



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 Devils Island 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 47° 3'44.99"N, 90°43'39.24"W in Ashland County, Wisconsin. The project is located on the southwest corner of Devils Island. In the past, the project area has acted as a safe harbor for boaters touring the Apostle Islands. Over the years storms have damaged the docks and breakwater rendering the harbor no longer safe for boaters escaping bad weather. In its current condition, the harbor is not functional and is dangerous to tourists and National Park Service employees accessing the area. The National Park Service (NPS) proposes the rehabilitation of two existing dock structures, rebuilding the historic boat house that is currently in storage, rebuilding and improving the rock breakwater, and rebuilding the rock retaining wall to re-create a safe harbor for boaters visiting Devils Island. The existing dock structures are heavily deteriorated and pose significant safety hazards for employees and users; the proposed rehabilitation includes the installation of a new timber crib structure with a wooden dock built on top to provide a stable dock structure. The existing breakwater is heavily deteriorated and is no longer providing protection for the docks in the project area; the proposed rehabilitation includes installing new rip rap around the project site as well as re-building the rock retaining wall at the site. In addition to rehabilitating the dock structures and repairing the breakwater, other project features include new gravel paths, installation of large flat stones to act as a ramp for National Park Services (NPS) landing craft, and reconstruction of the boat house that has been dismantled and placed in storage to protect the boat house from further damage.

Site Description and Floodplain values and processes

The project site is located in Lake Superior. The lake bottom in this area consists of exposed bedrock with minimal soft materials. The area is subject to high wave activity as a result of intense storm activity on Lake Superior.

While not mapped by FEMA, the area of this project is consistent with other parts of the Park and Lake Superior identified as Zone A or AE. The base flood elevation is 605'.

Fish and Wildlife Habitat: The area of the project is a lake ecosystem providing habitat for aquatic species. However, the rocky 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. Neither Devils Island nor any of the other nearby islands have any significant industrial activities that affect water quality in Lake Superior.

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 bedrock substrate does not provide 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 Docks and Boathouse at Devils Island have served to provide access to camping sites on Devils Island. These sites have had limited access since the loss of the Docks. Additionally, the Docks and Boathouse serve as a safe harbor for recreational activity in this part of Lake Superior. The ability for Kayakers and other recreationists to find safe harbor quickly in the event of inclement weather is critical and the loss of the Docks and Boathouse as a safe harbor point has reduced the recreational value of the floodplain.

The Docks and Boathouse have historically served as a staging area for search and rescue operations in this part of Lake Superior. The loss of the facilities has reduced the ability of the Park to provide search and rescue operations, further limiting the ability to use these areas for recreational activities.

While the current project is to restore the Docks and Boathouse for park operational needs, the boathouse represents a concessionaire opportunity as a possible staging area for kayaking tour operations. While this is recognized as a possible future use of the site, there are no current plans to make this a reality.

Due to the historic nature of the boathouse, the site could also be opened as a potential historic “museum”. While this is recognized as a potential opportunity, no current plans for the opening of the boathouse to the public in planned.

Class II Features (Check if part of the 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 the 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)

Floodplain elevations at this site are not mapped, but are assumed to be the same as at Little Sand Bay and other mapped sites in the park with a base flood elevation identified at 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. Severe storm events in the past have resulted in the destruction of the Devils Island Docks and Boathouse.

Alternatives

Options for removing project from floodplain and rationale for dismissal

The operation of the Boathouse and Docks necessitates that both be located within the floodplain in order to be operational.

Different location and rationale for dismissal

Relocating the Docks to another island has been considered, but the location of Devils Island as the northernmost island in the area means that it is the first location that many Lake users are likely to encounter during a severe weather event, and the location of the safe harbor facilities at this location has thus deemed a priority. Similarly, this location provides the best option for staging of search and rescue operations.

Elevating structures and rationale for dismissal

As discussed below in mitigation, the breakwater structure will be elevated from its historical elevation to minimize the risk of loss from future storm events with increased severity due to climate change taken into account. However, the structural requirements will mean that the base of the Docks and Boathouse will still be within the floodplain.

Mitigations

Structural actions taken to minimize impacts to natural resources in floodplains

The structural elements of the Docks and Boathouse have been designed to minimize the additional footprint on the lake bottom.

Structural actions taken to minimize impacts to cultural resources in floodplains

None

No cultural resources associated with the Floodplain other than the Docks and Boathouse are present. Reconstruction of the Boathouse is a part of an agreement between the Park and the SHPO.

Structural actions taken to minimize impacts to human life and property in floodplains

This site acts as a Safe Harbor and search and rescue operations staging area. As such, they are designed to provide emergency shelter in the case of severe weather events, in case of vessel distress such as a loss of power for example.

Flood resiliency measures incorporated into the design

Both the Docks and the Boathouse have been redesigned. The docks will have a new top of dock elevation of 605', and the Boathouse will maintain its' finish floor elevation of 607'. The existing retaining wall will be reconstructed to match the historic elevation of 609'. A rock breakwater will be installed on the lakeside of the docks to dissipate wave energy and limit overtopping of the structures by wave action during severe weather events. The breakwater has a crest elevation of 608'.

Non-structural measures incorporated to reduce hazards to human life and property

None.

Current public use of the sites is limited. Should future public use opportunities be advanced, it may be necessary to provide signage directing people to seek shelter further on the island. However, upon completion, the boathouse is likely to represent the only opportunity for shelter available in a severe weather event.

ATTACHMENT A: PROJECT DIAGRAMS

See separate file for project diagrams.

ATTACHMENT B: PROJECT MAP



Figure 1: General Location Map of Apostle Islands showing Devils Island



Figure 2: Devils Island Project Location