

**Thunder Bay National Marine Sanctuary**

**Environmental Assessment for the Final Management Plan**

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**Office of National Marine Sanctuaries**

**National Ocean Service**

**National Oceanic and Atmospheric Administration**

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# Environmental Assessment

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## Introduction

This environmental assessment (EA) presents an analysis of actions pertaining to the proposed Final Management Plan (2009) for Thunder Bay National Marine Sanctuary. The preferred alternative recommended by this EA is to implement the activities in the proposed Final Management Plan. The other alternative considered and analyzed in this document is a “no action” alternative.

The proposed Final Management Plan was prepared by NOAA and the State of Michigan’s Department of History, Arts and Libraries in cooperation with the Thunder Bay Sanctuary Advisory Council and with input from the public, local governments, state and federal agencies, and other stakeholders. The plan is comprised of four actions plans (Resource Protection, Education and Outreach, Research, and Sanctuary Operations and Administration). It sets priorities to guide sanctuary programs and operations and provides the public with a better understanding of the sanctuary’s strategies to protect Thunder Bay’s resources.

Implementing the proposed Final Management Plan is an action being considered in order to better protect sanctuary resources as required by the National Marine Sanctuaries Act (NMSA) of 1972, as amended (16 USC §1431 *et seq.*). The original Thunder Bay National Marine Sanctuary Management Plan was written as part of the sanctuary designation process and published in the Final Environmental Impact Statement (1999). Most of the activities presented in the 1999 management plan have been implemented, therefore creating the need to revise the document. The proposed Final Management Plan was developed to evaluate the sanctuary’s existing goals and objectives, and to develop management strategies to ensure the sanctuary best protects its resources.

NOAA anticipates that implementing the proposed Final Management Plan for Thunder Bay National Marine Sanctuary will provide needed protection to the maritime heritage resources for which the sanctuary was designated. This is NOAA’s preferred action. The magnitude of proposed changes to activities in the proposed Final Management Plan will not be significant enough to result in any measurable impacts. NOAA therefore anticipates a Finding of No Significant Impact for this action. However, when implementing the proposed Final Management Plan, specific agency activities will be

individually assessed, on a case-by-case basis, to determine if the appropriate analysis under NEPA has been satisfied. Activities that are beyond the scope of this assessment may require further analysis (e.g., preparation of a supplemental EA or an environmental impact statement) in order to comply with NEPA and the NMSA.

NOAA prepared this EA in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 USC § 4321 *et seq.*) as implemented by the Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and National Oceanic and Atmospheric Administration (NOAA) Administrative Order (NAO) 216-6, which describes NOAA policies, requirements, and procedures for implementing NEPA.

## **Background**

### Thunder Bay National Marine Sanctuary

On October 7, 2000, NOAA designated Thunder Bay the nation's thirteenth national marine sanctuary. It's the only freshwater sanctuary in the national marine sanctuary system. Thunder Bay National Marine Sanctuary is jointly managed by NOAA and the State of Michigan. Before Thunder Bay's designation as a national marine sanctuary in 2000, the State of Michigan created the Thunder Bay Underwater Preserve, a 290-square-mile area designated in 1981 as the first of eleven preserves authorized by Michigan's "Bottomlands Act", 1980 PA 184, MCL 299.51 *et seq.* The State's preserve program is presently authorized by Part 761 of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.76101 *et seq.* The 448-square-mile area of Lake Huron is now both a national marine sanctuary and a state underwater preserve.

Located in northwestern Lake Huron, off Alpena, Michigan, Thunder Bay is adjacent to one of the most treacherous stretches of water within the Great Lakes system. Unpredictable weather, murky fog banks, sudden gales, and rocky shoals earned the area the name "Shipwreck Alley." The sanctuary is bordered to the north and south by Alpena County lines and extends west to 83 degrees west longitude. It is the only freshwater protected area in the system of 13 national marine sanctuaries and one marine national monument managed by the Office of National Marine Sanctuaries (ONMS). Lake Huron's cold, freshwater provides an ideal environment for the preservation of Thunder Bay's shipwrecks, which occur at depths above 260 feet.

Historical research indicates that more than 200 shipwrecks lie below the waters in and around Thunder Bay. The sheer number of shipwrecks is impressive. However, it is their excellent state of preservation and what they represent—a century and a half of maritime commerce and travel on the Great Lakes—that elevates them to national and international significance deserving an exceptional level of protection, study, and public interpretation. When implemented, the proposed Draft Management Plan will help protect shipwrecks that have been located and those that await discovery. Each is a unique and fragile element in history that Thunder Bay National Marine Sanctuary is dedicated to preserving for future generations.

