boat access within a designated “high use zone” at the mouth of the Platte River that would allow for “boat ramps or docks.” The GMP also states a “separate Environmental Impact Statement would be needed to determine whether there may be alternatives for providing this access in a way that lessens impacts to resources and visitors’ experiences” and that “cessation of dredging would likely be a component of one or more of these alternatives.” Two preliminary studies have been conducted to evaluate access alternatives and riverbank restoration. Alternatives developed in these studies are proposed to be evaluated as part of this planning process, including:

- Alternative 1 – Recreational boat access via the Platte River by continuing or allowing dredging and placement of the spoils on the eastern riverbank. This is called the “No Action” alternative.
- Alternative 2 – Recreational boat access via the Platte River without dredging; removal of the existing dredge spoil pile and restoration of the eastern riverbank.
- Alternative 3 – New recreational boat access east of the river mouth; removal of the existing dredge spoil pile and restoration of the eastern riverbank.
- Alternative 4 – New recreational boat access at Illinois Drive; removal of the existing dredge spoil pile and restoration of the eastern riverbank.
- Alternative 5 – New recreational boat access at Tiesma Road; removal of the existing dredge spoil pile and restoration of the eastern riverbank.

A public scoping meeting on this project is scheduled for October 15, 2015 from 6:00 p.m. to 7:30 p.m. at the Philip A. Hart Visitor Center Auditorium in Empire, Michigan. A presentation will be made at

the start of the meeting to inform the public about the project purpose and need, and access alternatives. NPS staff will be available to answer questions about the project.

Your comments regarding issues or concerns are an important part of this planning and impact assessment process. You can find background information and provide your comments online at **[parkplanning.nps.gov/platte](http://parkplanning.nps.gov/platte)**. Comments may also be mailed to the National Lakeshore at: Superintendent, Sleeping Bear Dunes National Lakeshore, 9922 Front Street, Empire, MI 49630.

The National Lakeshore requests that you provide your comments by November 15, 2015. The comments you submitted during this planning period will be evaluated and considered during the development of the EA. The EA is scheduled to be made available for further public review and comment in fall 2016.

The National Lakeshore looks forward to receiving your thoughts and opinions concerning the project purpose and need, and alternatives for access, and other ideas. For more information, please contact Kevin Skerl, Chief of Natural Resources, at (231) 326-4750, or visit their website at [www.nps.gov/slbe/](http://www.nps.gov/slbe/).

*About the National Park Service: More than 20,000 National Park Service employees care for America's 408 national parks and work with communities across the nation to help preserve local history and create close-to-home recreational opportunities. Learn more at [www.nps.gov](http://www.nps.gov).*

National Park Service  
U.S. Department of the Interior  
Sleeping Bear Dunes National  
Lakeshore



## Sleeping Bear Dunes National Lakeshore

### Platte River Mouth Restoration and Access Plan Environmental Assessment



Please join us  
October 15, 2015 for a  
Public Scoping Meeting  
6:00 to 7:30 p.m.  
Philip A. Hart Auditorium  
9922 Front Street  
Empire, MI

National Park Service  
U.S. Department of the Interior  
Sleeping Bear Dunes National Lakeshore  
9922 Front Street  
Empire, MI 49630



#### Dear Friends,

The National Park Service (NPS), in compliance with the National Environmental Policy Act (NEPA), plans to develop a Restoration and Access Plan / Environmental Assessment (EA) for the mouth of the Platte River in Sleeping Bear Dunes National Lakeshore.

The purpose of this brochure is to provide you with information about the project, and ask for your help. This project is important and your input is invaluable. We are seeking your comments on the draft purpose, need, objectives, and alternatives developed for this project, which will be included in the EA.

Scoping is the first step to involve the public in the management strategy for the mouth of the Platte River. The NPS needs your comments to ensure that it is considering all issues or concerns and a full range of alternatives for the management of the Platte River. The purpose of the public scoping meeting is to provide the public with information on the planning process and explain how to provide input on development of the plan. Next year, after the impact analysis is completed and the EA is distributed for public review, the NPS will again seek your comments.

We look forward to seeing you at the public meeting and hearing your input on this important project.

