

Introduction

Executive Order (EO) 11988, “Floodplain Management,” and EO 13690, “Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input,” require the National Park Service (NPS) and other federal agencies to evaluate the likely impacts of actions in floodplains. The objective of EO 11988 is to avoid, to the extent possible, the long-term and short-term adverse impacts associated with occupancy, modification, or destruction of floodplains and to avoid indirect support of development and new construction in such areas wherever there is a practicable alternative. EO 13690 was issued to establish a Flood Risk Management Standard for federally funded projects to improve the nation’s resilience to floods and to ensure new federal infrastructure will last as long as intended. The NPS administers floodplain policy through Director’s Order 77-2: *Floodplain Management* (DO 77-2) and Procedural Manual 77-2 *Floodplain Management* (PM 77-2).

It is NPS policy to preserve floodplain functions and values and minimize potentially hazardous conditions associated with flooding, including threats to human health/life, risk to capital (NPS) investment, and impacts on natural and beneficial floodplain values. If a proposed action is found to be in an applicable regulatory floodplain with associated impacts and relocating the action to a non-floodplain site is considered not to be a practicable alternative, then a formal floodplain “Statement of Findings” must be prepared. The “Statement of Findings” must (a) quantify flood conditions and associated hazards as a basis for management decision making, (b) describe the rationale for selection of a floodplain site, (c) disclose the resources and amount of risk associated with the chosen site, and (d) explain flood mitigation plans.

This Floodplain Statement of Findings:

- Quantifies the flood hazard associated with the proposed action.
- Presents the rationale for the development of proposed facilities within the regulatory floodplain of Little Sand Bay at Apostle Islands National Lakeshore.
- Documents the anticipated negative impacts of these improvements on human health/life, capital investment, and floodplain functions and values.
- Presents mitigations to these impacts.

Great Lakes surface temperatures are increasing, lake ice cover is declining, the seasonal stratification of temperatures in the lakes is occurring earlier in the year, and summer evaporation rates are increasing. Water levels in the Great Lakes fluctuate naturally, though levels more likely than not will decline with the changing climate. A period of low water levels persisted from 1998 to early 2013, likely due to a single warm winter in 1997–1998 (corresponding to a major El Niño event) and ongoing increases in sunlight reaching the lake surface (due to reduced cloud cover). Water levels rose rapidly after 2013: between January 2013 and December 2014, Lake Superior’s water rose by about 2 feet (0.6 meters) and Lakes Michigan and Huron rose by about 3.3 feet (1.0 meter). Record-high levels were recorded in Lake Ontario in 2019. Recent projections using

updated methods of lake levels for the next several decades under 64 global model-based climate change simulations on average show small drops in water levels over the 21st century (approximately 6 inches for Lakes Michigan and Huron and less for the other lakes), with a wide range of uncertainty.

Project Description

The project is located at 46°56'50.58"N, 90°53'22.87"W in Bayfield County, Wisconsin. The project is located at the Little Sand Bay Visitor Center. In the past, the project area has acted as a safe harbor for boaters touring the Apostle Islands.

This project provides for the rehabilitation of the marina waterfront system at Little Sand Bay. This project will include measures to reinforce the seawall and wooden cribbing, reduce exterior wave overtopping and interior wave height, and decrease sediment transport into the marina. An engineering assessment and analysis of the marina was performed in 2018 that included topside and underwater inspections, topographic and bathymetric surveys, and spectral wave analysis. A preferred alternative design was completed in April 2023 (see attachments). The project will largely remain within its current footprint except for an extension of the current harbor entry to the northeast to better reduce wave action and sediment transport inside the marina.

The seawall of the Little Sand Bay Marina is a critical asset that serves to protect the marina from the battering waves of Lake Superior. The marina is a key access point for park operations, including search and rescue, as well as for the sailboats and powerboats of visitors to Apostle Islands National Lakeshore. An important stakeholder, the Town of Russell, owns and operates a boat launch within the marina; this launch is protected by the seawall. In addition, the marina houses a fueling station for park boats that serves a vital function of managing boating operations in the northern coast of the park. It is anticipated that completing the stabilization and rehabilitation of the seawall will help reduce the need for annual dredging, which can cost over \$17,000. The Health, Life, and Safety Risk Assessment Code (RAC) is scored at serious, due to the likely probability of significant damage to the resource if timely assessment and rehabilitation is not addressed.

The LSB marina is a non-historic structure with no significant cultural resources currently identified within the area of potential effect. The principal impacts will be the addition of sheet pile to the outer face of the breakwaters and the addition of cell wing structures at the mouth of the marina entry to help deflect northeast waves and reduce sediment transport into the marina entry.

Site Description and Floodplain values and processes

The project site is located in Lake Superior. The lake bottom in this area consists of highly mobile sandy sediment. The area is subject to high wave activity as a result of intense storm activity on Lake Superior.

FEMA mapping of the area has the site identified as AE with a base flood elevation of 605'. Zone AE represents areas that have at least a 1%-annual chance of being flooded.

