

National Park Service
U.S. Department of the Interior

Indiana Dunes National Lakeshore
Indiana



**Shoreline Restoration and
Management Plan /
Final Environmental Impact Statement
Record of Decision**

October 2014

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
SHORELINE RESTORATION AND MANAGEMENT PLAN /
FINAL ENVIRONMENTAL IMPACT STATEMENT

Indiana Dunes National Lakeshore, Porter, Lake, and LaPorte Counties, Indiana

RECORD OF DECISION

The United States (U.S.) Department of Interior, National Park Service (NPS), has prepared this Record of Decision (ROD) for the Shoreline Restoration and Management Plan / final environmental impact statement (plan) for Indiana Dunes National Lakeshore (national lakeshore). This ROD includes the project background; a statement of the decision made; a description of the alternative selected for implementation; a listing of measures to minimize and/or mitigate environmental harm; a synopsis of other values; a description of the environmentally preferred alternatives; and a summary of public and agency involvement in the decision-making process.

BACKGROUND

The plan for the national lakeshore was developed under the guidance of an interdisciplinary team including the superintendent, park staff, the NPS Midwest Regional office, and the NPS Denver Service Center. The U.S. Army Corps of Engineers (COE), Chicago District was a cooperating agency. During the planning process, the plan team actively engaged the public, stakeholders, and government officials at the federal, state, and local levels. The National Park Service also consulted with eight federally recognized tribes and one tribe not federally recognized. To date, no tribes have participated in the development of the plan or responded with interest.

Public involvement was a large component of the development of the final preferred alternatives presented in the final environmental impact statement (EIS). Public involvement included three primary avenues for participating during the development of the plan: (1) attending the public meeting and providing comments verbally or by submitting a comment form; (2) responding to the information contained in park newsletters that provided information and updates about the project; and (3) providing comments via mail and/or by electronic submission through the NPS planning website.

The public was notified of this planning effort via: (1) a *Federal Register* notice of intent (volume 75, number 137) to prepare an EIS, dated July 19, 2010; (2) distribution of two newsletters regarding this effort in December 2010 and May 2011; and (3) a press release announcing a public comment opportunity, including public meetings for the draft plan in October 2012.

For the purpose of the plan, the shoreline was divided into four reaches based on sediment accretion and erosion rates of the shoreline. The project area consists of reaches 1 through 4, numbered in an east-to-west direction. The designated reaches encompass the following shoreline areas: reach 1, Crescent Dune to the east end of Lake Front Drive; reach 2, east end of Lake Front Drive to Willow Lane; reach 3, Willow Lane to Beach Lane; and reach 4, Beach Lane to the Gary-U.S. Steel East Breakwater. The national lakeshore shoreline within reaches 1 and 3 experiences high rates of erosion, while reaches 2 and 4 are considered dynamically stable and experience little to no long-term changes. Actions under alternatives for reach 1 would also impact the shoreline in reach 2; likewise, actions under alternatives for reach 3 would also impact the shoreline in reach 4. Therefore, one set of alternatives were developed for reaches 1 and 2 and a second set of alternatives were developed for reaches 3 and 4.

For reaches 1 and 2, eight alternatives were initially developed including a no-action alternative. All alternatives would provide for beach nourishment at Crescent Dune, but differed in the source of material (upland versus dredged), method of placement (hydraulic versus mechanical), and frequency of placement (every year or every five years). Additionally, one of the alternatives incorporated a permanent bypass system, and another incorporated the construction of a temporary submerged cobble berm. Through a value analysis process the alternative that incorporated the submerged cobble berm was identified as the preferred alternative for reaches 1 and 2 for the draft plan. This alternative would provide the best combination of strategies resulting in a high level of protection of natural resources while providing for a wide range of beneficial uses of the environment. Comments on the draft plan (July 2012) were extensive. The National Park Service made some modifications to the proposed alternatives in the plan based on public and agency comment.

For reaches 1 and 2, the comments were generally supportive of the beach nourishment but there were concerns about the preferred alternative, alternative E, a submerged cobble berm. Therefore, a new hybrid alternative was designed that incorporated desired aspects of multiple alternatives that would meet park purposes and objectives while also addressing public concern with the submerged cobble berm. The new hybrid alternative, alternative F, incorporated the benefit of the gravel and rock materials from alternative E using the inland mined and hauled sources outlined under alternative B-1 with the hydraulically dredged sands outlined under alternative C-1. The plan addressed public and agency comments on the draft plan and identified the new NPS preferred alternative for reaches 1 and 2 as alternative F.

For reaches 3 and 4, four alternatives were developed including the no-action alternative. All alternatives would provide for beach nourishment at Portage Lakefront and Riverwalk differentiated by the frequency of nourishment (every year or every five years), and one alternative included the development of a permanent bypass system. Only dredged material was considered for the alternatives in reaches 3 and 4 because no viable access to the nourishment site exists for trucking in upland materials. Through a value analysis process, alternative C-5, which would provide sediment nourishment material every five years through a combination of mechanical and hydrologic means, was identified as the preferred alternative for reaches 3 and 4 in the draft plan. This alternative was cost efficient and provided the greatest potential for both foredune creation and protection from major storm events. While the public was generally supportive of beach nourishment for reaches 3 and 4, there was negative response to alternative C-5 during the public comment period on the draft plan. In response to the public's concerns, the preferred alternative for reaches 3 and 4 was changed to alternative C-1, which provided for beach nourishment annually. The plan addressed public and agency comments on the draft plan and identified the revised NPS preferred alternative for reaches 3 and 4 as alternative C-1.

