

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DENVER SERVICE CENTER – ERIN FLANAGAN, PLANNING
12795 WEST ALAMEDA PARKWAY
PO Box 25287
DENVER CO 80225-0287

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Shoreline Restoration and Management Plan/ Environmental Impact Statement

Indiana Dunes National Lakeshore
Indiana

National Park Service
U.S. Department of the Interior



The Shoreline Restoration and Management Plan/ Environmental Impact Statement Summer 2011



View of Lakeshore from Dune Ridge

**Indiana Dunes National Lakeshore
Shoreline Restoration and Management Plan/
Environmental Impact Statement**
parkplanning.nps.gov/indushoreline

The Project

The National Park Service is developing a Shoreline Restoration and Management Plan/ Environmental Impact Statement (EIS) for Indiana Dunes National Lakeshore.

The Plan/EIS will develop and analyze science-based alternatives to address sand movement and management of the dune system. Once we complete the planning process, we will be better able to effectively manage and maintain a more “natural” shoreline at the park.

Dear Friends and Neighbors,

As I have written previously, the natural shoreline of Indiana Dunes National Lakeshore is threatened and the National Park Service is taking action to find a remedy. Human-made structures have interrupted the natural movement of sand from east to west that builds beaches and dunes along the way. These interruptions, along with human recreation impacts, have caused the beaches and dunes in areas such as Mt. Baldy, Portage Lakefront and Ogden Dunes to erode and recede.

Under the Great Lakes Restoration Initiative, the National Park Service has begun developing a Shoreline Restoration and Management Plan/Environmental Impact Statement (Plan/EIS) that will look at long-term solutions to restore the beaches and dunes. Our goal is to develop an approach that will restore, as closely as possible, natural sand conditions to protect park resources and provide appropriate public recreation opportunities.

We understand the importance of maintaining the shoreline, the dunes, and the spectacular vistas provided by the dunes along with the incredible biological diversity of the area that draws millions of people to the national lakeshore. Preserving this shoreline is a regional responsibility and it will take a coordinated effort to find solutions. Together with the Environmental Protection Agency, Army Corps of Engineers, Indiana Department of Natural Resources, other state agencies and local communities, we are working to preserve the Lake Michigan shoreline.

I sincerely invite your participation in this planning effort. This past winter, we hosted several open houses and listened to your comments as we initiated the planning process. This newsletter provides some general information about the planning process and summarizes the feedback we have received to date. This fall, when the Draft Shoreline Restoration and Management Plan/Environmental Impact Statement is produced, we will again host a series of open houses where you will be invited to review and comment on it.

You can find more information about the project at the National Park Service planning website at parkplanning.nps.gov/indushoreline.

Thank you, and I look forward to hearing from you.

Constantine J. Dillon
Superintendent





Pannes within Indiana Dunes National Lakeshore

The National Park Service Mission

The NPS preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The NPS cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

Indiana Dunes National Lakeshore

Purpose

The park's purpose is the specific reason the park was established as a unit of the national park system. Statements of purpose are grounded in a thorough analysis of the park's legislation and legislative history. Purpose statements go beyond a restatement of the law to document shared assumptions about what the law means in terms specific to the park.

The purpose of Indiana Dunes National Lakeshore is to preserve, restore, and protect outstanding ecological and biological diversity along with geologic features that characterize the southern shore of Lake Michigan. Provide opportunities for the public to experience natural scenic open spaces, historic features, and educational, scientific, inspirational, and recreational opportunities in close proximity to urban areas.

History

Henry Cowles, a botanist from the University of Chicago who long championed the study of plant ecology, helped bring international attention to the intricate ecosystems of Indiana's Dunes. Residents of the area and the region recognized the value of the dunes and first proposed a national park in 1915. Interested people continued to pursue this effort for the next 50 years, while others sought industrial uses and proposed the creation of the Port of Indiana. In 1963, President Kennedy

proposed "the Kennedy Compromise" that allowed both a national park and a port. In 1966, Illinois Senator Paul H. Douglas sponsored legislation that authorized Indiana Dunes National Lakeshore, which included 8,330 acres of land and water. Four subsequent expansions (1976, 1980, 1986 and 1992) have increased the size of the park to more than 15,000 acres.