Fish and Wildlife Habitat: The area of the project is a lake ecosystem providing habitat for aquatic species. However, the highly mobile sand substrate provides limited opportunity for vegetation. Surveys by the park have not identified any species of concern within the project area.

Natural Flood and Erosion Control: Being a lake ecosystem, the floodplains associated with this project do not provide natural flood or erosion control values.

Surface Water Quality Maintenance: As part of Lake Superior, the floodplains in this project represent a substantial surface water body. Various entities around Lake Superior are conducting programs to improve the overall water quality.

Biological Productivity: As part of the larger Lake Superior, the floodplain provides substantial biological productivity. Within the project area, however, very little biological productivity is apparent. The exposed mobile sand substrate does not provide an opportunity for significant vegetation growth. Surveys by Park staff have found no presence of sensitive species in the project area.

Higher Quality Recreational Opportunities: The LSB area is a significant recreational resource in this part of the park. A municipal beach is located directly adjacent to the project site and while the marina supports park operations, it is also used by recreational boaters as a temporary mooring location.

Class II Features (Check if part of project)

- ☐ Schools, hospitals, clinics, or other facilities occupied by people with physical or medical limitations;
- ☐ Emergency services;
- ☐ Fuel storage facilities, 40,000 gallons per day or larger sewage treatment plants, and storage of toxic or water-reactive materials, including hazardous materials; and
- ☐ Irreplaceable records, museums, and storage of archeological artifacts.

Class III Features (Check if part of Project)

- ☐ High Hazard Area
- ☐ Coastal High Hazard Area
- ☐ Areas subject to flash flooding
- ☐ Extreme floodplain

Exceptions (Check if applicable)

- ☐ Historic or Archaeological Structures, sites, or artifacts whose location is integral to their significance.
- ☐ Park functions located near water for the enjoyment of visitors but require little physical development and do not involve overnight occupation
 - ☐ Picnic facilities, scenic overlooks, foot trails, and small associated daytime parking facilities in non-high hazard areas provided that the impacts of these facilities on floodplain values are minimized.
 - ☐ Isolated backcountry sites, natural or undeveloped sites along trails or roads, survey and study sites, or other similar activities.
 - ☐ Emergency actions essential to protecting property and public health, provided that emergency actions are limited to the minimum required and that all possible steps are taken to mitigate the short- and long-term adverse impacts of these actions on floodplain values.
 - ☐ Other: Describe

Class of Action:

| <input checked="" type="checkbox"/> Class I | <input type="checkbox"/> Class II | <input type="checkbox"/> Class III |
|--|---|--|
| <p>Includes location or construction of administrative, residential, warehouse, and maintenance buildings; non-excepted parking lots; or other man made features which by their nature entice or require individuals to occupy the site, are prone to flood damage, or result in impacts to natural floodplain values.</p> <p>Class I Actions are subject to the floodplain policies and procedures if they lie within the 100-year floodplain (the Base Floodplain)</p> | <p>Any activity for which even a slight chance of flooding is too great. Class II Actions are subject to the floodplain policies and procedures if they lie within the 500-year floodplain. Examples of Class II Actions are the location or construction of:</p> <ul style="list-style-type: none"> • Schools, hospitals, clinics, or other facilities occupied by people with physical or medical limitations; • Emergency services; • Fuel storage facilities, 40,000 gallons per day or larger sewage treatment • plants, and storage of toxic or water-reactive materials, including hazardous materials; and • Irreplaceable records, museums, and storage of archeological artifacts. | <p>Class I or Class II Actions in high-hazard areas, which include coastal high-hazard areas and areas subject to flash flooding. In high-hazard areas, picnic facilities, scenic overlooks, foot trails, and associated day-time parking facilities may be placed within the 100-year floodplain, but these facilities must contain signs informing visitors of flood risk and suggested actions in the event of flooding. Consideration should be given to providing additional levels of flood protection. For other activities, Class III Actions are subject to the floodplain policies and procedures if they lie within the extreme floodplain.</p> |

For Class I actions, the 1% annual chance floodplain elevation (Base Floodplain) is the regulatory floodplain. For Class II Actions, the 0.2% annual chance floodplain is the applicable floodplain.

After identifying the action class and associated regulatory floodplain, all federally funded projects must apply the applicable Federal Flood Risk Management Standard, per DO 13690. This amends the definition of the regulatory floodplain to add additional flood resiliency by increasing the floodplain elevation. If applying the Freeboard Value Approach, the floodplain would be the regulatory floodplain +2' for Class I (non-critical) Actions and +3' for Class II (critical) Actions.

Floodplain Description (Attach Map):

Regulatory Flood Elevations (1% and 0.2% annual chance elevations)

Little Sand Bay is delineated as AE on FEMA floodplain maps with a base flood elevation of 605'.