The plan presents the first steps in a long-term process to return the national lakeshore to a more natural condition. For instance, various hardened structures have been placed along the shoreline as a result of industrial, federal, and residential development. These structures have historically provided protection for infrastructure from erosion and storm events. However, these structures were not always developed in a way that was beneficial to the entire shoreline. The steps identified in the plan to restore the national lakeshore shoreline and its processes cannot be implemented without help from other stakeholders, both private and governmental. Reestablishment of more natural shoreline processes could eventually allow the current structures along the lakeshore to be removed in the future without endangering the adjacent infrastructure. The completion of the plan does not ensure that all actions will occur or that funding will be available. Some actions may require additional compliance or agency review prior to implementation, subject to federal and park regulations.

PURPOSE AND NEED STATEMENTS

The purpose of the plan is to provide comprehensive guidance for restoring natural shoreline processes, preserving the shoreline ecosystem, and providing opportunities for quality visitor experiences at the national lakeshore. The approved plan will guide the National Park Service in best fulfilling the park's purpose.

The plan describes how the National Park Service generally proposes to manage the shoreline at the national lakeshore for the next 20 years or more. In particular, it describes approaches to beach nourishment within the park and proposes additional strategies to address the shoreline management issues. The National Park Service will use the plan to

- assure that the foundation for decision-making has been developed in consultation with the public and is adopted by NPS leadership after sufficient analysis of the benefits and impacts of alternative courses of action
- develop strategies that would support the reestablishment of more sustainable shoreline sediment movement and a more natural ecosystem of shoreline vegetation, foredune, and dune complexes
- define desired resource conditions for the shoreline, foredunes, and dunes
- identify approaches for shoreline restoration and management that are consistent with a regional approach to management of the lakeshore that encourages maintenance of a natural shoreline and functioning ecosystems

The plan is needed to

- address the severe shoreline and beach erosion and the impacts on dune ecology that are caused by interruptions to the natural processes along the shoreline, including the movement of sediment
- address the adverse impacts to the fragile shoreline ecosystem caused by the interrupted natural processes and sediment movement
- identify a series of management actions that can be implemented by park staff, as needed, to provide a balance between protection of the shoreline ecosystem and appropriate visitor enjoyment of the park

Goals and Objectives for Taking Action

To meet the goals and objectives of the project, the plan proposed and analyzed various alternatives and their respective impacts on the environment. It was prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA) and regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1508.9). Any plan the park develops must be consistent with the laws, regulations, and policies that guide the National Park Service.

Objectives are "what must be achieved to a large degree for the action to be considered a success" (NPS 2001). All alternatives selected for detailed analysis must meet all objectives to a large degree, and they must resolve the purpose and need for action. Objectives for shoreline restoration must be grounded in the park's enabling legislation, purpose, and significance. The following objectives related to shoreline restoration were developed for the plan.

Shoreline Restoration

- Develop strategies that would support the reestablishment of more sustainable shoreline sediment movement and a more natural ecosystem of shoreline vegetation, foredune, and dune complexes.

Nonnative and Invasive Species

- Develop strategies to identify, manage, and remove aquatic and terrestrial nonnative and invasive species; and
- Develop strategies to support ongoing management efforts to remove aquatic and terrestrial nonnative and invasive species, and to prevent conditions detrimental to those efforts.

Management Methodology

- Determine shoreline desired conditions that would serve as thresholds for management actions within Indiana Dunes National Lakeshore; and
- Develop and implement a management approach for maintaining a sustainable shoreline ecosystem within Indiana Dunes National Lakeshore.

DECISION (SELECTED ALTERNATIVES)

The National Park Service has selected the following preferred alternative for reaches 1 and 2 and reaches 3 and 4 as identified in the plan for implementation.

For reaches 1 and 2, alternative F (Beach Nourishment, Annual Frequency with a Mix of Small Natural Stone at the Shoreline) includes the following actions: mitigation measures common to all action alternatives, natural resource management strategies for the protection and improvement of the park's terrestrial ecosystem for reaches 1 and 2, and a combination of dredged and trucked in materials placed on the beach in reach 1 to nourish and restore the beach. A quantity up to 85,750 cubic yards (yd³) of fine and medium sands will be hydraulically dredged and placed on the beach in reach 1 to protect the shoreline. Additional fractions of coarse upland material and small native stones (up to 50,750 yd³ combined) will be added to the sediment nourishment. The total quantity of provided beach nourishment (136,500 yd³) will be sufficient to fulfill the calculated sediment deficit in reach 1 and to maintain the existing shoreline position for one year. Reach 1 will be monitored annually to determine if the desired mix of sediment and stone has been achieved. The combination of stone, coarse upland material and dredged sediment will be monitored to determine how the shoreline changes as a result of the implementation of the preferred alternative.

For reaches 3 and 4, alternative C-1 (Beach Nourishment via Dredged Sources, Annual Frequency) includes the following actions: mitigation measures common to all action alternatives, natural resource management strategies for the protection and improvement of the park's terrestrial ecosystem for reaches 3 and 4, and dredged sediment placed annually on the beach at the Portage Lakefront and Riverwalk. A total of 74,000 yd³ of sediment will be hydraulically dredged and placed annually on the beach at Portage Lakefront and Riverwalk to account for the estimated sediment budget deficit. Reach 3 will be monitored and evaluated to determine how the shoreline changes in response to the implementation of the preferred alternative.

RANGE OF ALTERNATIVES CONSIDERED

Alternatives Development Process

In developing the range of alternatives, the National Park Service carefully considered the national lakeshore's purpose and significance as well as the national lakeshore's enabling legislation. The range of alternatives considered were a result of technical analysis and a focus on what restoration metrics or desired conditions should be achieved. Alternatives analyzed in the plan were determined based on the results of internal and public scoping, input from local, state, and federal agencies, and the research of scientific literature related to shoreline management topics.