Present

Today more than 1,135 native plant species can be found, ranking the park seventh in plant diversity among all national parks. The park is home to a variety of animal species including: 46 mammals, 18 amphibians, 23 reptiles, 71 fish, 60 butterflies, 60 dragonflies and damselflies, and 352 birds. Pitcher's thistle, Indiana bat, eastern massasauga rattlesnake and Karner blue butterfly are some of the federally threatened and endangered species that make their homes at the Park.

Next Steps

The planning team is developing preliminary alternatives to address the needs and issues identified through the scoping process and will assess the environmental impacts of the alternatives as they are developed. You will have the opportunity to review the Draft Plan/EIS by the end of this year.

Background

The information on the following pages was presented at the public scoping meetings.

Many people discussed their understanding of sand movement and their personal experiences related to sand movement. The unknown effects of climate change were mentioned in relationship to extreme storm weather events, lake levels and coastal processes. Recreational use of the park was also important to many commenters.

Several commenters expressed their general agreement with the need for this project, while others expressed their desire for action and implementation. Commenters also expressed the desire for National Park Service to coordinate with communities and other agencies when developing the Plan/EIS.

Public Comment Analysis

A full analysis of the correspondence and comments collected from the public through the scoping process can be found in the Public Scoping Comment Analysis Report available on the project's web page: parkplanning.nps.gov/indushoreline

Future Public Input

Following the preparation of the draft Plan/EIS, the public will have an opportunity to review and provide comments this fall/winter.



Tree with exposed roots due to erosion

Materials Presented at the Public Scoping Meetings

Introduction

To kick off the Indiana Dunes National Lakeshore Shoreline Restoration and Management Plan/Environmental Impact Statement, four public scoping meetings were held on December 8, 9, 15 and 16, 2010. The meetings were held in Portage, Michigan City and Porter. 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,

- discuss potential management strategies, and
- outline the planning/ National Environmental Policy Act (NEPA) process.

The draft project area boundary and an array of shoreline restoration tools were also presented during the open house. After a brief introduction to the project, participants were invited to visit informational stations set up around the room and discuss the Plan/EIS with the project team. In total 65 members of the public and three reporters attended the meetings.



Hikers on the beach at Indiana Dunes National Lakeshore



December 9, 2010 meeting in Michigan City

Public Input

Comment Card

Last December the project team asked for responses to the following questions on the comment card provided at the public scoping meetings and on the project website.

- What are the most important shoreline restoration and management issues?
- What are the most important ecological issues along the shoreline and foredunes?
- Which shoreline restoration and management tools should National Park Service consider?

- Which shoreline restoration and management tools should National Park Service not consider?
- Do you have any other comments or concerns about the Plan/EIS the National Park Service should consider?

Your Comments: What We Heard

Through our discussions at the public meetings and review of the comments submitted, the planning team developed a list of the issues of concern.

Many people expressed support for soft or natural shoreline restoration tools. Their main concerns were protecting habitat, maintaining a natural viewshed, and not causing additional disruptions

to sand movement in the area. Others expressed support for hard or manmade shoreline restoration tools, citing the need for a permanent solution that would protect homes and public infrastructure along the shoreline. Other shoreline restoration tools that were mentioned include sand bypass systems and dredging methods.

The ecological issues most commented about included: general habitat, water quality, threatened and endangered species, and the impacts of visitors on the environment. Most commenters valued the preservation and restoration of the shoreline not only for recreational uses but also for the ecological and biological diversity of the area.



December 8, 2010 meeting in Portage

Understanding Shoreline Sand Movement

At the southern end of Lake Michigan the shoreline orientation, prevailing wind, storm directions, and water currents naturally move sand generally from the east to the west. The installation of navigational harbors and certain shoreline structures along the shoreline have interrupted these natural processes, resulting in too much sand (sand accretion) in some areas and too little sand (sand starvation) in other areas. Sand starvation has contributed to increased erosion rates in front of areas such as Mt. Baldy and Portage Lakefront. To address these issues, the National Park Service has implemented sand dredging and beach nourishment operations, however, these measures are temporary, expensive and do not sustainably address the problems of sand accretion and starvation.

Shoreline Restoration Tools

There are a range of restoration techniques used elsewhere which may be considered for Indiana Dunes National Lakeshore to help restore more natural movement of sand along the shoreline.