### Management Plan Review

Section 304(e) of the National Marine Sanctuaries Act (NMSA) requires NOAA to review its management plans for national marine sanctuaries every five years and to evaluate the substantive progress toward implementing the management plans and goals for each sanctuary, especially the effectiveness of site-specific management techniques (16 U.S.C. § 1434(e)). Pursuant to this requirement, NOAA initiated its management plan review (MPR) for Thunder Bay in September 2006, in cooperation with members of the sanctuary advisory council. Public scoping meetings were held in September 2006 in Alpena, Presque Isle County, Alcona County, and Lansing, and written comments were received via mail, fax, and email from September 18, 2006 to October 13, 2006 to gather input on resource management issues from resource users, interest groups, government agencies, and other members of the public. Public comments were used to identify issues to address in the proposed Final Management Plan.

Working groups made up of sanctuary staff, sanctuary advisory council members, and the public held 22 working group meetings to develop strategies and activities resulting in the development of four action plans: Resource Protection, Education and Outreach, Research, and Sanctuary Operations and Administration.

Management plans are site-specific documents that the ONMS uses to manage individual sanctuaries. Management plans:

- summarize existing programs and regulations;
- guide preparation of annual operating plans;
- articulate visions, goals, objectives, and priorities;
- guide management decision-making;
- guide future project planning;
- ensure public involvement in management processes; and
- contribute to the attainment of system goals and objectives.

## **Purpose and Need for Action**

### Need

The need for this proposed Final Management Plan is to improve the protection and maintenance of the resources of Thunder Bay NMS as required by the National Marine Sanctuaries Act and the Thunder Bay National Marine Sanctuary terms of designation.

### *National Marine Sanctuaries Act*

The National Marine Sanctuary System, of which the sanctuary is a part, is managed pursuant to provisions of the National Marine Sanctuaries Act (NMSA) of 1972, as amended (16 USC § 1431 *et seq.*). Under the NMSA, the Secretary of Commerce is authorized to designate and manage areas of the marine environment as national marine sanctuaries. Such designation is based on attributes of special national significance, including conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or aesthetic qualities. Sanctuaries are managed to protect and conserve their resources and to allow uses that are compatible with resource protection, the primary goal of the National Marine Sanctuary System. The mission of NOAA's ONMS is to serve as the trustee for the nation's system of marine protected areas,

to conserve, protect, and enhance their biodiversity, ecological integrity and cultural legacy.

*Thunder Bay National Marine Sanctuary Designation, Goals and Objectives*

Thunder Bay National Marine Sanctuary was designated as this nation's thirteenth national marine sanctuary in 2000 for the purposes of:

- complementing and supplementing existing management and enforcement authorities protecting maritime heritage resources;
- providing educational opportunities that promote understanding, appreciation, and involvement in the protection and stewardship of maritime heritage resources;
- developing scientific knowledge and enhancing management practices related to maritime heritage resources by encouraging research and monitoring programs; and
- encouraging the exchange of knowledge and expertise to enhance sustainable uses of the Great Lakes and maritime heritage resources.

Purpose

The purpose of this action is to establish the proposed Final Management Plan in order to better preserve the sanctuary's nationally significant shipwrecks and maritime landscape through resource protection, education, and research.

A proposed Final Management Plan would update NOAA's approach to managing the resources of the Thunder Bay National Marine Sanctuary pursuant to the purposes and policies of the NMSA, which are:

- (1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance and to manage these areas as the National Marine Sanctuary System;
- (2) to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;
- (3) to maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes;
- (4) to enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the natural, historical, cultural, and archaeological resources of the National Marine Sanctuary System;
- (5) to support, promote, and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas;
- (6) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;
- (7) to develop and implement coordinated plans for the protection and management of these areas with appropriate Federal agencies, State and local governments, Native American tribes and organizations, international organizations, and other

- public and private interests concerned with the continuing health and resilience of these marine areas;
- (8) to create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques; and
  - (9) to cooperate with global programs encouraging conservation of marine resources.