Alternatives Analyzed in the Plan

Mitigation Measures Common to All Action Alternatives. There are actions and policies that will apply or occur under any action alternative selected, including the continuation of current management. Practical means to avoid or minimize environmental harm in the implementation of the preferred alternatives will be adopted. The mitigation measures common to all action alternatives include policies, protocol, best management practices, agency coordination, and specific measures to protect air quality, soundscapes, soils, water resources (including wetlands), terrestrial vegetation, wildlife, threatened and endangered species and species of concern, cultural resources, visitor experience, scenic resources, and human health.

Reaches 1 and 2

Alternative A: No-action. The National Park Service would continue current management practices and for the foreseeable future, there would be no new actions taken to restore the park shoreline. Alternative A established a baseline for evaluating changes and impacts under the other action alternatives.

Alternative B-1: Beach Nourishment via Upland Sources, Annual Frequency. There would be an increase in the annual quantity of sediment placed at Crescent Dune to account for the calculated sediment budget deficit. A total of 136,500 yd³ of nourishment material would be mined and placed on the beach each year from a permitted upland source. This quantity is the total calculated sediment budget for reach 1.

Alternative B-5: Beach Nourishment via Upland Sources, Five-Year Frequency. The amount of sediment material deposited in reach 1 would fulfill the calculated sediment budget deficit. Rather than conducting annual nourishment activities as proposed under alternative B-1, the actions associated with alternative B-5 would place a total of 682,500 yd³ of sediment in reach 1 every five years. As with alternative B-1, the nourishment material would be mined from a permitted upland source, transported to the park via truck, and dispersed along the shoreline with heavy equipment.

Alternative C-1: Beach Nourishment via Dredged Sources, Annual Frequency. A total of 136,500 yd³ of dredged sediment would be placed annually on the beach in reach 1 to account for the calculated sediment budget deficit. The specific location of the dredging source would be determined during the permitting process, based on coordination with the Indiana Department of Natural Resources, in consultation with local stakeholders, and consideration of engineering constraints.

Alternative C-5: Beach Nourishment via Dredged Sources, Five-Year Frequency. A total of 682,500 yd³ of dredged sediment would be placed every five years on the beach in reach 1 to account for the calculated sediment budget deficit. The specific location of the dredging source would be determined during the permitting process, based on coordination with the Indiana Department of Natural Resources, in consultation with local stakeholders, and consideration of engineering constraints.

Alternative D: Beach Nourishment via Permanent Bypass System. A permanent bypass system would be constructed and operated to transport sediment from updrift of the Michigan City Harbor to reach 1. On average, a total of 136,500 yd³ of sediment would be bypassed annually to account for the calculated sediment budget deficit. A sediment trap would be created by initially dredging a quantity of sediment (to be determined) near the Michigan City Marina, at the end of the east jetty. An additional rubble-mound jetty modification could be required to develop an efficient sediment trap. This bypass system would be constructed along the lake bottom, around or under the existing harbor structures. Once the bypass system was constructed and operational, some annual maintenance would be required.

Alternative E: Submerged Cobble Berm and Beach Nourishment, Annual Frequency. A submerged cobble berm comprised of appropriate-sized aggregate material would be constructed parallel to the shoreline in approximately 10 feet of water depth at low water datum, between the western terminus of the Northern Indiana Public Service Company (NIPSCO) seawall and the eastern terminus of reach 2. The submerged cobble berm would be used in conjunction with a beach nourishment program to restore reach 1 of the national lakeshore. The objectives of constructing the submerged cobble berm would be to stabilize the shoreline downdrift of the Michigan City Harbor by reducing the quantity of sediment needed for beach nourishment, to enhance aquatic habitat by diversifying the nearshore substrate, and to improve shoreline protection during storm events. A quantity of up to 102,400 yd³ of sediment obtained from a dredged source would also be hydraulically placed on the beach in reach 1 annually to provide nourishment and protection of the shoreline. The source location of the nourishment material would be determined in coordination with the Indiana Department of Natural Resources in areas of accretion so that dredging activities would not disturb areas of equilibrium.

Alternative F: Beach Nourishment, Annual Frequency with a Mix of Small Natural Stone at the Shoreline (Preferred Alternative). A combination of dredged and trucked in materials would be used to nourish the beach and restore reach 1 of the national lakeshore. A quantity up to 85,750 yd³ of fine and medium sands would be hydraulically dredged and placed on the beach in reach 1 to protect the shoreline. Additional fractions of coarse upland material and small native stones (up to 50,750 yd³ combined) would be added to the sediment nourishment. These small native stones would be consistent in size and volume with those presently found downdrift in the project's dynamically stable beach zones. The expectation would be that the mineralogy, physical shape, and consistency of these small native stones would be indistinguishable from the existing pebbles and small flat stones found along the shoreline. The objectives of adding the native stone to the nourishment materials would be to stabilize the shoreline downdrift of the Michigan City Harbor by providing a more erosion resistant component, and to enhance aquatic habitat by diversifying the nearshore substrate consistent with dynamically stable reaches. The total quantity of provided beach nourishment (136,500 yd³) would be sufficient to fulfill the calculated sediment budget deficit in reach 1 and to maintain the existing shoreline position for one year. Reach 1 would be monitored annually to determine if the desired mix of sediment and stone had been achieved.

Reaches 3 and 4

Alternative A: No-action. The National Park Service would continue current management practices and there would be no new actions taken to restore the park shoreline. Alternative A established a baseline for evaluating changes and impacts under the other action alternatives.