Sincerely,

Dusty Shultz  
Superintendent  
Sleeping Bear Dunes National Lakeshore

## Background

The Platte River is located in the southern portion of Sleeping Bear Dunes National Lakeshore and discharges into Lake Michigan. Benzie County owns a recreational boat launch located at Platte River Point, approximately 900 feet from the river mouth, at the end of Lake Michigan Road. It is most heavily used in the autumn by salmon fishermen to get their boats into Platte Bay and greater Lake Michigan. Dredging between the boat launch and river mouth has been performed regularly since 1968 by the NPS or the State of Michigan. Dredging occurs after Labor Day, primarily at the sand bars at the mouth. In 2013, budget constraints led the NPS to stop dredging and instead, the State dredged that year. Due to high lake levels and economic constraints, dredging has not occurred since then. A large quantity of stockpiled dredge spoils (sand and gravel removed from the river mouth) is located near the mouth of the river, on the eastern side. Dredging of the river and the continued deposition of spoils on the shore causes negative environmental impacts.





## Purpose and Need for Action

The purpose of this project is to restore the mouth of the Platte River and provide recreational boat access to Platte Bay in a manner that is in the best interest of the Park's resources (such as habitat, wildlife, and protected species) and the visiting public.

Action is needed at this time to restore, to the fullest extent practical, the river and its adjacent shorelines to a natural condition, while at the same time providing recreational boat access to Lake Michigan. A sustainable plan is needed that is economically feasible and conforms to applicable laws and NPS policies.

## Objectives

- Restore natural conditions and processes to the river mouth and beaches to the greatest extent possible.
- Reduce impacts to the Platte River due to dredging and improve dredge spoil management, should dredging continue.
- Identify, minimize and mitigate effects on federally endangered and other sensitive species.
- Provide recreational access to Platte Bay.



## Alternatives

Initial planning identified the following alternatives proposed for consideration in the EA:

- **Alternative 1** – Recreational boat access via the Platte River by continuing or allowing dredging and placement of the spoils on the eastern river bank. This is called the "No Action" alternative.
- **Alternative 2** – Recreational boat access via the Platte River without dredging; removal of the existing dredge spoil pile and restoration of the eastern river bank.
- **Alternative 3** – New recreational boat access at Platte River Point east of the river mouth; removal of the existing dredge spoil pile and restoration of the eastern riverbank.
- **Alternative 4** – New recreational boat access at Illinois Drive; removal of the existing dredge spoil pile and restoration of the eastern riverbank.
- **Alternative 5** – New recreational boat access at Tiesma Road; removal of the existing dredge spoil pile and restoration of the eastern riverbank.

## Anticipated Timeline

2015	Fall	Public Scoping (closes November 15, 2015)
2016	Winter - Summer	Preparation of Restoration and Access Plan EA
	Fall	Public Review of EA
2017	Winter	Preparation of Decision Document
	Early Spring	Decision/Final Plan



Project information can be found at:

<http://parkplanning.nps.gov/platte>

## Meeting and Location

Thursday, October 15, 2015  
6:00 to 7:30 p.m.

Philip A. Hart Visitor Center Auditorium  
9922 Front Street  
Empire, MI 49630

A presentation will be made at the start of the meeting and NPS staff will be available to answer questions about the project. All comments must be submitted in writing using one of the methods below.

## How to Comment

Please comment before November 15 by:

- Submitting comments electronically at: <http://parkplanning.nps.gov/platte>
- Submitting comments in writing to:  
Superintendent  
Sleeping Bear Dunes National Lakeshore  
9922 Front Street  
Empire, MI 49630

Please be sure to include your full name and address with the comments so we may add you to our mailing list for information on future items in this project.

*Please note: Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.*

## APPENDIX B: LIST OF THREATENED AND ENDANGERED FLORA AND FAUNA SPECIES

Name	Federal Status	State Status	Potential to Occur in Project Area?
<b>Plant Species</b>			
Michigan Monkey-flower <i>Mimulus michiganensis</i>	Endangered	Endangered	No
Broad-leaved Sedge <i>Carex platyphylla</i>	Not Listed	Endangered	No
American Chestnut <i>Castanea dentata</i>	Not Listed	Endangered	Yes
Three-square Bulrush <i>Schoenoplectus americanus</i> ( <i>Scirpus olneyi</i> )	Not Listed	Endangered	No
Pitcher's Thistle <i>Cirsium pitcheri</i>	Threatened	Threatened	Yes
Wild Chives <i>Allium schoenoprasum</i>	Not Listed	Threatened	No
Cudweed Sagewort <i>Artemisia ludoviciana</i>	Not Listed	Threatened	No
Walking Fern <i>Asplenium rhizophyllum</i>	Not Listed	Threatened	No
Cut-leaved Water Parsnip <i>Berula erecta</i>	Not Listed	Threatened	No
Prairie Moonwort or Dunewort <i>Botrychium campestre</i>	Not Listed	Threatened	No
Western Moonwort <i>Botrychium hesperium</i>	Not Listed	Threatened	Yes
Spoon-leaf Moonwort <i>Botrychium spathulatum</i>	Not Listed	Threatened	Yes
Pumpelly's Brome Grass <i>Bromus pumpellianus</i>	Not Listed	Threatened	Yes
Northern Reedgrass <i>Calamagrostis stricta</i>	Not Listed	Threatened	No
Calypso or Fairy-Slipper <i>Calypso bulbosa</i>	Not Listed	Threatened	No
Eastern Few-fruit Sedge <i>Carex oligocarpa</i>	Not Listed	Threatened	No