Hydrologic and geomorphic processes and hazards associated with the location of the proposed activity. (hydraulic attributes associated with the regulatory flood at the proposed activity site (flood depth and velocity))

The site is exposed to extreme storm events with varying water levels and associated seiche/storm surge action. Wave patterns result in the longshore transport of substantial sediment into the project area.

Alternatives

Options for removing project from floodplain and rationale for dismissal

The operation of the marina necessitates that it be located within the floodplain in order to be operational.

Different location and rationale for dismissal

The current marina location supports aquatic park management activities on the west side of the park and is located on a small area of park owned property within the Red Cliff Band of Lake Superior Chippewa Reservation, meaning that there are limited opportunities to relocate the marina. Even if relocated, the marina would still be within the floodplain as operation of a marina necessitated its location within the floodplain.

Elevating structures and rationale for dismissal

The current marina remains structurally sound and elevating the marina does not represent an opportunity to reduce risk to the structure from severe storm events. Even elevated, the location of substantial structures within the floodplain remain necessary.

Mitigations

Impacts to Structural/Capital Investments

The current structural design has proven capable of withstanding substantial severe weather events and the rehabilitation elements are designed with the same structural design.

Human Health and Safety

The rehabilitation design was developed to minimize the ongoing operational cost of the marina. While the extended entry structure will provide an opportunity for the safe harboring of vessels during storm events, this is not its primary purpose.

Natural and Beneficial Floodplain Values

The redesign of the marina entry has been designed to minimize the changes to current sediment flows around the marina itself. This was important to protect both the public beach adjacent to the marina as well as a wetland complex located to the east of the marina. Modeling of different marina entry redesigns was done to evaluate the sediment transport within and around the marina and the current design was chosen because it minimizes sediment infiltration of the marina while also minimizing potential sedimentation impacts to the beach and the wetlands. It also results in better harbor tranquility for the vessels inside the marina during storm events.

Cultural Resources Values

No cultural resources associated with the floodplain are present.

ATTACHMENT A: PROJECT DIAGRAMS

See separate file for project diagrams.

ATTACHMENT B: PROJECT MAP

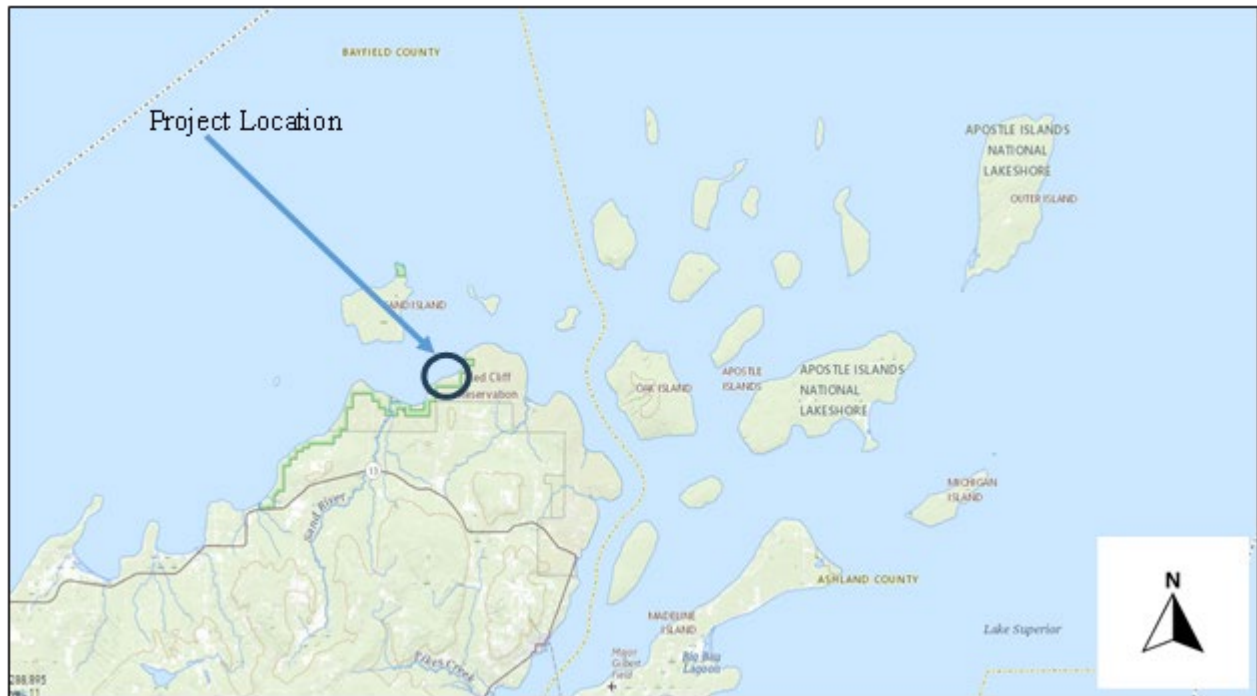


Figure 1: Apostle Islands National Seashore with location of Little Sand Bay



Figure 2 Little Sand Bay Marina