Alternative C-1: Beach Nourishment via Dredged Sources, Annual Frequency (Preferred Alternative). Sediment would be dredged from an updrift location in Lake Michigan. A total of 74,000 yd³ of sediment would be placed annually on the beach at Portage Lakefront and Riverwalk to account for the estimated sediment budget deficit. The specific location of the dredging source would be determined during the permitting process, based on coordination with the Indiana Department of Natural Resources, consultation with local stakeholders, and consideration of engineering constraints.

Alternative C-5: Beach Nourishment via Dredged Sources, Five-Year Frequency. A total of 370,000 yd³ of sediment would be placed every five years on the beach in reach 3 to account for the estimated sediment budget deficit. The footprint of the placement area would be the entire length of the shoreline west of the Burns International Harbor, with an increase in beach elevation to approximately 12 feet above low water datum. As with alternative C-1, the specific location of the dredging source would be determined during the permitting process, based on coordination with the Indiana Department of Natural Resources, consultation with local stakeholders, and consideration of engineering constraints.

Alternative D: Beach Nourishment via Permanent Bypass System. A permanent bypass system would be constructed and operated to transport sediment from updrift of the NIPSCO / Bailly complex to Portage Lakefront and Riverwalk. A total of 74,000 yd³ of sediment would be bypassed annually to account for the estimated sediment budget deficit. A sediment trap would be created by initially dredging a quantity of sediment (to be determined) east of the NIPSCO intake. An additional rubble-mound jetty modification could be required to develop an efficient sediment trap. The permanent bypass system would be constructed along the lake bottom, around the existing harbor structures. After the permanent bypass system was constructed and operational, some annual maintenance would be required.

BASIS FOR DECISION

The National Park Service considered the enabling legislation and planning documents for the national lakeshore; NPS *Management Policies 2006*; NPS Organic Act of 1916; relevant federal laws and orders; NPS laws, policies, and guidance; and other planning documents for southern Lake Michigan as summarized in the "Purpose and Need for Action" chapter of the plan. The National Park Service also considered the body of scientific knowledge regarding shoreline erosion, and public and agency comments received during the planning process. Actions proposed under the alternatives analyzed are comprised of nourishment activities designed to fulfill the calculated sediment budget deficit for reach 1 and the estimated sediment budget deficit for reach 3.

The plan describes the impacts associated with nourishment alternatives for reaches 1 and 2 and reaches 3 and 4. The plan explains that the alternatives were designed to be implemented at specific areas of the shoreline during an approximate 20-year timeframe. Full implementation will require cooperation and coordination between local, state, and federal agencies. If site-specific detail is insufficient, additional compliance documentation will be completed as required.

The National Park Service identified alternative E (Submerged Cobble Berm and Beach Nourishment, Annual Frequency) for reaches 1 and 2, and alternative C-5 (Beach Nourishment via Dredged Sources, Five-Year Frequency) for reaches 3 and 4, as the preferred alternatives and the

environmentally preferred alternatives in the draft plan. These alternatives provided the best combination of strategies to protect the park's unique resources and visitor experience, while improving the park's operational sustainability within each reach. Comment on the draft plan (July 2012) was extensive. While the comments supported the goals of the plan in general and beach nourishment in particular, there were concerns about the preferred alternatives, the submerged cobble berm proposed under alternative E in reaches 1 and 2, and the large volume of materials associated with alternative C-5, the preferred alternative for reaches 3 and 4.

While the potential impacts of the submerged cobble berm were addressed in the draft plan, the public concern was such that the National Park Service chose to review the array of alternatives to determine the feasibility of both satisfying public concern and achieving the project goals through the development of a new hybrid alternative.

Due to public concern with alternative E (the preferred alternative in the draft plan), the National Park Service developed a new hybrid alternative that incorporated the full range of natural sediment aggregate using an approach other than the submerged cobble berm. The new hybrid alternative, alternative F, became the preferred alternative for reaches 1 and 2 in the plan. This alternative achieves the same objectives and provides the best combination of strategies to protect the lakeshore's unique resources and visitor experience, while satisfying public concerns.

As a result of public concern with the five-year beach nourishment volume under alternative C-5 for reaches 3 and 4 (the preferred alternative in the draft plan), the National Park Service changed the preferred alternative in reaches 3 and 4 to alternative C-1 in the plan. This alternative both achieves the project goals and satisfies public concerns.

Mitigation Measures/Monitoring

Over the next 20 years as the National Park Service implements the actions associated with the selected alternatives, it must protect the park's natural and cultural resources and not impair the quality of the visitor experience. Additionally, shoreline restoration and management activities must be consistent with the protection of the lakeshore's natural, scenic, and aesthetic values, safety considerations, and management objectives. To ensure that this occurs, a consistent set of mitigation measures will be applied to shoreline restoration and management actions in the park. The National Park Service will complete necessary reviews of environmental impacts for each proposed shoreline restoration and management action as required under the National Environmental Policy Act of 1969, as amended, the National Historic Preservation Act, and other relevant laws, regulations, and policies. As part of its environmental reviews, the National Park Service will avoid, minimize, and mitigate adverse impacts of shoreline management actions when practicable. Compliance monitoring and reporting will be part of mitigation measures.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

In accordance with the CEQ regulations, the National Park Service is required to identify the environmentally preferred alternative in a ROD (40 CFR 1505.2[b]). The environmentally preferred alternative is defined by the Council on Environmental Quality in its "Memorandum to Agencies: Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations" (Q6a) as "the alternative that will promote the national environmental policy as expressed in NEPA's section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources" (46 *Federal Register* 18026, Q6a). The Department of Interior NEPA regulations further explain: "The environmentally preferable alternative is identified

upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources" (43 CFR 46.30).