## **Description of Proposed Action and Alternatives**

Awareness of new issues affecting sanctuary management and the fulfillment of most of the prior plan's objectives necessitated the development of the proposed Final Management Plan. Additionally, NOAA decided that it would be a non-regulatory management plan that establishes a policy framework for future management actions. This environmental assessment provides analyses and supporting documentation for the agency to determine whether a Finding of No Significant Impact is warranted. To make this determination, two alternatives are being considered: leaving the current management plan in place (no-action alternative) or establishing the proposed Final Management Plan. The preferred alternative is to establish the proposed Final Management Plan. A discussion of each of the alternatives follows.

### **No-action alternative**

This alternative would maintain the 1999 management plan despite its outdated format and completion of tasks. The no-action alternative does not mean that NOAA would stop managing the sanctuary. Management actions described in the 1999 management plan, such as regulations, educational and research activities, and enforcement actions, would continue.

### **Alternative 1—Preferred Alternative**

This alternative proposes establishing the proposed Final Management Plan. This plan removes old tasks and incorporates new and planned management strategies and activities; reformats the document so it is consistent with NOAA's preferred format; and lays out performance measures to better evaluate the effectiveness of the sanctuary's management. Specifically, changes made to the management plan include:

- An updated description of maritime heritage resources;
- Developing new action plans in keeping with the templates of current sanctuary system management plans; and
- A new set of outcomes and performance measures.

Action plans are detailed five-year plans that address a function of the sanctuary. Action plans are program- or thematically-driven, and are composed of a collection of strategies sharing common management objectives. They provide an organized structure and process for implementing strategies, including a description of the requisite activities, organizations involved, and requirements necessary for either full or partial implementation. The following action plans form the backbone of the proposed Final Management Plan.

### **Resource Protection Action Plan**

This action plan seeks to strengthen protection of Thunder Bay National Marine Sanctuary's resources through compliance with existing sanctuary regulations, while increasing resource access. Strategies include considering the proposed expansion of the sanctuary, evaluating recreational use of sanctuary resources, increasing compliance with sanctuary regulations and other applicable state and federal laws, increasing and encouraging access and responsible use of sanctuary resources, and preserving and curating maritime heritage artifacts.

#### Education and Outreach Action Plan

This action plan uses education as a management tool to protect sanctuary resources by increasing public awareness and understanding of the sanctuary's maritime landscape and by encouraging responsible stewardship of its maritime heritage resources. Strategies include increasing awareness and knowledge of the sanctuary by developing materials and education and outreach programs, enhancing communication, maintaining and expanding the sanctuary's community presence, and maximizing the impact and effectiveness of sanctuary education and outreach programs through evaluation.

#### Research Action Plan

This action plan seeks to protect the sanctuary's resources and maritime landscape by inventorying, locating, documenting, assessing, managing, and interpreting the sanctuary's archaeological, historical, and environmental resources. Strategies include characterizing the sanctuary maritime heritage resources and landscape features, developing a monitoring program, continuing to partner with Alpena County Library to manage the Thunder Bay Sanctuary Research Collection, developing partnerships to conduct multi-disciplinary sanctuary research, and utilizing volunteers, fellows, interns, and other non-permanent staff for sanctuary characterization, research, and monitoring.

#### Sanctuary Operations and Administration Action Plan

The purpose of this action plan is to ensure sanctuary operation and administrative capabilities are sufficient to effectively and safely implement the sanctuary's mission. Strategies include developing infrastructure to enhance and maintain the Great Lakes Maritime Heritage Center and research vessels and equipment, hiring staff and utilizing volunteers to support sanctuary programs, developing partnerships and identifying outside funding, enhancing operation of the sanctuary advisory council, and developing procedures to ensure the safety of staff and sanctuary visitors.

When implementing the action plans, specific agency activities will be individually assessed, on a case-by-case basis, to determine if the appropriate analysis under NEPA has been satisfied. Activities that are beyond the scope of this assessment may require further analysis (e.g., preparation of a supplemental EA or an environmental impact statement) in order to comply with NEPA. The only activity in the proposed Final Management Plan already known to require additional analysis is the evaluation of a potential expansion of the sanctuary's boundary. The strategy in the Resource Protection Action Plan only evaluates and assesses boundary expansion recommendation proposed by the Thunder Bay Sanctuary Advisory Council. If the advisory council's recommendation to expand the sanctuary to a 3,662-square-mile area from Alcona

County to Presque Isle County, east to the international border with Canada is analyzed and recommended, development of a separate environmental impact statement will be necessary to fulfill the requirements of NEPA and the NMSA.

## **Affected Environment**

The Final Environmental Impact Statement/Management Plan (1999) contains a complete description of the affected environment of the sanctuary, which is incorporated by reference, and includes natural and maritime heritage resources and human uses. These descriptions are summarized and supplemented below.