Name	Federal Status	State Status	Potential to Occur in Project Area?
Fascicled Broomrape <i>Orobanche fasciculata</i>	Not Listed	Threatened	Yes
American Ginseng <i>Panax quinquefolius</i>	Not Listed	Threatened	No
Pine-drops <i>Pterospora andromedea</i>	Not Listed	Threatened	Yes
Yellow Pitcher Plant <i>Sarracenia purpurea</i>	Not Listed	Threatened	No
Three-birds Orchid <i>Triphora trianthophora</i>	Not Listed	Threatened	No
Wild Rice <i>Zizania aquatica</i>	Not Listed	Threatened	No
Ram's Head Lady's-Slipper <i>Cypripedium arietinum</i>	Not Listed	Species of Concern	Yes
<b>Mollusk Species</b>			
Eastern Pondmussel <i>Ligumia nasuta</i>	Not Listed	Endangered	No
Black Sandshell <i>Ligumia recta</i>	Not Listed	Endangered	No
Lilliput <i>Toxolasma parvus</i>	Not Listed	Endangered	No
Slippershell <i>Alasmidonta viridis</i>	Not Listed	Threatened	No
Broadshoulder Physa <i>Physella parkeri</i>	Not Listed	Threatened	No
Great Lakes Physa <i>Physella magnalacustris</i>	Not Listed	Species of Concern	No
Lake Floater <i>Pyganodon lacustris</i>	Not Listed	Species of Concern	No
<b>Insect Species</b>			
Lake Huron Locust <i>Trimerotropis huroniana</i>	Not Listed	Threatened	Yes
Douglas Stenelmis Riffle Beetle <i>Stenelmis douglasensis</i>	Not Listed	Species of Concern	No
<b>Fish Species</b>			
Lake Herring or Cisco <i>Coregonus artedii</i>	Not Listed	Threatened	No

Name	Federal Status	State Status	Potential to Occur in Project Area?
Lake Sturgeon <i>Acipenser fulvescens</i>	Not Listed	Threatened	No
River Redhorse <i>Moxostoma carinatum</i>	Not Listed	Threatened	No
Mooneye <i>Hiodon tergisus</i>	Not Listed	Threatened	No
Spotted Gar <i>Lepisosteus oculatus</i>	Not Listed	Species of Concern	No
<b>Reptile Species</b>			
Blanchard's Cricket Frog <i>Acris crepitans blanchardi</i>	Not Listed	Threatened	No
Spotted Turtle <i>Clemmys guttata</i>	Not Listed	Threatened	No
Eastern Massasauga <i>Sistrurus catenatus</i>	Threatened	Species of Concern	No
Blanding's Turtle <i>Emydoidea blandingii</i>	Not Listed	Species of Concern	No
Wood Turtle <i>Glyptemys insculpta</i>	Not Listed	Species of Concern	No
Eastern Box Turtle <i>Terrapene carolina carolina</i>	Not Listed	Species of Concern	No
<b>Bird Species</b>			
Piping Plover <i>Charadrius melodus</i>	Endangered	Endangered	Yes
Henslow's Sparrow <i>Ammodramus henslowii</i>	Not Listed	Endangered	No
Short-eared Owl <i>Asio flammeus</i>	Not Listed	Endangered	No
Prairie Warbler <i>Dendroica discolor</i>	Not Listed	Endangered	No
Peregrine Falcon <i>Falco peregrinus</i>	Not Listed	Endangered	No
Loggerhead Shrike <i>Lanius ludovicianus migrans</i>	Not Listed	Endangered	No
Red Knot <i>Calidris canutus rufa</i>	Threatened	Not Listed	No