The National Park Service has identified alternative F (Beach Nourishment, Annual Frequency with a Mix of Small Natural Stone at the Shoreline) for reaches 1 and 2, and alternative C-1 (Beach Nourishment via Dredged Sources, Annual Frequency) for reaches 3 and 4, as the environmentally preferable alternatives. Among all action alternatives considered, the NPS environmentally preferable alternatives offer a high level of protection of natural resources along the shoreline. As a result, implementation of the NPS environmentally preferable alternatives will better mimic natural shoreline processes, and better protect the beach, foredunes, and dunes from erosion, and will better support the development of foredunes and dunes than the no-action alternatives.

The environmentally preferable alternatives for the plan differ from the preferred alternatives identified in the draft plan, which achieve the project goals and also satisfy public concerns.

PUBLIC INVOLVEMENT IN THE PLANNING PROCESS

Scoping

The public comment period for the proposed project was from December 8, 2010, through February 7, 2011. A total of 24 public comments were submitted during the comment period in comment form, letter, electronic mail, or website format (<http://parkplanning.nps.gov/indu>). To kick off the draft plan, four public scoping meetings were held on December 8, 9, 15, and 16, 2010 in open house format. The meetings were announced by postcard, email, and a press release. The *Post-Tribune* published an article about the meetings on December 1, 2010.

In total, 65 members of the public and three reporters attended the meetings. The meetings were held at the Northwest Indiana Regional Planning Commission in Portage, the Lubeznik Center for The Arts in Michigan City and at the national lakeshore Visitor Center in Porter, Indiana. The purpose of the public scoping meetings was to present basic information and data about the park; identify the purpose and need of the project and its objectives; describe the guidelines for restoration endpoints within the park; and discuss potential management strategies for approaching the proposed project outlining the planning and NEPA process.

Using input received from the public and considering the probable environmental consequences and costs of the alternatives, the NPS project team developed a list of alternatives, including preliminary preferred alternatives, and analyzed the affected environment and impacts associated with each. The results of this analysis were published in the draft plan, which was distributed for public review in May 2012. The mailing list for the draft plan included over 300 individuals and groups.

Public Notification, Meetings, and Comments

The draft plan was available for public comment for a period of 60 days commencing when the U.S. Environmental Protection Agency published the Notice of Availability in the *Federal Register* on September 14, 2012. One public meeting was held on October 23, 2012. Press releases in local newspapers and on the park's home page at: <http://www.nps.gov/indu> announced the availability of the draft plan, and the public meeting dates and times.

Approximately 300 interested individuals, agencies, and organizations received either a copy of the draft plan or notification of the availability of the draft plan electronically depending on their stated

preference. The National Park Service made the draft plan available to individuals, agencies, and organizations in either electronic format or hard copy. Copies of the document were available for review at the national lakeshore and at <http://parkplanning.nps.gov/indu>. In addition, a limited number of hardcopies and compact disks were available at the national lakeshore headquarters located at 1100 North Mineral Springs Road in Porter, Indiana.

The National Park Service received a total of 99 pieces of correspondence during the public comment period. Correspondence was received by one of the following methods: hard copy letter via mail, email, written statements received at one of the public meetings, or entered directly into the NPS Planning, Environment, and Public Comment (PEPC) website for the project.

Comments on the draft plan focused on several topics, especially the cobble berm associated with alternative E and its potential impacts on the shoreline, recreation, and private properties. A summary of the public comments received and the park responses to those comments were provided in "Appendix E: Concern Response Report" of the plan.

AGENCY CONSULTATION

U.S. Fish and Wildlife Service, Section 7 Consultation

The National Park Service contacted the U.S. Fish and Wildlife Service in a letter dated July 2011. The letter advised the U.S. Fish and Wildlife Service of the NPS planning process for the draft plan and requested concurrence with a determination that the proposed project may affect, but is not likely to adversely affect, endangered, threatened, and candidate species nor adversely modify piping plover critical habitat.

The U.S. Fish and Wildlife Service responded to the park's request in a letter dated August 8, 2011, and concurred with the NPS determination of effect for special status species and critical habitat found within the proposed project area (which encompasses the shoreline of Lake Michigan between Michigan City in LaPorte County on the east, and the Gary-U.S. Steel Breakwater in Gary in Lake County on the west). The entire Porter County shoreline of Lake Michigan is also included in the project area.

The National Park Service commits to continue to work with the U.S. Fish and Wildlife Service and the Indiana Department of Natural Resources to ensure that any activity associated with this plan will consider the protection of Federally- and state-endangered, threatened, or rare species and critical habitat. Restrictions on timing and actions will be considered at implementation.

National Historic Preservation Act Section 106 Consultation

In a letter dated April 28, 2011, the National Park Service contacted the Indiana state historic preservation officer (SHPO). The letter advised the Indiana SHPO about the start of the NPS planning process for the draft plan and requested SHPO involvement in the planning process, soliciting input on the issues and concerns to be addressed in the draft plan. A letter dated May 23, 2011, from James A. Glass, Deputy SHPO, stated that the Indiana SHPO had no specific comments at that time, but looked forward to receiving additional information about the project as it became available. The Indiana SHPO had an opportunity to review and comment on the draft plan. On September 25, 2014, the National Park Service sought a concurrence for a determination of "no adverse effect" to historic or archeological resources from the Indiana SHPO, based on the analysis in the final plan. In a letter dated October 7, 2014, the Indiana SHPO concurred with the determination.