Soft (Natural)

- Dune grasses and other plantings
- Organic material (coconut fibers and other materials)
- Sand

Benefits

- Natural buffer
- Creates habitat opportunities

Limitations

- Not suitable for active littoral zone
- Significant on-going maintenance



Wetland Buffer



Dune Restoration

Hard (Man-made)

- Headlands
- Revetments
- Bulkheads
- Breakwaters
- Lake bottom stone armoring

Benefits

- Reduce/eliminate erosion landward and downcutting rates
- Can be applied in high energy zones

Limitations

- Limited habitat opportunities for native species
- High initial construction cost



Rubble Mound Revetment



Bulkhead



Headlands



Breakwaters

Hybrid Structures (Combination of Natural and Man-made)

- Dune grasses and other plantings
- Sand
- Stone

Benefits

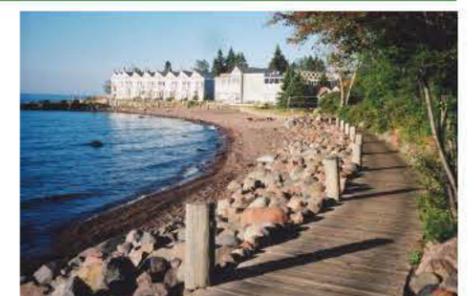
- Natural buffer
- Creates habitat opportunities

Limitations

- Not suitable for littoral zone, only for moderate wave energy
- Significant on-going maintenance



Bioengineering



Combination of Structures

Shoreline Restoration and Management Plan/EIS

Need

The National Park Service is charged with restoring and protecting natural processes/systems along the Lake Michigan shoreline. Harbors and shoreline stabilization structures (jetties, breakwaters, revetments, and bulkheads) have altered natural sand movement patterns, resulting in areas of significant sand accretion (too much sand) east of Michigan City Harbor and Burns International Harbor, and sand starvation (not enough sand) to the west of these harbors. Over time, extensive beach and dune erosion has occurred, threatening both public and private resources. The National Park Service has initiated this Plan/EIS to address these issues.

Purpose

The National Park Service will develop a long-term shoreline restoration and management plan and establish a draft regional sand budget management plan to minimize the need for and increase the effectiveness of shoreline management, and help maintain a more "natural" shoreline at the park.

The Plan/EIS will develop and analyze science-based alternatives to help restore or replicate natural shoreline sand movement; restore and manage the foredune zone; limit or remove terrestrial and aquatic invasive species; improve water quality; and preserve and improve visitors' experience.

Planning Process Timeline

Fall/Winter 2010

Planning Activity

Scoping – Identify issues and concerns related to the Park with input from the public and park neighbors

Public Involvement

Attend public meeting to share your ideas and concerns, submit written comments and/or comment on the website

Summer 2011

Planning Activity

Preliminary Alternatives Development – Outline different possible futures for the Park and assess their environmental impacts

Public Involvement

Review Public Scoping newsletter

Fall/Winter 2011

Planning Activity

Prepare and Distribute Draft Plan/EIS – Explain various alternatives and their possible environmental impacts. Review and comment by the public and park neighbors

Public Involvement

Review the Draft Plan/EIS and provide comments
Attend public meeting to share your thoughts and concerns or submit written comments

Summer/Fall 2012

Planning Activity

Complete the Final Plan/EIS

Public Involvement

Read the Final Plan/EIS

Fall 2012 and Beyond

Project Implementation

Turn the Plan/EIS into a reality

WE ARE HERE
Spring 2011

Ecological Issues along the Shoreline

There are a number of ecological issues related to the Plan/EIS including the following

- Protect endangered, threatened and rare species such as Pitcher's thistle and Piping plover.
- Protect and restore critical habitat such as pannes at West Beach.
- Re-establish foredunes, small shoreline dunes covered by vegetation.
- Manage non-native/invasive species of plants and animals.
- Minimize the negative impact of human activity in the project area.
- Address linkages between shoreline processes and ecology of the shoreline.
- Identify beach nourishment materials more compatible with natural ecology.

Project Area

The Plan/EIS will focus on the shoreline zone and will identify the tools the National Park Service will use to restore the shoreline, foredunes, and associated biological communities. The planning area is approximately 21 miles of the southern Lake Michigan shoreline along Indiana Dunes National Lakeshore from Michigan City to Gary.



The Federal Breakwater at Michigan City