### **Study Area**

The Thunder Bay National Marine Sanctuary encompasses 448 square miles of northwest Lake Huron, off the northeast coast of Michigan's Lower Peninsula. The landward boundary of the sanctuary is marked by the northern and southern limits of Alpena County, and the sanctuary extends east from the lakeshore to 83 degrees west longitude. The largest city in the vicinity is Alpena.

### **Maritime Heritage Resources**

Historical research indicates that more than 200 shipwrecks lie in and around Thunder Bay. To date, more than 50 shipwrecks have been discovered within the sanctuary, and an additional 30 wrecks have been located outside of the sanctuary boundaries. Although the sheer number of shipwrecks is impressive, it is the range of vessel types located in the sanctuary that makes the collection nationally significant. From an 1844 sidewheel steamer to a modern 500-foot-long German freighter, the shipwrecks of Thunder Bay represent a microcosm of maritime commerce and travel on the Great Lakes. In addition to shipwrecks, the sanctuary protects and interprets the remains of commercial fishing sites, historic docks, and other underwater archaeological sites. Geological and archaeological evidence suggests a probability of prehistoric archaeological sites resting below sanctuary waters.

### **Natural Environment**

Natural resources of Thunder Bay National Marine Sanctuary include aquatic plants, aquatic animals, reptiles and amphibians, and birds. The waters of Thunder Bay contain aquatic non-indigenous species such as zebra and quagga mussels that can negatively impact shipwrecks and other maritime heritage resources. The sanctuary's lake bottom is composed of undifferentiated till (silt, sand, gravel, and boulders) and bedrock; and the area contains rock shoals and reefs which caused a number of the area's shipwrecks. Notable geological features include limestone walls and sinkholes.

### **Human Uses**

Human use of sanctuary resources includes commercial and recreational fishing, boating, snorkeling, diving, and scientific research. Whitefish is currently the only commercially harvested species in the Thunder Bay region, while recreational fisherman fish for such species as lake trout, brown trout, steelhead, walleye, and salmon. Due to the large collection of shipwrecks in the area, Thunder Bay is a popular location for diving and

snorkeling. Scientific research is conducted on both the sanctuary's natural and maritime heritage resources.

## **Environmental Consequences**

### **No-action alternative**

Taking no action would result in no change to the sanctuary's current management plan. The Final Environmental Impact Statement/Management Plan (1999) contains a full analysis of the environmental impacts of alternatives discussed therein. Taking no action would result in no additional impacts to those already associated with the operation of the sanctuary.

### **Alternative 1: Proposed action**

The proposed Final Management Plan would make no regulatory changes; however, existing non-regulatory programs would be updated and enhanced, and new non-regulatory programs would be launched. NOAA expects this would have a positive environmental effect, by increasing protection of resources through interagency cooperation, by reaching more people and expanding the stewardship message of the sanctuary, and by providing safe access to sanctuary resources. The proposed Final Management Plan itself does not enable any of these activities listed in the action plans to take place; they could take place without the revision under current regulatory and statutory authority, as well as under the current management plan. The environmental impacts of the activities described in the proposed Final Management Plan are described below.

#### Maritime Heritage Resources

The mission of Thunder Bay National Marine Sanctuary is to protect its shipwrecks and other maritime heritage resources through resource protection, education and outreach, and research programs. Several activities in the proposed Final Management Plan would have beneficial impacts on sanctuary maritime heritage resources. The Resource Protection Action Plan could benefit sanctuary maritime heritage resources by reducing the likelihood of anchor damage to the resources by increasing the number of mooring buoys, enhancing enforcement of sanctuary regulations, and increasing education about responsible resource use.

The Education and Outreach Action Plan would raise public awareness about the sanctuary and its resources, encourage public involvement in resource protection, increase knowledge about Great Lakes maritime history, and expand ocean literacy. Such actions could result in beneficial impacts to sanctuary maritime heritage resources through improved public stewardship of the resources. Because people protect what they value, and value what they understand, the sanctuary uses education as a maritime heritage resource protection tool.

The Research Action Plan would have beneficial impacts on maritime heritage resources through increased scientific monitoring of sanctuary resources. The plan calls for

increased characterization of the maritime heritage resources, which is necessary to develop baselines for monitoring.

The Sanctuary Operations and Administration Action Plan would provide the framework for the organizational structure and functions of the sanctuary to address resource protection, research, and education and outreach programming to protect sanctuary maritime heritage resources. Because of its administrative nature, this action plan would not result in significant positive or negative environmental impacts.