TRIBAL CONSULTATION

The National Park Service contacted eight federally recognized tribes and one tribe not federally recognized in letters dated February 24, 2011. The National Park Service provided the tribes a brief background and description of the project area and invited the tribes to participate in the development of the draft plan. To date, no tribes have responded. The tribes contacted are listed below.

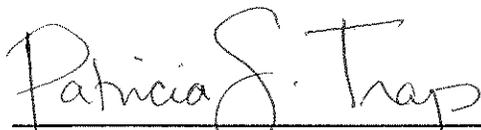
- Citizen Potawatomi Nation
- Forest County Potawatomi
- Hannahville Indian Community of Wisconsin Potawatomi Indians of Michigan
- Match-e-be-nash-she-wish Band of Potawatomi Indians
- Miami Tribe of Oklahoma
- Nottawaseppi Huron Band of Potawatomi Indians
- Pokagon Band of Potawatomi Indians
- Prairie Band of Potawatomi Nation
- Miami Nation of Indians of the State of Indiana (not federally recognized)

CONCLUSION

The approved plan sets a vision and framework for future shoreline restoration and management in the national lakeshore. Among the two sets of alternatives considered for reaches 1 and 2 and reaches 3 and 4, the selected alternatives (reaches 1 and 2: alternative F, and reaches 3 and 4: alternative C-1) best meet the NPS legal and regulatory requirements and policy guidance for shoreline management as well as meeting the purpose, need, goals, and objectives of the plan while addressing concerns expressed by the public. The selected actions will provide comprehensive guidance for restoring natural shoreline processes, preserving the shoreline ecosystem, and providing opportunities for quality visitor experiences at the national lakeshore. In addition, the National Park Service commits to ensuring all necessary permits that may be necessary at the time of implementation will be obtained. A non impairment determination for the selected alternatives is included in Attachment A.

Approved:

Date:



10.21.14

Patricia S. Trap, Acting Regional Director
Midwest Region, National Park Service

ATTACHMENT A
NON IMPAIRMENT DETERMINATION FOR THE SELECTED ACTION
SHORELINE RESTORATION AND MANAGEMENT PLAN /
FINAL ENVIRONMENTAL IMPACT STATEMENT
Indiana Dunes National Lakeshore, Porter, Lake, and LaPorte Counties, Indiana

By enacting the National Park Service (NPS) Organic Act of 1916 (Organic Act), Congress directed the United States (U.S.) Department of Interior and the National Park Service to manage units "to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such a manner and by such a means as will leave them unimpaired for the enjoyment of future generations" (16 United States Code [USC] 1). Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that the National Park Service must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress" (16 USC 1a-1).

NPS *Management Policies 2006*, section 1.4.4, explains the prohibition on impairment of park resources and values:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The National Park Service has discretion to allow impacts on Park resources and values when necessary and appropriate to fulfill the purposes of a Park (NPS 2006 section 1.4.3). However, the National Park Service cannot allow an adverse impact that would constitute impairment of the affected resources and values (NPS 2006 section 1.4.3). An action constitutes an impairment when its impacts "harm the integrity of Park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values" (NPS 2006 section 1.4.5).

Section 1.4.5 of NPS *Management Policies 2006* states:

An impact to any park resource or value may, but does not necessarily, constitute an impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is

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

The National Park Service has discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of a park (NPS 2006 section 1.4.3). However, the National Park Service cannot allow an adverse impact that would constitute impairment of the affected resources and values (NPS 2006 section 1.4.3).

A determination of non impairment is made for each of the resource impact topics analyzed in the Shoreline and Restoration Management Plan / final environmental impact statement (plan) for the selected alternatives (i.e., reaches 1 and 2: alternative F, and reaches 3 and 4: alternative C-1). Non impairment determinations are not necessary for visitor experience and park operations because impairment findings relate back to park resources and values. These impact areas are not generally considered to be park resources or values according to the Organic Act, and cannot be impaired the same way that an action can impair park resources and values.

COASTAL PROCESSES

Due to the presence of various industrial and navigational structures along Lake Michigan's southern shore, the transport of sediment along the shoreline has been interrupted. This has resulted in areas of accretion, in which the beach appears to be increasing in size as more sediment becomes trapped, and areas of erosion, in which sediment is carried away from the shoreline and transported downdrift. The alternatives proposed in the plan include approaches to mitigate accretion and erosion.

Dune Formation Processes. Dune development occurs when the lake level remains relatively constant and sediment is deposited, trapped, and held onshore by vegetation. It is vital that the appropriate quantity of sediment be present in the system to allow for such processes to occur. The alternatives proposed allow for additional sediment to be placed into the lake system.

Reaches 1 and 2. Placing nourishment material from an updrift source on an annual basis with a mix of natural stone, dredged sediment, and coarse upland material at the shoreline would account for the estimated sediment budget deficit, and thereby maintain the current shoreline position. The mixing of native stone material with sediment would reduce shoreline erosion by providing a mix of stone that is consistent with dynamically stable shoreline reaches and would be more resistant to wave energy. Additionally, dredging sediment from an updrift location would more closely mimic natural processes, as compared to using material from upland sources. Implementing alternative F would increase sediment retention in the area of placement, provide additional sediment to encourage foredune development along the shoreline, and would result in moderate, long-term, beneficial impacts on coastal processes. Cumulative impacts on coastal process would be negligible, long-term and adverse.

Actions under alternative F would provide incremental beneficial increases to the overall adverse cumulative impacts described under alternative A. Despite these actions, existing navigational and industrial structures along the lakeshore would continue to disrupt the natural littoral drift along the lakeshore.