Name	Federal Status	State Status	Potential to Occur in Project Area?
Red-shouldered Hawk <i>Buteo lineatus</i>	Not Listed	Threatened	No
Cerulean Warbler <i>Dendroica cerulea</i>	Not Listed	Threatened	No
Common Gallinule <i>Gallinula chloropus</i>	Not Listed	Threatened	No
Common Loon <i>Gavia immer</i>	Not Listed	Threatened	No
Caspian Tern <i>Sterna caspia</i>	Not Listed	Threatened	No
Common Tern <i>Sterna hirundo</i>	Not Listed	Threatened	No
Least Bittern <i>Ixobrychus exilis</i>	Not Listed	Threatened	No
Merlin <i>Falco columbarius</i>	Not Listed	Threatened	No
Northern Goshawk <i>Accipiter gentilis</i>	Not Listed	Species of Concern	No
Grasshopper Sparrow <i>Ammodramus savannarum</i>	Not Listed	Species of Concern	No
Marsh Wren <i>Cistothorus palustris</i>	Not Listed	Species of Concern	No
Bald Eagle <i>Haliaeetus leucocephalus</i>	Not Listed	Species of Concern	No
Osprey <i>Pandion haliaetus</i>	Not Listed	Species of Concern	No
<b>Mammal Species</b>			
Indiana Bat <i>Myotis sodalis</i>	Endangered	Endangered	No
Northern Long-eared Bat <i>Myotis septentrionalis</i>	Threatened	Not Listed	Yes
Woodland vole <i>Microtus pinetorum</i>	Not Listed	Species of Concern	No



## **Appendix C: Agencies and Organizations Consulted**

The following agencies and organizations were sent scoping brochures during public scoping. A summary of the comments received is in the Public Scoping Analysis Report (NPS 2016) that is located on the PEPC website: <http://parkplanning.nps.gov/platte>.

### **Federal Agencies**

NPS, Midwest Regional Office  
U.S. Department of Agriculture, Animal & Plant Health Inspection Service  
U.S. Environmental Protection Agency  
U.S. Fish and Wildlife Service  
U.S. Army Corps of Engineers – Detroit District

### **State Agencies**

Michigan Department Environmental Quality  
Michigan Department of Natural Resources  
Michigan Department of Transportation  
Michigan Natural Resources Commission  
Michigan State Historic Preservation Office

### **County, Township, and Village**

Benzie County  
Benzie County Conservation District  
Benzie Road Commission  
Benzonia Township  
Centerville Township  
Cleveland Township  
Empire Township  
Glen Arbor Township  
Kasson Township  
Lake Township  
Leelanau County  
Leelanau County Conservation District  
Leelanau County Road Commission  
Leelanau Township  
Leland Township  
Manitou Island Transit  
Platte Township  
Sutton Bay  
Village of Empire

## **Native American Tribes**

Bay Mills Indian Community  
Grand Traverse Band of Ottawa & Chippewa Indians  
Inter-Tribal Council of Michigan  
Inter-Tribal Fisheries and Assessment Program  
Little River Band of Ottawa Indians  
Little Traverse Bay Band of Odawa Indians  
Sault Ste. Marie Tribe of Chippewa Indians  
Saginaw Chippewa Indian Tribe of Michigan, Tribal Historic Preservation Office

## **Organizations**

Michigan State University, Department of Entomology & Department of Forestry  
Networks Northwest Heritage Routes  
Benzie Area Historical Museum  
Benzie Fishery Coalition  
Citizen's Council of the Sleeping Bear Dunes  
Citizens for Access to the Lakeshore  
Friends of the Crystal River  
Friends of Sleeping Bear Dunes  
Fritz Road Owners Association  
Glen Arbor Art Association  
Glen Lake Association  
Grand Traverse Regional Land Conservancy  
Leelanau Conservancy  
Leelanau Historical Society  
Little Traverse Lake Property Owners Association  
Manitou Island Memorial Society  
Michigan Land Use Institute  
National Parks Conservation Association  
Northern Michigan Environmental Action Council  
Preserve Historic Sleeping Bear

## **State and Federal Elected Officials**

Michigan State Senate – Darwin Booher  
Michigan State Representative – Ray Franz  
U.S. House of Representatives - Honorable Daniel Benishek  
U.S. House of Representatives – Honorable Bill Hulzenga  
U.S. Senate – Honorable Debbie Stabenow  
U.S. Senate – Honorable Gary Peters