Many of the activities in the proposed Final Management Plan are extensions of programs already offered by the sanctuary as set forth in the 1999 management plan and would not, therefore, produce significant positive or negative environmental impacts. Similarly, the action plans in the preferred alternative would not, in and of themselves, result in significant positive or negative environmental impacts. Any regulatory actions that might be proposed as a result of activities described in the proposed Final Management Plan would require further analysis (e.g., preparation of a supplemental EA or an environmental impact statement) in order to comply with NEPA, including extensive public input.

#### Natural Environment

The proposed Final Management Plan focuses mainly on protection of the sanctuary's shipwrecks and other maritime heritage resources, but may have beneficial impacts on the natural resources of the sanctuary. Collaborative research between the sanctuary and local, national, and international researchers and organizations is proposed in the revised management plan to study climate change, invasive species, lake biology, geology, and water quality. Such studies would increase understanding of the sanctuary environment, and as a result may benefit the sanctuary's natural resources through educated management actions. Increased awareness about the Great Lakes through educational initiatives is intended to result in greater public stewardship of Lake Huron. Further, the Sanctuary Operations and Administration Action Plan seeks to demonstrate new "green" technologies and alternative energy options to the public and such actions could benefit the natural resources. None of these activities would, in and of themselves, result in significant positive or negative environmental impacts.

#### Human Uses

Assessment of recreational use of sanctuary resources is proposed in the Resource Protection Action Plan, but reporting use would be voluntary and would neither restrict nor encourage use. Activities in this action plan could increase public access and responsible use of sanctuary resources by providing information about the resources and access points, increasing the number of mooring buoys, and providing education about sanctuary regulations and applicable state and federal laws. Activities in the proposed Final Management Plan would not affect commercial or recreational fishing or scientific research. Therefore, the proposed action would not result in significant positive or negative impacts on human uses of the sanctuary.

#### Cumulative Impacts

The past, present, and reasonably foreseeable actions that were considered in conjunction with the proposed Final Management Plan include:

- State laws relating to maritime heritage resources (Part 761 of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.76101 *et seq*). These laws impact maritime heritage resources by prohibiting resource disturbance or artifact recovery without a permit. The cumulative effects of these laws, when considered with the proposed action, are to protect maritime heritage resources from disturbance and destruction. Public awareness about state laws related to maritime heritage resources is also expected to increase as a result of the proposed action, further reinforcing this effect.
- The Lake Huron Plan. The Lake Huron Plan is a state agency plan to protect and manage Lake Huron. The activity in the proposed Final Management Plan to partner with multidisciplinary researchers to study Lake Huron, if implemented, may benefit this project. The proposed action would not have significant impacts on the natural environment of Lake Huron being protected and restored under this plan.
- Thunder Bay National Marine Sanctuary boundary expansion. As previously noted, the Thunder Bay Sanctuary Advisory Council recommended expanding the sanctuary boundaries to a 3,662-square-mile area. Although included as a strategy in the proposed Final Management Plan, this proposal will be analyzed separately under NEPA should the agency decide to consider this recommendation further. Any expansion of the sanctuary boundary will not impact the environment or the maritime heritage resources within the existing sanctuary boundaries; therefore, no cumulative effects are expected.

The proposed Final Management Plan was reviewed and commented on by the Michigan Department of History, Arts and Libraries, Michigan Department of Natural Resources, Michigan Department of Environmental Quality, and the Michigan Department of Transportation. Through discussions with these groups, activities in the proposed Final Management Plan were not found to have significant positive or negative impacts on the activities of these groups or the environment and resources their activities affect.

Based on this analysis, the activities described in the proposed Final Management Plan, reviewed in conjunction with other actions taking place in the Thunder Bay region, are not expected to result in significant cumulative impacts on sanctuary resources or the environment.

## **Conclusion**

While the activities in the proposed Final Management Plan are expected to produce beneficial impacts on the maritime heritage resources, the natural environment, and to recreational users, such benefits produce less than significant environmental impacts. Many of the activities in the proposed Final Management Plan are extensions of programs set forth in the current management plan. As previously discussed, any action proposed to implement the sanctuary advisory council's recommendation to expand the sanctuary boundary would require analysis under a separate environmental impact

statement in order to comply with NEPA and the NMSA. In conclusion, the preferred action is to establish the proposed Thunder Bay National Marine Sanctuary Final Management Plan (2009).