Reaches 3 and 4. Placing the proposed quantity of sediment on the beach in reach 3 would mitigate the sediment budget deficit, and thereby protect the current shoreline profile. Additionally, dredging sediment from an updrift location would more closely mimic natural processes as compared to using material from upland sources. Actions associated with alternative C-1 would also provide additional sediment to encourage foredune development along the shoreline, resulting in moderate, long-term, beneficial impacts on coastal processes. Cumulative impacts on coastal process would be negligible to minor, long-term and adverse.

Actions under alternative C-1 would provide incremental beneficial increases to the overall adverse cumulative impacts described under alternative A. Despite these actions, existing navigational and industrial structures along the lakeshore would continue to disrupt the natural littoral drift along the lakeshore.

Aquatic Fauna

There are several invasive and nonnative aquatic species known to populate the waters along the southern Lake Michigan shoreline. As these species encroach on the park's waters, native assemblages are increasingly at risk. Therefore, it is important to assess the potential to introduce new invasive or nonnative species, or augment the spread of those already established.

Reaches 1 and 2. The actions associated with alternative F would result in moderate, short- and long-term, adverse and beneficial impacts on the native aquatic species. The aquatic fauna in the nearshore would be temporarily disturbed or displaced during beach nourishment activities. Long term, the aquatic habitat would be enhanced by providing protection and food sources for a variety of fish. The habitat would also be enhanced for nonnative and invasive species. The overall cumulative impacts on aquatic fauna from past, present, and reasonably foreseeable future projects would be moderate, long-term and adverse. Under alternative F, there would be an incremental addition to the overall cumulative effects by enhancing the habitat for fish and invertebrates. These effects would be slightly countered by the enhancement of habitat for invasive and nonnative aquatic fauna as well.

Reaches 3 and 4. The actions associated with alternative C-1 would result in negligible to minor, short- and long-term, adverse and beneficial impacts on native aquatic species. The fish assemblages in the nearshore would be temporarily displaced and fish and invertebrates would be smothered during beach nourishment activities. Also, nourishment and dredging activities would disrupt the nearshore environment, which would allow for the introduction and establishment of invasive and nonnative species; however, overall, the decreased erosion in the area would benefit fish and invertebrates. The overall cumulative effects on aquatic fauna from past, present, and reasonably foreseeable future projects would be moderate, long-term and adverse. Under alternative C-1, there would be a slight incremental addition to the short-term, adverse cumulative impacts from smothering fish and invertebrates, displacing fish species, and potentially encouraging the presence of invasive and nonnative aquatic fauna.

Terrestrial Habitat

The National Park Service defines nonnative and invasive plant species as "those that occur in a given place as a result of direct or indirect, deliberate, or accidental actions by humans." Nonnative and invasive plant species are pervasive throughout the park and surrounding lands. Resource managers must contend not only with current threats posed by nonnative and invasive plant species but emerging threats as well. Nonnative and invasive plant species have already influenced the reaches and various plant communities in the park. Species of special concern, particularly threatened and endangered species, are detrimentally impacted by the encroachment of invasive plants. The NPS staff is currently monitoring and managing invasive species that pose direct or indirect impacts to species of special concern and critical habitat.

Reaches 1 and 2. Under alternative F, there would be minor, long-term, beneficial impacts on terrestrial habitat for native plant and animal communities from dune stabilization and foredune development; minor, long-term, adverse effects on sensitive habitats from interfering with an already stable area in reach 2; and minor to moderate, long-term, beneficial impacts from restoration of the park shoreline, particularly in areas of accelerated erosion. Impacts would be minor to moderate, long-term, and beneficial from the reduced use of material for beach nourishment activities. The actions associated with alternative F would improve the ability of the beach to withstand storm events and preserve terrestrial habitat for plants and animals. The actions associated with this

alternative, when combined with other past, present, and reasonably foreseeable future actions, would have minor, short- and long-term, adverse and beneficial cumulative effects.

Reaches 3 and 4. Under alternative C-1, there would be negligible to minor, short-term, adverse effects from revegetation that would affect sensitive habitats, in addition to minor, short-term, beneficial impacts from nourishment of the park shoreline, particularly in areas of accelerated erosion. The actions associated with alternative C-1 would have negligible to minor, short-term, adverse impacts as some beach vegetation would be smothered during placement; however, the potential for site restoration would be enhanced since the amount of beach nourishment would counteract erosion, and have a minor, short-term, beneficial impact. Impacts under alternative C-1 would be negligible to minor, short-term and beneficial, since material dredged from an updrift location in Lake Michigan would have a limited or no viable nonnative and invasive plant species seed bank. The actions associated with alternative C-1 would improve the ability of the beach to withstand storm events and preserve terrestrial habitat for plants and animals. Beach nourishment activities under alternative C-1 would reduce erosion and the subsequent maintenance of eroded cliff areas for the bank swallows resulting in minor, short-term, adverse impacts to these birds as they would lose immediate habitat. This alternative, when combined with other past, present, and reasonably foreseeable future actions, would have minor, short- and long-term, and adverse and beneficial cumulative effects.

Threatened and Endangered Species and Species of Concern

The park supports a relatively high concentration of biodiversity, and in turn supports many federal and state threatened and endangered species and species of concern. It provides a mosaic of habitats for terrestrial plants and wildlife in a relatively small area. Many of Indiana's plant species of conservation concern are found at the park, along with some wildlife of concern.

In the plan, the park assessed whether the proposed actions have no effect; may affect, but are not likely to adversely affect; or are likely to adversely affect federally threatened or endangered species and candidate species. The National Park Service also assessed if the proposed actions would destroy or adversely modify critical habitat to the extent that the actions would appreciably diminish the value of the critical habitat for the survival and recovery of the species.

Reaches 1 and 2. Under alternative F, there would be major, long-term, beneficial impacts on Pitcher's thistle and piping plover from the habitat restoration that would result from the additional beach nourishment and greater sediment retention. The implementation of alternative F would also result in minor, short-term, adverse impacts on threatened and endangered species and species of concern as placement of the beach nourishment mix would temporarily disturb the ability of piping plover to nest and for Pitcher's thistle to establish. With respect to the Pitcher's thistle and piping plover, alternative F may affect, but is not likely to adversely affect, these species. This alternative, when combined with other past, present, and reasonably foreseeable future actions, would have minor to moderate, short- and long-term, and adverse and beneficial cumulative effects.

Reaches 3 and 4. Under alternative C-1, there would be moderate to major, short-term, beneficial impacts on threatened and endangered species and species of concern from the habitat restoration that would result from the expanded beach nourishment activities. There would also be minor, short-term, adverse impacts to threatened and endangered species and species of concern as placement of nourishment material would temporarily disturb the ability of piping plover to nest and for Pitcher's thistle to establish. Coupled with beach nourishment, dredging would not be an adverse modification to the piping plover habitat under alternative C-1. No adverse modification of the piping plover critical habitat would occur under this alternative. The actions associated with alternative C-1 would affect, but are not likely to adversely affect, Pitcher's thistle and piping plover (threatened and endangered

species). This alternative, when combined with other past, present, and reasonably foreseeable future actions, would have minor to moderate, short- and long-term, and adverse and beneficial cumulative effects.

Wetlands and Pannes

Reaches 1 through 4. The entire shoreline at Indiana Dunes National Lakeshore (national lakeshore) is classified as a wetland. Under the management actions resulting from the preferred alternatives for both sets of reaches, temporary impacts to the beach wetlands would result from the placement of nourishment material directly on the beach. However, there would be a benefit to the wetland habitat as a result of the nourishment activities, including continued maintenance of the sediment required to sustain the unvegetated beach wetland habitat. Natural ecological processes would function as they did prior to disturbance, to the extent practicable. No wetlands outside of the project area would be adversely impacted, resulting in no-net-loss of wetlands. This meets the NPS "no-net-loss of wetlands" policy as stated in NPS Director's Order 77-1: *Wetland Protection* and NPS Procedural Manual #77-1: *Wetland Protection*. Under the management actions resulting from the preferred alternatives, the resulting shoreline (post-restoration) would be the same acreage of the same wetland type as currently exists, either maintained in its present position or shifted northward because a comparable shoreline profile would develop. As such, the project would be considered under the Restoration Exception in section 4.2.1(h) of NPS Director's Order 77-1 and would be an excepted action. There would be no incremental or cumulative effects on wetlands because the project would not affect the overall acreage or type of wetlands either within or outside of the project area.

Impacts on the foredune and dune complexes in reaches 1 through 4 under wetlands and pannes as a result of management actions resulting from the preferred alternatives would be negligible to minor, long-term, and beneficial from the park expanding its education and outreach efforts, increasing visitor awareness of these sensitive areas. In addition, realigning some trails in the park would have negligible to minor, long-term, beneficial impacts on wetlands and pannes from the reduction in anthropogenic influences in these resource areas. Actions to restore the foredune and dune complexes by stabilizing eroded dunes with native vegetation and fencing off highly eroded and environmentally sensitive areas on the foredunes to allow for ecological recovery of natural communities would have minor, long-term, beneficial impacts on wetlands and pannes by preserving their natural environment. Proposed management actions resulting from the preferred alternatives would have negligible, short-term, adverse impacts on wetlands and pannes from disruption to these sensitive landforms during nourishment activities; such activities would also have minor, long-term adverse impacts from the take of some of these lands that would be required for shoreline restoration and nourishment. Cumulative impacts on the foredune and dune complexes in reaches 1 through 4 under terrestrial habitat as a result of proposed management actions resulting from the preferred alternatives would be negligible to minor, long-term, and beneficial.

Soundscapes

Reaches 1 and 2. Under alternative F, there would be negligible, short-term, adverse impacts on the soundscape from the beach nourishment activities. These impacts would be primarily due to sound generated from barges, and from trucks and bulldozers mixing and grading the nourishment material along the beach. There would be negligible to minor, short- and long-term, adverse cumulative impacts on the natural soundscape if sound generated from the actions associated with alternative F were added to the existing soundscape; however, the actions associated with this alternative would result in a very small increment being added to the overall cumulative impact.

Reaches 3 and 4. Under alternative C-1, there would be negligible to minor, short-term, adverse impacts on the soundscape. These impacts would be primarily due to sound generated from barges and construction equipment grading the nourishment material along the beach. There would be negligible to minor, short- and long-term, adverse cumulative impacts on the soundscape if sound generated from the activities associated with alternative C-1 were added to the existing soundscape; however, these actions would result in a very small increment being added to the overall cumulative impact due to the timing of the actions.

SUMMARY

The National Park Service has determined that the selected alternatives (reaches 1 and 2; alternative F, and reaches 3 and 4; alternative C-1) will not result in impairment of any park resources or values set forth in its established legislation. The selected alternatives will not result in major adverse or significant impacts of any park resources. The selected alternatives meet the NPS purpose and goals for managing the national lakeshore and meet the criteria of the National Environmental Policy Act of 1969, as amended. As described in the mitigation measures section, practical means to avoid or minimize environmental harm in the implementation of the selected alternatives will be adopted.

